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North Central South Dakota Farm Record Summary 1948 Sixth Annual Report

R. O. Olson

1948

SIXTH ANNUAL REPORT

NORTH CENTRAL SOUTH DAKOTA FARM RECORD SUMMARY

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43 FARMS

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Agricultural Experiment Station
in cooperation with
Agricultural Extension Service
South Dakota State College
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SIXTH ANNUAL REPORT OF THE NORTH CENTRAL SOUTH DAKOTA RECORD PROJECT, 1948

Prepared by R. O. Olson

Introduction

This is the sixth annual report of the farm record study started by the Experiment Station in 1943. The analysis of the records and preparation of the report was carried out under the direction of R. O. Olson of the Experiment Station. Educational work in connection with the project is handled by Lyle Bender and A. W. Anderson of the Extension service. Kenneth Monson, the fieldman for the project, visited the cooperating farmers during the year and assisted in closing out their record books at the end of the year. Following is a list of the counties covered in the study and the county agents who actively cooperated in the project.

County	Agent
Beadle	Gale Peppers
Faulk	Douglas Wallace
Hand	Laverne Kortan
Hyde	Kenneth Wanless
Potter	Rayburn Butram
Sully	John F. Neu

Farmers cooperating in this project kept records of cash receipts and expenses, beginning and end of year inventories, crop and livestock production, and farm produce used by the household. Additional information was obtained on management practices used, crop varieties, and on family and hired labor.

The summaries of farm earnings and inventories were prepared as though the operators were all full owners. This has been done in order to more nearly compare all farmers on an equal basis. Each cooperator, however, received an earnings statement on the basis of his actual tenure situation and in table 18 a comparison is made between owners, part-owners, and tenants.

Earnings were high again in 1948. Good yields with continued high prices contributed to high gross earnings. Production costs averaged higher than previous years. Net earnings averaged somewhat lower than a year earlier. Farm prices have continued downwards while production expenses are remaining at a high level. This situation may be expected to continue. Careful planning for efficient production is necessary to maintain farm earnings.

Climatic Conditions

Climatic conditions were generally favorable for crops in this area during 1948. Lack of rainfall in May caused the surface soil to become so dry that germination of seeds was delayed, but June rains and an otherwise favorable season resulted in good small grain production. Adequate rainfall and a long growing season resulted in a better than average corn crop.

Table 1. Monthly and Annual Precipitation and Departure from Normal, Faulkton, Gettysburg, and Miller Weather Stations, 1948

	Faulkton		Gettysburg		Miller	
	1948	Departure from Normal	1948	Departure from Normal	1948	Departure from Normal
January	0.20	-0.28	0.25	-0.11	0.21	-0.23
February	0.90	+0.34	0.38	-0.05	0.46	+0.05
March	0.48	-0.67	0.60	-0.38	0.30	-0.57
April	1.77	-0.58	3.29	+1.72	2.31	+0.38
May	0.68	-2.13	0.45	-1.71	0.97	-1.87
June	6.36	+2.94	4.95	+1.59	3.84	+0.49
July	3.98	+1.77	5.34	+3.39	4.61	+2.32
August	1.59	-0.70	2.24	+0.90	2.32	+0.12
September	0.64	-0.81	0.96	-0.18	0.35	-0.99
October	1.41	+0.26	0.97	+0.38	0.82	-0.29
November	0.41	-0.23	0.57	+0.18	0.09	-0.44
December	0.17	-0.22	0.08	-0.22	0.07	-0.31
1948 total	18.59	-0.31	20.08	+5.51	16.35	-1.34
1947 total	19.47	+0.57	13.69	-0.88	19.87	+2.18
1946 total	24.53	+5.63	22.00	+7.43	24.03	+6.34
1945 total	17.77	-1.13	16.41	+1.64	18.04	+0.35
1944 total	25.93	+7.03	18.78	+4.21	24.91	+7.22
1943 total	17.33	-1.50	15.17	+0.60	20.29	+2.60

Definition of Terms and Measures Used

1. Operator's labor earnings - is the measure of financial success used in this report. It is a measure of the relative financial success of a farmer and represents the returns for his year's work (including family living from the farm) above all farm expenses, and a deduction for the value of unpaid family labor and an interest charge for the use of farm capital.

