UNIVERSITY OF MINNESOTA
Department of Agriculture
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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics
Cooperating

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A Preliminary Report of Data Secured in 1939 on the FARM ACCOUNTING ROUTE in WINONA COUNTY, MINNESOTA

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SOURCE OF DATA

Method of Study

A study of the organization and management of a selected group of farms in Winona County was started on March 1, 1935. This study is being conducted under the supervision of the Division of Agricultural Economics of the University of Minnesota in cooperation with the Bureau of Agricultural Economics of the United States De-

Note: Completion of this project was made possible by workers supplied on Federal Students' Work Project, 1939-40, Project No. 68-100 and Official Project No. 65-1-71-140, Work Projects Administration. Sponsor: University of Minnesota.

partment of Agriculture.* Farms which were representative of the better managed farms in the area were chosen with the aid of the county agricultural agent, Mr. H. C. Pederson. The farmers cooperating in this study keep a complete record of cash receipts and expenses, a daily record of the labor used on each crop and class of livestock, and a record of farm produce used in the house. These records are checked at least twice per month by a fieldman and supplemented with inventories, feed records, reports of cropping practices and yields, and other significant facts about the farm business. The data collected are sent to the central office at University Farm, St. Paul, where a detailed set of records for each farm is kept. This report on farmers' earnings and crop and livestock returns for 1939 was prepared from these farmers' records.

Description of the Area

Winona County lies in the southeastern part of the state. The topography varies from gently rolling to very hilly. Much of the country is covered with a deposit of very productive loessal material. The surface soil is deficient in lime, but lime deposits underlie it at a relatively shallow depth. The soil washes easily, with the steeper slopes subject to considerable erosion. The growing season varies from 140 to 160 days. The average rainfall is approximately 29 inches, 70 per cent of which is received during the months of April to September, inclusive. Livestock and livestock products constitute the major source of income.

Description of the Farms

Soil erosion control is a definite problem on most of the farms studied. In fact, this area was selected because it offered an opportunity to study the effect of erosion control methods on farm organization and the cost of farm operation. A few fairly level farms were included for purposes of comparison. Most of the operators of the farms subject to erosion are cooperating with the Federal Soil Conservation Service in an erosion control program. The changes in field arrangements and cropping practices specified by that program were begun in 1936 and were almost completed in 1937. Difficulties in obtaining satisfactory stands of grass seedings has hindered the completion of the changes. The possible effects of these changes should be considered in comparing the crop statements for the five years.

Description of the Crop Seasons

Heavy precipitation, plus the moisture from the winter snows on unfrozen ground, provided moisture for good yields in 1935. Heavy summer rains, however, interfered with the curing of hay and drying of grain in the shock. Rainfall was satisfactory during the spring of 1936, but scant rains and high temperatures during July reduced the yields of all crops. Rainfall was again satisfactory in the spring of 1937, but scant rains and high temperatures during the early part of July reduced the yield of the second cutting of hay. Precipitation was extremely heavy during 1938 -- fifty-eight per cent above normal, and ten inches above the previous high reported by the Weather Bureau. Precipitation during the six months of April through September was seventy-four per cent above normal. Frequent rains falling after cutting reduced the quality of a large proportion of the hay, and caused a complete loss of part of it. Severe lodging and poor drying conditions caused heavy losses in both the quantity and quality of small grains harvested. Lower than normal temperatures and heavy rainfall through June and July gave the corn crop a slow start, but higher than normal temperatures and a late frost permitted the maturing of the heaviest corn crop of the four years of the study. Light precipitation during the spring of 1939 and heavy rains during the haying season resulted in low hay yields. Light precipitation in July limited the growth of second crop hay. Temperatures above normal and rains falling at critical times resulted in corn yields considerably above those of the preceding four years.

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*The Economics of Soil Conservation, Division of Research, United States Department of Agriculture, also cooperated in 1937-40.

Facts About the Organization and Production of the Farms

	1939			1938	1937	1936	1935	Avg.
	Five high earnings	Five low earnings	All farms	All farms	All farms	All farms	All farms	five years
Acres per Farm:								
Barley	41	20	25	28	27	38	51	34
Oats	19	11	18	29	26	26	35	27
Mixed oats and barley	10	20	10	4	5	5	3	5
Mixed oats and wheat	-	2	4	2	8	2	7	5
Wheat	9	5	7	10	11	8	11	9
Corn	28	20	28	28	28	32	26	28
Flax	11	-	4	-	-	4	1	2
Other grain	2	-	3	4	3	7	11	6
Alfalfa	14	8	10	19	20	14	18	16
Clover and timothy	18	15	18	14	17	23	11	17
Wild hay	3	2	2	2	1	2	3	2
Other hay	19	19	17	5	3	3	5	7
Other crops	2	3	4	11	6	15	3	8
All crops	176	125	150	156	157	179	185	166
Woods and pasture	125	96	112	111	105	109	135	114
Farmstead, road and waste	13	9	12	11	11	13	14	12
All land	316	230	274	278	273	301	334	292
Livestock per Farm:								
Cows, no.	25	15	20	20	20	20	19	20
Other cattle, no.	26	16	22	24	23	26	25	24
Sheep, no.	32	10	20	15	19	18	21	19
Hogs, pounds produced	17449	11200	15266	17715	11888	13124	9459	13490
Laying hens, no.	138	110	125	152	142	204	187	162
Other chickens, no.	60	74	64	83	66	130	117	92
Hours of Man Labor per Farm:								
Total	9537	8857	8299	9074	8885	9319	8829	8881
Livestock	4880	4524	4124	4572	4330	4544	3802	4274
Crops	2449	1914	2056	2278	2267	2469	2559	2326
Other	2208	2419	2119	2224	2288	2308	2468	2281
Operator	3546	3299	3281	3191	3290	3290	3200	3252
Unpaid family labor	208	3937	2132	2343	2109	2373	1688	2129
Hired	5518	1345	2665	3245	3188	3410	3617	3225
Exchange received	265	276	221	295	290	246	324	275
Hours worked per day:								
Work days	11.2	10.1	10.3	10.5	10.5	10.5	9.5	10.3
Sundays	4.8	4.3	4.2	4.5	4.2	4.3	3.2	4.1
Work horses per farm	5	5	5	5	5	6	6	5
Hours worked per horse	837	591	698	717	745	848	887	779
Crop acres per horse	36	25	34	31	30	33	34	32

FINANCIAL STATEMENTS

Methods of Computing and Presenting Data

Average earnings, inventories, and household and personal expenses are presented for all farmers, for the five farmers with the highest labor earnings and for the five farmers with the lowest earnings. Averages for 1938, 1937, 1936, 1935, and for the five years combined are also given.

Some of the farms studied were either partly or entirely rented, with the rental contracts varying among them. In order to have the data for these farms comparable with the owned farms, they were adjusted to a full-ownership basis. All farm property, regardless of ownership, was included in the inventory. Cash rent and interest paid was excluded from the expenses. The landlord's expenses were included, and the landlord's share of the crops was included with the receipts.

The total value of all sales and purchases made during the year, whether paid during the year or not, were included with the sales and purchases. Receipts or payments pertaining to previous years were omitted. Board for hired labor was charged against the farm at $18 per month for 1938 and 1939, and at $15 per month for the previous years. Wages for unpaid family labor were calculated at 20 cents per hour.

The returns to capital and family labor is the amount left as pay for the use of the farm capital and for the labor of the farm operator and his family. This is the return from which the farmer must pay interest on debts, pay for his living expenses, and make his savings. Family labor earnings is what is left as pay for the labor of the operator and his family, after deducting an allowance for interest on the investment from the returns to capital and family labor. The operator's labor earnings is the amount left to the farm operator as pay for his labor and management after all farm expenses, interest on the investment and an allowance for the unpaid family labor have been paid. A minus (-) operator's labor earnings indicates the extent to which the receipts were insufficient to cover the expenses.

Average Farm Inventories

	1939			1938	1937	1936	1935	Average
	5 high earnings	5 low earnings	All farms	All farms	All farms	All farms	All farms	five years
Land	$6098	$6283	$6029	$6404	$5629	$5911	$5844	$5964
Farm buildings	5474	3118	4332	4726	4622	5304	5228	4842
Horses	512	615	537	757	778	793	750	723
Cattle	2206	1282	1748	1809	1697	1763	1446	1692
Sheep	201	50	120	80	99	91	110	100
Swine	538	260	360	471	395	370	294	378
Poultry	219	164	172	235	215	135	80	167
Feeds, seeds, and miscellaneous	1726	989	1248	1271	1402	1447	1358	1345
Auto (farm share)	219	86	134	109	149	72	70	107
Truck (farm share)	138	8	99	135	140	149	115	128
Tractor	479	530	501	546	459	366	315	437
Machinery & Equip.	2084	1413	1763	1847	1743	1637	1633	1725
Total	19894	14798	17043	18390	17328	18038	17243	17608

Receipts, Expenses, and Earnings per Farm

	1939			1938	1937	1936	1935	Average
	5 high earnings	5 low earnings	All farms	All farms	All farms	All farms	All farms	five years
Receipts:								
Dairy Products	$2002	$1041	$1356	$1309	$1458	$1360	$1049	$1306
Cattle	1102	734	860	894	721	671	771	783
Hogs	1178	688	933	1254	1056	1169	725	1027
Sheep and wool	140	48	92	60	102	102	93	90
Poultry and eggs	342	257	276	420	366	318	294	335
Turkeys	1156	559	704	951	669	210	16	510
Horses	15	28	33	37	108	111	110	80
Barley	67	38	65	72	278	560	344	264
Wheat	91	1	38	33	111	96	147	85
Other crops	300	140	236	191	197	294	135	211
Work off farm	111	89	143	101	195	151	252	168
Miscellaneous	314	160	251	342	329	536	143	320
A.A.A. payments	389	235	273	207	192	231	105	202
Total cash farm receipts	7207	4018	5260	5871	5782	5809	4184	5381
Farm produce used	302	240	305	340	352	384	363	349
Increase in inventory	605	299	431	357	59	1009	14	374
TOTAL FARM RECEIPTS	8114	4557	5996	6568	6193	7202	4561	6104
Expenses:								
Cattle bought	169	359	169	320	71	334	153	209
Hogs bought	41	157	107	122	54	95	45	85
Sheep bought	41	-	12	1	6	16	7	8
Poultry bought	33	23	28	33	33	38	26	32
Turkeys bought	329	59	142	85	17	50	3	59
Horses bought	30	43	26	26	32	65	64	43
Feed for livestock	1245	706	781	912	917	698	292	720
Other livestock exp.	108	68	77	79	100	48	37	68
Crop expense	220	250	240	238	227	215	199	224
Hired labor	560	147	299	384	356	360	366	353
Buildings; fencing	218	117	197	393	143	425	213	275
Machinery	524	355	401	427	419	384	358	398
Tractor	234	300	355	313	329	313	207	303
Truck	179	18	94	184	135	126	121	132
Auto	136	107	114	86	148	95	83	105
Electricity	55	17	39	35	39	39	40	38
Taxes	320	245	276	320	285	268	244	279
Insurance	41	34	36	59	50	55	39	48
Miscellaneous	35	19	27	30	30	29	29	29
Total cash farm exp.	4518	3024	3420	4047	3391	3653	2526	3408
Board for hired labor	265	60	131	183	143	156	167	156
TOTAL FARM EXPENSES	4783	3084	3551	4230	3534	3809	2693	3564
Returns to capital & family labor	3331	1473	2445	2338	2659	3393	1868	2540
Int. on avg. inventory	995	740	853	920	866	900	862	880
Family labor earnings	2336	733	1592	1418	1793	2493	1006	1660
Wages unpaid family labor	42	787	426	469	422	453	338	422
OPERATOR'S LABOR EARNINGS	2294	-54	1166	949	1371	2040	668	1238

