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

-0-

Annual Report
of the
Farm Management Service
for T.V.A. Phosphate-Test
Demonstration Cooperators
in Northwestern Minnesota
(March 1, 1945 to February 28, 1946)

-0-

Cooperator _____

Mimeographed Report No. 160
Division of Agricultural Economics
University Farm
St. Paul 1, Minnesota
June 1946

SIXTH ANNUAL REPORT OF THE FARM MANAGEMENT SERVICE
FOR T.V.A. PHOSPHATE-TEST DEMONSTRATION COOPERATORS
IN NORTHWESTERN MINNESOTA FOR THE YEAR 1945

Prepared by T. R. Nodland, G. A. Pond and R. O. Olson

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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 TVA and the fieldman is provided by the TVA 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 TVA 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. Modland. The field organization is handled by the Division of Agricultural Extension with P. H. Burson in charge of this work. R. S. Harris was the fieldman on this project. County agricultural agents who cooperated in this project include Martin Ostrem, Vernon Hoysler, Howard Grow, K. N. Grimsrud, F. W. Forbes, O. A. Daellenbach, Ernest Palmer, Carl G. Ash, Rudolph Stolen, J. E. Roningen, E. T. Larvick, and Melvin Hole.

The following tabulation shows by counties the number of cooperators who completed records in 1945:

Becker	4	Marshall	8	Polk	10
Kittson	4	Norman	6	Red Lake	4
Mahnomen	5	Pennington	7	Roseau	<u>6</u>
				Total	54

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 15 cooperators. Supplementary information was secured during the year regarding crop and livestock production practices.

Because the farmers included in this study are, in general, above the average in managerial ability and operate larger and more productive farms, they have returns materially higher than the average for this section of the state. There were, nevertheless, wide variations in the methods and practices followed by these men. It is reasonable to assume that similar variations occur among all farmers in the area. To the extent that this is true, this report should be of value to all farmers and to others interested in agriculture in that it illustrates how farm records may be used as a basis for making an analysis of a farm business and for improving the management of a farm.

TYPE OF FARMING

Wheat, flax, 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.

Table 1. Monthly and Annual Precipitation

	Crookston		Angus		Roseau	
	Precipitation	Depart- ure from normal	Precipitation	Depart- ure from normal	Precipitation	Depart- ure from normal
	Inches	Inches	Inches	Inches	Inches	Inches
January	0.62	+0.09	0.40	-0.01	0.61	-0.02
February	0.23	-0.32	0.10	-0.37	0.40	-0.17
March	1.13	+0.32	1.21	+0.58	1.79	+0.98
April	2.86	+1.23	1.58	+0.13	2.58	+1.10
May	0.78	-2.03	1.19	-1.06	1.63	-0.55
June	2.60	-0.75	4.12	+0.99	2.73	-0.30
July	2.66	-0.41	3.57	+0.54	3.75	+0.76
August	2.57	-0.17	2.45	-0.29	3.24	+0.64
September	4.11	+1.90	3.31	+1.41	3.20	+1.01
October	0.52	-1.01	0.41	-1.03	0.36	-1.12
November	0.23	-0.49	0.16	-0.60	0.48	-0.43
December	1.64	+0.96	0.57	+0.05	0.74	+0.14
1945 total	19.95	-0.68	19.07	+0.34	21.51	+2.05
1944 total	22.86	+2.23	24.06	+5.33	23.49	+4.03
1943 total	19.81	-0.82	18.77	+0.04	18.26	-1.20
1942 total	19.48	-1.15	19.83	+1.10	22.35	+2.89
1941 total	32.87	+12.24	27.01	+8.28	25.11	+5.65
1940 total	19.80	-0.83	18.75	+0.02	19.79	+0.33
1939 total	20.32	-0.31	17.95	-0.78	16.44	-3.02
Normal annual precipi- tation	20.63		18.73		19.46	

Above normal precipitation during March and April and considerably cooler than normal weather during April, May, and June retarded early field work and the growth of vegetation. The seeding of wheat and other small grains was not completed until the middle of May. Conditions during the summer months favored the growth of small grains, meadows and pastures. Heavy rains during September benefited cultivated crops although threshing was delayed. Killing frosts occurred during late September and caused considerable damage to corn. October and November were very dry. Late harvesting and threshing of small grains and digging of late potatoes were completed without any serious frost damage.

Table 2. Monthly and Annual Temperature, 1945

	Crookston		Angus		Roseau	
	Tempera- ture (de- grees, F.)	Depart- ure from normal	Tempera- ture (de- grees, F.)	Depart- ure from normal	Tempera- ture (de- grees, F.)	Depart- ure from normal
January	9.5	+5.5	7.8	+5.4	6.6	+5.4
February	13.2	+5.8	11.3	+4.8	9.8	+4.8
March	34.6	+12.2	33.4	+11.4	31.1	+11.2
April	39.2	-2.4	37.8	-2.6	35.8	-3.9
May	47.3	-7.2	46.5	-6.8	46.6	-6.4
June	59.2	-5.2	58.7	-3.7	58.4	-4.1
July	66.9	-2.6	66.4	-1.1	66.2	-1.1
August	66.6	0.0	66.0	+0.7	65.6	+1.3
September	53.4	-3.8	53.6	-2.5	53.0	-2.1
October	43.3	-1.2	42.0	-1.6	41.8	-0.9
November	26.0	-0.5	23.2	-2.7	23.6	-0.7
December	6.0	-6.1	3.9	-6.0	5.3	-3.3

Table 3. Net Worth Statement for Those Farmers Who Kept a Complete Record of All Assets and Liabilities, 1945 (Operator's Share)

	Your Farm		22 Owners	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Total acres in farm			382	
Owned			382	
Rented			-	
Total farm capital			17713	18418
Accounts receivable			50	57
Stocks and bonds			1257	1523
Life insurance			398	418
Other outside investments			58	52
Total outside investments			1713	1993
Cash on hand and in bank			725	1002
Other household and personal assets			1136	1142
Total cash, household and personal assets			1861	2144
TOTAL ASSETS			21337	22612
Federal Land Bank Mortgage			481	378
Other mortg. on land operated			2059	1146
Crop loans			-	73
Other chattel mortgages			64	130
Notes payable			119	598
Accounts payable			3	20
TOTAL LIABILITIES			2726	2345
Farmer's net worth			18611	20267
Gain in net worth				+1656

