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

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A Preliminary Report of Data Secured in 1940 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 Department of Agriculture.* Farms which were representative of the better

*The Economics of Soil Conservation, Division of Research, United States Department of Agriculture, also cooperated in 1937-41.

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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 1940 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 a high yield of corn. 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. Conditions for hay production were about average in 1940. Precipitation and temperature were favorable for the production of small grains, but very frequent rains in August interfered with threshing and growth in the shock occurred in many cases. Conditions for corn production were not as favorable as in the previous two years. Heavy precipitation and low temperatures in August delayed maturing, causing a very high moisture content at husking time.

Facts About the Organization and Production of the Farms

	1940			1939	1938	1937	1936	1935	Avg.
	Five high earn.	Five low earn.	All farms	All farms	All farms	All farms	All farms	All farms	six years
Acres per Farm:									
Barley	23	22	18	25	28	27	38	51	31
Oats	28	26	28	18	29	26	26	35	27
Mixed oats and barley	8	13	9	10	4	5	5	3	6
Mixed oats and wheat	-	-	1	4	2	8	2	7	4
Wheat	8	7	6	7	10	11	8	11	9
Corn	26	23	25	28	28	28	32	26	28
Flax	9	9	5	4	-	-	4	1	2
Other grain	9	4	5	3	4	3	7	11	6
Alfalfa	12	8	10	10	19	20	14	18	15
Clover and timothy	20	20	19	18	14	17	23	11	17
Wild hay	3	3	2	2	2	1	2	3	2
Other hay	7	11	8	17	5	3	3	5	7
Other crops	7	17	10	4	11	6	15	3	8
All crops	160	163	146	150	156	157	179	185	162
Woods and pasture	109	133	114	112	111	105	109	135	114
Farmstead, road & waste	12	8	10	12	11	11	13	14	12
All land	281	304	270	274	278	273	301	334	288
Livestock per Farm:									
Cows, no.	26	21	21	20	20	20	20	19	20
Other cattle, no.	25	25	23	22	24	23	26	25	24
Sheep, no.	26	38	16	20	15	19	18	21	18
Hogs, lbs. produced	19127	18613	16470	15266	17715	11888	13124	9459	13987
Laying hens, no.	117	112	118	125	152	142	204	187	155
Other chickens, no.	46	63	61	64	83	66	130	117	87
Hours of Man Labor per Farm:									
Total	9030	7441	8105	8299	9074	8885	9319	8829	8752
Livestock	5003	3468	4136	4124	4572	4330	4544	3802	4251
Crops	2184	2230	1926	2056	2278	2267	2469	2559	2259
Other	1843	1743	2043	2119	2224	2288	2306	2468	2242
Operator	3546	2918	3160	3281	3191	3298	3290	3200	3237
Unpaid family labor	587	931	2143	2132	2343	2109	2373	1688	2131
Hired	4532	3397	2561	2665	3245	3188	3410	3617	3114
Exchange received	365	195	241	221	295	290	246	324	270
Hours worked per day:									
Work days	11.3	10.8	10.3	10.3	10.5	10.5	10.5	9.5	10.3
Sundays	5.4	4.3	4.4	4.2	4.5	4.2	4.3	3.2	4.1
Work horses per farm	5	5	4	5	5	5	6	6	5
Hours worked per horse	632	671	599	698	717	745	848	887	748
Crop acres per horse	33	34	35	34	31	30	33	34	33

FINANCIAL STATEMENTS

Methods of Computing and Presenting Data

Average earnings, inventories, and household and personal expenses for 1940 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 1939, 1938, 1937, 1936, 1935, and for the six 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, 1939 and 1940, 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 allownace 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 expense.

Average Farm Inventories

	1940			1939	1938	1937	1936	1935	Average
	5 high earnings	5 low earnings	All farms	All farms	All farms	All farms	All farms	All farms	six years
Land	$5935	$7738	$6092	$6092	$6404	$5629	$5911	$5844	$5985
Farm buildings	5353	3648	4318	4332	4726	4622	5304	5228	4755
Horses	440	510	495	537	757	778	793	750	685
Cattle	2356	1955	1864	1748	1809	1697	1763	1446	1721
Sheep	170	269	112	120	80	99	91	110	102
Swine	480	376	375	367	471	395	370	294	379
Poultry	342	200	202	172	235	215	135	80	173
Feeds, seeds, and misc.	2027	1385	1411	1248	1271	1402	1447	1358	1356
Auto (f. share)	200	106	133	134	109	149	72	70	111
Truck (f. share)	248	143	150	99	135	140	149	115	131
Tractor	516	578	608	501	546	459	366	315	466
Mach. & Equip.	2050	1904	1904	1763	1847	1743	1637	1633	1755
Total	20117	18812	17664	17050	18390	17328	18038	17243	17619