Farm Produce Used in the House

Product	1939 Five high earnings	1939 Five low earnings	1939 All farms	1938 All farms	1937 All farms	1936 All farms	1935 All farms	Avg. five years
Quantities								
Whole milk, qts.	1929	1271	1435	1417	1375	1536	1625	1476
Skimmilk, qts.	27	219	118	190	164	152	79	141
Cream, pts.	289	117	227	227	576	277	291	320
Farm made butter, lbs.	-	-	-	-	-	-	3	1
Eggs, doz.	166	206	212	217	213	214	205	212
Poultry, lbs.	250	259	247	165	165	209	159	189
Cattle, lbs.	210	55	295	400	194	393	247	306
Hogs, lbs.	377	660	685	770	745	804	992	799
Sheep, lbs.	-	-	-	-	-	-	10	2
Potatoes, bu.	30	22	26	33	36	39	46	36
Farm fuel, cds.	16	9	12	15	12	13	14	13
Values								
Whole milk	$52.31	$32.98	$38.64	$37.88	$47.18	$50.05	$47.55	$44.26
Skimmilk	.09	.75	.41	.61	.76	.67	.30	.55
Cream	25.64	10.82	20.66	20.93	27.21	29.49	27.57	25.17
Farm made butter	-	-	-	-	-	.04	.84	.18
Eggs	24.21	29.54	30.24	38.55	37.69	43.01	42.14	38.33
Poultry	23.14	24.12	24.13	19.79	24.46	24.85	19.94	22.63
Cattle	17.15	5.07	23.89	31.26	15.02	26.82	14.00	22.20
Hogs	21.07	38.76	38.58	55.55	59.94	75.24	92.99	64.46
Sheep	-	-	-	-	-	-	.54	.11
Potatoes	17.95	13.03	15.39	15.73	31.93	26.35	17.70	21.42
Vegetables & fruits	39.00	40.00	50.71	43.70	48.00	40.63	31.25	42.86
Farm fuel	81.00	45.00	62.14	76.30	59.90	67.08	68.45	66.77
Total	301.56	240.07	304.79	340.30	352.09	384.23	363.27	348.94
Size of family (man equivalent)	4.0	4.1	4.5	4.6	4.7	4.6	4.9	4.6

Household and Personal Statement*

	1939 Five high earnings	1939 Five low earnings	1939 All farms	1938 All farms	1937 All farms	1936 All farms	1935 All farms	Avg. five years
Inventories:								
House, woodshed & smokehouse	$1903	$2298	$2211	$2680	$2644	$2614	$2823	$2594
Furnishings & equipment	524	309	494	563	476	415	451	480
Clothing, jewelry, etc.	280	140	217	238	219	218	224	223
Electric plant & motors+	-	46	12	8	14	7	8	10
Gas engine+	-	-	-	-	-	-	2	1
Auto and truck+	285	71	282	329	214	233	246	261
Total	2992	2864	3216	3818	3567	3487	3754	3568
Cash Expenses:								
Food	247	308	278	311	326	312	292	303
Operating and supplies	46	82	58	57	65	50	39	54
Furnishings and equipment	34	54	49	78	88	95	59	74
Additions & repairs on house	29	15	31	216	94	171	53	113
Hired help	64	16	43	23	18	19	22	25
Electricity+	45	31	44	47	31	33	30	37
Clothing and materials	66	83	105	112	143	134	141	127
Health	99	73	84	73	87	50	47	68
School expenses	1	21	18	22	15	17	21	19
Reading materials	4	5	4	6	5	5	6	5
Church, charity, etc.	19	47	41	36	37	47	39	40
Recreation	9	1	14	21	22	19	18	19
Personal	128	227	158	178	140	128	136	148
Life insurance & savings	86	51	94	137	191	126	144	138
Auto and truck+	390	89	311	261	286	296	314	294
Total	1267	1103	1332	1578	1548	1502	1361	1464
Farm produce used	302	265	313	340	348	384	363	350
Decrease in inventory	-	141	-	-	-	-	19	4
Interest on inventory	150	143	161	191	179	174	188	178
Total expense	1719	1652	1806	2109	2075	2060	1931	1996
Receipts:								
Cash receipts	325	517‡	423‡	203‡	416‡	121	271	287
Increase in inventory	125	-	27	222	68	145	-	92
Total	450	517	450	425	484	266	271	379
Net cash expense	1269	1135	1356	1684	1591	1794	1660	1617
Size of family	4.0	4.1	4.5	4.6	4.6	4.6	4.9	4.6

*For farms furnishing complete records of household and personal expenses.
+Household and personal share.
‡Large primarily because of inheritance of substantial sums.

LIVESTOCK STATEMENTS

Methods of Computing and Presenting Data

The comparative costs and returns for each of the different classes of livestock maintained are presented for 1935, 1936, 1937, 1938, and 1939 together with an average for the five years. All data are shown on the basis of a standard unit such as one head or 100 pounds gain in weight. Both quantities - pounds of feed, days of pasture, man and horse hours, pounds produced, etc. - and money costs and returns are shown. The amounts of feed, with the exception of pasture, are

given in pounds rather than in bushels or tons. All corn has been reduced to a shelled corn basis. The man hours include both regular daily chore labor and irregular labor such as tending sick animals, marketing livestock and livestock products, and hauling feed and bedding. The horse hours likewise include both regular and irregular work.

Local prices were used, insofar as possible, in determining the costs and returns. Marketable feeds were charged at local prices and non-marketable feeds on a comparative-feeding-value basis. No charge was made for straw or for corn stalk pasture. Man labor was figured at 20 cents per hour and horse work at the rate determined for each individual farm. The shelter charge was based on the annual cost of the buildings housing livestock, prorated on the basis of the space occupied. The equipment charge was based upon the annual cost of the particular equipment used by that class of livestock. The expense for portable brooder houses and hog houses was included in the equipment charge and omitted from the shelter charge. The equipment charge also includes a charge for the use of the auto and truck in connection with the livestock work. Interest was calculated at five per cent on the average of the beginning and ending inventories. Miscellaneous cash costs include such cash expenses as veterinary fees, medicine, salt, minerals, fuel for brooders, incubators and tank heaters, horse-shoeing and sheep-shearing. The manure credit was calculated on the basis of the kind and amount of feed consumed and the proportion of the fertilizing elements returned in the manure. Credit was allowed for manure produced, regardless of whether or not it was utilized.

The value of livestock production was determined by adding the sales, the products used in the house and the ending inventory and then deducting from this sum the sum of the beginning inventory and purchases. In the case of the different classes of cattle, transfers from one group to another were considered the same as purchases and sales. The weight produced was calculated in the same manner as the value produced except that weights were used instead of values.

The returns have been expressed in several ways. The gain is the amount left after deducting all the charges listed in the table. The return over feed cost is what is left after deducting the feed cost from the value of the product, excluding manure. In other words, the return over feed cost and the manure are what the farmer has to pay him for his labor, the horse work, shelter, equipment, interest and miscellaneous cash costs. In each case a minus (-) indicates a failure to meet the particular expenses involved.

In considering the returns from livestock, one should keep in mind that these are comparative figures and include some charges which do not represent actual cash outlay. The feed, man labor, horse work, use of buildings and equipment, and interest on the investment have been charged to the enterprise, although they may represent very little direct cash expense. Therefore, a minus return means that the particular class of livestock has failed to pay the usual market prices charged for the different factors. There may be no other more profitable alternative use for the buildings, much of the labor, or for the non-marketable feed. A return above the price of the marketable feeds and cash expenses may justify continued production although these figures fail to show a gain.

Cows

The costs and returns are for cows only. They neither include any feed nor expense for the bull nor any credit for calves born. In determining the total quantity of milk fed to calves, it was assumed that the calves that were nursing received one and one-half gallons of milk per day. The value of the dairy products fed includes all milk and skimmilk fed to calves as well as to the other classes of livestock. The butterfat per cow was calculated by dividing the total butterfat utilized (sold, used in the house, and fed to livestock) by the average number of cows in the herd.

Cost and Return per Cow

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	21	23	25	24	20	
Number of cows per farm	20	20	20	20	19	20
Butterfat per cow, lb.	248	233	224	207	189	220
Man labor, hours	129	130	142	140	126	133
Horse work, hours	2.5	2.3	4.1	5.2	3.9	3.6
Costs:						
Feed	$36.27	$35.01	$41.87	$37.49	$27.57	$35.64
Man labor	25.78	26.09	27.53	28.11	25.23	26.55
Horse work	.23	.26	.41	.52	.32	.35
Shelter	6.95	6.92	7.16	7.25	7.83	7.22
Equipment	4.61	4.30	3.87	4.06	3.89	4.15
Interest at 5%	2.79	2.62	2.67	2.43	2.19	2.54
Miscellaneous cash	1.73	1.48	1.22	1.24	1.04	1.34
Total costs	78.36	76.68	84.73	81.10	68.07	77.79
Manure credit	4.88	4.47	4.28	3.75	2.61	4.00
Appreciation	6.23	.77	2.69	.42	2.26	2.47
Total credit	11.11	5.24	6.97	4.17	4.87	6.47
Net cost	67.25	71.44	77.76	76.93	63.20	71.32
Value of dairy products:						
Sold	69.41	65.10	77.26	69.73	54.93	67.29
Used in house	3.32	3.01	4.06	4.17	4.18	3.75
Fed to livestock	14.11	12.64	16.15	15.22	11.70	13.96
Total product	86.84	80.75	97.47	89.12	70.81	85.00
Return over all costs	19.59	9.31	19.71	12.19	7.61	13.68
Return over feed cost	56.80	46.51	58.29	52.05	45.50	51.83
Price recd.per lb.of B.F.,¢	30.2	30.4	37.3	36.5	33.1	33.5
Feeds:						
Corn, lb.	451	422	211	187	86	271
Small grain, lb.	1158	771	693	677	323	724
Other concentrates, lb.	279	304	268	229	214	259
Hay, lb.	3207	3148	3307	3266	2029	2992
Fodder and stover, lb.	484	439	359	260	230	354
Silage, lb.	6522	5644	5701	5908	6311	6017
Total concentrates, lb.	1888	1497	1172	1093	623	1255
Total roughage,* lb.	5865	5468	5566	5495	4363	5351
Pasture, days	167	144	138	168	142	152
% Protein in ration	13.2	14.1	13.8	13.7	12.5	13.5
Range for specified items, 1939:						
No. of head per farm					7 to	50
Butterfat per cow, lb.					156 to	342
Man labor, hours					56 to	188
Horse work, hours					.3 to	5.7
Net cost					$36.68 to	$113.17
Value of total product					54.85 to	149.52
Return over all costs					-8.26+ to	46.22
Return over feed cost					31.92 to	97.08
Price recd.per lb.of B.F.,¢					26.7 to	45.6
Total concentrates fed, lb.					292 to	3339
Total roughages,* lb.					4029 to	9068
Pasture, days					140 to	183
% Protein in ration					9.8 to	15.4

* Three pounds of silage considered as one pound of roughage.