2. Productive man work units - is a measure of size of business used in this report. A work unit represents the amount of work that a farm worker can do in a 10-hour day working at average efficiency. For example, it requires about 10 hours of man labor to produce an acre of corn and 130 hours to care for a milk cow for a year. Thus an acre of corn would represent 1 work unit and a milk cow 13 work units.

The work units standards used in this report are shown in the following table:

Crops			Livestock		
Item	Per	No. of Work Units	Item	Per	No. of Work Units
Corn, grain	acre	.9	Dual purpose cows	cow	10.0
Corn, hogged off	"	.6	Milk cows	cow	13.0
Corn, and cane silage	"	1.4	Other dairy cattle	animal unit	4.0
Corn and cane fodder	"	.9	Beef cows	cow	3.0
Sorghum	"	.9	Other beef cattle	animal unit	3.0
Potatoes	"	4.0	Bulls	head	3.0
Small grain	"	.5	Litter	litter	4.0
Alfalfa hay	"	.8	Other hogs	head	.5
Other tame hay	"	.7	Ewes	head	.5
Wild hay	"	.4	Other sheep	head	.2
Annual pasture	"	.3	Hens	100	20.0
			Chickens raised	100	4.0

3. Work units per worker - is a measure of the efficient use of labor on a farm.

4. Livestock increase - is the value of gross livestock sales less purchases and plus or minus changes in inventory values of livestock from the beginning to the end of the year.

5. Crop yield index - is a comparison of the yield per acre of all crops on a given farm or group of farms with the average yield of all crops for the entire group of farms studied. For example, a farm with a crop yield index of 105 means that the average yield for this farm is 5 percent greater than the average.

6. Crop selection index - is a measure of the success of a farmer or group of farmers in choosing high value crops. Crops were rated as A, B, C, and D. All of the acres in A crops, one half of acres in B crops, and one-fourth of acres in C crops were used in calculating the percent of cropland in high return crops. The group average was then considered 100 with variations compared to this average. The following crops were rated as A crops: alfalfa, wheat, oats, and barley. The following were rated as B crops: corn grain, corn and cane forage and flax. C crops were sorghum for grain, millet, rye, sweet clover, mixed legume, and all annual hay and pasture. All other crops were rated as D.

7. Livestock returns per $100 feed fed - is a measure of the efficiency in converting feed into livestock products. It is obtained by dividing the value of the net livestock increase by the value of feed fed to all productive livestock during the year. This figure is multiplied by 100.

8. Part-owner - is a farmer or rancher who owns part of the land he operates and rents the rest.

Table 2. Summary of Farm Inventories, 1948*

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
Beginning of Year				
Horses	$_____	$ 157	$ 107	$ 214
Productive livestock (total)	_____	13,106	13,673	12,155
Cattle	_____	10,625	10,784	10,517
Hogs	_____	1,782	1,854	1,448
Sheep	_____	557	865	61
Poultry	_____	142	170	129
Feed and seed	_____	8,683	8,022	9,394
Mach. and equipment (total)	_____	5,342	5,942	5,948
Power machinery	_____	2,742	2,837	3,115
Crop and gen. mach.	_____	2,305	2,675	2,527
Livestock equipment	_____	295	430	306
Improvements (farm)**	_____	3,734	3,900	4,271
Land	_____	15,491	18,092	12,666
Total farm capital	$_____	$46,512	$49,737	$44,650
End of Year				
Horses	$_____	$ 162	$ 104	$ 211
Productive livestock (total)	_____	12,946	15,583	10,815
Cattle	_____	10,814	13,320	9,418
Hogs	_____	1,489	1,527	1,299
Sheep	_____	521	587	--
Poultry	_____	122	149	98
Feed and seed	_____	8,570	10,298	7,415
Mach. and equipment (total)	_____	7,128	8,044	6,084
Power machinery	_____	3,674	4,448	3,469
Crop and gen. machinery	_____	3,167	3,170	2,339
Livestock equipment	_____	287	426	276
Improvements (farm)**	_____	3,789	4,049	4,263
Land	_____	15,602	18,528	12,666
Total farm capital	_____	$48,197	$56,606	$41,455

* These include value of both owner's and operator's share of farm capital investment.