	28 Part Owners*	
	Jan. 1	Dec. 31
Total acres in farm	461	
Owned	305	
Rented	156	
Total farm capital	\$16179	\$17879
Accounts receivable	67	160
Stocks and bonds	1898	2408
Life insurance	476	546
Other outside investments	91	87
Total outside investments	2465	3041
Cash on hand and in bank	1461	1238
Other household & personal assets	1030	1112
Total cash, household & personal assets	2491	2350
TOTAL ASSETS	21202	23430
Federal Land Bank mortgage	603	569
Other mortgage on land operated	1050	962
Crop loans	74	30
Other chattel mortgages	189	132
Notes payable	122	159
Accounts payable	21	1
TOTAL LIABILITIES	2059	1853
Farmer's net worth	19143	21577
Gain in net worth		*2434

*10 rented for cash, 9 cash and crop share, and 9 crop share.

Table 4. Summary of Farm Earnings by Tenure, Operator's Share, 1945

	Your farm	22 owners	28 part- owners
FARM EXPENSES			
Dairy and dual-purpose cows bought	\$ _____	\$ 60	\$ 80
Other dairy and dual-purpose cattle bought	_____	32	65
Beef cattle bought (including feeders)	_____	99	52
Hogs bought	_____	34	44
Sheep bought (including feeders)	_____	6	3
Poultry bought (including turkeys)	_____	135	175
Horses bought	_____	9	4
Misc. livestock expenses	_____	47	69
Misc. crop expenses	_____	358	447
Feed bought	_____	449	737
Custom work hired	_____	115	142
Mech. power mach. (farm share) (new)	_____	102	445
Mech. power mach. (farm share) (upkeep)	_____	143	296
Mech. power (farm share) (gas, oil, etc.)	_____	530	625
Crop and general mach. (new)	_____	316	510
Crop and general mach. (upkeep)	_____	108	146
Livestock equipment (new)	_____	80	82
Livestock equipment (upkeep)	_____	26	29
Buildings and fencing (new)	_____	253	1063
Buildings and fencing (upkeep)	_____	152	138
Hired labor	_____	495	491
Taxes (real estate & personal property)	_____	224	205
General farm and insurance	_____	56	102
Cash rent	_____	-	109
Interest paid	_____	96	85
(1) Total farm purchases	_____	3925	6144
(2) Decrease in farm capital	_____	-	-
(3) Board furnished hired labor	_____	83	111
(4) Interest on farm capital	_____	807	766
(5) Unpaid family labor	_____	425	480
(6) Total farm exp. (Sum of (1) to (5))	_____	5245	7501
FARM RECEIPTS			
Dairy and dual-purpose cows	_____	307	282
Dairy products	_____	1685	1659
Other dairy and dual-purpose cattle	_____	329	469
Beef cattle (including feeders)	_____	226	280
Hogs	_____	616	776
Sheep and wool (including feeders)	_____	416	313
Poultry (including turkeys)	_____	632	1044
Eggs	_____	474	456
Horses	_____	20	25
Potatoes	_____	319	107
Small grain	_____	998	1683
Other crops	_____	222	328
Machinery and equipment sold	_____	178	253
Agricultural adjustment payments	_____	249	329
Income from work off the farm	_____	195	389
Misc.	_____	2	18
(7) Total farm sales	_____	6868	8411
(8) Increase in farm capital	_____	705	1700
(9) Family living from the farm	_____	621	634
(10) Total farm receipts (7) + (8) + (9)	_____	8194	10745
(6) Total farm expenses	_____	5245	7501
(11) Operator's labor earnings (10) - (6)	_____	2949	3244
(12) Ret. cap. & family labor (4) + (5) + (11)	_____	4181	4490

Table 5. Summary of Farm Inventories, 1945*

Items	Your Farm		Average of 54 Farms	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Size of farm (acres)			422	
Size of business (work units)**				
Productive livestock (total)	\$	\$	\$2681	\$2771
Dairy and dual-purpose cows			966	939
Other dairy & dual-purpose cattle			528	562
Beef cattle (incl. feeders)			378	454
Hogs			285	311
Sheep (including feeders)			388	370
Poultry (including turkeys)			136	135
Horses			235	205
Crop, seed, and feed			2091	2454
Machinery & equipment (total)			3050	3309
Power machinery (farm share)			1281	1310
Crop & general machinery (farm share)			1396	1593
Livestock equipment & supplies			373	406
Buildings, fences, etc.			4006	4358
Land			5656	5656
Total farm capital			17719	18753

	11 most profitable farms		11 least profitable farms	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Size of farm (acres)	597		341	
Size of business (work units)**				
Productive livestock (total)	\$3802	\$3893	\$2343	\$2169
Dairy and dual-purpose cows	1107	980	736	747
Other dairy & dual-purpose cattle	466	387	605	615
Beef cattle (including feeders)	976	1162	251	157
Hogs	374	516	247	146
Sheep (including feeders)	674	667	387	380
Poultry (including turkeys)	205	181	117	124
Horses	241	224	194	163
Crop, seed, and feed	3671	6134	1459	1106
Machinery & equipment (total)	5329	5662	2249	2510
Power machinery (farm share)	2200	2102	1086	1118
Crop & general machinery	2518	2971	903	1066
Livestock equipment & supplies	611	589	260	326
Buildings, fences, etc.	5919	6472	3490	3432
Land	8744	8744	4637	4637
Total farm capital	27706	31129	14372	14017

*For the purpose of comparison, all the data shown in this report with the exception of Tables 3 and 4 are presented on a full-owner basis. The assets, expenses and receipts of the landlord were included in the records from rented farms.