Receipts, Expenses, and Earnings per Farm

	1940			1939	1938	1937	1936	1935	Avg.
	5 high earnings	5 low earnings	All farms	All farms	All farms	All farms	All farms	All farms	six years
Receipts:									
Dairy Products	$2575	$1365	$1665	$1356	$1309	$1458	$1360	$1049	$1366
Cattle	1030	820	724	860	894	721	671	771	774
Hogs	1138	977	885	933	1254	1056	1169	725	1004
Sheep and wool	186	186	94	92	60	102	102	93	91
Poultry and eggs	293	252	290	276	420	366	318	294	327
Turkeys	1104	417	664	704	951	669	210	16	536
Horses	52	5	45	33	37	108	111	110	74
Barley	65	2	18	65	72	278	560	344	223
Wheat	14	-	9	38	33	111	96	147	72
Other crops	236	317	293	236	191	197	294	135	224
Work off farm	24	13	95	143	101	195	151	252	156
Miscellaneous	378	86	349	251	342	329	536	143	325
A.A.A. payments	176	257	192	273	207	192	231	105	200
Total cash farm rec.	7271	4697	5323	5260	5871	5782	5809	4184	5372
Farm produce used	353	281	326	305	340	352	384	363	345
Increase in inventory	926	120	568	431	357	59	1009	14	406
TOTAL FARM RECEIPTS	8550	5098	6217	5996	6568	6193	7202	4561	6123
Expenses:									
Cattle bought	272	202	208	169	320	71	334	153	209
Hogs bought	42	39	32	107	122	54	95	45	76
Sheep bought	126	5	34	12	1	6	16	7	13
Poultry bought	23	31	31	28	33	33	38	26	31
Turkeys bought	455	81	175	142	85	17	50	3	79
Horses bought	15	3	12	26	26	32	65	64	37
Feed for livestock	1108	855	838	781	912	917	698	292	740
Other livestock exp.	91	72	65	77	79	100	48	37	68
Crop expense	310	356	264	240	238	227	215	199	230
Hired labor	500	359	285	299	384	356	360	366	341
Buildings, fencing	197	219	176	197	393	143	425	213	258
Machinery	357	374	433	401	427	419	384	358	404
Tractor	411	425	470	355	313	329	313	207	331
Truck	221	70	136	94	184	135	126	121	133
Auto	155	69	139	114	86	148	95	83	111
Electricity	56	52	46	39	35	39	39	40	40
Taxes	294	286	249	276	320	285	268	244	274
Insurance	42	35	37	36	59	50	55	39	46
Miscellaneous	65	46	44	27	30	30	29	29	31
Total cash farm exp.	4740	3579	3674	3420	4047	3391	3653	2526	3452
Board for hired labor	190	141	118	131	183	143	156	167	150
TOTAL FARM EXPENSES	4930	3720	3792	3551	4230	3534	3809	2693	3602
Returns to capital & family labor	3620	1378	2425	2445	2338	2659	3393	1868	2521
Int. on avg. inventory	1006	941	883	853	920	866	900	862	880
Family labor earnings	2614	437	1542	1592	1418	1793	2493	1006	1641
Wages unpaid family labor	121	164	424	426	469	422	453	338	422
OPERATOR'S LABOR EARNINGS	2493	273	1118	1166	949	1371	2040	668	1219