** Does not include value of dwelling.

Table 3. Crop Acreage Summary, 1948

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
Corn for grain	_____	100.0	119.8	93.3
Sorghum forage	_____	2.8	1.8	1.2
Corn and cane silage	_____	12.0	11.6	16.8
Miscellaneous		.6	1.8	---
Total Row Crops		115.4	135.0	111.3
Wheat	_____	140.5	166.4	142.4
Oats	_____	79.4	70.4	68.0
Barley	_____	62.1	76.6	55.8
Rye Grain	_____	7.3	5.2	15.4
Flax	_____	13.1	21.5	2.3
Miscellaneous		5.8	12.3	---
Total Small Grain		308.2	352.4	283.9
Alfalfa hay	_____	13.5	12.0	10.1
Other tame hay		1.1	---	4.1
Total Tame Hay		14.6	12.0	14.2
Rotation Pasture		6.6	4.7	8.7
Total Tame Hay & Past.		21.2	16.7	22.9
Idle and Fallow		15.7	16.4	16.5
Total Tillable Land		460.5	520.5	434.6
Native hay	_____	214.3	344.9	113.6
Native pasture	_____	480.8	637.0	283.9
Farmsteads, roads, etc.		30.8	32.0	29.6
Total Acres Operated		1186.4	1534.4	861.7
% of farm in cropland	_____	45.9	39.9	54.0
% of cropland in row crops	_____	26.0	28.7	23.4
% of cropland in sm. grain	_____	66.3	65.8	65.6
% of cropland in hay & past.	_____	4.6	3.7	4.9

Table 4. Crop Yield Summary, 1948

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
Corn for grain	_____	26.8	26.3	23.6
Wheat	_____	14.3	15.4	12.4
Oats	_____	30.2	32.2	25.1
Barley	_____	22.1	28.3	22.5
Rye	_____	11.5	7.4	6.0
Flax	_____	8.7	9.5	7.2
Alfalfa hay	_____	1.7	1.0	1.6
Other tame hay	_____	1.0	--	1.0
Corn & Sorg. forage	_____	2.0	2.4	1.6
Native hay	_____	.9	.8	1.3

Table 5. Livestock Summary, 1948

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
Horses	_____	3.2	2.3	4.8
Beef cows	_____	32.8	37.6	25.7
Other beef cattle	_____	47.3	52.3	38.5
Milk cows	_____	5.0	4.4	5.6
Other dairy cattle	_____	4.7	6.0	7.4
Bulls	_____	2.6	1.5	1.2
Ewes	_____	22.3	42.1	1.7
Other sheep	_____	13.2	9.2	---
Litters of pigs	_____	7.3	9.5	4.1
Hens and pullets	_____	129.8	160.5	126.2
Total units prod. livestock*	_____	79.7	82.1	63.6

* A unit of productive livestock is equal to one mature cow, 2 yearlings, 7 sheep, 14 lambs, 5 sows, 10 pigs and 100 hens.

Table 6. Farm Produce and Fuel Furnished to Household, 1948

Item	Quantity				Value			
	Your Farm	Average of 43 farms	11 most profit. farms	11 least profit. farms	Your Farm	Average of 43 farms	11 most profit. farms	11 least profit. farms
Whole milk, qts.	_____	924	817	966	$_____	161.56	155.80	164.29
Cream, qts.	_____	150	111	195	_____	114.60	85.39	150.66
Farm made butter, lbs.	_____	123	82	126	_____	113.95	64.89	99.27
Eggs, doz.	_____	190	185	273	_____	78.19	68.38	101.04
Poultry, lbs.	_____	118	136	111	_____	26.63	31.32	23.42
Cattle, lbs.	_____	503	502	623	_____	114.83	114.62	141.21
Hogs, lbs.	_____	488	373	503	_____	111.49	85.32	115.00
Sheep, lbs.	_____	13	5	---	_____	1.26	.45	---
Potatoes, bu.	_____	14	7	17	_____	30.29	14.99	35.00
Vegetables					_____	75.57	46.36	131.73
Fruits					_____	12.86	15.45	15.45
Farm Fuel					_____	7.50	3.18	10.45
Total value					$_____	$848.73	$686.15	$987.52