**See page 11 for an explanation of "work units".

Table 6. Farm Produce Used in House and House Rental, 1945

Items	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
No. of adult equiv.								
Family		3.2	3.0	2.6				
Other*		.6	.9	.5				
Whole milk		867 qts.	893	611	\$	\$47.95	\$50.57	\$34.79
Skim milk		963 qts.	919	1135		6.24	5.15	5.99
Cream		375 pts.	276	338		77.32	57.08	72.40
Farm-made butter		19 lbs.	2	9		8.95	.89	4.28
Eggs		148 doz.	197	125		47.57	63.97	39.55
Cattle		533 lbs.	736	385		55.06	83.95	38.00
Hogs		512 lbs.	538	405		74.54	76.54	69.36
Sheep		30 lbs.	27	35		2.32	1.55	3.18
Poultry		67 lbs.	82	74		16.60	19.65	19.95
Potatoes		23 bu.	23	24		30.75	33.50	31.85
Vegetables & fruits						81.86	109.09	48.18
Farm fuel		6 cds.	5	4		30.20	26.91	21.27
Rental val. of house						139.23	157.40	131.70
Total					\$	\$618.59	\$686.25	\$520.50

Table 7. Household and Personal Expenses for Those Farms Which Kept Complete Accounts of These Expenses, 1945

Items	Your farm	Average of 15 farms	7 most profitable farms	7 least profitable farms
Number of persons - family		4.3	4.4	4.1
Number of adult equivalents				
Family		3.0	3.1	2.8
Other*		.6	.7	.6
Food and meals bought	\$	\$347	\$390	\$268
Operating and supplies		114	100	139
Clothing and clothing materials		207	263	145
Personal care, personal spending		78	114	45
Furnishings and equipment		68	103	36
Education, recreation, and development		73	118	34
Medical care and health insurance		88	96	85
Church, welfare and gifts		181	226	161
Income tax		265	482	80
Personal share of auto expense		62	84	36
Household share of elct. & gas eng. exp.		18	16	13
H.H. & pers. sh. of new auto, gas eng. & motor bot.		-	-	-
Life insurance and other investments		785	1116	566
Total household and personal cash expenses		\$2286	\$3108	\$1608
Food furnished by the farm		453	531	342
Fuel furnished by the farm		36	50	12
House rental		123	124	110
Total household and personal expenses		\$2898	\$3813	\$2072

*Hired help or others boarded.

Table 8. Summary of Farm Earnings (Cash Statement), 1945

Items	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
FARM EXPENSES				
Dairy and dual-purpose cows bought	\$ _____	\$ 74	\$ 90	\$ 60
Other dairy & du. pur. cattle bought	_____	50	44	29
Beef cattle bought (including feeders)	_____	67	102	-
Hogs bought	_____	39	16	30
Sheep bought	_____	14	9	1
Poultry bought (including turkeys)	_____	148	302	87
Horses bought	_____	6	-	8
Misc. livestock expense	_____	57	85	41
Misc. crop expenses	_____	388	824	203
Feed bought	_____	566	921	369
Custom work hired	_____	125	153	126
Mech. power mach. (farm share) (new)	_____	273	264	189
Mech. power mach. (farm share) (upkeep)	_____	224	408	132
Mech. power (farm share) (gas, oil, etc.)	_____	569	959	391
Crop and general mach. (new)	_____	415	794	324
Crop and general mach. (upkeep)	_____	126	198	72
Livestock equipment (new)	_____	83	53	104
Livestock equipment (upkeep)	_____	26	37	27
Buildings and fencing (new)	_____	579	855	80
Buildings and fencing (upkeep)	_____	136	125	145
Hired labor	_____	473	855	297
Taxes	_____	249	409	180
General farm and insurance	_____	78	176	47
(1) Total farm purchases	_____	4765	7679	2942
(2) Decrease in farm capital	_____	-	-	355
(3) Board furnished hired labor	_____	98	185	61
(4) Interest on farm capital	_____	912	1471	710
(5) Unpaid family labor	_____	417	502	239
(6) Total farm exp. (Sum of (1) to (5))	_____	6192	9837	4307
FARM RECEIPTS				
Dairy and dual-purpose cows	_____	314	467	194
Dairy products	_____	1646	1680	1230
Other dairy & dual-purpose cattle	_____	406	366	385
Beef cattle (including feeders)	_____	237	507	175
Hogs	_____	696	1308	484
Sheep and wool (including feeders)	_____	392	607	379
Poultry (including turkeys)	_____	802	1730	334
Eggs	_____	440	651	375
Horses	_____	22	7	9
Potatoes	_____	185	369	92
Small grain	_____	1490	2955	668
Other crops	_____	292	339	155
Machinery & equip. sold	_____	213	403	124
Agricultural adjustment payments	_____	283	675	144
Income from work off the farm	_____	285	612	77
Misc.	_____	10	19	16
(7) Total farm sales	_____	7713	12695	4841
(8) Increase in farm capital	_____	1034	3423	-
(9) Family living from the farm	_____	619	686	521
(10) Total farm receipts (7) - (8) - (9)	_____	9366	16804	5362
(6) Total farm expenses	_____	6192	9837	4307
(11) Oper. labor earnings (10) - (6)	_____	3174	6967	1055

Table 9. Summary of Farm Earnings (Enterprise Statement), 1945*

Items	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
<u>EXPENSES AND NET DECREASES</u>				
Total power	\$ 995	\$1504	\$763	
Horses	114	91	112	
Tractor	488	779	365	
Truck	137	331	75	
Auto (farm share)	165	162	123	
Gas engine (farm share)	10	13	6	
Elec. plant or current (farm share)	33	71	34	
Hired power	48	57	48	
Crop and general machinery	248	212	198	
Livestock equipment	73	105	62	
Buildings, fencing and tiling	289	348	206	
Misc. productive livestock expense	55	84	41	
Labor	1037	1600	650	
Real estate taxes	198	337	150	
Personal property tax	51	72	30	
Insurance	20	36	8	
General farm	58	141	39	
Interest on farm capital	912	1471	710	
(1) Total expenses and net decreases	3936	5910	2857	
<u>RETURNS AND NET INCREASES</u>				
All productive livestock	\$ 5044	\$7281	\$3553	
Dairy and dual-purpose cows	1922	1999	1403	
Other dairy & dual-purpose cattle	605	392	572	
Beef cattle	239	648	95	
Hogs	758	1511	423	
Sheep - farm flock	362	593	373	
Turkeys and capons	603	1290	185	
Chickens	555	848	502	
Crops, seed and feed	1541	4554	81	
Income from labor off the farm	165	269	62	
Agricultural conservation payments	283	675	144	
Miscellaneous	77	98	72	
(2) Total returns & net increases	7110	12877	3912	
(1) Total expenses & net decreases	3936	5910	2857	
(3) Oper. labor earnings (2) - (1)	3174	6967	1055	

*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 in page 8.

