UNIVERSITY OF MINNESOTA
Department of Agriculture
and the
TENNESSEE VALLEY AUTHORITY
and the
County Extension Services of
Kittson, Mahnomen, Marshall, Norman,
Pennington, Polk, Red Lake and Roseau Counties
Cooperating

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Annual Report of the Farm Management Service for T.V.A. Phosphate-Test Demonstration Cooperators in Northwestern Minnesota

(Mar. 1, 1941, to Feb. 28, 1942)

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Cooperator_____

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SECOND ANNUAL REPORT OF THE FARM MANAGEMENT SERVICE FOR T.V.A. PHOSPHATE-TEST DEMONSTRATION COOPERATORS IN NORTHWESTERN MINNESOTA FOR THE YEAR 1941

Prepared by T. R. Nodland, G. A. Pond, and J. R. Burkholder

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INTRODUCTION

The Division of Agricultural Economics and the Division of Agricultural Extension of the University of Minnesota, the Tennessee Valley Authority and the county extension services of several northwestern Minnesota counties are cooperating in a phosphate-test demonstration project and in a farm management service. This service is offered to a selected group of farmers who have agreed to demonstrate the value of phosphate fertilizer and who have also agreed to keep farm business records. The phosphate is provided by the T.V.A. and the fieldman is provided by the T.V.A. and the Agricultural Extension Service. Each farmer pays the freight and other miscellaneous expenses that may occur between the point of shipment and the farm on all the T.V.A. phosphate furnished and $10.00 per year to cover the summarization of the records and other miscellaneous expenses. The balance of the cost is defrayed by the University of Minnesota.

The analysis of the farm business record and the preparation of the reports are handled by the Division of Agricultural Economics under the direction of G. A. Pond and T. R. Nodland. The field organization is handled by the Division of Agricultural

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Note: Assistance in the preparation of this material was furnished by workers supplied on N.Y.A. Student Work Project No. 350-70. Sponsor: University of Minnesota.

Extension with C. L. McNelly in charge of this work. J. R. Burkholder has been fieldman since the organization of the project. County agricultural agents who cooperated in this project include Howard Grow, W. L. Beneditz, Ray Reierson, George Landsverk, Ernest Palmer, Carl G. Ash, Rudolph Stolen, John Dysart, and M. C. Wangsness.

The following tabulation shows by counties the number of cooperators who completed records in 1941:

Kittson	9	Polk	16
Mahnomen	9	Red Lake	8
Marshall	15	Roseau	15
Norman	14		
Pennington	10	Total	96

The records kept by the cooperators include inventories at the beginning and end of the year, cash receipts and expenses, and a record of the farm produce used by the farm family. Complete household and personal records were also kept by 32 cooperators. Supplementary information was secured during the year regarding crop and livestock production practices.

At the end of the year, the books were taken to the central office at University Farm, where they were checked and summarized. For the purpose of comparison, the earnings as shown in this report are computed as if each operator was a full owner; however, each tenant is supplied a statement of his earnings on the basis of the rental system under which he is operating.

TYPE OF FARMING*

Wheat, flax, sugar beets, potatoes, and legume seeds are grown for sale as cash crops. Dairying is the most important livestock enterprise with sheep ranking second. Some beef cattle and poultry and a small amount of hogs are also raised. Oats, barley, hay, and pasture are important feed crops.

TOPOGRAPHY, SOILS, AND WEATHER

The Red River Valley in the western part of the area is very level with black surface soils that are free of stone except in a few places where the deposit from glacial Lake Agassiz is very shallow. Along the beaches of the glacial lake the soils are gravelly and interspersed with poorly drained areas. In extremely wet seasons the surplus water can be drained from the land only very slowly. A large acreage of poorly drained land is used for hay.

East of the Red River Valley is an area lying within the old lake bed that is also very level. The soils are complexly intermixed and poorly drained. Bog areas are numerous, part open and part timbered with tamarack and spruce. A large amount of peat is found in the eastern portion of the territory.

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*For a more complete description of the area see Engene, S. A., and Pond, G. A., "Agricultural Production and Types of Farming in Minnesota," Minnesota Bulletin No. 347, May, 1940.

Table 1. Monthly and Annual Precipitation

	Ada		Fosston		Angus		Roseau	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
January	0.96	+0.52	0.70	+0.26	0.80	+0.44	0.66	+0.09
February	0.23	-0.26	0.32	-0.28	0.23	-0.22	0.22	-0.28
March	0.60	-0.07	1.89	+0.93	0.94	+0.38	0.56	-0.39
April	2.92	+1.26	2.40	+1.13	2.30	+0.76	2.26	+1.00
May	2.76	-0.07	3.25	+0.61	3.30	+0.92	3.09	+0.80
June	7.28	+3.63	6.51	+2.82	6.68	+3.26	3.73	+0.56
July	1.43	-1.53	1.98	-0.87	0.87	-2.09	1.72	-1.54
August	10.72	+7.88	7.34	+4.50	4.00	+1.26	2.76	-0.09
September	4.71	+2.47	6.60	+4.14	6.68	+4.63	8.31	+5.76
October	1.19	-0.30	1.19	-0.33	0.90	-0.54	0.83	-0.62
November	0.11	-0.64	0.13	-0.75	0.15	-0.57	0.56	-0.33
December	0.48	-0.08	0.51	-0.15	0.16	-0.36	0.41	-0.19
1941 total	33.39	+12.81	32.82	+12.01	27.01	+7.87	25.11	+4.77
1940 total	17.68	-2.90	19.96	-0.85	18.75	-0.39	19.79	-0.55
1939 total	16.91	-3.67	17.18	-3.63	17.95	-1.19	16.44	-3.90
1938 total	23.10	+2.52	19.06	-1.75	15.06	-4.08	17.16	-3.18
Normal annual precipitation	20.58		20.81		19.14		20.34	

Weather conditions in 1941 were unfavorable for early spring work, especially in the southern part of the area. Seeding of small grains was seriously delayed because of excessive moisture. However, warm weather together with frequent rains in May and June favored the rapid growth of vegetation. Hailstorms damaged crops in portions of the area in July and August. Heavy to excessive rains in August and September caused some unthreshed grain and potatoes to spoil in the lower Red River Valley and delayed other farm work.

Table 2. Monthly and Annual Temperature, 1941

	Ada		Fosston		Angus		Roseau	
	Temperature (degrees, F.)	Departure from normal	Temperature (degrees, F.)	Departure from normal	Temperature (degrees, F.)	Departure from normal	Temperature (degrees, F.)	Departure from normal
January	10.1	+5.9	9.4	+7.0	7.0	+5.0	5.0	+4.1
February	7.0	-0.5	7.4	-0.9	5.8	-0.8	6.4	+1.2
March	23.7	+0.8	22.8	-0.7	19.6	-2.7	19.8	-0.5
April	47.4	+5.3	47.9	+6.7	44.8	+4.1	44.6	+4.3
May	60.6	+6.6	58.9	+6.3	58.0	+5.5	56.8	+4.4
June	66.2	+2.5	64.7	+1.6	63.9	+1.5	63.7	+1.0
July	72.8	+4.2	70.6	+3.0	71.2	+4.5	68.5	+2.0
August	70.4	+4.3	66.3	+1.3	70.5	+6.0	63.3	-0.5
September	60.4	+3.4	57.2	+0.8	56.0	0.0	54.0	-1.1
October	46.0	+2.2	44.5	+0.7	44.8	+1.7	42.4	-0.1
November	30.2	+4.1	29.2	+3.0	29.3	+3.2	25.3	+0.9
December	19.5	+8.7	18.4	+8.3	18.3	+9.2	15.0	+6.8