+ Costs greater than value of production.

Other Cattle

Other cattle include all cattle except cows. The dairy herds include herds in which calves were raised only for replacement, for sale as breeding stock or for sale as veal. The milk-and-beef herds include those where some cattle, raised or purchased, were fattened for sale as beef.

Cost and Return per Head of Other Cattle
Dairy Herds

	1939	1938	1937	1936	1935	Average five years
Number of farms	18	18	20	17	13	
Number of head per farm	21	20	20	18	20	20
Man labor, hours	19	20	22	23	18	20
Horse work, hours	1.2	1.2	1.9	2.1	1.5	1.6
Costs:						
Feed	$19.68	$20.91	$25.07	$22.53	$19.47	$21.53
Man labor	3.75	4.08	4.42	4.58	3.64	4.09
Horse work	.11	.12	.19	.20	.13	.15
Shelter	4.15	5.05	5.54	5.22	5.91	5.17
Equipment	.22	.38	.27	.05	.21	.23
Interest at 5%	1.53	1.50	1.54	1.62	1.34	1.51
Miscellaneous cash	.45	.36	.41	.41	.26	.38
Total costs	29.89	32.40	37.44	34.61	30.96	33.06
Manure credit	2.29	2.28	2.09	1.94	1.50	2.02
Net cost	27.60	30.12	35.35	32.67	29.46	31.04
Value of product	32.80	30.50	32.27	30.02	28.86	30.89
Return over all costs	5.20	.38	-3.08*	-2.65*	-.60*	- .15*
Return over feed cost	13.12	9.59	7.20	7.49	9.39	9.36
Feeds:						
Grain, lb.	478	387	338	295	228	345
Mill feeds, lb.	23	26	23	26	33	26
Hay, lb.	1739	1788	1624	1440	825	1483
Fodder and stover, lb.	365	293	206	132	89	217
Silage, lb.	2902	2323	2148	2177	3070	2524
Total concentrates, lb.	501	413	361	321	261	371
Total roughages+	3071	2855	2546	2298	1937	2541
Whole milk, lb.	292	304	274	273	275	284
Skimmilk, lb.	1828	2229	2077	2152	1909	2039
Pasture, days	108	85	100	124	111	106

Range for specified items, 1939:			
No. of head per farm	13	to	55
Net cost	$18.99	to	$37.36
Value of product	19.25	to	55.28
Return over all costs	-6.31*	to	27.25
Return over feed cost	1.70	to	34.82
Total concentrates, lb.	69	to	1042
Total roughage,+ lb.	1879	to	4180
Whole milk, lb.	103	to	547
Skimmilk, lb.	488	to	2934
Pasture, days	50	to	136

*A minus indicates a cost greater than the value of production.

+Three pounds of silage considered as one pound of roughage.

Cost and Return per Head of Other Cattle
Milk-and-Beef Herds

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	3	5	5	7	7	
Number of head per farm	27	39	39	45	34	37
Man labor, hours	17	17	15	15	11	15
Horse work, hours	.9	.7	.8	1.2	.9	.9
Costs:						
Feed	$28.66	$24.06	$24.71	$19.82	$16.35	$22.72
Man labor	3.46	3.33	2.94	3.08	2.20	3.00
Horse work	.04	.10	.08	.10	.07	.08
Shelter	6.45	4.95	3.14	3.95	4.63	4.62
Equipment	.45	.13	.08	.09	.16	.18
Interest at 5%	1.60	1.78	1.40	1.52	1.17	1.49
Miscellaneous cash	1.29	.50	.16	.25	.13	.47
Total costs	41.95	34.85	32.51	28.81	24.71	32.56
Manure credit	3.14	2.78	2.05	1.74	1.39	2.22
Net cost	38.81	32.07	30.46	27.07	23.32	30.34
Value of product	30.72	35.55	23.22	24.34	27.55	28.27
Return over all costs	-8.09*	3.48	-7.24*	-2.73*	4.23	-2.07*
Return over feed cost	2.06	11.49	-1.49	4.52	11.20	5.55
Feed:						
Grain, lb.	1514	902	566	271	247	700
Mill feeds, lb.	26	41	5	6	8	17
Hay, lb.	2037	1833	1583	1398	871	1544
Fodder and stover, lb.	45	839	428	286	460	412
Silage, lb.	4160	2348	2131	1989	2349	2595
Total concentrates, lb.	1540	943	571	277	255	717
Total roughages,+ lb.	3469	3455	2721	2347	2114	2821
Whole milk, lb.	154	139	110	155	220	156
Skimmilk, lb.	1947	1746	1321	818	837	1334
Pasture, days	120	78	92	135	121	109

Range for specified items, 1939:			
No. of head per farm	19	to	42
Net cost	$29.46	to	$55.47
Value of product	20.65	to	45.14
Return over all costs	-10.33*	to	-5.12*
Return over feed cost	-2.26	to	5.57
Total concentrates, lb.	1053	to	2461
Total roughages,+ lb.	3005	to	3978
Whole milk, lb.	66	to	205
Skimmilk, lb.	751	to	2930
Pasture, days	92	to	156

*A minus indicates a cost greater than the value of production.

+Three pounds of silage considered as one pound of roughage.

All Cattle

Expenses and returns per unit of all cattle, including cows and other cattle, are presented. One cow, one bull, one feeder steer or heifer, or two head of other cattle, was considered as one unit. In this statement for "all cattle," the milk used by the calves is included both in the feed and in the credit for dairy products fed to livestock.

Cost and Return per Unit of All Cattle
Dairy Herds

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	18	18	20	17	13	
Units per farm	32	32	31	27	39	32
Man labor, hours	96	100	103	126	99	105
Horse work, hours	2.6	2.1	4.4	5.5	4.1	3.7
Costs:						
Feed	$36.96	$36.17	$43.35	$40.78	$31.36	$37.72
Man labor	19.34	19.97	20.61	24.79	19.76	20.89
Horse work	.23	.23	.43	.56	.34	.36
Shelter	7.03	7.55	7.99	8.74	9.53	8.17
Equipment	3.07	3.17	2.66	2.99	2.49	2.88
Interest at 5%	2.83	2.70	2.80	2.88	2.43	2.73
Miscellaneous cash	1.48	1.18	1.12	1.21	.83	1.16
Total costs	70.94	70.97	78.96	81.95	66.74	73.91
Manure credit	4.75	4.42	4.16	3.76	2.67	3.95
Net cost	66.19	66.55	74.80	78.19	64.07	69.96
Value of product:						
Animal	25.05	18.66	21.07	20.57	21.24	21.32
Dairy	57.42	55.40	65.76	65.94	47.54	58.41
Total product	82.47	74.06	86.83	86.51	68.78	79.73
Return over all costs	16.28	7.51	12.03	8.32	4.71	9.77
Return over feed cost	45.51	37.89	43.48	45.73	37.42	42.01
Feeds:						
Corn, lb.	376	302	172	178	68	219
Small grain, lb.	999	705	626	597	351	656
Mill feeds, lb.	176	176	178	179	172	176
Hay, lb.	3280	3224	3307	3054	1719	2917
Fodder and stover, lb.	600	471	326	306	199	380
Silage, lb.	6111	5312	5549	5502	6510	5797
Milk, lb.	190	176	131	176	171	169
Skimmilk, lb.	1451	1688	1536	1596	1450	1544
Total concentrates,* lb.	1824	1493	1254	1249	861	1336
Total roughage,+ lb.	5917	5465	5483	5194	4088	5229
Pasture, days	181	153	164	204	166	174
Range for specified items, 1939:						
Units per farm					17 to	78
Man labor, hours					43 to	149
Net cost					$43.23 to	$84.77
Total value of product					51.22 to	117.64
Return over all costs					-.19 to	34.08
Return over feed cost					22.42 to	76.14
Total concentrates,* lb.					521 to	2520
Total roughage,+ lb.					4142 to	8276
Pasture, days					147 to	213

*Six pounds of milk or skimmilk considered as one pound of concentrates.

+Three pounds of silage considered as one pound of roughage.

Cost and Return per Unit of All Cattle
Milk-and-Beef Herds

	1939	1938	1937	1936	1935	Average five years
Number of farms	3	5	5	7	7	
Units per farm	28	38	42	44	37	38
Man labor, hours	72	82	75	67	65	72
Horse work, hours	.9	1.5	1.5	2.9	2.1	1.8
Costs:						
Feed	$41.81	$41.03	$38.24	$39.92	$28.78	$37.96
Man labor	14.30	16.32	14.98	13.42	12.93	14.39
Horse work	.12	.22	.15	.26	.16	.18
Shelter	10.29	8.48	5.55	7.14	7.60	7.81
Equipment	2.58	1.89	1.66	1.86	2.42	2.08
Interest at 5%	2.92	3.05	2.28	2.73	2.09	2.62
Miscellaneous cash	1.77	1.31	.60	.77	.67	1.02
Total costs	73.79	72.30	63.46	66.10	54.65	66.06
Manure credit	4.98	4.89	3.47	3.92	2.72	4.00
Net cost	68.81	67.41	59.99	62.18	51.93	62.06
Value of product:						
Animal	34.32	35.64	22.67	27.27	26.14	29.21
Dairy	33.64	35.11	36.16	37.83	33.85	35.32
Total product	67.96	70.75	58.83	65.10	59.99	64.53
Return over all costs	-.85‡	3.34	-1.16‡	2.92	8.06	2.47
Return over feed cost	26.15	29.72	20.59	25.18	31.21	26.57
Feed:						
Corn, lb.	867	764	281	261	192	473
Small grain, lb.	1184	787	644	532	262	682
Mill feeds, lb.	79	145	54	67	32	75
Hay, lb.	3240	3345	2798	3367	2065	2963
Fodder and stover, lb.	88	1086	661	399	607	568
Silage, lb.	7633	4903	3677	5118	5044	5275
Milk, lb.	145	137	95	152	191	144
Skimmilk, lb.	1792	1732	1161	916	872	1295
Total concentrates,* lb.	2453	2008	1188	1038	663	1470
Total roughage,+ lb.	5872	6065	4685	5473	4352	5289
Pasture, days	197	144	141	223	201	181
Range for specified items, 1939:						
Units per farm					17 to	37
Man labor, hours					41 to	101
Net cost					$57.17 to	$85.38
Total value of product					64.97 to	72.94
Return over all cost					-12.44‡ to	8.80
Return over feed cost					25.66 to	26.86
Total concentrates,* lb.					1944 to	3037
Total roughage,+ lb.					5342 to	6727
Pasture, days					172 to	218

*Six pounds of milk or skimmilk considered as one pound of concentrates.
+Three pounds of silage considered as one pound of roughage.
‡A minus indicates a cost greater than the value of production.