CUMULATIVE EFFECT OF EXCELLING IN A NUMBER OF MANAGEMENT FACTORS

The relation of several management factors to operator's labor earnings has been shown in the preceding section. Because of the large number of interrelationships between these factors the exact relationship between one factor and earnings could not be determined. However, when the combined or cumulative influence of seven management factors on earnings is shown, the relationship becomes more marked. This is illustrated in Table 10. These seven factors alone are responsible for a considerable proportion of the variation among farmers in the returns secured from the farm business. Insofar as these factors are within the farmer's control, he will be well paid for his efforts to improve his efficiency in them.

Table 10. Relation of Operator's Labor Earnings to the Number of Factors in which the Farm 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
None or one	6	_____	XXXXXXXXXXXXX	\$1289
Two	14	_____	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	2667
Three	10	_____	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	2802
Four	13	_____	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	3780
Five	9	_____	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	4109
Six or seven	3	_____	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	4491

The array in Table 10 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 11. Feed Costs for Horses and Misc. Power and Machinery Expense, 1945

Items	Your farm	Average of 53 farms*	11 most profitable farms	11 least profitable farms
Feed per horse, ** lbs.:				
Grain	_____	567	586	588
Hay	_____	4440	4506	4340
Feed costs per horse:				
Grain	\$ _____	\$10.60	\$11.07	\$11.20
Roughage	_____	15.74	16.06	15.17
Pasture	_____	2.84	2.77	2.72
TOTAL FEED COSTS	\$ _____	\$29.18	\$29.90	\$20.09
Number of work horses	_____	3.4	3.4	2.9
Number of colts	_____	.4	.3	.3
Crop acres per farm	_____	239.1	347.2	158.4
Tractor & horse exp. per crop acre	\$ _____	\$2.75	\$2.55	\$3.11
Crop & gen. mach. exp. per crop acres	\$ _____	1.29	1.12	1.33

*One farmer did not have horses. The crop acres and expenses per crop acre are averages of 54 farms.

**Two colts equal one horse.

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 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 12.

Table 12. Number of Work Units for Each Class of Livestock and Each Acre of Crop

Item	No. of work units	Item	No. of work units
Dairy and dual-pur. cow	15.5 per cow	Small grain	.7 per acre
Other dairy & dual-purpose cattle	2.4 per an. unit*	Sugar beets	2.5 per acre
Beef breeding herd	4.3 per an. unit*	Seed potatoes	4.3 per acre
Feeder cattle	.3 per 100 lbs.	Other potatoes	3.8 per acre
Sheep - farm flock	2.2 per an. unit*	Corn, husked	1.3 per acre
Hogs	.3 per 100 lbs.	Corn, shredded	2.0 per acre
Turkeys	.7 per 100 lbs.	Corn silage	1.4 per acre
Hens	28.0 per 100 hens	Corn fodder	1.1 per acre
		Alfalfa hay	.8 per acre
		Other hay crops	.6 per acre
		Legume seed	1.0 per acre

*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 1400 pounds of turkeys produced.

Table 13. Measures of Farm Organization and Management Efficiency, 1945

Measures used in chart on page 13	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
Operator's labor earnings	\$ _____	\$3174	\$6967	\$1055
(1) Crop yields*	_____	100	114	90
(2) % of tillable land in high ret. crops**	_____	39.2	42.7	36.4
(3) Gross returns from prod. livestock***	_____	100	104	96
(4) Prod. livestock units per 100 acres****	_____	11.3	11.4	10.6
(5) Size of business - work units	_____	521	711	364
(6) Work units per worker	_____	274	309	228
(7) Power, mach., equip. & bldg.exp. per work unit	\$ _____	\$3.14	\$3.08	\$3.44

Items related to some of the above measures:

(3) Index of gross returns from -				
Dairy cattle	_____	100	114	88
Dual-purpose cattle	_____	100	86	98
Beef cattle - breeding herd	_____	100	91	-
Beef cattle - feeders	_____	100	-	-
Hogs	_____	100	99	93
Sheep - farm flock	_____	100	115	94
Turkeys	_____	100	104	96
Chickens	_____	100	109	121
(5) Work units on crops	_____	186	276	122
Work units on productive livestock	_____	302	381	230
Other work units	_____	33	54	12
(6) Total number of workers	_____	1.9	2.3	1.6
Number of family workers	_____	1.4	1.5	1.3
Number of hired workers	_____	.5	.8	.3
(7) Power expense per work unit	\$ _____	\$1.92	\$2.00	\$2.15
Crop machinery expense per work unit	_____	.52	.40	.55
Livestock equip. expense per work unit	_____	.15	.17	.17
Bldgs. and fencing exp. per work unit	_____	.55	.51	.57