Table 3. Summary of Farm Inventories (Beginning of Year), 1941

Items	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Size of farm (acres)	_____	390	495	323
Size of business (work units)*	_____	481	578	424
Horses	$_____	$ 309	$ 297	$ 307
Productive livestock (total)	_____	1,645	2,073	1,592
Dairy and dual-purpose cows	_____	650	626	741
Other dairy & dual-purpose cattle	_____	395	395	453
Beef cattle (including feeders)	_____	166	550	108
Hogs	_____	114	114	46
Sheep (farm flock)	_____	266	311	211
Poultry (including turkeys)	_____	54	77	33
Crop, seed, and feed	_____	898	1,512	674
Mach. & equipment (total)	_____	2,249	3,211	2,185
Power mach. (f. share)	_____	1,025	1,488	924
Crop & gen. mach.	_____	1,042	1,470	1,082
Livestock equip. & supplies	_____	182	253	179
Buildings, fences, etc.	_____	3,588	4,703	3,301
Land	_____	5,024	7,935	3,796
Total farm capital	$_____	$13,713	$19,731	$11,855

*Explanation of term: "Work units."

The total "work units" for any one farm is a measure of size of that farm business. It is the accomplishment of a farm worker in a ten-hour day working on crops and productive livestock at average efficiency.

The number of work units for each animal and each acre of crops used in this report are listed as follows:

Item	Per	No. of work units
Dairy and dual-purpose cows	cow	15.5
Other dairy & dual-purpose cattle	animal unit*	2.4
Beef breeding herd	animal unit*	4.3
Sheep - farm flock	animal unit*	2.2
Hens	100 hens	28.0
Feeder cattle	100 lbs. produced	.3
Hogs	100 lbs. produced	.3
Turkeys	100 lbs. produced	.7

Item	Per	No. of work units
Small grain	acre	.6
Seed potatoes	"	4.3
Other potatoes	"	3.8
Sugar beets	"	2.5
Corn, husked	"	1.3
Corn, shredded	"	2.0
Corn silage	"	1.4
Corn fodder	"	1.1
Alfalfa hay	"	.8
Other hay crops	"	.6
Legume seed	"	1.0

*Animal unit represents one cow, one bull, one feeder steer or heifer, two head of other cattle, seven head of sheep, fourteen lambs, five hogs, ten pigs, 100 hens, or 1,400 lbs. turkeys produced.

Table 4. Summary of Farm Inventories (End of Year), 1941

Items	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Horses	$_____	$ 279	$ 253	$ 248
Productive livestock (total)	_____	2,002	2,602	1,802
Dairy & dual-purpose cows	_____	734	726	781
Other dairy & dual-purpose cattle	_____	497	534	562
Beef cattle (including feeders)	_____	243	634	77
Hogs	_____	171	296	99
Sheep (farm flock)	_____	290	327	246
Poultry (including turkeys)	_____	67	85	37
Crop, seeds, and feed	_____	1,342	3,359	690
Mach. & equipment (total)	_____	2,441	3,626	2,185
Power machinery (f. share)	_____	1,079	1,603	933
Crop and gen. machinery	_____	1,154	1,740	1,071
Livestock equipment & supplies	_____	208	283	181
Buildings, fences, etc.	_____	3,617	4,667	3,378
Land	_____	5,023	7,935	3,796
Total farm capital	$_____	$14,704	$22,442	$12,099

Table 5. Summary of Amount of Livestock

Items	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
No. of horses	_____	3.6	3.4	3.0
No. of colts	_____	.8	.8	.6
No. of dairy & dual-purpose cows	_____	11.9	11.5	12.5
Head of other dairy & dual-purpose cattle	_____	14.4	14.4	15.9
Head of cattle kept in beef breeding herd	_____	3.6	7.9	2.2
Litters of pigs raised	_____	2.6	4.2	2.3
Pounds of hogs produced	_____	4,271	8,272	2,748
Head of sheep (2 lambs = 1 head)	_____	37.4	38.9	29.3
No. of hens	_____	66	79	44
Total no. of prod.livestock animal units	_____	30.7	36.6	28.3
% of total that are:				
Dairy and dual-purpose cows	_____	41.6	34.8	44.2
Other dairy and dual-purpose cattle	_____	27.1	23.4	30.1
Beef cattle (including feeders)	_____	6.0	11.9	4.3
Sheep - farm flock	_____	15.2	13.0	15.2
Hogs	_____	5.6	8.9	4.3
Turkeys & capons	_____	2.2	5.4	.3
Chickens	_____	2.3	2.6	1.6

Table 6. Summary of Farm Earnings (Cash Statement), 1941

Items	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
FARM EXPENSES				
Horses bought	$_____	$ 19	$ 26	$ 10
Dairy and dual-purpose cows bought	_____	26	22	24
Other dairy & dual-purpose cattle bought	_____	32	25	25
Beef cattle bought (including feeders)	_____	18	34	17
Hogs bought	_____	24	14	24
Sheep bought	_____	22	18	19
Poultry bought (including turkeys)	_____	40	113	10
Misc. crop expenses	_____	150	213	109
Feed bought	_____	187	294	156
Power mach. (farm share) (new)	_____	222	374	125
Power mach. (farm share) (upkeep)	_____	387	518	360
Custom work hired	_____	63	101	38
Crop and general mach. (new)	_____	261	493	125
Crop and general mach. (upkeep)	_____	57	97	43
Livestock equipment (new)	_____	51	67	15
Livestock equipment (upkeep)	_____	8	14	8
Misc. livestock expense	_____	20	22	22
Buildings and fencing (new)	_____	167	139	179
Buildings and fencing (upkeep)	_____	52	65	60
Hired labor	_____	236	480	251
Taxes (real estate and personal prop.)	_____	196	285	152
Insurance	_____	16	18	17
General farm	_____	28	38	25
(1) Total farm purchases	$_____	$2,282	$3,470	$1,814
(2) Decrease in farm capital	_____	-	-	-
(3) Board furnished hired labor	_____	107	226	115
(4) Interest on farm capital	_____	710	1,054	599
(5) Unpaid family labor	_____	338	243	311
(6) Total farm expenses (Sum of (1) to (5)	$_____	$3,437	$4,993	$2,839
FARM RECEIPTS				
Horses	$_____	$ 37	$ 64	$ 32
Dairy and dual-purpose cows	_____	150	117	218
Dairy products	_____	864	963	740
Other dairy and dual-purpose	_____	259	230	268
Beef cattle (including feeders)	_____	118	287	115
Hogs	_____	333	659	215
Sheep and wool	_____	242	280	171
Poultry (including turkeys)	_____	245	674	32
Eggs	_____	130	188	59
Potatoes	_____	174	184	78
Small grain	_____	625	1,181	305
Other crops	_____	185	264	158
Power machinery sold	_____	71	131	28
Crop and gen. mach. sold	_____	44	82	26
Misc.	_____	86	137	81
Income from work off the farm	_____	125	119	98
Agricultural Adjustment payments	_____	248	437	178
(7) Total farm sales	$_____	$3,936	$5,997	$2,802
(8) Increase in farm capital	_____	991	2,711	244
(9) Family living from the farm	_____	421	452	407
(10) Total farm receipts (7) + (8) + (9)	$_____	$5,348	$9,160	$3,453
(6) Total farm expenses	_____	3,437	4,993	2,839
(11) Operator's labor earnings (10) - (6)	_____	1,911	4,167	614