Sheep

The cost and return per head for sheep are presented below. The number of head of sheep is the average number of mature head for a year with two lambs up to six months of age considered as one mature sheep. The fleece weight was calculated by dividing the total clip by the number of sheep sheared. The per cent death loss is based on the total number of sheep and lambs, regardless of the length of time that they were on the farm. The lambs raised per ewe is the number of lambs raised to six months of age divided by the number of ewes at lambing time.

Cost and Return per Sheep

	1939	1938	1937	1936	1935	Average five years
Number of farms	7	8	12	12	12	
Number of sheep per farm	59	42	39	35	33	42
Man labor, hours	2.9	4.2	3.6	2.4	2.6	3.1
Horse work, hours	.2	.3	.3	.1	.3	.2
Costs:						
Feed	$1.75	$1.57	$1.84	$1.49	$1.56	$1.64
Man labor	.59	.84	.73	.48	.51	.63
Horse work	.02	.02	.02	.01	.03	.02
Shelter	.34	.74	.59	.70	.59	.59
Equipment	.04	.26	.10	.11	.12	.13
Interest at 5%	.24	.26	.25	.24	.25	.25
Miscellaneous cash	.18	.17	.15	.19	.18	.17
Total cost	3.16	3.86	3.68	3.22	3.24	3.43
Manure credit	.19	.15	.16	.13	.11	.15
Net cost	2.97	3.71	3.52	3.09	3.13	3.28
Value produced:						
Sheep	3.66	2.59	3.60	3.50	2.77	3.22
Wool	1.48	1.20	1.71	1.84	1.73	1.59
Total product	5.14	3.79	5.31	5.34	4.50	4.81
Return over all costs	2.17	.08	1.79	2.25	1.37	1.53
Return over feed cost	3.39	2.22	3.47	3.85	2.94	3.17
Weight of fleece, lb.	7.5	8.4	8.8	7.9	8.3	8.2
Per cent lamb crop	70	122	98	104	86	96
Per cent death loss, lambs	14	5	9	13	19	12
Per cent death loss, sheep	10	7	14	13	10	11
Feeds:						
Grain, lb.	52	49	24	16	21	32
Hay and fodder, lb.	178	161	188	168	108	161
Silage, lb.	307	152	114	58	240	174
Total roughage,* lb.	280	212	226	187	188	219
Pasture, days	223	221	210	211	156	204
Range for specified items, 1939:						
Number of sheep per farm					10 to	152
Man labor, hours					1.6 to	6.3
Net cost					$1.65 to	$4.10
Total product					2.69 to	8.67
Return over all costs					-.29 to	5.46
Return over feed cost					1.49 to	6.50
Weight of fleece, lb.					5.8 to	9.0
Per cent of lamb crop					9 to	112
Per cent of death loss, lambs					0 to	67
Per cent of death loss, sheep					4 to	25
Grain, lb.					0 to	123
Total roughage,* lb.					115 to	480
Pasture, days					191 to	291

*Three pounds of silage considered as one pound of roughage.

Hogs

The cost and return per one hundred pounds of hogs are presented below. The number of pigs per litter was calculated by adding together the number of pigs raised to six months of age and those that were sold or butchered at an earlier age. This sum was divided by the number of litters farrowed. The average market weight and the price received per hundred pounds are based on the total sales of hogs and pigs. The pounds of hogs produced include any gain in weight of breeding hogs and likewise the expenses include the cost of maintaining the breeding herd. The return over all costs is the difference between the net expenses per hundred pounds and the selling price. It does not include any receipts from corn-hog benefit payments. The return over feed is the difference between the feed cost and the selling price.

Cost and Return per 100 Pounds Hogs Produced

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	20	23	23	24	19	
Pounds produced per farm	15,761	17,715	12,643	13,124	9,741	13,797
Man labor, hours	3.1	2.8	3.4	3.4	2.9	3.1
Horse work, hours	.2	.2	.2	.3	.3	.2
Costs:						
Feed	$5.03	$4.30	$6.36	$6.62	$4.94	$5.45
Man labor	.62	.56	.69	.67	.57	.62
Horse work	.02	.02	.02	.03	.03	.02
Shelter	.13	.20	.25	.20	.24	.20
Equipment	.11	.09	.11	.09	.19	.12
Interest at 5%	.11	.15	.16	.15	.18	.15
Miscellaneous cash	.08	.04	.05	.06	.05	.06
Total cost	6.10	5.36	7.64	7.82	6.20	6.62
Manure credit	.41	.39	.40	.35	.37	.38
Net cost	5.69	4.97	7.24	7.47	5.83	6.24
Average selling price per cwt.	5.82	7.66	9.31	9.18	8.99	8.19
Return over all costs	.13	2.69	2.07	1.71	3.16	1.95
Return over feed	.79	3.36	2.95	2.56	4.05	2.74
Average weight of hogs sold	238	231	236	226	235	233
Pigs raised per litter	6.4	7.3	6.4	6.0	5.9	6.4
Feeds:						
Corn, lb.	311	272	189	214	236	244
Small grain, lb.	182	159	223	147	151	173
Other concentrates, lb.	5	5	12	12	17	10
Total concentrates, lb.	498	436	424	373	404	427
Skimmilk equivalent,* lb.	590	637	713	660	597	639
Pasture, days	45	34	9	27	27	28
Range for specified items, 1939:						
Pounds produced per farm					1560 to	41021
Man labor, hours					1.8 to	11.7
Net cost					$3.78 to	$8.36
Average selling price per cwt.					4.57 to	6.60
Return over all costs					-3.79 to	2.38
Average weight of hogs sold					104 to	367
Pigs raised per litter					2.6 to	10.0
Total concentrates, lb.					315 to	702
Skimmilk equivalent,* lb.					215 to	1003
Pasture, days					0 to	72

*Skimmilk and buttermilk plus ten times the weight of tankage fed.

Chickens

The data for chickens are presented on the basis of one hundred hens. In a few instances, a small number of ducks or geese were raised. In such cases, the feed, labor and other expenses, and the receipts for ducks and geese are included. Portable brooder houses were considered as equipment in arriving at the costs for shelter and equipment. The division of the costs between the production of eggs and the production of poultry was made on the basis of the proportion of the income obtained from each.

Cost and Return per 100 Hens

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	19	22	24	23	19	
Number of laying hens per farm	136	158	145	136	124	140
Number of other chickens per farm	69	87	71	77	79	77
Eggs per hen	146	150	141	121	119	135
Man labor, hours	270	281	296	355	329	306
Horse work, hours	4.8	6.3	7.7	9.1	9.0	7.4
Costs:						
Feed	$154.27	$138.57	$190.96	$201.93	$175.76	$172.30
Man labor	54.12	56.21	59.25	71.04	65.82	61.29
Horse work	.39	.70	.73	.90	.77	.70
Shelter	16.45	17.15	16.79	18.31	18.51	17.44
Equipment	16.32	18.53	21.44	15.96	20.08	18.47
Interest at 5%	3.45	3.58	3.65	3.83	3.65	3.63
Miscellaneous cash	10.14	12.29	11.77	13.05	17.36	12.92
Total cost	255.14	247.03	304.59	325.02	301.95	286.75
Manure credit	9.91	9.10	8.52	9.22	9.49	9.25
Net cost	245.23	237.93	296.07	315.80	292.46	277.50
Value of product:						
Poultry	54.03	54.93	63.53	69.32	76.49	63.66
Eggs	191.67	234.44	220.40	209.08	218.44	214.81
Total product	245.70	289.37	283.93	278.40	294.93	278.47
Return over all costs	.47	51.44	-12.14*	-37.40*	2.47	.97
Return over feed cost	91.43	150.80	92.97	76.47	119.17	106.17
Selling price per dozen eggs	.16	.19	.19	.21	.23	.19
Feeds:						
Corn, lb.	4108	3590	2719	3687	3244	3470
Small grain, lb.	4926	4437	4228	4226	5851	4734
Other concentrates, lb.	2494	2601	3054	2778	2477	2680
Meat scraps and tankage, lb.	619	532	417	425	337	466
Skimmilk, lb.	4582	4179	3769	6217	6126	4975
Total concentrates, lb.	11528	10628	10001	10691	11572	10884
Skimmilk equivalent,+ lb.	15101	13226	10858	13448	11855	12898
Range for specified items, 1939:						
Number of laying hens per farm					66 to	232
Number of other chickens per farm					0 to	171
Eggs per hen					105 to	198
Man labor, hours					134 to	535
Net cost					$129.93 to	450.05
Value of poultry					-41.27* to	161.96
Value of eggs					126.01 to	269.54
Value of total product					137.41 to	378.48
Return over all costs					-99.70* to	89.73
Return over feed cost					36.19 to	182.69
Selling price per dozen eggs					13.5 to	18.6

*A minus (-) indicates a loss or a failure to cover the charges.

+One pound of meat scraps or tankage considered as 17 pounds of skimmilk.

Turkeys

The cost and return per one hundred pounds of turkeys are presented below. The pounds of turkeys produced includes the gain in weight of the laying flock as well as of the market turkeys. The average market weight and the average price received per pound are based upon the total sales of all turkeys. The per cent death loss of poults is based upon the death loss from the time the poults were hatched or purchased until the end of December, when most of the market turkeys had been sold. Death losses of the turkeys kept for the laying flock were not included.