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

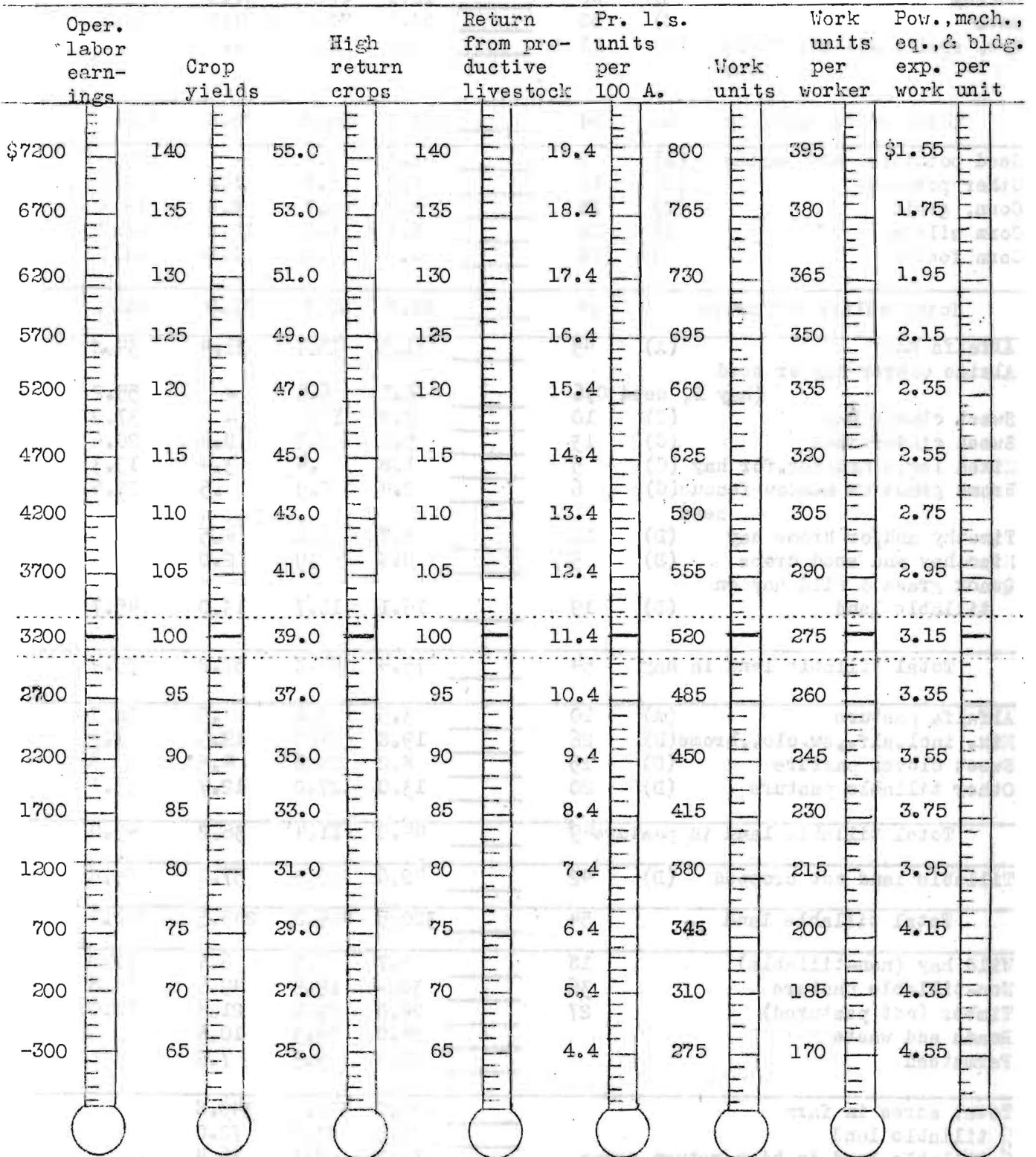


Table 14. Distribution of Acres in Farm, 1945

Crop: (A), (B), (C), and (D) refer to ranking used in cal- culating % of tillable land in High Return Crops (see page 12)	No. growing this crop	Your farm	Aver. of 54 farms	11 most profit- able farms	11 least profit- able farms	Average per farm growing each crop
Wheat (A)	41	_____	28.2	59.6	11.0	37.1
Flax (B)	31	_____	28.1	59.5	15.5	48.9
Barley (B)	33	_____	18.0	33.2	13.4	29.4
Oats (C)	53	_____	54.1	70.0	31.5	55.2
Rye, spelt, millet, field peas (D)	12	_____	3.0	2.0	1.8	13.9
Total small grain and peas	54	_____	131.4	224.3	73.2	131.4
Seed potatoes, and garden (A)	5	_____	2.6	4.6	-	29.0
Other potatoes (B)	15	_____	1.8	5.9	1.8	6.6
Corn, grain (C)	26	_____	9.0	14.7	6.4	18.8
Corn silage (D)	32	_____	9.9	9.9	10.2	16.7
Corn fodder (D)	16	_____	3.3	2.5	3.5	11.1
Total cultivated crops	49	_____	26.6	37.6	21.9	29.4
Alfalfa hay (A)	49	_____	31.5	35.7	31.4	34.8
Alsido clover hay or seed (hay B, seed C)	6	_____	6.1	6.5	-	55.2
Sweet clover hay (C)	10	_____	7.0	14.2	-	37.9
Sweet clover seed (C)	13	_____	5.0	2.9	2.4	20.6
Mixed leg.& non-leg.for hay (C)	5	_____	1.8	.4	3.4	19.3
Brome grass or meadow fescue seed (C)	6	_____	2.4	8.9	.5	21.5
Timothy and/or brome hay (D)	12	_____	2.7	3.6	4.5	13.2
Misc.hay and seed crops (D)	5	_____	2.8	.9	2.0	29.8
Quack grass & wild hay on tillable land (D)	19	_____	16.1	11.7	13.0	45.7
Total tillable land in hay	54	_____	75.4	84.8	57.2	75.4
Alfalfa pasture (A)	10	_____	3.5	3.6	.5	18.7
Mix. incl.alf.,sw.clo.,brome(B)	26	_____	19.8	21.0	18.5	41.2
Sweet clover pasture (C)	15	_____	8.2	19.6	4.5	29.6
Other tillable pasture (D)	20	_____	13.0	27.2	12.7	35.1
Total tillable land in pasture ¹⁹	49	_____	44.5	71.4	36.2	49.0
Tillable land not cropped (D)	42	_____	42.6	80.9	57.0	54.8
Total tillable land	54	_____	320.5	499.0	245.5	320.7
Wild hay (non-tillable)	18	_____	5.7	.5	6.1	17.0
Non-tillable pasture	36	_____	36.4	19.9	49.4	54.6
Timber (not pastured)	27	_____	26.0	29.0	21.4	52.0
Roads and waste		_____	25.0	39.3	10.5	
Farmstead		_____	8.4	9.3	7.9	
Total acres in farm		_____	422.0	597.0	340.8	
% tillable land		_____	75.9	83.6	72.0	
% tillable land in high return crops		_____	39.2	42.7	36.4	