Table 7. Summary of Farm Earnings (Enterprise Statement), 1941 (A)

Items	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
EXPENSES AND NET DECREASES				
Total power	$_____	$ 606	$ 766	$ 561
Horses	_____	132	128	136
Tractor	_____	258	349	233
Truck	_____	60	110	63
Auto (farm share)	_____	108	114	83
Gas engine (farm share)	_____	7	6	13
Elec. plant or current (farm share)	_____	17	18	19
Hired power	_____	24	41	14
Crop and general machinery	_____	159	221	141
Livestock equipment	_____	31	48	19
Buildings, fencing, and tiling	_____	110	142	85
Misc. productive livestock expense	_____	19	21	21
Labor	_____	701	982	690
Real estate taxes	_____	169	250	129
Personal property tax	_____	27	35	23
Insurance	_____	16	18	17
General farm	_____	28	38	25
Interest on farm capital	_____	710	1,054	599
(1) Total expenses and net decreases	$_____	$2,576	$3,575	$2,310
RETURNS AND NET INCREASES				
All productive livestock	$_____	$2,807	$3,984	$2,176
Dairy and dual-purpose cows	_____	1,064	1,121	976
Other dairy and dual-purpose cattle	_____	514	561	541
Beef cattle (including feeders)	_____	146	360	68
Hogs	_____	451	872	283
Sheep - farm flock	_____	246	278	188
Capons	_____	29	116	0
Turkeys	_____	161	419	19
Chickens	_____	196	257	101
Crops, seed, and feed	_____	1,215	3,096	386
Income from work off the farm	_____	125	119	98
Agricultural Conservation payments	_____	248	437	178
Miscellaneous	_____	92	106	86
(2) Total returns and net increases	$_____	$4,487	$7,742	$2,924
(1) Total expenses and net decreases	$_____	$2,576	$3,575	$2,310
(3) Oper. labor earnings (2) minus (1)	$_____	$1,911	$4,167	$ 614

(A) 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 labor earnings are the same as those on page 6.

ANALYSIS OF THE REASONS FOR DIFFERENCES IN OPERATOR'S EARNINGS

The operator's labor earnings varied widely among the farmers included in this study. The average labor earnings of those farmers ranking in the upper 20 per cent in the range according to earnings was $4,167 and of those in the lower 20 per cent was $614. This is a range of $3,553 between the average earnings of these two groups. Some of the causes for these differences in earnings may be beyond the control of the farmer. However, all of these farmers could make some changes in their farming operations which would increase earnings. A farmer can secure some ideas as to changes that could profitably be made on his farm by studying the facts about his business as presented in this report and comparing his accomplishments with other farmers following the same general type of farming. The more important management factors affecting earnings and their relationships with earnings are presented in the following tables.

Table 8. Relation of Crop Yields to Farm Earnings

Per cent crop yields were of the average for all 96 farms		No. of	Average operator's
Group	Average	farms	labor earnings
Below 80	63	20	$1,178
80-123	100	58	1,835
124 and above	137	18	2,972

The data in Table 8 show that the farmers obtaining high yields had higher earnings than those obtaining low yields. High production per acre, up to certain limits, tends to lower the cost per bushel of grain or per ton of hay. 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 9. Relation of Choice of Crops to Farm Earnings

Per cent of tillable land in high return crops*		No. of	Average operator's
Group	Average	farms	labor earnings
Below 31.0	24.5	28	$1,683
31.0-46.9	37.2	46	2,019
47.0 and above	55.0	22	1,977

*Crops are marked on page 14 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.

Farmers' earnings are affected by the selection of kinds of crops to be grown as well as by the yields of crops. As a rule, on these farms, such crops as alfalfa, hard spring wheat, flax, barley, sugar beets, and potatoes bring a higher net return per acre than other crops usually grown. Additions can be made to earnings by putting as high a percentage as possible of the tillable land into these higher return crops.

Table 10. Relation of Returns from Productive Livestock to Farm Earnings

Index of gross returns from productive livestock* Group	Average	No. of farms	Average operator's labor earnings
Below 88	80	25	$1,736
89-112	98	46	1,823
113 and above	123	25	2,250

*Feed records were not kept on these farms. The index represents gross returns and is weighted by the number of animal units of each class of livestock.

Many of these farms are livestock farms. High gross returns from livestock are accompanied by high farm income. A large proportion of the crops raised are fed on the farm and some additional feed is purchased. Feed is the major item of cost in livestock production and livestock constitute an important source of income on these farms. There are a number of reasons for differences among farms in livestock returns. High productivity per animal and economy in the use of feed and labor are important. Other factors of considerable importance are kind of feed used, quality of pastures, balance of ration, degree of sanitation, and kind of shelter and equipment.

Table 11. Relation of Amount of Productive Livestock to Farm Earnings

Productive livestock units per 100 acres* Group	Average	No. of farms	Average operator's labor earnings
Below 9.0	7.7	30	$1,564
9.0-12.9	11.0	34	1,704
13.0 & above	16.1	22	1,939

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

Ten very specialized crops farms with more than 50% of the total work units expended on crops were omitted from the averages in Table 11. The amount of livestock is an important factor only on livestock farms. 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 12. Relation of Size of Business (Work Units) to Farm Earnings

No. of work units Group	Average	No. of farms	Average operator's labor earnings
Below 325	274	19	$1,180
325-549	432	50	1,829
550 and above	717	27	2,578

The size of the farm business is measured in terms of work units. A work unit is the accomplishment of a farm worker in a ten-hour day, working on crops and productive livestock at average efficiency or ten hours of work off the farm for pay. Average farm earnings tend to increase with an increase in size of business. For farmers operating their farms at a loss, the larger the volume of business, the larger will be the loss, but a farmer who is making a profit could make a larger profit if he increased his size of business, providing that in so doing he does not lower materially the efficiency in some one or more important branches of his business. Those farmers who have large businesses usually have more flexibility of their organization than does the man with a small business, and can utilize more efficiently and to better advantage available labor, power, machinery, and buildings. The size of the farm business may be increased by farming more land, by keeping more livestock, or by keeping livestock or growing crops of a more intensive type.

Table 13. Relation of Amount of Work Accomplished per Worker to Farm Earnings

Work units per worker		No. of	Average operator's
Group	Average	farms	labor earnings
Below 200	174	27	$1,746
200-264	230	37	1,999
265 and above	302	32	1,950

More units of work accomplished per worker reduces the labor charge per unit of business. Higher labor accomplishment can be secured in several ways. In the first place, the business must be large enough so that there will be at least sufficient work available for the family labor. The farm should be so organized that the labor requirements are well distributed throughout the year. Handling pastures in such a way that as large a proportion as possible of the year's feed for livestock may be obtained from them helps to reduce labor requirements. Proper planning of the farm work and economical use of labor-saving machinery help to increase the work accomplished per worker.