Cost and Return per 100 Pounds of Turkeys Produced

	1939	1938	1937	1936	Average 4 years
Number of farms	7	7	6	3	
Pounds produced per farm	11282	12266	10629	8323	10625
Man labor, hours	7.8	8.8	7.3	8.1	8.0
Horse work, hours	.2	.5	.4	.3	.4
Costs:					
Feed	$8.37	$8.96	$14.47	$14.85	$11.66
Man labor	1.57	1.77	1.46	1.63	1.61
Horse work	.01	.06	.04	.04	.04
Shelter and equipment	.58	.89	.70	1.16	.83
Interest at 5%	.15	.20	.20	.19	.19
Miscellaneous cash	.47	.66	.70	.77	.65
Total cost	11.15	12.54	17.57	18.64	14.98
Credits:					
Eggs sold	.00	1.56	.60	2.34	1.13
Manure	.50	.55	.64	.58	.57
Total credits	.50	2.11	1.24	2.92	1.70
Net cost	10.65	10.43	16.33	15.72	13.28
Value produced	15.22	20.61	21.89	13.64	17.84
Return over all costs	4.57	10.18	5.56	-2.08	4.56
Return over feed cost	6.85	13.21	8.02	1.13	7.31
Average weight of turkeys sold	15.2	14.7	14.4	14.8	14.8
Average selling price per lb.	16.1	19.5	20.9	16.6	18.3
Per cent hatch	60	64	64	60	62
Per cent death loss of poults	26	26	26	37	29
Feeds:					
Corn, lbs.	174	200	248	303	231
Small grain, lbs.	157	140	164	61	131
Other concentrates, lbs.	245	289	350	320	301
Total concentrates, lbs.	576	629	762	684	663
Meat scraps and tankage, lbs.	26	37	22	40	31
Skimmilk and buttermilk, lbs.	68	44	65	44	55
Range for specified items, 1939:					
Pounds produced per farm			3352	to	20250
Man labor, hours			3.9	to	14.4
Net cost			$7.49	to	$15.35
Value produced			11.54	to	21.99
Return over all costs			.68	to	9.76
Average weight of turkeys sold, lbs.			13.6	to	16.8
Average selling price per pound			15.3	to	17.1
Per cent death loss of poults			10	to	47
Total concentrates, lbs.			433	to	818
Meat scraps and tankage, lbs.			0	to	77
Skimmilk and buttermilk, lbs.			0	to	249

Work Horses

Average cost per work horse and per hour of horse work are presented. Costs and income for colts and other horses that are not worked are not included. Tractors were used for drawbar power on nineteen farms in 1939, on twenty farms in 1938, on nineteen farms in 1937, on eighteen farms in 1936, and on fifteen farms in 1935.

Cost of Horse Work per Horse

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	21	23	25	24	19	
Horses per farm	5	5	5	6	6	5
Crop acres per horse	34	31	30	33	34	32
Man labor, hours	47	54	55	63	54	54
Costs:						
Feed	$29.98	$30.30	$35.91	$40.14	$40.87	$35.44
Labor	9.41	10.79	10.95	12.56	10.78	10.90
Shelter	7.71	8.84	10.01	8.44	10.14	9.03
Equipment	3.09	4.37	4.30	4.82	5.49	4.41
Interest at 5%	4.85	5.32	5.32	5.20	4.91	5.12
Miscellaneous cash	1.91	1.76	1.08	1.02	.79	1.31
Depreciation	8.59	11.49	6.90	9.00	6.50	8.50
Total cost	65.54	72.87	74.47	81.18	79.48	74.71
Manure credit	3.40	3.55	3.00	4.15	5.50	3.92
Net cost	62.14	69.32	71.47	77.03	73.98	70.79
Hours worked	698	717	745	848	887	779
Cost per hour, cents	8.9	9.7	9.6	9.1	8.3	9.1
Feed:						
Grain, lb.	1980	2021	1727	2328	2286	2068
Roughages,* lb.	4461	4253	3713	4536	4073	4207
Pasture, days	130	88	72	82	70	88
Range for specified items, 1939:						
Horses per farm				2	to	8
Crop acres per horse				8	to	110
Man labor, hours				23	to	66
Net cost				$35.04	to	$101.37
Hours worked				321	to	1024
Cost per hour, cents				5.1	to	17.8
Grain, lb.				786	to	3519
Roughage,* lb.				1467	to	6800
Pasture, days				100	to	154

*Hay, fodder and stover plus one-third the weight of silage.

Tractors

The number of hours tractors were operated and the cost per hour of operation are presented below for both two-plow and three-plow tractors. The labor of the regular farm workers used in servicing and repairing was charged at twenty cents per hour. The full amount of the gasoline tax (4¢ per gallon) was deducted from the fuel and oil expense whether it was actually collected this year or not. The use of the automobile, truck and horses in repairing or servicing was charged at the rates found on the farms studied. Other cash expenses include the cash cost of repairing, parts, etc. Interest was calculated on the average of the beginning and ending inventories.

Cost per Hour for Tractors

	1939	1938	1937	1936	1935	Average 5 years
Two-Plow Tractors						
Number of farms	13	13	10	9	4	
Hours worked per year:						
Drawbar	388	351	275	194	292	300
Belt	123	106	71	59	79	88
Totals	511	457	346	253	371	388
Per 100 hours of operation:						
Labor, hours	7.7	6.4	8.8	10.6	9.4	8.6
Fuel, gallons	203	197	212	235	192	208
Oil, quarts	16	14	17	25	26	20
Cost per hour of operation:						
Labor	$.016	$.013	$.018	$.021	$.029	$.019
Fuel, oil and grease	.263	.258	.267	.309	.236	.267
Other cash expenses	.026	.030	.050	.033	.066	.041
Use of auto, truck & horses	.002	.001	.003	.003	.005	.003
Depreciation	.105	.169	.144	.085	.108	.122
Interest at 5%	.060	.085	.068	.099	.046	.072
Total cost	.472	.556	.550	.550	.490	.524
Range for specified items, 1939:						
Total hours worked per year				287	to	819
Fuel per 100 hours, gallons				105	to	309
Oil per 100 hours, quarts				11	to	29
Cost per hour of operation				$.281	to	$.813
Three-Plow Tractors						
Number of farms	6	7	11	9	9	
Hours worked per year:						
Drawbar	395	394	388	443	372	398
Belt	155	158	161	137	183	159
Total	550	552	549	580	555	557
Per 100 hours of operation:						
Labor, hours	8.0	8.2	8.7	10.6	10.7	9.2
Fuel, gallons	247	265	246	245	252	251
Oil, quarts	22	22	22	31	35	26
Cost per hour of operation:						
Labor	$.016	$.016	$.017	$.021	$.021	$.018
Fuel, oil and grease	.308	.349	.313	.307	.192	.294
Other cash expenses	.054	.123	.099	.053	.195	.105
Use of auto, truck and horses	.003	.002	.002	.002	.005	.003
Depreciation	.142	.144	.145	.087	.002*	.103
Interest at 5%	.058	.068	.067	.056	.050	.060
Total cost	.581	.702	.643	.526	.461	.583
Range for specified items, 1939:						
Total hours worked per year				274	to	780
Fuel per 100 hours, gallons				201	to	277
Oil per 100 hours, quarts				12	to	29
Cost per hour of operation				$.408	to	$.725

*Appreciation resulting from extensive repairs.

Automobiles and Trucks

Cost per mile of travel for automobiles and trucks is presented. In these statements, the labor charge is the value, at twenty cents per hour, of the time the regular farm workers spent in repairing and servicing the machines. It also includes a charge for any use of horses in repairing them. Other cash expenses include the cost of license, repairs, parts, tires, insurance, and similar items. The miles driven are based on a check of the speedometer reading at the beginning and end of the year.

Cost per Mile for Automobiles

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	17	21	22	23	18	
Miles driven per car	10262	8761	8254	8422	7409	8622
Miles per gallon gasoline	16.0	15.6	15.5	15.0	14.0	15.2
Cost per mile of travel:						
Labor	$ -	$ -	$ -	$.001	$.001	$ -
Gasoline, oil and grease	.012	.013	.013	.012	.013	.013
Other cash expenses	.009	.010	.011	.012	.013	.011
Depreciation	.006	.008	.007	.005	.008	.007
Interest at 5%	.002	.003	.002	.002	.002	.002
Total cost	.029	.034	.033	.032	.037	.033
Range for specified items, 1939:						
Miles driven per car				3707	to	20510
Miles per gallon gasoline				9.8	to	19.3
Cost per mile of travel, cents				1.7	to	4.8

Cost per Mile for Trucks

	1939	1938	1937	1936	1935	Average 5 years
Number of farms	12	14	15	14	12	
Miles driven per truck	5744	5279	6365	4792	4126	5261
Miles per gallon of gasoline	14.0	12.3	14.3	12.4	12.7	13.1
Cost per mile of travel:						
Labor	$.001	$.001	$.001	$.002	$.004	$.002
Gasoline, oil and grease	.016	.015	.015	.017	.016	.016
Other cash expenses	.017	.017	.014	.022	.026	.019
Depreciation	.008	.012	.010	.009	.011	.010
Interest at 5%	.003	.004	.003	.004	.004	.004
Total cost	.045	.049	.043	.054	.061	.051
Range for specified items, 1939:						
Miles driven per truck				709	to	15900
Miles per gallon gasoline				10.0	to	21.7
Cost per mile of travel, cents				2.1	to	8.6

CROP STATEMENTS

Methods of Computing and Presenting Data

The comparative cost and return for 1935, 1936, 1937, 1938, and 1939 for each of the principal crops grown on the farms studied are presented on pages 22 to 30. The data for each farm were computed as if the farmer were a full-owner. The factors of cost were charged at local prices. Man labor was charged at 20 cents per hour. Horse work was charged at 8 cents per hour in 1935 and 1936, at 9 cents in 1937 and 1938, and at 10 cents for 1939. Two-plow tractors were charged at 45 cents per hour in 1935, 50 cents in 1936 and 1937, and at 55 cents in 1938 and 1939; and three-plow tractors at 60 cents in 1935, at 65 cents in 1936 and 1937, and at 70 cents in 1938 and 1939. Seeds were charged at cost, if purchased, otherwise at farm prices plus the cost of cleaning. Manure was charged at 50 cents per ton plus the cost of application. Forty per cent of the total manuring charge was allocated to the land covered and the balance was prorated on an acre basis to the remaining land normally receiving manure. Fifty per cent of the value of commercial fertilizer was charged against the crop in the year of application, twenty-five per cent the second year, and twenty-five per cent the third year. Flat charges per acre were made for seed forhay crops, for the use of machinery, and for land. The cost of power was included with the cost of thresher, shredder, and silo filler. The local farm prices on December 1 were used in determining the value of the crop.