Table 15. Crop Yields per Acre, 1945

Crop	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
Wheat bu.	_____	16.9	23.9	14.7
Flax, bu.	_____	7.8	8.5	8.2
Barley, bu.	_____	28.7	35.7	27.7
Oats, bu.	_____	35.8	36.0	33.9
Rye, bu.	_____	12.2	-	-
Millet, bu.	_____	6.9	-	-
Field peas, bu.	_____	8.1	-	-
Seed potatoes, bu.	_____	97.0	-	-
Other potatoes, bu.	_____	79.5	143.9	64.0
Corn, grain, bu.	_____	22.4	30.4	15.2
Corn silage, tons	_____	5.0	6.4	3.7
Corn fodder, tons	_____	1.8	.9	2.2
Alfalfa hay, tons	_____	1.7	1.8	1.8
Alsike clover hay, tons	_____	1.3	-	-
Alsike clover seed, lbs.	_____	114	-	-
Sweet clover hay, tons	_____	1.4	1.5	-
Sweet clover seed, lbs.	_____	177	128	121
Mixed legume and non-legume hay, tons	_____	1.4	-	-
Meadow fescue seed lbs.	_____	232	-	-
Brome grass hay, tons	_____	1.1	-	-
Timothy hay, tons	_____	1.0	-	.8
Quack grass, tons	_____	.9	-	-
Wild hay, on tillable land, tons	_____	.8	-	.6
Wild hay on non-tillable land, tons	_____	.4	-	.7

Table 16. Summary of Amount of Livestock, 1945

Items	Your farm	Average of 54 farms	11 most profitable farms	11 least profitable farms
No. of horses	_____	3.4	3.4	2.7
No. of colts	_____	.4	.3	.3
No. of dairy & dual-purpose cows	_____	12.6	12.9	10.1
Head of other dairy & dual-purpose cattle	_____	15.4	12.6	13.5
Head of cattle in beef breeding herd	_____	4.4	12.4	2.2
Litters of pigs	_____	3.6	7.6	2.0
Pounds of hogs produced	_____	5370	10784	3204
Head of sheep (2 lambs = 1 head)	_____	46.0	72.7	45.2
No. of hens	_____	107	149	87
Total no. of prod. lvstk. animal units	_____	36.3	50.4	28.1
% of total that are:				
Dairy cows	_____	23.1	18.5	17.0
Other dairy cattle	_____	13.2	10.7	8.8
Dual-purpose cows	_____	16.1	13.8	21.9
Other dual-purpose cattle	_____	11.4	6.0	16.2
Beef cattle	_____	8.3	15.3	8.5
Hogs	_____	6.1	8.5	4.9
Sheep - farm flock	_____	15.2	17.2	18.1
Turkeys and capons	_____	3.2	6.3	1.1
Hens	_____	3.4	3.7	3.5

Table 17. Returns from Productive Livestock, 1945

Items	Your farm	Average of 54 farms	11 highest in livestock returns	11 lowest in livestock returns
DAIRY CATTLE				
No. of farms	_____	30	7	8
Gross returns per dairy cow	\$ _____	\$170.29	\$230.50	\$131.14
Pounds of butterfat per cow	_____	234	300	195
No. of heads of cows	_____	12.5	11.1	11.0
Gross ret. per head oth. dairy cattle	\$ _____	\$ 40.98	\$52.30	\$ 32.93
No. head of other dairy cattle	_____	14.2	8.6	13.4
Gross ret. per an. unit all da. cattle	\$ _____	\$129.51	\$178.37	\$100.29
No. of an. units all dairy cattle	_____	20.0	15.7	18.1
DUAL-PURPOSE CATTLE				
No. of farms	_____	22	4	3
Gross ret. per dual-purpose cow	\$ _____	\$139.51	\$203.93	\$78.10
Pounds of butterfat per cow	_____	188	244	.117
No. of head of cows	_____	13.9	15.5	22.8
Gross ret. per head oth. du. pur. cattle	\$ _____	\$ 42.29	\$ 44.66	\$40.40
No. head oth. du. pur. cattle*	_____	19.3	24.7	13.2
Gross. ret. per an. unit all du. pur. cattle	\$ _____	\$109.83	\$147.06	\$75.97
No. of an. units all dual pur. cattle	_____	23.5	28.3	29.9
PRICE REC'D PER LB. BUTTERFAT SOLD				
All butterfat (cents)	_____	69.8	74.8	65.1
Manufacturing cream (cents)	_____	64.7	65.0	63.3
Retail milk or cream (cents)	_____	82.3	82.0	88.0

See page 17 for footnotes

Table 17. Returns from Productive Livestock, 1945 (Cont.)

Items	Your farm	Average of 54 farms	11 highest in livestock returns	11 lowest in livestock returns
<u>BEEF BREEDING HERD</u>				
No. of farms		7	1	1
Gross returns per animal unit	\$	\$55.96	-	-
No. animal units		23.0	-	-
No. beef cows and bulls		13.0	-	-
<u>FEEDER CATTLE</u>				
No. of farms		3	0	1
Gross ret. per cwt. produced	\$	\$15.07	-	-
Lbs. of cattle produced		7428	-	-
Price rec'd. per cwt. sold	\$	\$11.73	-	-
Price rec'd per cwt. bought		9.04		
<u>HOGS</u>				
No. of farms		39	8	8
Gross ret. per cwt. produced	\$	\$14.17	\$14.01	\$13.95
Lbs. hogs produced		7145	5910	7122
No. spring litters		4.5	3.8	4.5
No. fall litters		.4	.5	.3
Total no. litters raised		4.9	4.3	4.8
Pigs born per litter		8.7	8.8	8.4
Pigs weaned per litter		6.8	6.5	6.7
Price rec'd, per cwt. sold	\$	\$14.15	\$14.01	\$14.17
<u>SHEEP-FARM FLOCK</u>				
No. of farms		25	4	6
Gross ret. per head**	\$	\$ 8.47	\$12.16	\$ 6.96
No. head of sheep		99	85	106
No. ewes kept for lambing		67	63	68
% lamb crop **		92	96	86
% death loss **		7.0	5.3	5.3
Lbs. wool per sheep sheared		7.2	7.6	6.7
Price rec'd per lb. wool sold (cts.)		46.2	44.5	47.4
Price rec'd per cwt. lambs sold	\$	\$13.48	\$14.35	\$12.14
<u>TURKEYS</u>				
Number of farms		7	1	2
Number of poults		1008	-	290
Price paid per poult purchased (etc.)		82.9	-	81.2
% death loss		19.9	-	27.8
Gross ret. per cwt. produced	\$	\$30.78	-	\$29.54
Lbs. produced		13872	-	3363
Price rec'd. per lb. sold (cts.)		35.7	-	35.4
Weight per bird sold, lbs.		16.8	-	15.7
<u>CHICKENS</u>				
No. of farms		44	10	8
Gross ret. per hen	\$	\$ 5.30	\$ 6.63	\$4.09
No. hens		125	129	106
Eggs per hen		155	167	121
Price rec'd. per doz. eggs sold (cts.)		35.3	37.2	33.6
No. chicks purchased -straight run		154	155	130
-sexed		65	65	66