Table 14. Relation of Power, Machinery, Equipment, and Building Expense to Farm Earnings*

Expense per work unit		No. of	Average operator's
Group	Average	farms	labor earnings
Farms That Are Below Average in Size of Business			
$2.25 and above	$2.79	10	$1,164
$1.45-$2.24	1.75	29	1,430
Below $1.45	1.15	15	1,610
Farms That Are Above Average in Size of Business			
$2.25 and above	$2.90	9	$4,047
$1.45-$2.24	1.86	21	2,027
Below $1.45	1.23	12	2,271

*Includes building, fencing, all crop machinery, and livestock equipment, horse feed, and miscellaneous horse expense.

The expense factor does not show as high relationship with earnings when prices are high as when they are low. Some farms are under-equipped. On a few farms, excessive expenses constitute the main factor causing earnings to be very low. Control of overhead expenses is most important on the small farms. On the large farms a high overhead expense due to the use of a large amount of equipment and power is offset by a reduction in labor costs.

Some of the cash expenses can be kept down by careful management. Oftentimes necessary repairs and improvements can be made by using the available farm labor rather than by hiring extra help. Repairs and overhauling should be done before spring work begins insofar as possible; or on rainy days or in other spare time during the summer. Reducing the number of horses to the minimum required for efficient operation of the farm helps reduce the power expense. In some cases, farmers can offset some or all of the power and machinery expense by using their equipment for outside work.

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 on the other hand those few who can manage to attain high efficiency in all parts of their organization receive returns well above the average. This is well illustrated in Table 15.

Table 15. Relation of Operator's Labor Earnings to the Number of Factors in which the Farmer is Above Average

No. of factors in which farm excels	No. of farms	Your farm	The length of the shaded lines are in proportion to the average operator's labor earnings	Average operator's labor earnings
One	8	_____	xxxxxxxxxx	$1,027
Two	23	_____	xxxxxxxxxxxxxxxx	1,699
Three	24	_____	xxxxxxxxxxxxxxxxx	1,756
Four	23	_____	xxxxxxxxxxxxxxxxxxx	1,981
Five	13	_____	xxxxxxxxxxxxxxxxxxxxxx	2,404
Six or seven	5	_____	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3,449

The array in Table 15 indicates that it will be worth-while for each cooperator to study carefully his ranking on pages 12 and 13, and learn his standing in respect to each of the above factors and the elements of strength and weakness in his farm business.

Table 16. Measures of Farm Organization and Management Efficiency, 1941

Measures used in chart on page 13	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Operator's labor earnings	$_____	$1,911	$4,167	$614
(1) Crop yields*	_____	100	116	91
(2) % of tillable land in high return crops**	_____	37.6	37.3	39.8
(3) Gross returns from prod. livestock***	_____	100	107	90
(4) Prod. livestock units per 100 acres****	_____	10.5	10.3	10.7
(5) Size of business - work units	_____	481	578	424
(6) Work units per worker	_____	238	259	203
(7) Power, mach., equip. & bldg.exp. per work unit	$_____	$1.83	$1.91	$1.91
Items related to some of the above measures:				
(3) Index of gross returns from -				
Dairy cattle	_____	100	108	90
Dual-purpose cattle	_____	100	113	89
Beef cattle - breeding herd	_____	100	106	90
Beef cattle - feeders	_____	100	96	53
Hogs	_____	100	101	97
Sheep - farm flock	_____	100	114	95
Capons	_____	100	113	-
Turkeys	_____	100	89	105
Chickens	_____	100	110	74
(5) Work units on crops	_____	185	247	149
Work units on productive livestock	_____	264	301	250
Other work units	_____	32	30	25
(6) Total number of workers	_____	2.1	2.4	2.1
Number of family workers	_____	1.6	1.5	1.5
Number of hired workers	_____	.5	.9	.6
(7) Power expense per work unit	$_____	$1.25	$1.26	$1.37
Crop machinery expense per work unit	_____	.31	.34	.31
Livestock equip. expense per work unit	_____	.06	.08	.04
Bldgs. and fencing exp. per work unit	_____	.21	.23	.19

*Given as a percentage of the average.

**Crops are marked on page 14 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.

Thermometer Chart

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 96 farms included in this summary are located between the dotted lines across the center of this page.