The costs presented are relative rather than absolute costs. Because many of the cost items, such as the farmer's own labor and the use of his own land, machinery and equipment, do not represent actual current "out-of-pocket" cash expense, it was necessary for purposes of comparison to estimate their value. Care must, therefore, be used in interpreting these data; but since the costs have been calculated on the same basis for all crops, they can be used in comparisons between crops.

Comparative Cost and Return per Acre for Principal Grain Crops

	Barley	Oats	Oats and barley	Winter wheat	Spring wheat	Flax	Corn Husked standing	Corn Cut and shredded
	1935,36, 37,38,39	1935,36, 37,38,39	1935,36, 37,38,39	1935,36, 37,38,39	1935,37, 39	1935, 39	1935,36 37,38,39	1935,36 37,38,39
No. farm-years	99	86	32	63	21	10	73	57
Acres per farm	37	35	19	13	8	9	13	10
Costs and return:								
Man labor	$1.74	$1.71	$1.86	$1.98	$1.68	$2.51	$4.20	$5.66
Horse and tractor	2.13	2.15	2.14	2.37	2.15	3.15	4.60	4.87
Seed	1.78	1.06	1.55	1.83	1.89	1.62	.66	.62
Twine	.21	.21	.22	.19	.20	.14	-	.36
Threshing	.67	1.05	1.00	.53	.39	1.23	.27	1.97
Manure	1.49	1.39	1.49	1.36	1.05	1.32	2.70	3.32
Machinery	1.05	1.05	1.05	1.09	1.05	1.05	1.55	2.50
Operating costs	9.07	8.62	9.31	9.35	8.41	11.02	13.98	19.30
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total costs	12.57	12.12	12.81	12.85	11.91	14.52	17.48	20.27+
Crop value(Dec.1)	13.81	10.13	11.26	13.65	9.60	14.60	22.48	21.58
Crop value less cost*	1.24‡	-1.99	-1.55	.80	-2.31	.08	5.00	1.31
Yield, bushels	22.6	36.0	31.2x	15.6	11.5	8.7	47.5	45.2
Cost per bushel	$.56	$.34	$.41	$.82	$1.04	$1.67	$.37	$.44
Dec. 1 price	.61	.28	.36	.88	.83	1.68	.47	.47
Amounts of labor, power & materials:								
Before harvest:								
Man labor, hrs.	3.3	3.4	3.6	3.6	3.	4.6	10.6	10.6
Horse work, hrs.	7.9	9.1	9.9	9.1	7.8	11.1	20.3	23.0
Tractor use, hrs.	1.3	1.2	1.0	1.3	1.3	1.7	2.1	1.5
Harvest:								
Man labor, hrs.	5.3	5.2	5.6	6.3	5.1	8.0	10.4	17.7
Horse work, hrs.	5.5	5.6	5.3	7.1	5.6	9.8	14.1	22.5
Tractor use, hrs.	.4	.3	.4	.3	.4	.5	.4	-
Seed, bushels	2.0	2.3	2.2	1.7	1.6	.7	.17	.17
Twine, pounds	2.6	2.7	2.8	2.5	2.6	2.0	-	4.7

*A minus (-) indicates a cost greater than the value of the crop.
+Net cost after deducting credit for stover of $2.53.
‡At malting barley prices. Using feed barley price of $.43 crop value less cost would have been $3.17.
xAt 40 pounds per bushel.

Comparative Cost per Acre for Principal Roughage Crops

	Corn for silage 1935,36, 37,38,39	Soybean hay 1935,39	Alfalfa 1935,36, 37,38,39	Clover 1936,37	Timothy 1937,38, 39	Clover & timothy 1935,37, 38,39	Wild hay 1935,37 38
Number farm-years	108	18	86	20	25	42	15
Acres per farm	14	7	17	14	7	11	5
Costs:							
Man labor	$4.12	$3.16	$2.06	$1.15	$1.08	$1.38	$1.41
Horse and tractor	4.39	3.48	1.59	.93	.88	1.13	1.04
Seed	.64	1.64	1.60	2.66	.76	1.47	-
Twine	.35	.12	-	-	-	-	-
Silage cutter	2.22	-	-	-	-	-	-
Manure	2.96	1.47	1.46	1.16	1.59	1.58	.01
Machinery	2.50	1.67	1.09	.57	.55	.70	.65
Operating cost	17.18	11.54	7.80	6.47	4.85	6.26	3.11
Land	3.50	3.50	3.50	3.50	3.50	3.50	2.00
Total cost	19.27*	15.04	11.30	9.97	8.36	9.76	5.11
Yield, tons	8.0	1.7	2.1	1.0	1.1	1.8	1.2
Cost per ton	$2.41	$8.85	$5.38	$9.97	$7.60	$5.42	$4.26
Amount of labor, power and materials:							
Before harvest or first cutting:							
Man labor, hrs.	10.0	6.7	6.0	5.8	5.4	6.0	7.0
Horse work, hrs.	20.0	14.0	8.8	8.6	8.3	8.8	10.9
Tractor use, hrs.	1.9	1.8	.3	.4	.2	.4	.2
Harvest or second cutting:							
Man labor, hrs.	10.6	9.1	3.6	-	-	.9	-
Horse work, hrs.	16.4	9.9	5.4	-	-	1.7	-
Tractor use, hrs.	.1	.4	.2	-	-	-	-
Third cutting:							
Man labor, hrs.	-	-	.8	-	-	-	-
Horse work, hrs.	-	-	1.1	-	-	-	-
Tractor use, hrs.	-	-	.0	-	-	-	-
Seed, bushels	.20	-	-	-	-	-	-
Twine, lbs.	4.6	-	-	-	-	-	-
Per cent of acreage cut twice		-	88	0	0	26	0
Per cent of acreage cut three times		-	18	0	0	0	0

*Net cost after deducting credit of $1.41 for corn knocked off by binder.

Cost and Return per Acre for Barley and Oats

	Barley					Oats				
	1939	1938	1937	1936	1935	1939	1938	1937	1936	1935
Number of farms	17	21	23	19	19	16	17	18	17	18
Acres per farm	30	31	30	40	53	27	36	36	34	40
Costs and return:										
Man labor	$1.59	$1.93	$1.93	$1.62	$1.61	$1.51	$2.00	$1.78	$1.65	$1.63
Horse and tractor	2.22	2.31	2.23	2.07	1.84	2.17	2.35	2.16	2.13	1.94
Seed	1.17	1.63	2.41	1.55	2.12	.89	.89	1.29	.87	1.34
Twine	.22	.21	.30	.17	.16	.20	.20	.29	.18	.17
Threshing	.71	.78	.77	.49	.61	1.22	1.00	1.26	.87	.90
Manure	1.72	1.96	1.68	1.29	.79	1.62	1.68	1.78	1.10	.75
Machinery	1.07	1.05	1.05	1.05	1.06	1.06	1.05	1.05	1.05	1.06
Operating costs	8.70	9.87	10.37	8.24	8.19	8.67	9.17	9.61	7.85	7.79
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total costs	12.20	13.37	13.87	11.74	11.69	12.17	12.67	13.11	11.35	11.29
Crop value (Dec. 1)	11.33	10.08	17.03	19.32	11.28	13.17	6.60	10.60	12.67	7.63
Crop value less cost*	-.87+	-3.29+	3.16+	7.58+	-.41+	1.00	-6.07	-2.61	1.32	-3.66
Yield, bushels	24.1	25.2	26.2	16.8	20.5	43.9	33.0	42.4	28.8	31.8
Cost per bushel: Average	$.51	$.53	$.53	$.70	$.57	$.28	$.38	$.31	$.39	$.36
Lowest	.32	.39	.32	.40	.35	.19	.26	.20	.29	.24
Highest	1.21	.71	.76	1.16	.91	.46	.58	.48	.69	.64
December 1 price (malting barley)	.47	.40	.65	1.15	.55	.30	.20	.25	.44	.24
Amounts of labor, power and materials:										
Before harvest:										
Man labor, hours	2.9	3.4	3.4	3.7	3.1	2.9	3.4	3.4	4.0	3.2
Horse work, hours	4.5	7.0	7.7	10.2	10.3	4.8	8.2	8.6	12.2	11.6
Tractor work, hours	1.7	1.4	1.4	1.1	.8	1.6	1.3	1.2	1.0	.7
Harvest:										
Man labor, hours	5.0	6.2	6.2	4.4	4.9	4.6	6.6	5.5	4.2	4.9
Horse work, hours	5.0	5.9	6.2	5.2	5.3	5.2	6.0	6.2	4.8	5.9
Tractor work, hours	.5	.5	.4	.3	.3	.4	.5	.2	.3	.3
Seed, bushels	2.2	2.0	2.0	2.0	1.7	2.3	2.4	2.1	2.2	2.3
Twine, pounds	3.2	2.6	3.2	1.8	2.2	3.0	2.5	3.1	2.5	2.4

*A minus (-) indicates a cost greater than the value of the crop.

+At malting barley prices. Using feed barley prices of 40 cents in 1939, 30 cents in 1938, 42 cents in 1937, 73 cents in 1936, and 35 cents in 1935, crop value less cost would be $-2.56, $-5.81, $-2.87, $.52 and $-4.51, respectively.

Cost and Return per Acre for Oats and Barley, Rye, Flax, and Oats and Wheat

	Oats and Barley					Rye	Flax		Oats & wheat
	1939	1938	1937	1936	1935	1935	1939	1935	1935
Number of farms	9	6	6	7	4	5	6	4	5
Acres per farm	24	15	21	19	18	27	13	6	23
Cost and return:									
Man labor	$1.66	$2.27	$2.03	$1.83	$1.52	$1.39	$2.24	$2.78	$1.76
Horse and tractor	2.16	2.35	2.26	2.04	1.90	1.50	3.06	3.01	2.04
Seed	1.06	1.25	2.13	1.28	2.00	1.84	1.68	1.57	1.85
Twine	.22	.22	.27	.22	.16	.17	.25	.02	.19
Threshing	1.03	1.10	1.40	.82	.67	.36	.98	1.48	.71
Manure	1.86	2.01	1.64	1.59	.35	.65	2.26	.38	.73
Machinery	1.06	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Operating cost	9.05	10.25	10.78	8.83	7.65	6.96	10.52	10.29	8.33
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total cost	12.55	13.75	14.28	12.33	11.15	10.46	15.02	13.79	11.83
Crop value (Dec. 1)	11.52	8.55	13.67	15.95	6.60	5.21	19.72	9.48	12.30
Crop value less cost*	-1.03	-5.20	-.61	3.62	-4.55	-5.25	4.70	-4.31	.47
Yield, bushels	32.9+	34.2+	40.2+	27.5+	21.3+	12.4	11.4	6.0	22.6+
Cost per bushel: Average	$.38	$.40	$.36	$.45	$.52	$.84	$1.32	$2.30	$.52
Lowest	.28	.28	.28	.34	.35	.60	.74	1.33	.38
Highest	.80	.86	.42	.86	.83	1.59	3.17	4.59	1.52
December 1 price	.35	.25	.34	.58	.31	.42	1.73	1.58	.54
Amounts of labor, power and materials:									
To harvest:									
Man labor, hours	3.2	3.8	3.9	4.0	3.3	2.4	3.6	5.6	2.9
Horse work, hours	4.8	10.8	9.3	12.0	12.6	6.1	4.7	17.5	7.7
Tractor work, hours	1.6	1.0	1.3	.8	.5	.8	2.4	1.0	1.1
Harvest:									
Man labor, hours	5.1	7.6	6.1	5.1	4.3	4.6	7.6	8.3	5.9
Horse work, hours	5.1	6.7	5.6	5.2	4.0	4.7	8.2	11.3	5.6
Tractor work, hours	.4	.4	.4	.5	.5	.3	.6	.4	.5
Seed, bushels	2.2	2.0	2.3	2.1	2.2	1.7	.6	.8	2.0
Twine, pounds	3.2	2.7	2.9	2.7	2.3	2.3	3.9	-	2.5

*A minus (-) indicates a cost greater than the value of the crop.