Table 7. Summary of Farm Earnings, 1948

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
FARM RECEIPTS				
Hogs	$_____	2,786	3,519	1,881
Cattle	_____	4,745	5,085	5,028
Dairy Products	_____	354	518	303
Eggs	_____	356	403	337
Poultry (includes turkeys)	_____	182	226	111
Sheep and wool	_____	622	1,055	179
Horses	_____	3	---	10
Crops	_____	7,569	8,901	6,643
Machinery & equipment	_____	118	17	125
Farm program payments	_____	245	404	78
Income from work off farm	_____	107	65	46
Miscellaneous	_____	222	210	140
(1) TOTAL FARM SALES	$_____	17,309	20,403	14,881
(2) Increase in inventories	_____	1,685	6,867	609
(3) Family living from farm	_____	827	689	983
(4) TOTAL FARM RECEIPTS (sum 1-3)	$_____	19,821	27,959	16,473
FARM EXPENSES				
Auto (farm share)	$_____	325	271	402
Power, mach. & equip. (upkeep)	_____	1,534	1,838	1,162
Power, mach. & equip. (new)	_____	2,261	2,930	1,815
Farm improvements (upkeep)	_____	505	816	444
Farm improvements (new)	_____	733	934	235
Hired labor	_____	920	905	724
Crop expenses	_____	749	959	472
Feed bought	_____	517	528	464
Livestock bought	_____	715	1,037	568
Other livestock expenses	_____	181	283	108
Taxes	_____	459	507	423
Insurance	_____	244	306	308
Miscellaneous	_____	181	185	118
(5) TOTAL FARM PURCHASES	$_____	9,324	11,499	7,243
(6) Decrease in inventories	_____	---	---	3,804
(7) Board furnished hired labor	_____	156	145	153
(8) Unpaid family labor ($150 per mo.)	_____	1,376	1,200	1,636
(9) Interest on farm capital (5%)	_____	2,339	2,547	2,153
(10) TOTAL FARM EXPENSES (sum 5-9)	$_____	13,195	15,391	14,989
(11) OPERATOR'S LABOR EARNINGS (4)-(10)	$_____	6,626	12,568	1,484
(12) RETURNS TO CAPITAL & FAMILY LABOR (sum 8-9-11)	$_____	10,341	16,315	5,273

FACTORS AFFECTING EARNINGS

Gross farm incomes averaged somewhat lower than in 1947. However, total farm expenses were slightly higher than a year ago, leaving operator's labor earnings lower than the peak reached in 1947. There was a great deal of variation in earnings among the record keepers. Several farmers had operator's labor earnings of over $20,000 while a few actually lost money. Some of the factors which contributed to these differences are discussed below:

Size of Business Important

One of the more important factors affecting earnings is the size of business as measured in terms of total work units. Operator's labor earnings averaged $4,704 on the eleven smallest farms as compared with $9,341 on the eleven largest. Farms in this area have been increasing in size, but many are still too small to provide a good level of income. There are limited opportunities for many farmers to increase their size of business through added acreage. Most farmers can enlarge their business by adding more livestock. Table 8 shows the importance of a large volume of business.

Table 8. Relation of Size of Business to Farm Earnings

Number of work units Range	Average	No. of farms	Average operator's labor earnings
Under 470	384	11	$4,704
470 - 490	726	21	6,535
490 & over	1,256	11	9,341

Efficient Use of Labor

Labor represents one of the more important costs in farm production. Efficient use of labor is therefore very important. The amount of work accomplished per worker varied from an average of 181 for the eleven least efficient to an average of 574 for the eleven with the highest work units per worker. The group with low work units per worker had operator's labor earning which averaged $5,105 as compared with $10,488 for the group with high labor efficiency (See table 9).