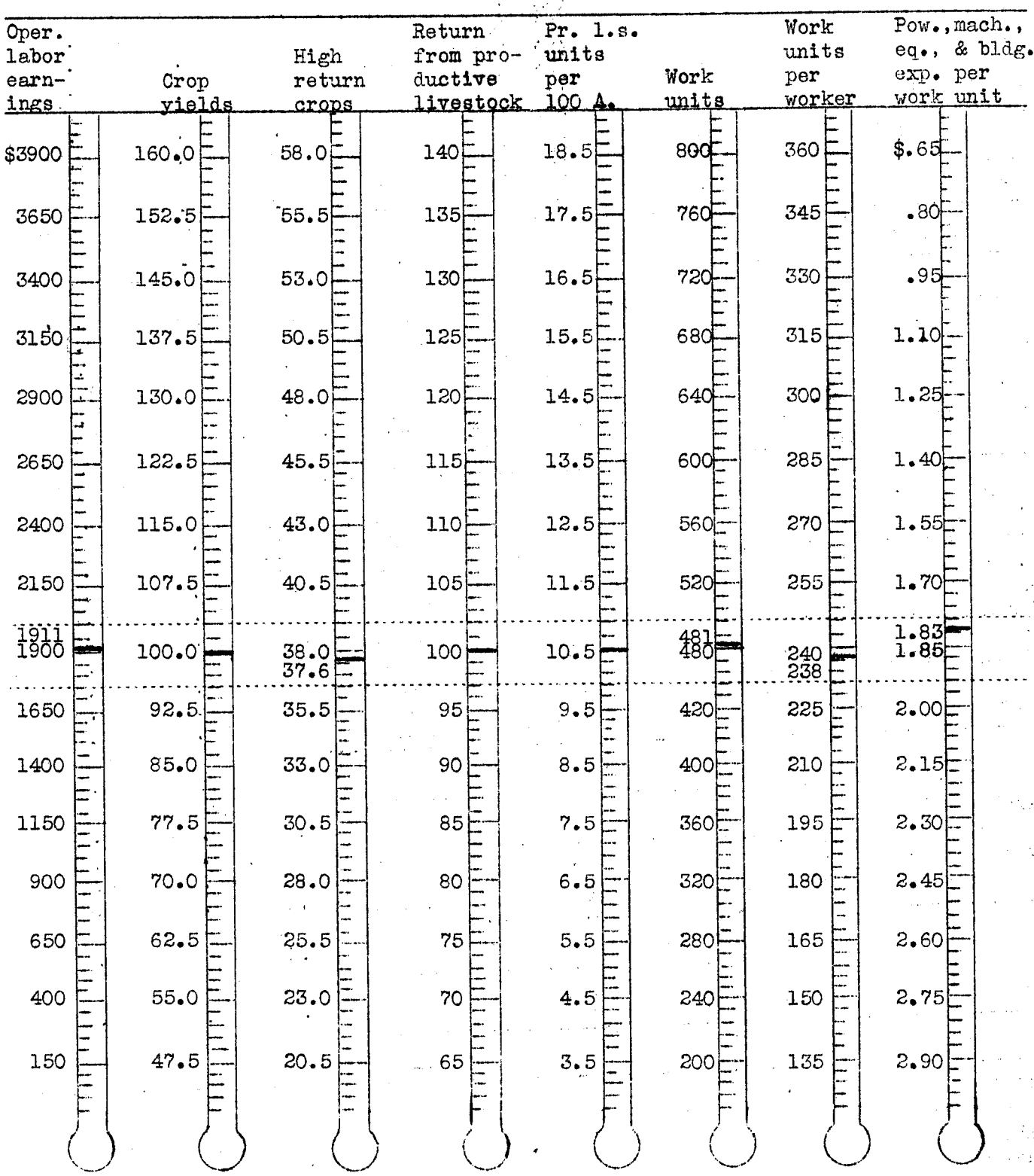

Table 17. Distribution of Acres in Farm, 1941

Crop: (A), (B), (C), and (D) refer to ranking used in calculating % of tillable land in High Return Crops (see page 12)		No. growing this crop	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Wheat, hard spring	(A)	73		26.2	53.3	14.7
Flax	(B)	59		19.9	26.9	14.5
Barley	(B)	72		23.7	45.7	20.4
Oats	(C)	92		37.7	52.5	30.5
Wheat, durum	(C)	4		1.4	4.2	1.6
Rye	(D)	14		5.4	13.3	2.2
Emmer (spelt)	(D)	14		2.3	1.3	4.2
Millet	(D)	15		1.4	2.1	.6
Buckwheat	(D)	3		.5	1.1	.5
Total small grain		95		118.5	200.4	89.2
Sugar beets, seed potatoes, and garden	(A)	7		1.2	2.4	.0
Other potatoes	(B)	32		5.0	7.1	5.1
Corn, grain	(C)	40		6.5	10.9	4.1
Corn silage	(D)	55		8.8	13.5	6.6
Corn fodder	(D)	25		2.4	2.1	2.9
Total cultivated crops		83		23.9	36.0	18.7
Alfalfa hay	(A)	81		22.4	20.3	24.7
Alfalfa seed	(B)	20		1.9	2.2	.5
Alsike clover hay or seed (hay B, seed C)		13		1.7	.0	2.9
Sweet clover hay	(C)	44		12.6	9.9	10.1
Sweet clover seed	(C)	46		18.9	17.8	10.4
Mixed legumes & non-legumes for hay	(C)	12		3.9	.5	8.4
Brome grass seed	(C)	3		.7	3.2	.0
Timothy and/or brome hay	(D)	21		6.1	2.4	2.4
Annual hay (oat or millet)	(D)	20		3.1	.3	5.3
Misc. hay and seed crops	(D)	18		5.2	6.4	3.2
Total tillable land in hay		94		76.5	63.0	67.9
Alfalfa pasture	(A)	16		1.6	.3	2.2
Mixture incl. alf., sw. clover, brome	(B)	30		6.6	9.8	5.3
Sweet clover pasture	(C)	45		13.8	20.7	14.4
Other tillable pasture	(D)	40		13.4	12.6	10.0
Total tillable land in pasture		87		35.4	43.4	31.9
Tillable land not cropped	(D)	62		30.6	57.5	18.3
Total tillable land				284.9	400.3	226.0
Wild hay (non-tillable)		37		12.6	12.0	8.8
Non-tillable pasture		67		37.9	32.2	44.9
Timber (not pastured)		40		14.4	8.8	9.4
Roads and waste				31.2	28.2	27.2
Farmstead				9.2	13.7	7.1
Total acres in farm				390.2	495.2	323.4
% tillable land				73.3	80.3	71.4
% tillable land in high return crops				37.6	37.3	39.8

Table 18. Crop Yields per Acre, 1941

Crop	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Wheat, hard spring, bu.	_____	15.4	18.4	15.1
Flax, bu.	_____	4.5	5.1	4.5
Barley, bu.	_____	23.8	31.5	18.6
Oats, bu.	_____	32.2	39.4	27.1
Wheat, durum, bu.	_____	15.1	-	-
Rye, bu.	_____	13.1	17.8	11.5
Emmer (spelt), bu.	_____	22.9	-	-
Millet, bu.	_____	13.4	-	-
Buckwheat, bu.	_____	14.8	-	-
Seed potatoes, bu.	_____	93.7	-	-
Other potatoes, bu.	_____	58.7	64.4	62.4
Corn, grain, bu.	_____	34.5	42.1	26.1
Corn silage, tons	_____	6.2	6.6	5.7
Corn fodder, tons	_____	2.5	1.9	2.9
Alfalfa hay, tons	_____	1.7	1.6	1.8
Alfalfa seed, lbs.	_____	51.4	-	-
Alsike clover hay, tons	_____	1.6	-	-
Alsike clover seed, lbs.	_____	142.7	-	-
Sweet clover hay, tons	_____	1.0	1.0	1.1
Sweet clover seed, lbs.	_____	117.5	128.0	136.4
Mixed legume and non-legume hay, tons	_____	.9	-	-
Brome grass seed, lbs.	_____	59.3	-	-
Brome grass hay, tons	_____	.9	-	-
Timothy hay, tons	_____	1.0	-	-
Oat hay, tons	_____	1.2	-	-
Millet hay, tons	_____	2.2	-	-
Timothy seed, lbs.	_____	209.6	-	-
Quack grass and junegrass hay, tons	_____	.9	-	-
Wild hay, tons	_____	.5	.8	.3

Phosphate Application and Results

In 1940 and 1941, approximately 875,000 pounds of highly concentrated (62%) phosphate was spread on 681 fields on the 96 farms included in this study. The phosphate was applied to hay and pasture crops and to small grain used as a nurse crop for legumes and legume-grass mixtures. The rate of application was based on the length of time the land was expected to remain in hay or pasture. In terms of the 62% available phosphate used, the rate per acre was 33 pounds per year. If a field were to remain in hay or pasture 3 years, the rate was 100 pounds per acre, or for four years, 133 pounds. Eighty per cent of the acreage in legume hay was fertilized; 20% of the acreage was left unfertilized in order to secure a check on the change in yield. Ninety per cent of the acreage in legume pasture mixtures was covered and 10% left as a check. Phosphate was not applied to pasture unless legumes were present or seeded.

The above method of applying phosphate was used on the following: 930 acres of old alfalfa, 1,783 acres of new seeding of alfalfa, 746 acres of renovated pastures, 1,496 acres of new seeding of legume pasture, and 5,021 acres of sweet clover which was used as rotation pasture, hay, or seed. Many comparisons of growth were made by the farmers and their neighbors last season. Accurate yield checks were made during the 1941 season on 46 alfalfa fields from 43 farms; 41 oats fields from 37 farms; 26 barley fields from 24 farms; and 23 wheat fields from 20 farms. (See Table 19.)

Table 19. Comparison of Yields on Phosphate-Fertilized and Non-Fertilized Fields*

Crop	No. of fields	Yield per Acre		Increase per Acre	
		Fertilized	Unfertilized	Amount	%
Alfalfa**	46	1.32 tons	.95 tons	.37 tons	39
1st crop	46	1.23 "	.92 "	.31 "	34
2nd crop	46	2.55 "	1.87 "	.68 "	36
Oats	41	43.6 bu.	38.6 bu.	5.0 bu.	13
Barley	26	46.9 "	42.2 "	4.7 "	11
Wheat	23	20.3 "	18.1 "	2.2 "	12

*Six square yard samples were cut from fertilized and unfertilized areas. Alfalfa samples were dried and yields are reported on dry basis.