+At 40 pounds per bushel.

Cost and Return per Acre of Wheat

	Winter Wheat					Spring Wheat		
	1939	1938	1937	1936	1935	1939	1937	1935
Number of farms	8	15	17	13	10	6	6	9
Acres per farm	8	14	14	13	14	6	7	10
Cost and return:								
Man labor	$1.90	$2.01	$1.84	$1.94	$2.22	$1.68	$1.67	$1.70
Horse and tractor	2.86	2.45	2.17	2.31	2.08	2.34	2.25	1.85
Seed	1.21	1.71	2.32	1.95	1.97	1.22	2.62	1.83
Twine	.15	.18	.24	.16	.21	.17	.25	.18
Threshing	.29	.35	.57	.67	.75	.26	.49	.42
Manure	1.94	1.61	1.56	1.08	.58	1.42	1.05	.68
Machinery	1.09	1.11	1.05	1.16	1.05	1.06	1.05	1.05
Operating cost	9.44	9.42	9.75	9.27	8.86	8.15	9.37	7.71
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total cost	12.94	12.92	13.25	12.77	12.36	11.65	12.87	11.21
Crop value (December 1)	7.39	5.55	13.52	19.94	21.86	7.05	13.50	8.25
Crop value less cost*	-5.55	-7.37	.27	7.17	9.50	4.60	.63	-2.96
Yield, bushels	9.6	11.1	16.9	16.8	23.5	8.7	15.0	11.0
Cost per bushel: Average	$1.35	$1.16	$.78	$.76	$.53	$1.34	$.86	$1.02
Lowest	.66	.85	.54	.46	.34	.76	.59	.70
Highest	3.23	2.79	1.25	1.79	1.10	2.87	1.24	1.51
December 1 price	.77	.50	.80	1.18	.93	.81	.90	.75+
Amounts of labor, power & materials:								
Before harvest:								
Man labor, hours	4.1	3.6	3.6	4.2	2.7	3.3	3.3	3.2
Horse work, hours	5.3	7.1	9.9	13.7	9.6	6.3	6.4	10.8
Tractor work, hours	2.4	1.8	1.0	.8	.7	1.6	1.6	.6
Harvest:								
Man labor, hours	5.4	6.4	5.6	5.5	8.4	5.1	5.0	5.3
Horse work, hours	7.1	6.2	6.0	7.0	9.4	4.8	6.7	5.2
Tractor work, hours	.2	.3	.3	.2	.3	.5	.2	.4
Seed, bushels	1.9	1.6	1.6	1.7	1.6	1.4	1.7	1.6
Twine, pounds	2.4	2.1	2.8	2.3	3.1	2.4	2.9	2.6

*A minus (-) indicates a cost greater than the value of the crop.
+Low price because of inferior quality.

Cost and Return per Acre for Corn for Grain

	Husked from Standing Stalks					Cut and Shredded				
	1939	1938	1937	1936	1935	1939	1938	1937	1936	1935
Number of farms	15	18	15	10	15	11	12	16	11	7
Acres per farm	17	13	11	15	10	10	10	10	10	11
Cost and return:										
Man labor	$3.80	$4.13	$4.01	$4.62	$4.45	$5.63	$5.82	$5.74	$5.18	$5.92
Horse and tractor	4.96	5.13	4.36	4.16	4.40	5.10	5.15	4.93	4.34	4.83
Seed	.73	.73	.67	.76	.42	.80	.66	.52	.64	.48
Twine	-	-	-	-	-	.37	.45	.49	.25	.27
Husker or shredder	.49	.36	.28	-	.19	2.33	2.04	2.23	1.49	1.74
Manure	2.57	3.74	2.26	3.12	1.80	3.74	3.80	3.48	3.08	2.48
Machinery	1.55	1.55	1.55	1.55	1.55	2.52	2.50	2.50	2.48	2.50
Operating cost	14.10	15.64	13.13	14.21	12.81	20.49	20.42	19.89	17.46	18.22
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total cost	17.60	19.14	16.63	17.71	16.31	20.63+	20.60+	20.70+	18.88+	20.54+
Crop value (Dec. 1)	23.16	20.76	20.70	31.40	16.38	24.72	19.32	22.05	27.90	13.89
Crop value less cost*	5.56	1.62	4.07	13.69	.07	4.09	-1.28	1.35	9.02	-6.65
Yield, bushels	62.6	59.3	46.0	31.4	38.1	66.8	55.2	49.0	27.5	32.3
Cost per bushel: Average	$.28	$.32	$.36	$.56	$.43	$.31	$.37	$.42	$.69	$.64
Lowest	.21	.23	.26	.35	.26	.24	.25	.27	.33	.36
Highest	.44	.64	.99	1.90	1.07	.41	.53	.95	2.21	1.31
December 1 price	.37	.35	.45	1.00	.43	.37	.35	.45	1.00	.43
Amounts of labor, power and materials:										
Before harvest:										
Man labor, hours	9.2	10.4	9.7	11.8	11.8	9.0	10.4	11.1	10.5	11.9
Horse work, hours	13.8	18.0	17.3	24.3	28.1	17.9	21.9	22.8	24.1	28.1
Tractor use, hours	2.9	2.7	2.5	1.4	1.1	18.	1.9	1.8	1.2	.9
Harvest:										
Man labor, hours	9.8	10.3	10.3	11.3	10.4	19.2	18.7	17.6	15.4	17.6
Horse work, hours	15.1	16.6	14.3	17.3	17.0	22.1	21.8	21.2	21.8	25.8
Tractor use, hours	.6	.6	.3	-	.3	.1	.1	-	-	-
Seed, bushels	.14	.14	.16	.20	.19	.15	.17	.17	.19	.19
Twine, pounds	-	-	-	-	-	5.3	4.8	6.0	3.2	4.4

+Net cost after deducting credit for stover of $3.36 in 1939, $3.32 in 1938, $2.69 in 1937, $2.08 in 1936, $1.18 in 1935. *A minus (-) indicates a cost greater than the value of the crop.

	Cost per Acre for Corn for Silage, and for Alfalfa										
	Corn for Silage					Alfalfa					Alf.& Tim.
	1939	1938	1937	1936	1935	1939	1938	1937	1936	1935	1939
Number of farms	21	22	23	22	20	11	20	21	15	19	6
Acres per farm	11	12	14	18	13	13	21	23	111	15	9
Costs:											
Man labor	$3.96	$4.29	$4.07	$3.92	$4.34	$1.44	$1.75	$1.81	$2.50	$2.80	$1.31
Horse and tractor	4.68	4.73	4.48	4.00	4.06	1.41	1.51	1.48	1.69	1.86	1.08
Seed	.72	.54	.56	.74	.64	1.65	1.65	1.60	1.60	1.50	1.25
Twine	.33	.39	.46	.26	.34	-	-	-	-	-	-
Silage cutter	2.29	2.32	2.05	2.05	2.40	-	-	-	-	-	-
Manure	2.94	3.51	2.66	3.28	2.41	1.54	1.79	1.79	1.44	.75	2.10
Machinery	2.50	2.50	2.50	2.50	2.50	.93	1.06	1.06	1.20	1.21	.96
Operating cost	17.42	18.28	16.78	16.75	16.69	6.97	7.76	7.74	8.43	8.12	6.70
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total cost	19.79*	21.08*	19.19*	16.90*	19.39*	10.47	11.26	11.24	11.93	11.62	10.20
Yield, tons	9.9	9.3	8.2	5.1	7.4	1.3	2.3	2.1	1.9	3.1	1.4
Cost per ton: Average	$2.00	$2.27	$2.34	$3.31	$2.62	$8.05	$4.90	$5.35	$6.28	$3.75	$7.29
Lowest	1.14	1.42	1.50	.96	2.02	6.53	2.47	3.30	2.35	2.29	4.31
Highest	3.51	3.60	3.77	5.68	3.96	10.13	12.45	7.77	13.43	6.68	11.03
Amount of labor, power and materials:											
Before harvest or first cutting:											
Man labor, hours	8.5	9.5	10.5	11.3	10.1	4.6	5.0	6.3	6.6	7.6	4.2
Horse work, hours	13.2	17.5	20.5	24.8	24.0	6.3	7.1	9.2	10.0	11.4	4.9
Tractor use, hours	2.7	2.2	2.2	1.5	1.1	.4	.4	.3	.2	.2	.4
Harvest or second cutting:											
Man labor, hours	11.3	11.9	9.8	8.3	11.6	2.7	3.5	2.8	3.8	5.2	1.8
Horse work, hours	16.2	17.5	15.0	14.4	19.0	3.6	5.3	4.3	6.3	7.6	2.4
Tractor use, hours	.2	.4	.1	-	-	.3	.2	.1	.1	.2	.1
Third cutting:											
Man labor, hours	-	-	-	-	-	-	.3	.2	2.1	1.2	.5
Horse work, hours	-	-	-	-	-	-	.5	.3	2.9	1.7	.6
Seed, bushels	.15	.17	.21	.22	.24	-	-	-	-	-	-
Twine, pounds	5.3	4.6	5.5	3.0	4.8	-	-	-	-	-	-
Per cent of acreage cut twice	-	-	-	-	-	75	91	88	96	90	67
Per cent of acreage cut three times	-	-	-	-	-	-	14	14	35	26	17

*Net cost after deducting credit for corn knocked off by binder of $1.13 in 1939, $.70 in 1938, $1.09 in 1937, $3.35 in 1936, and $.80 in 1935.