Table 9. Relation Amount of Work Performed Per Worker to Farm Earnings

Number of work units per worker Range	Average	No. of farms	Average operator's labor earnings
Under 235	181	11	$ 5,105
235 - 440	343	21	$ 5,724
440 & over	574	11	$10,488

Crop Yields Vary Widely

Much of the variation in earnings appeared to be due to the great variation in crop yields. The twelve farms with lowest crop yields had earnings averaging about $2,500 less than the twelve having highest yields. High crop yields are dependent upon use of adapted seed varieties and recommended cropping practices. The relation of crop yields to earnings are shown in table 10.

Table 10. Relation of Crop Yields to Farm Earnings

Percent crop yields were of average of all 43 farms — Range	Average	No. of farms	Average operator's labor earnings
Under 92	69	12	$5,028
92 - 112	102	19	$7,481
113 & over	121	12	$7,520

Livestock Influences Earnings

The amount and kind of livestock kept on a farm has an important influence on earnings. This is an area that is normally suited to production of a great amount of pasture and roughage. Greater stress needs to be put on producing roughage consuming livestock to make best use of the resources of the area. Good crop yields and high support prices on such cash crops as flax gave the grain farmers an advantage **last** year that they do not normally enjoy. Even so, table 11 shows that the eleven farms with a largest amount of livestock had operator's labor earnings averaging nearly $2700 higher than that of the eleven farms with practically no livestock.

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

Total animal units Range	Average	No. of farms	Average operator's labor earnings
Under 40	27	11	$6,230
40 - 95	66	21	$5,960
95 & over	162	11	$8,911

Livestock Feeding Efficiency

Feed costs represent the largest single item of expense in livestock production. It is therefore important that farmers use feed efficiently. While some farmers more than tripled the value of feed by feeding it to livestock, others actually did not get a return from livestock high enough to pay feed costs. Table 12 shows the difference in earnings associated with feeding efficiency.

Table 12. Relation of Livestock Feeding Efficiency to Farm Earnings

Livestock returns per $100 feed fed to productive livestock	Average	No. of farms	Average operator's labor earnings
Under $115	77	11	$5,253
$115 - $254	177	19	$6,898
$255 & over	310	11	$7,779

Cumulative Effect of Various Factors on Earnings

Farmers who excel in several efficiency factors generally have higher earnings than those who rank high in only a few. Some farmers show good management efficiency in some parts of their business but have poor results in other phases. Farmers were rated on the following five factors: (1) Size of business, (2) labor efficiency (3) crop yields, (4) livestock feeding efficiency, and (5) amount of livestock. Table 13 illustrates the importance of an efficiently organized and operated farm business.

Table 13. Relation of Numbers of Factors Above Average to Farm Earnings

No. of factors above average	No. of farms	Your farm	Average operator's labor earnings
0	7	$_____	$ 4,332
1	13	$_____	$ 5,772
2 - 3	19	$_____	$ 7,536
4 - 5	4	$_____	$12,228