**Yields of alfalfa hay were determined from both first and second cuttings. Yields from one cutting were determined on many other fields but these are not included in Table 19.

Table 20. Power and Machinery Expense

Item	Your farm	Average of 96 farms	19 most profitable farms	19 least profitable farms
Crop acres per farm	_____	231.5	311.4	184.6
Tractor and horse expense per crop acre	$_____	$1.83	$1.62	$2.11
Crop and general mach. exp. per crop acre	_____	.68	.62	.73
Feed cost per horse*	$_____	$29.33	$31.14	$30.40
Number of work horses	_____	3.6	3.4	3.0
Number of colts	_____	.8	.8	.6
Number of farms with tractors		88	18	18
Number with one tractor		67	11	13
Number with two or more		21	7	5

*Two colts considered as one horse.

Table 21. Returns from Productive Livestock, 1941

Items	Your farm	Average of 96 farms	19 highest in livestock returns	19 lowest in livestock returns
DAIRY CATTLE--48 farms				
Gross returns per dairy cow	$_____	$95.93	$123.23	$72.84
Pounds of butterfat per cow	_____	235	296	186
No. of head of cows	_____	13.0	11.6	13.7
Gross ret. per head other dairy cattle	$_____	$38.24	$40.28	$30.72
Gross ret. per ani. unit all dairy cattle	$_____	$83.84	$104.38	$62.85
No. of ani. units all dairy cattle	_____	20.1	17.6	22.0
DUAL-PURPOSE CATTLE--44 farms				
Gross ret. per dual-purpose cow	$_____	$80.71	$100.04	$64.69
Pounds of butterfat per cow	_____	202	243	164
No. of head of cows	_____	11.8	11.4	12.6
Gross ret. per head other du. pur. cattle	$_____	$35.27	$40.26	$28.18
Gross ret. per ani.unit all du.pur.cattle	$_____	$70.36	$87.78	$57.42
No. of animal units all dual-pur. cattle	_____	20.7	18.9	22.0
PRICE RECEIVED PER LB. BUTTERFAT SOLD AS -				
Manufacturing cream (cents)	_____	37.4	38.0	36.9
Retail milk or cream (cents) (8 cases)	_____	41.8	-	-
BEEF-BREEDING HERD--11 farms				
Gross returns per animal unit	$_____	$57.03	-	-
No. beef cows and bulls per herd	_____	10.4	-	-
No. animal units per herd	_____	19.8	-	-
FEEDER CATTLE--7 farms				
Gross ret. per cwt. produced	$_____	$11.85	-	-
Lbs. of cattle produced	_____	1956	-	-
Price received per cwt. sold	$_____	$8.87	-	-
SHEEP - FARM FLOCK--47 farms				
Gross ret. per head*	$_____	$7.05	$10.96	$4.93
No. of head of sheep	_____	75.5	38.8	69.6
No. of ewes kept for lambing	_____	48.8	27.1	46.4
% lamb crop	_____	108	116	91
% death loss	_____	9.7	5.5	10.9
Lbs. wool per sheep sheared	_____	7.5	7.5	6.6
Price received per lb. wool sold (cents)	_____	40.0	40.6	39.7
Price received per 100 lbs. lambs sold	$_____	$9.88	$10.58	$9.83
HOGS--72 farms				
Gross ret. per cwt. produced	$_____	$10.70	$10.53	$10.63
Lbs. hogs produced	_____	5575	5966	4874
Total no. litters	_____	3.4	3.5	3.9
Pigs per litter	_____	7.3	7.2	6.2
Price received per cwt. sold	$_____	$9.67	$9.62	$9.14
CHICKENS--61 farms				
Gross ret. per hen	$_____	$2.88	$3.31	$2.32
No. of hens	_____	100	83	98
Eggs laid per hen	_____	121	136	99
Price received per doz. eggs sold (cents)	_____	21.9	22.0	21.1
TURKEYS--25 farms				
Gross ret. per cwt. produced	$_____	$20.84	$21.35	$22.44
Lbs. turkeys produced	_____	3058	1307	2771
Price received per lb. sold (cents)	_____	21.5	21.0	22.7
CAPONS--4 farms				
Gross returns per 100 lbs. produced	$_____	$17.75	-	-
Lbs. of capons produced	_____	3661	-	-
Price received per lb. sold (cents)	_____	20.5	-	-

*Two lambs under 6 months of age considered as one head.

Table 22. **Farm Produce Used in House and House Rental, 1941**

Items	Quantities: Your farm	Quantities: Average of 96 farms	Quantities: 19 most profitable farms	Quantities: 19 least profitable farms	Value: Your farm	Value: Average of 96 farms	Value: 19 most profitable farms	Value: 19 least profitable farms
No. of adult) Family	_____	3.7	2.9	3.6				
equivalents) Other*	_____	.6	1.1	.7				
Whole milk	_____	806 qts.	891	756	$_____	$24.85	$27.75	$22.97
Skim milk	_____	549 qts.	684	553	_____	2.13	2.65	2.14
Cream	_____	459 pts.	379	394	_____	50.08	42.71	42.62
Farm-made butter	_____	42 lbs.	34	72	_____	14.74	11.84	25.05
Eggs	_____	120 doz.	107	117	_____	24.66	23.12	23.26
Cattle	_____	393 lbs.	694	343	_____	32.56	61.26	24.97
Hogs	_____	520 lbs.	501	458	_____	46.65	45.65	39.37
Sheep	_____	24 lbs.	7	19	_____	1.61	.53	1.24
Poultry	_____	110 lbs.	101	105	_____	12.73	12.07	11.73
Potatoes	_____	23 bu.	26	23	_____	10.04	11.06	10.41
Vegetables & fruits					_____	37.52	38.42	37.47
Farm fuel					_____	18.03	12.00	18.79
Rental val. of house					_____	145.43	163.30	146.53
Total					$_____	$421.03	$452.36	$406.55

Table 23. Household and Personal Expenses for Those Farms Which Kept Complete Accounts of These Expenses, 1941

Items	Your farm	Average of 32 farms	11 most profitable farms	11 least profitable farms
Number of persons - family	_____	5.0	5.4	5.1
Number of persons, (Family adult equivalent (Other*	_____	3.8	4.0	4.1
	_____	.5	.8	.3
Food and meals bought	$_____	$281	$352	$215
Operating and supplies	_____	75	88	78
Clothing and clothing materials	_____	133	200	70
Personal care, personal spending	_____	42	63	27
Furnishings and equipment	_____	46	70	40
Education, recreation, and development	_____	48	71	46
Medical care and health insurance	_____	55	90	24
Church, welfare, and gifts	_____	39	42	39
Personal share of auto expense	_____	58	69	46
Household share of elect. & gas eng. exp.	_____	1	1	2
H.H. & pers.sh. of new auto, gas eng. & motor bought	_____	9	27	0
Life insurance and other investments	_____	33	21	43
Total household and personal cash expenses	$_____	$820	$1094	$630
Food furnished by the farm	$_____	$264	$263	$280
Fuel furnished by the farm	_____	17	11	18
House rental	_____	136	127	143
Total household and personal expenses	$_____	$1237	$1495	$1071

*Hired help or others boarded.