* One farmer having both a dual-purpose herd and a beef herd used a beef bull and included all the young stock in the beef herd.

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

*** Lambs which die during month of birth are not included.

Table 18. Summary of Farm Earnings and Inventories by Years

Items	1940	1941	1942	1943	1944	1945
No. of farms	98	96	79	72	67	54
Monthly charge for unpd. fam. lab.	\$40	\$45	\$55	\$70	\$80	\$85
Monthly charge for board to hired lab.	18	20	25	25	25	25
FARM EXPENSES						
Dairy and dual-purpose cattle bought	\$ 71	\$ 58	\$ 89	\$ 96	\$ 131	\$ 124
Beef cattle bought (incl. feeders)	9	18	83	62	26	67
Hogs bought	10	24	54	26	38	39
Sheep bought (including feeders)	31	22	36	42	38	14
Poultry bought (including turkeys)	24	40	66	112	160	148
Horses bought	20	19	17	5	15	6
Miscellaneous livestock expense	13	20	31	49	57	57
Miscellaneous crop expenses	149	150	265	346	396	388
Feed bought	138	187	380	684	480	566
Custom work hired	74	63	81	133	133	125
Power mach. (farm share) (new)	226	222	124	148	266	273
Power mach. (farm share) (upkeep)	330	387	462	583	659	793
Crop and general mach. (new)	195	261	165	135	341	415
Crop and general mach. (upkeep)	50	57	88	111	120	126
Livestock equipment (new)	29	51	60	53	64	83
Livestock equipment (upkeep)	5	8	17	27	25	26
Buildings and fencing (new)	154	167	208	178	107	579
Buildings and fencing (upkeep)	79	52	84	99	149	136
Hired labor	211	236	324	465	541	473
Taxes	193	196	200	210	217	249
General farm and insurance	29	44	56	54	61	78
(1) Total farm purchases	\$2,040	\$2,282	\$2,890	\$3,618	\$4,024	\$4,765
(2) Decrease in farm capital	-	-	-	-	-	-
(3) Board furnished hired labor	103	107	134	144	124	98
(4) Interest on farm capital	691	710	756	788	826	912
(5) Unpaid family labor	295	338	402	427	419	417
(6) Tot. farm exp. (Sum of (1) to (5))	\$3,129	\$3,437	\$4,182	\$4,977	\$5,393	\$6,192

Table 18 Summary of Farm Earnings and Inventories by Year (Cont'd).

Items	1940	1941	1942	1943	1945	1946
FARM RECEIPTS						
Dairy and dual-purpose cattle	\$ 325	\$ 409	\$ 576	\$ 612	\$ 653	\$ 720
Dairy products	610	864	1,054	1,197	1,201	1,648
Beef cattle (including feeders)	77	118	257	300	274	237
Hogs	166	333	750	987	647	696
Sheep and wool	222	242	327	340	332	392
Poultry (including turkeys)	173	245	451	573	660	802
Eggs	65	130	263	364	402	440
Horses	30	37	21	22	18	22
Potatoes	120	174	272	416	484	185
Small grain	560	625	1,150	1,194	1,645	1,490
Other crops	123	185	161	285	449	292
Machinery and equipment sold	115	115	56	138	142	213
Income from labor off the farm	116	125	99	105	131	283
Agricultural Adjustment payments	252	248	227	205	214	285
Miscellaneous	133	86	96	86	59	10
(7) Total farm sales	\$3,088	\$3,936	\$5,760	\$6,824	\$7,311	\$7,713
(8) Increase in farm capital	364	991	809	125	419	1,034
(9) Family living from farm	366	421	502	590	594	619
(10) Total farm receipts (7)+(8)+(9)	\$3,818	\$5,348	\$7,071	\$7,539	\$8,324	\$9,366
(6) Total farm expenses	3,129	3,437	4,182	4,977	5,393	6,192
(11) Oper. labor earnings (10) - (6)	689	1,911	2,889	2,562	2,931	3,174
INVENTORIES						
Productive livestock (total)	1550	1824	2418	2686	2578	2726
Dairy or dual purpose cattle	997	1138	1350	1392	1336	1497
Beef cattle	175	205	375	443	453	416
Hogs	65	143	268	332	253	298
Sheep	270	278	336	395	408	379
Poultry	43	60	89	124	128	136
Horses	327	294	303	234	240	220
Crop, seed, and feed	923	1120	1393	1618	1904	2272
Machinery and equip. (total)	2183	2345	2522	2546	2699	3180
Power mach. (farm share)	964	1052	1098	1060	1125	1296
Crop and general mach.	1046	1098	1188	1194	1246	1494
Livestock equipment	178	195	236	292	328	390
Bldgs., fences, etc.	3585	3602	3768	3712	3816	4182
Land	5248	5024	4714	4018	5274	5656
Total farm capital	13821	14209	15118	15764	16511	18236