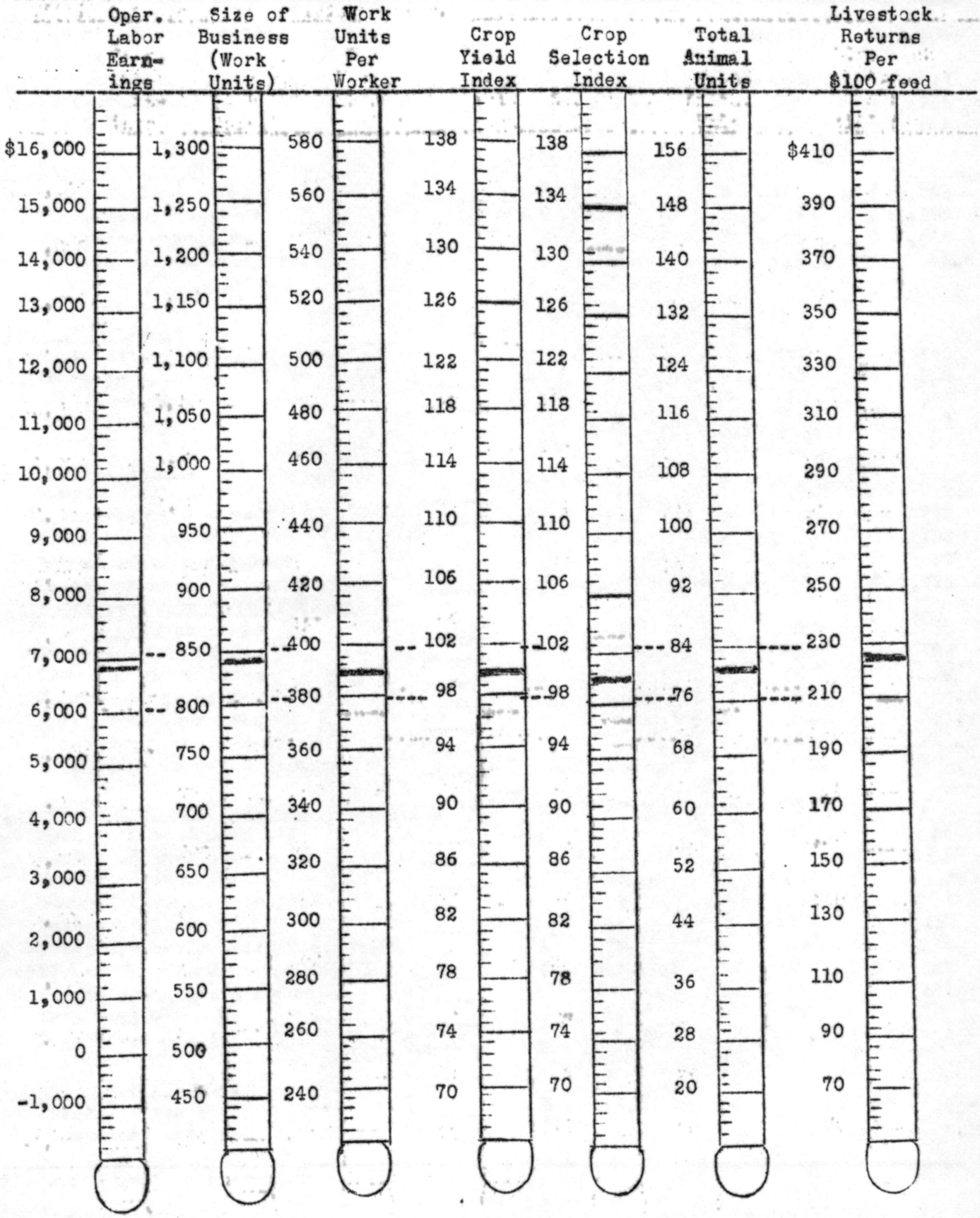
Farmers should study Table 15 on page 10, and the thermometer chart on page 11 to determine the weak and strong points in their farm business.