Table 24. Summary of Farm Earnings - Averaged by Counties, 1941

	W. Kittson W. Marshall W. Polk	Mahnomen	East Marshall	Norman	Pennington Red Lake	East Polk	Roseau E. Kittson
FARM EXPENSES							
Cattle bought	$54	$77	$73	$135	$83	$78	$45
Hogs bought	18	43	19	37	34	16	7
Sheep bought	15	8	12	24	36	18	28
Poultry bought	97	22	78	14	31	26	12
Feed	255	123	308	200	190	127	103
Other livestock expense	17	13	17	26	33	15	15
Crop expense	205	110	110	154	196	89	130
Power	924	371	620	634	725	407	520
Machinery and equipment	588	192	327	259	427	311	390
Custom work hired	99	82	25	73	46	49	59
Buildings	159	311	139	290	197	151	281
Hired labor	443	153	152	318	166	84	238
Taxes, insurance and miscellaneous	343	176	178	292	238	139	234
(1) Total purchases	3217	1681	2058	2456	2402	1510	2062
(2) Decrease in capital	-	-	-	-	-	-	-
(3) Board to hired labor	196	62	100	136	51	26	132
(4) Unpaid family labor	259	390	188	280	403	288	480
(5) Interest on farm capital	1066	458	502	856	679	508	678
(6) Total expenses	4738	2591	2848	3728	3535	2332	3352
FARM RECEIPTS							
Cattle sales	$555	$367	$424	$614	$553	$612	$506
Dairy products	758	932	615	783	1046	833	976
Hogs	561	325	54	434	407	318	159
Sheep	124	260	218	117	168	244	523
Poultry and eggs	565	184	790	290	341	312	183
Crop	2067	316	721	1248	740	251	965
AAA payment	429	333	330	300	360	143	216
Miscellaneous cash receipts	461	150	196	287	230	414	326
(7) Total farm sales	5520	2867	3348	4073	3845	3127	3854
(8) Increase in capital	2234	990	585	1035	834	481	542
(9) Family living from farm	452	459	334	454	391	379	457
(10) Total receipts	8206	4316	4267	5562	5070	3987	4853
(6) Total expenses	4738	2591	2848	3728	3535	2332	3352
(11) Operator's labor earnings	3468	1725	1419	1834	1535	1655	1501

Table 25. Miscellaneous Information - Averaged by Counties, 1941

	W. Kittson W. Marshall W. Polk	Mahnomen	East Marshall	Norman	Pennington Red Lake	East Polk	Roseau E. Kittson
FARM INVENTORIES (Beginning of Year)							
Horses	$180	$419	$175	$397	$386	$392	$259
Productive livestock	1656	1507	1454	1892	1681	1501	1673
Crops, seeds, and feed	1641	428	515	978	903	563	827
Machinery and equipment	3270	1610	1810	2525	2031	1299	2460
Buildings	4646	2222	2551	4948	3420	3516	3115
Land	8968	2471	3235	5858	4757	2647	4824
Total farm capital	20361	8657	9740	16598	13178	9918	13158
AMOUNT OF LIVESTOCK							
No. of work horses	2.8	4.2	2.5	4.6	3.7	5.0	3.0
No. of colts	.4	1.4	.4	.8	.7	1.1	.8
No. of dairy and dual-purpose cows	10.6	11.4	9.6	11.1	14.2	11.6	13.4
Head other dairy and dual-purpose cattle	14.6	12.9	11.4	14.1	18.1	14.2	13.5
Head in beef-breeding herd	3.3	3.1	4.3	8.5	3.3	.4	1.7
Litters of pigs raised	3.4	2.4	.6	3.5	2.8	3.1	1.8
Pounds of hogs produced	6541	4801	906	5788	4849	4027	2423
Head of sheep	14.5	36.4	42.1	16.7	29.5	38.3	78.6
No. of hens	66	80	56	53	69	70	71
Total no. of prod. livestock units	27.6	28.1	28.1	31.3	33.4	27.5	34.7
% of total prod. livestock units that are:							
Dairy and dual-purpose cows	44.7	42.6	39.8	37.1	43.7	42.8	40.2
Other dairy and dual-purpose cattle	30.8	28.7	24.3	25.5	29.7	27.3	23.1
Beef cattle (including feeders)	4.0	4.0	7.5	20.1	3.7	1.3	1.9
Sheep (farm flock)	5.6	15.0	19.7	6.0	12.4	17.5	29.5
Hogs	8.4	6.0	1.9	7.2	6.1	6.6	2.8
Turkeys and capons	3.7	.5	5.1	2.3	2.1	1.2	.6
Chickens	2.8	3.2	1.7	1.8	2.3	3.3	1.9

Miscellaneous Information (continued)

DISTRIBUTION OF ACRES IN FARMS

Wheat - hard spring	92.1	10.2	5.0	22.5	14.5	10.0	12.4
Flax	17.7	6.7	29.3	10.8	16.7	3.7	42.3
Barley	59.2	14.6	8.2	37.0	14.7	9.8	12.7
Oats	38.0	26.2	29.1	62.5	39.3	24.1	35.2
Rye	11.5	.0	3.2	10.4	.9	2.3	6.3
Miscellaneous	3.3	5.8	2.5	4.2	13.3	1.2	4.6
Total acres in small grain	221.8	63.5	77.3	147.4	99.4	51.1	113.5
Sugar beets, seed potatoes & gardens	2.9	.0	1.3	.8	2.3	.2	.0
Other potatoes	10.4	1.7	.6	12.8	1.4	2.3	3.6
Corn (grain, silage, and fodder)	19.4	21.7	12.7	25.3	21.8	14.8	8.8
Total cultivated crops	32.7	23.4	14.6	38.9	25.5	17.3	12.4
Alfalfa hay	15.9	12.6	19.5	19.4	16.0	20.7	44.3
Alfalfa seed	1.1	.3	.3	2.2	3.5	2.5	2.4
Sweet clover hay	10.5	7.8	16.0	9.9	20.8	3.4	13.6
Sweet clover seed	5.9	1.9	38.5	3.9	22.3	4.8	43.4
Misc. legumes & legume mixtures	.0	20.2	5.6	2.1	4.6	7.7	5.7
Timothy & brome hay or seed	3.8	3.9	14.2	4.1	11.4	5.1	8.0
Other hay and seed crops	7.5	11.2	16.4	.4	4.4	8.7	9.6
Total tillable land in hay	44.7	57.9	110.5	42.0	83.0	52.9	127.0
Alfalfa pasture & mixtures incl. sweet clover and brome	7.6	8.4	9.4	4.4	6.5	12.7	10.0
Sweet clover pasture	15.8	6.7	6.1	24.5	21.5	7.2	7.9
Other tillable pasture	4.2	11.5	31.0	10.0	14.1	8.7	16.4
Total tillable land in pasture	27.6	26.6	46.5	38.9	42.1	28.6	34.3
Tillable land not cropped	62.1	11.1	29.3	51.6	25.3	7.0	15.2
Total tillable land	388.9	182.5	278.2	318.8	275.3	156.9	302.4
Wild hay	4.4	34.2	11.7	9.4	22.9	4.0	6.4
Non-tillable pasture	7.5	42.6	35.4	30.2	35.7	30.8	76.4
Timber, roads, waste & farmstead	30.4	69.2	92.7	37.8	56.7	30.3	70.7
Total land in farms	431.2	328.5	418.0	396.2	390.6	222.0	455.9
% tillable land	88.4	60.1	69.0	80.6	73.1	73.5	63.6