Cost per Acre for Clover Hay, Timothy Hay, and Mixed Clover and Timothy Hay

	Clover		Timothy			Clover & Timothy			
	1937	1936	1939	1938	1937	1939	1938	1937	1935
Number of farms	6	14	8	10	7	12	10	13	7
Acres per farm	10	18	7	8	6	10	17	15	12
Costs:									
Man labor	$.85	$1.45	$.66	$1.42	$1.15	$1.18	$1.32	$1.32	$1.70
Horse and tractor	.74	1.12	.58	1.26	.80	1.02	1.18	1.07	1.28
Seed	2.70	2.63	.25	.75	1.30	1.32	1.60	1.85	1.10
Manure	1.07	1.25	1.16	1.77	1.85	1.67	1.88	1.96	.81
Machinery	.56	.57	.52	.58	.54	.68	.73	.56	.82
Operating cost	5.92	7.02	3.17	5.78	5.64	5.87	6.71	6.76	5.71
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total cost	9.42	10.52	6.67	9.28	9.14	9.37	10.21	10.26	9.21
Yield, tons	.8	1.3	.7	1.3	1.2	1.1	2.3	1.4	2.3
Cost per ton: Average	$11.78	$8.09	$9.53	$7.14	$7.62	$8.52	$4.43	$7.33	$4.00
Lowest	9.35	4.68	7.27	4.56	4.77	5.27	3.61	4.49	2.76
Highest	14.17	13.37	18.03	26.60	30.57	22.28	13.44	13.83	5.34
Amounts of labor and power:									
First cutting:									
Man labor, hours	4.2	7.3	3.3	7.1	5.7	4.9	5.2	6.5	7.2
Horse work, hours	6.4	10.9	5.0	11.3	8.6	6.4	7.8	9.3	11.8
Tractor use, hours	.3	.4	.2	.4	-	.4	.5	.4	.2
Second cutting:									
Man labor, hours	-	-	-	-	-	1.0	1.4	.1	1.3
Horse work, hours	-	-	-	-	-	1.7	1.9	.1	3.2
Tractor use, hours	-	-	-	-	-	-	-	-	-
Per cent of acreage cut twice	0	0	0	0	0	25	40	3	34

Comparative Cost and Return per Acre for Soybean Hay and for Wild Hay

	Soybean hay		Wild hay		
	1939	1935	1938	1937	1935*
Number of farms	13	5	5	6	10
Acres per farm	8	6	6	5	4
Costs and returns:					
Man labor	$2.86	$3.46	$1.18	$1.08	$1.96
Horse and tractor	3.54	3.18	.99	.98	1.15
Seed	1.52	1.76	-	-	-
Twine	.09	.14	-	-	-
Manure	1.82	1.12	.04	-	-
Machinery	1.83	1.51	.65	.55	.74
Operating cost	11.66	11.17	2.86	2.61	3.85
Land	3.50	3.50	2.00	2.00	2.00
Total cost	15.46	14.67	4.86	4.61	5.85
Yield, tons	1.7	1.7	1.2	.9	1.5
Cost per ton: Average	$8.92	$8.63	$4.05	$5.12	$3.90
Lowest	4.62	5.85	3.30	4.39	2.10
Highest	14.09	16.65	8.08	6.98	12.69
Amounts of labor, power and materials:					
Before harvest:					
Man labor, hours	5.7	7.7	-	-	-
Horse work, hours	8.5	19.4	-	-	-
Tractor work, hours	2.4	1.2	-	-	-
Harvest:					
Man labor, hours	8.6	9.6	5.9	5.4	9.8
Horse work, hours	8.5	11.2	9.6	8.8	14.4
Tractor work, hours	.7	.1	.2	.4	-
Seed, bushels	.9	1.0	-	-	-
Twine, pounds	1.2	2.1	-	-	-

*Fifteen per cent of acreage cut twice.

SOME FACTORS AFFECTING EARNINGS

Information gained from farm records can be used effectively in planning profitable changes in the farm business. Earnings varied widely among the farmers included in the study. The operator's labor earnings on the five most successful farms was $2294, and on the five least successful farms was $-54, a range of $2348. This large variation indicates the probability that most or all of these farms could find some opportunity to make changes in their farming operations which would tend to increase earnings. These variations, in large part, are the result of differences in the size of business, in the selection of crop and livestock enterprises, and in the efficiency with which the individual enterprises are conducted. By analyzing the same phases of his business, comparing his accomplishments with other farmers in the community, as presented in this report, a farmer can gain many ideas as to changes that could profitably be made on his farm.

Size of Business

When conditions are such that farming is profitable, the larger farm business, within limits, tends to yield the larger earnings. This relationship is presented in Table 1. The size of farm business is here measured in terms of the number of work units. A work unit is the average amount of productive work on crops or livestock accomplished per man in 10 hours, or 10 hours of work off the farm for pay. As such, it serves as a measure of either crop or livestock production or both.

On the average, the farmers with a large business had larger earnings than the farmers with a small business. When conditions are such that farming is unprofitable, the operators of large farms may be expected to incur somewhat larger losses. The size of the farm business may be increased by farming more land, by devoting a larger proportion of the land to crops yielding a high return per acre, by keeping more livestock, by keeping livestock of a more intensive type, or by producing products of higher quality.

Table 1
Size of Business and Operator's Labor Earnings, 1939

Size of farm business	No. of farms	Per farm	
		Total work units	Operator's labor earnings
540 work units or less	5	429	$265
541-660 work units	9	613	1398
661 work units or more	7	921	2008

Selection of Crops

Most of the crops raised on southeastern Minnesota farms are utilized as feed for livestock. It is important that those feed crops yield a large quantity of nutrients per acre at a low cost. The production per acre and the relative cost per hundred pounds of digestible nutrients for the principal feed crops for Winona County are presented in Table 2. These data indicate the general relationships existing in this area, although they may not be directly applicable to all farms. A farmer may use his own crop records to prepare a similar comparison in order to determine the most desirable cropping system for his farm.

Table 2
Production per Acre and Relative Cost per Hundred Pounds of Digestible Nutrients - Winona County

Crop	Average yield* (1917-36)	Total lbs. digestible nutrients+	% protein is of total nutrients+	Cost‡ per 100 lbs. of total nutrients
	bushel			
Grains:				
Corn	37.4	1711	8.7	$1.00
Barley	25.6	976	11.3	1.29
Winter wheat	18.3	870	11.1	1.46
Oats	35.1	790	13.8	1.51
Spring wheat	15.8	751	11.1	1.64
Roughages:				
Alfalfa	2.6	2652	20.8	.42
Clover and timothy	1.7	1676	10.3	.58
Silage	7.8	2621	7.2	.78

*Yields of alfalfa, clover and timothy, and silage estimated from available data; all other yields from annual reports of State Department of Agriculture.
+Analysis of feeds from "Feeding the Dairy Herd," by Eckles, Minnesota Bulletin 218 (1932).
‡Average costs for Winona County Farm Accounting Route adjusted for differences in yield.

Some farmers raise crops for sale. The net return per acre is an important consideration in the selection of crops for this purpose. The comparative return per acre for the crops commonly grown for sale in Winona County is shown in Table 3.

Table 3
Comparative Return per Acre for Selected Crops, Winona County

	Malting barley	Corn	Winter wheat	Spring wheat	Oats
Cost per acre*	$12.60	$17.20	$12.70	$12.30	$12.00
Yield (1917-36), bu.+	25.6	37.4	18.3	15.8	35.1
Price per bushel (1926-36)‡	$.73	$.58	$.84	$.86	$.33
Net return per acre	$6.09	$4.49	$2.67	$1.29	$-.42

*Average costs for 1935-37 for farms studied adjusted for differences in yields.
+Average yields for Winona County based on reports of the State Department of Agriculture.
‡Estimated from average price for the state on the basis of the relationship between Winona County and State prices for the period 1922-31.

Selection of Livestock

Cattle, hogs, sheep, and chickens differ in the relative proportions of concentrates, roughages, skimmilk and labor used in their production as may be seen from the data in Table 4. Cattle use relatively large amounts of roughage in relation to the amount of grain used, but not as large an amount as do sheep. Swine and chickens utilize grain and skimmilk but little or no roughage. There also are differences between livestock in the amount of man labor used. As farms vary in the relative quantities of grain, roughage, and skimmilk produced and in the amounts of available labor, the combination of livestock enterprises which will utilize most profitably the available feed and labor varies from farm to farm.

Table 4
Numbers of Livestock and Amounts of Roughage, Skimmilk and Labor Used per 1000 Pounds of Concentrates, Winona County, 1935-39

	Quantity of livestock	Concentrates, lbs.	Roughage, lbs.	Skimmilk, lbs.	Man labor, hours
Dairy cattle	1.0 head	1000	4975	1469	100
Milk-and-beef cattle	.8 head	1000	4300	1053	58
Sheep	31.2 head	1000	6844	-	97
Swine	235 lbs.*	1000	-	1496	7
Chickens	9.2 hens	1000	-	1185	28
Turkeys	150 lbs.*	1000	-	878	12

*Net gain in weight.

Crop Yields

Farmers' earnings are affected by the yields of crops as well as by the selection of kinds of crops. The data in Table 5 show that the farmers obtaining high yields had higher earnings than those obtaining low yields.

Table 5
Crop Yields and Operators' Earnings, Winona County, 1939

Crop yields	Number of farms	Yields, % of average	Operators' earnings
93% or less of average	7	85	$682
94% to 104% of average	7	100	1120
105% or more of average	7	115	1694

Livestock Efficiency

Since the sale of livestock and livestock products constitutes the most important source of income on these farms, the efficiency of the livestock strongly influences the earnings. The most important item of cost, and the one which is most subject to the farmer's control, is the cost of feed. As is shown by the data in Table 6, earnings in 1939 were generally higher on the farms which kept the kinds of livestock and followed the methods of management which yielded the greatest return over the cost of feed. Good livestock, well balanced rations, use of feeds low in cost, and careful management contribute to a large return over cost of feed.

Table 6
Livestock Efficiency and Operator's Earnings, Winona County, 1939

Return over feed cost per unit of productive livestock	Number of farms	Average return over feed cost	Operator's earnings
$30 and under	6	$22	$694
$31 to $43	8	38	1366
$44 and over	7	53	1340

Labor Efficiency

Another factor closely associated with farmers' earnings is the efficiency of labor. The data in Table 7 show that the earnings were generally higher on those farms on which a large amount of work was accomplished per worker.

Table 7
Labor Efficiency and Operator's Earnings, Winona County, 1939

Work per worker	Number of farms	Units per worker	Operator's earnings
240 units or less	8	205	$377
241 to 290 units	6	281	1772
291 units or more	7	330	1547

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The foregoing represent most of the more important types of factors affecting earnings. Each cooperating farmer will be able, by studying the data presented in this report and in reports numbers 113 and 116, to find ways of increasing his earnings through improvement of his methods and practices in regard to these factors.