Table 15. Farm Organization and Management Efficiency Factors, 1948

Item	Your Farm	Average of 43 farms	11 most profitable farms	11 least profitable farms
Operator's Labor Earnings	$_____	$ 6,626	$ 12,568	$ 1,484
Acres owned	_____	742	944	617
Acres rented	_____	445	590	245
Total operated	_____	1,187	1,534	862
Capital Investment				
Total capital managed	$_____	$ 47,355	$ 53,172	$ 43,053
Productive livestock	$_____	$ 13,026	$ 14,628	$ 11,485
Power and machinery	$_____	$ 6,235	$ 6,993	$ 6,016
Rate earned on investment	_____	16.6	25.9	8.8
Size of Business				
*Work units (total)	_____	845	853	645
On crops	_____	424	437	298
On livestock	_____	420	415	346
Off farm	_____	1	1	1
Labor Utilization				
Number of workers	_____	2.2	2.2	2.4
*Work units per worker	_____	391	405	282
Crop acres per worker	_____	218	255	193
Animal units per worker	_____	36	39	27
Livestock increase per worker	$_____	$ 4,185	$ 5,937	$ 2,773
Crop Organization and Efficiency				
Total acres in crops	_____	401	521	435
*Crop yield index	_____	100	104	89
*Crop selection index	_____	100	98	99
% Cropland is of farm	_____	45.9	39.9	54.0
% cropland in row crops	_____	26.0	28.7	23.4
% cropland in small grain	_____	66.3	65.8	65.6
% cropland in hay & pasture	_____	4.6	3.7	4.9
Livestock Org. & Efficiency				
Number of beef cows	_____	33	38	26
Number of milk cows	_____	5	4	6
Number of ewes	_____	19	24	2
Number of litters of pigs	_____	8	9	4
Number of hens	_____	132	160	135
*Total productive livestock units	_____	80	83	64
*Livestock returns per &100 feed	$_____	$ 215	$ 322	$ 187
Pounds butterfat per cow	_____	174	189	161
Eggs laid per hen	_____	89	75	109
Pigs saved per litter.	_____	6.4	5.8	6.2
Power, Mach. & Equip.				
Power invest. per crop acre	$_____	$ 7.56	$ 7.76	$ 7.76
Crop mach. inv. per crop acre	$_____	$ 6.25	$ 6.21	$ 5.15

*Measures used in thermometer chart on page 11.

Compare your standing in regard to the measures of farm organization and efficiency with the average for the group shown between the dotted lines. The figures from the bottom to the top of the seven efficiency bars show the range from the least efficient to the most efficient farms.



THERMOMETER CHART

Table 18. Tenure Related to Earnings, Farm Organization and Efficiency Factors, 1948

Item	Your Farm	Tenants	Part Owners	Owners
Operator's Labor Earnings*	$_____	2,953	6,430	5,887
Number of farms	_____	6	29	8
Acres owned	_____	---	816	1,030
Acres rented	_____	738	507	---
Total operated	_____	738	1,323	1,030
Capital Investment				
Total capital owned**	$_____	$ 13,563	$44,344	$45,374
Productive livestock	$_____	$ 5,411	$13,705	$16,320
Power and machinery	$_____	$ 4,466	$ 6,923	$ 5,106
Rate earned on investment	_____	11.2	17.6	19.4
Size of Business				
Work units (total)	_____	479	853	709
On crops	_____	268	385	309
On livestock	_____	210	467	400
Off farm	_____	1	1	--
Labor Utilization				
Number of workers	_____	2.1	2.2	2.4
Work units per worker	_____	242	405	288
Crop acres per worker	_____	204	239	152
Animal units per worker	_____	17	39	36
Livestock increase per worker	$_____	$ 2,501	$ 4,691	$ 3,741
Crop Organization & Efficiency				
Total acres in crops	_____	386	504	361
Crop yield index	_____	103	102	93
Crop selection index	_____	105	99	100
% cropland is of farm	_____	57.4	44.9	40.9
% cropland in row crops	_____	22.6	25.7	29.7
% cropland in small crops	_____	71.1	66.2	63.0
% cropland in hay & pasture	_____	6.0	4.4	3.9
Livestock Org. & Efficiency				
Number of beef cows	_____	10	36	39
Number of milk cows	_____	4	5	5
Number of ewes	_____	8	25	5
Number of litters of pigs	_____	6	9	7
Number of hens	_____	115	140	116
Total prod. livestock units	_____	34	88	89
Livestock ret. per $100 feed	$_____	$ 254	$ 202	$ 276
Pounds butterfat per cow	_____	218	170	159
Eggs laid per hen	_____	107	83	103
Pigs saved per litter	_____	4.8	6.7	5.6
Power, Mach. & Equip.				
Power invest. per crop acre	$_____	$ 5.10	$ 8.01	$ 7.79
Crop mach. inv. per crop acre	$_____	$ 5.61	$ 6.57	$ 5.59

*Operator's labor earnings are the actual figures for these farms and have not been adjusted to a full owner basis for tenants and part-owners.

**Includes only the operator's share of farm capital owned.