Miscellaneous Information (continued)

	W. Kittson W. Marshall W. Polk	Mahnomen	East Marshall	Norman	Pennington Red Lake	East Polk	Roseau E. Kittson
CROP YIELDS PER ACRE							
Wheat, hard spring, bu.	20.2	10.8	16.5	14.6	15.1	15.5	13.0
Flax, bu.	3.8	2.8	3.7	5.0	4.7	2.4	5.9
Barley, bu.	27.0	33.7	20.6	29.1	15.7	22.4	18.3
Oats, bu.	38.2	38.0	26.3	26.2	31.5	28.7	34.4
Potatoes (excluding certified seed), bu.	90.2	76.0	-	58.9	23.8	35.7	76.7
Corn, grain, bu.	34.9	39.1	39.6	36.8	24.1	39.2	24.3
Corn silage, tons	6.6	6.7	7.6	7.1	4.9	5.6	6.1
Corn fodder, tons	2.6	3.6	2.8	1.6	1.6	1.5	2.7
Alfalfa hay, tons	1.6	2.0	1.4	2.0	1.9	1.8	1.3
Sweet clover hay, tons	1.1	1.4	1.0	1.1	.9	.8	.9
Sweet clover seed, lbs.	45.0	122.2	154.8	113.2	119.8	144.4	114.5
Wild hay, tons	1.2	.3	.7	.9	.3	.8	.2
MEAS. OF FARM ORGANIZATION & MANAGEMENT EFFICIENCY							
Crop yields - % of average	116	108	92	101	91	95	96
% tillable land in high return crops	47.3	33.7	30.8	35.9	30.8	40.4	41.4
Index of returns from livestock	97	109	94	103	95	106	100
Animal units livestock per 100 A.	9.0	11.6	9.9	9.8	10.9	14.5	9.5
Total work units	516	423	423	503	504	390	522
Work units per worker	248	213	244	245	247	235	226
Expenses per work unit	$2.10	$1.78	$1.61	$1.97	$1.79	$1.55	$1.85
Work units on crops	243	133	165	214	182	100	202
Work units on livestock	249	250	230	259	300	245	282
Other work units	24	40	28	30	22	45	38
Total number of farm workers	2.2	2.0	1.7	2.1	2.0	1.7	2.4
Number of family workers	1.5	1.7	1.3	1.5	1.7	1.5	1.9
Number of hired workers	.7	.3	.4	.6	.3	.2	.5

Table 26. Summary of Farm Earnings by Years*

Items	1940	1941
No. of farms	98	96
FARM EXPENSES		
Horses bought	$20	$19
Dairy and dual-purpose cattle bought	71	58
Beef cattle bought (including feeders)	9	18
Hogs bought	10	24
Sheep bought (including feeders)	31	22
Poultry bought (including turkeys)	24	40
Miscellaneous crop expenses	149	150
Feed bought	138	187
Power machinery (farm share) (new)	226	222
Power machinery (farm share) (upkeep)	330	387
Custom work hired	74	63
Crop and general machinery (new)	195	261
Crop and general machinery (upkeep)	50	57
Livestock equipment (new)	29	51
Livestock equipment (upkeep)	5	8
Miscellaneous livestock expense	13	20
Buildings and fencing (new)	154	167
Buildings and fencing (upkeep)	79	52
Hired labor	211	236
Taxes	193	196
Insurance	5	16
General farm	24	28
(1) Total farm purchases	$2,040	$2,282
(2) Decrease in farm capital	-	-
(3) Board furnished hired labor	103	107
(4) Interest on farm capital	691	710
(5) Unpaid family labor	295	338
(6) Total farm expenses (Sum of (1) to (5)	$3,129	$3,437
FARM RECEIPTS		
Horses	$30	$37
Dairy and dual-purpose cattle	325	409
Dairy products	610	864
Beef cattle (including feeders)	77	118
Hogs	166	333
Sheep and wool	222	242
Poultry (including turkeys)	173	245
Eggs	65	130
Potatoes	120	174
Small grain	560	625
Other crops	123	185
Power machinery sold	84	71
Crop and general machinery sold	32	44
Miscellaneous	133	86
Income from work off the farm	116	125
Agricultural Adjustment payments	252	248
(7) Total farm sales	$3,088	$3,936
(8) Increase in farm capital	364	991
(9) Family living from farm	366	421
(10) Total farm receipts (7) + (8) + (9)	$3,818	$5,348
(6) Total farm expenses	3,129	3,437
(11) Operator's labor earnings (10) - (6)	689	1,911

*The financial statements differ in that the unpaid family labor rate was $40 per month in 1940 and $45 in 1941; and the board for hired labor was calculated at $18 per month in 1940 and $20 in 1941.

Table 27. Summary of Miscellaneous Items by Years

Items	1940	1941
Total farm capital (beginning of year)	$13,639	$13,713
MEASURES OF FARM ORGANIZATION AND MANAGEMENT EFFICIENCY		
% tillable land in high return crops	34.9	37.6
Animal units of productive livestock per 100 A.	9.6	10.5
Work units	456	481
Work units per worker	219	238
Expenses per work unit	$1.86	$1.83
ACRES PER FARM - Total	397.1	390.2
Crop acres per farm	233.9	231.5
CROP YIELDS PER ACRE		
Wheat, bu.	15.0	15.4
Flax, bu.	7.3	4.5
Barley, bu.	20.0	23.8
Oats, bu.	26.7	32.2
Potatoes, bu.	103.4	58.7
Corn, grain, bu.	28.3	34.5
Corn silage, tons	6.1	6.2
Alfalfa hay, tons	1.2	1.7
Sweet clover hay, tons	.7	1.0
Sweet clover seed, lbs.	285.3	117.5
Wild hay, tons	.8	.5
GROSS RETURNS PER:		
Dairy cow	$68.90	$95.93
Dual-purpose cow	61.95	80.71
Animal unit in beef-breeding herd	58.04	57.03
Head of sheep in farm flock	5.93	7.05
100 lbs. hogs produced	5.81	10.70
Hen	1.86	2.88
100 lbs. turkeys produced	15.34	20.84
PRICE RECEIVED PER:		
Lb. butterfat sold to creameries (cents)	30.4	37.4
100 lbs. lambs sold	$8.12	$9.88
100 lbs. hogs sold	$5.32	$9.67
Lb. wool sold (cents)	28.9	40.0
Doz. eggs sold (cents)	13.9	21.9
Lb. turkeys sold (cents)	15.6	21.5
MISC. LIVESTOCK INFORMATION		
No. of work horses	4.0	3.6
No. of colts	.7	.8
No. of dairy or dual-purpose cows	11.2	11.9
Head of other dairy or dual-purpose cattle	13.2	14.4
Head of cattle in beef-breeding herd	3.1	3.6
Litters of pigs	2.3	2.6
Pounds of hogs produced	3,586	4,271
No. of hens	60	66
Head of sheep	38.8	37.4
Pounds of butterfat per dairy cow	220	235
Pounds of butterfat per dual-purpose cow	196	202
No. of pigs weaned per litter	7.2	7.3
% lamb crop	103	108
Pounds wool per sheep sheared	7.8	7.5
Eggs per hen	121	121