Table 19. Summary of Miscellaneous Items by Years

Items	1940	1941	1942	1943	1944	1945
<u>MEASURES OF FARM ORGANIZATION AND MANAGEMENT EFFIC.</u>						
% tillable land in high return crops	34.9	37.6	38.3	41.5	43.7	39.2
Prod. livestock units per 100 A.	9.6	10.5	12.0	12.7	11.6	11.3
Work units	456	481	475	506	511	521
Work units per worker	219	238	236	247	256	274
Expenses per work unit	\$1.86	\$1.83	\$2.26	\$2.64	\$2.81	\$3.14
<u>GROSS RETURNS PER:</u>						
Dairy cow	\$68.90	\$95.93	\$114.92	\$128.95	\$133.53	\$170.29
Dual-purpose cow	61.95	80.71	105.72	110.33	112.73	139.51
Animal unit in beef-breeding herd	58.04	57.03	80.20	51.91	52.94	55.96
Head of sheep in farm flock	5.93	7.05	11.02	7.11	6.88	8.47
100 lbs. hogs produced	5.81	10.70	14.38	12.59	13.34	14.17
Hen	1.86	2.88	3.85	4.91	4.60	5.30
100 lbs. turkeys produced	15.34	20.84	31.77	30.08	30.27	30.78
<u>PRICE RECEIVED PER:</u>						
Lb. B.F. sold to creameries (cts.)	30.4	37.4	45.3	53.8	58.9	64.7
100 lbs. lambs sold	\$8.12	\$9.88	\$13.31	\$11.54	\$11.84	\$13.48
100 lbs. hogs sold	\$5.32	\$9.67	\$13.52	\$13.05	\$12.68	\$14.15
Lb. wool sold (cts.)	28.9	40.0	41.3	43.7	45.5	46.2
Doz. eggs sold (cts.)	13.9	21.9	28.1	33.2	31.2	35.3
Lb. turkeys sold (cts.)	15.6	21.5	31.7	33.5	34.9	35.7
<u>MISC. LIVESTOCK INFORMATION</u>						
No. of work horses	4.0	3.6	3.7	3.6	3.4	3.4
No. of colts	.7	.8	.7	.7	.4	.4
No. of dairy or dual-purpose cows	11.2	11.9	11.9	12.1	11.7	12.6
Head other dairy or dual-pur. cattle	13.2	14.4	15.8	16.1	16.2	15.4
Head in beef-breeding herd	3.1	3.6	4.3	6.1	5.8	4.4
Litters of pigs	2.3	2.6	4.0	5.8	2.9	3.6
Pounds of hogs produced	3,586	4,271	6,654	7,800	4,757	5,370
No. of hens	60	66	98	101	109	107
Head of sheep	38.8	37.4	38.4	43.7	47.6	46.0
Lbs. of butterfat per dairy cow	220	235	230	213	220	234
Lbs. of B.F. per dual-purpose cow	196	202	210	192	180	188
No. of pigs weaned per litter	7.2	7.3	7.3	6.8	7.2	6.8
% lamb crop	103	108	114	93	101	92
Pounds wool per sheep sheared	7.8	7.5	7.9	7.7	7.3	7.2
Eggs per hen	121	121	129	144	156	155

Table 19 Summary of Miscellaneous Items by Years (cont'd)

Items	1940	1941	1942	1943	1944	1945
<u>DISTRIBUTION OF ACRES PER FARM</u>						
Wheat	29.4	27.6	19.9	23.1	38.1	28.2
Flax	28.9	19.9	24.9	19.8	13.6	28.1
Barley	29.2	23.7	23.5	26.2	19.5	18.0
Oats	36.0	37.7	36.1	40.1	52.0	54.1
Misc. small grains	9.5	9.6	5.7	5.9	5.3	3.0
Total small grains	133.0	118.5	110.1	115.1	128.5	131.4
Potatoes	5.8	5.0	3.9	4.7	5.7	4.4
Other cult. crops	19.4	18.9	22.4	22.0	21.9	22.2
Total cult. crops	25.2	23.9	26.3	26.7	27.6	26.6
Alfalfa hay or seed	18.3	24.3	29.4	33.0	30.7	31.5
Sweet clov. hay or seed	21.9	31.5	11.2	10.4	9.9	12.0
Misc. hay and seed crops	21.2	20.7	19.6	24.0	30.8	31.9
Total hay and seed crops	61.4	76.5	60.2	67.4	71.4	75.4
Alf. or alf. mix. pasture	5.0	8.2	12.0	20.0	15.0	23.3
Sweet clover pasture	16.7	13.8	20.0	8.3	11.2	8.2
Other tillable pasture	17.1	13.4	11.9	13.4	18.2	13.0
Total tillable pasture	38.8	35.4	43.9	41.7	44.4	44.5
Tillable land not cropped	29.0	30.6	40.2	36.2	22.1	42.6
Total tillable land	287.4	284.9	280.7	287.1	294.0	320.5
Non-tillable land in wild hay	14.2	12.6	7.9	12.9	11.5	5.7
Non-tillable pasture	36.2	37.9	37.3	40.2	44.8	36.4
Timber, roads, waste, farmstead	59.3	54.8	69.9	51.6	52.6	59.4
Total acres per farm	397.1	390.2	395.8	391.8	402.9	422.0
<u>CROP YIELDS PER ACRE</u>						
Wheat, bu. (hard spring)	15.0	15.4	22.9	17.3	19.8	16.9
Flax, bu.	7.3	4.5	6.0	4.5	6.7	7.8
Barley, bu.	20.0	23.8	32.9	16.9	25.8	28.7
Oats, bu.	26.7	32.2	46.8	30.6	43.0	35.8
Potatoes, bu.	103.4	58.7	66.9	76.3	71.4	79.5
Corn, grain, bu.	28.3	34.5	24.7	32.4	38.5	22.4
Corn silage, tons	6.1	6.2	6.3	5.1	6.4	5.0
Alfalfa hay, tons	1.2	1.7	1.8	1.8	1.8	1.7
Sweet clover hay, tons	.7	1.0	1.4	1.2	1.1	1.4
Sweet clover seed, lbs.	285	118	258	211	228	177
Wild hay, tons	.8	.5	.6	.6	.6	.6