Farm Produce Used in the House

Product	1940 5 high earnings	1940 5 low earnings	1940 All farms	1939 All farms	1938 All farms	1937 All farms	1936 All farms	1935 All farms	Avg. six years
Quantities									
Whole milk, qts.	$2403	$1052	$1564	$1435	$1417	$1375	$1536	$1625	$1492
Skimmilk, qts.	97	290	119	118	190	164	152	79	137
Cream, pts.	187	194	194	227	227	576	277	291	299
Farm made butter, lbs.	-	-	-	-	-	-	-	3	1
Eggs, doz.	174	174	210	212	217	213	214	205	212
Poultry, lbs.	179	203	197	247	165	165	209	159	190
Cattle, lbs.	25	222	159	295	400	194	393	247	281
Hogs, lbs.	926	1063	939	685	770	745	804	992	823
Sheep, lbs.	-	-	-	-	-	-	-	10	2
Potatoes, bu.	23	24	24	26	33	36	39	46	34
Farm fuel, cds.	17	9	13	12	15	12	13	14	13
Values									
Whole milk	$74.00	$31.90	$46.41	$38.64	$37.88	$47.18	$50.05	$47.55	$44.62
Skimmilk	.33	.98	.39	.41	.61	.76	.67	.30	.52
Cream	19.00	19.97	19.87	20.66	20.93	27.21	29.49	27.57	24.29
Farm made butter	-	-	-	-	-	-	.04	.84	.14
Eggs	27.80	26.91	32.47	30.24	38.55	37.69	43.01	42.14	37.35
Poultry	19.48	20.16	21.29	24.13	19.79	24.46	24.85	19.94	22.41
Cattle	2.50	18.68	13.79	23.89	31.26	15.02	26.82	14.00	20.80
Hogs	56.12	62.45	57.20	38.58	55.55	59.94	75.24	92.99	63.25
Sheep	-	-	-	-	-	-	-	.54	.09
Potatoes	14.37	14.36	14.70	15.39	15.73	31.93	26.35	17.70	20.30
Vegetables & fruits	56.00	42.60	53.15	50.71	43.70	48.00	40.63	31.25	44.57
Farm fuel	83.00	43.00	66.75	62.14	76.30	59.90	67.08	68.45	66.77
Total	352.60	281.01	326.02	304.79	340.30	352.09	384.23	363.27	345.11
Size of family (man equivalent)	4.6	3.6	4.3	4.5	4.6	4.7	4.6	4.9	4.6

Household and Personal Statement*

	1940 5 high earnings	1940 5 low earnings	1940 All farms	1939 All farms	1938 All farms	1937 All farms	1936 All farms	1935 All farms	Avg. six years
Inventories:									
House, woodshed & smokehouse	$3161	$1904	$2454	$2211	$2680	$2644	$2614	$2823	$2571
Furnishings & equip.	438	538	468	494	563	476	415	451	478
Clothing, etc.	175	203	191	217	238	219	218	224	218
Elect. plant	-	4	1	12	8	14	7	8	8
Gas engine+	-	2	1	-	-	-	-	2	1
Auto and truck+	212	350	270	282	329	214	233	246	262
Total	3986	3001	3385	3216	3818	3567	3487	3754	3538
Cash Expenses:									
Food	306	293	305	278	311	326	312	292	304
Operating & supplies	66	111	68	58	57	65	50	39	56
Furnish. & equip.	118	46	96	49	78	88	95	59	78
Additions & repairs on house	120	210	86	31	216	94	171	53	109
Hired help	59	92	40	43	23	18	19	22	27
Electricity+	42	45	46	44	47	31	33	30	39
Clothing & materials	156	109	134	105	112	143	134	141	128
Health	74	76	64	84	73	87	50	47	67
School expenses	3	12	18	18	22	15	17	21	19
Reading materials	4	10	7	4	6	5	5	6	5
Church, charity, etc.	40	44	57	41	36	37	47	39	43
Recreation	26	9	18	14	21	22	19	18	19
Personal	99	60	169	158	178	140	128	136	151
Life ins. & savings	130	133	112	94	137	191	126	144	134
Auto and truck+	244	441	350	311	261	286	296	314	303
Total	1487	1691	1570	1332	1578	1548	1502	1361	1482
Farm produce used	368	298	334	313	340	348	384	363	347
Decrease in inventory	-	-	-	-	-	-	-	19	3
Interest on inventory	199	150	169	161	191	179	174	188	177
Total expense	2054	2139	2073	1806	2109	2075	2060	1931	2009
Receipts:									
Cash receipts	138	214	138	423‡	203‡	416‡	121	271	262
Increase in inventory	7	68	41	27	222	68	145	-	84
Total	145	282	179	450	425	484	266	271	346
Net cash expense	1909	1857	1894	1356	1684	1591	1794	1660	1663
Size of family	4.6	3.6	4.3	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 each year together with an average for the six 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 total 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 claves, 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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	20	21	23	25	24	20	
Number of cows per farm	21	20	20	20	20	19	20
Butterfat per cow, lb.	257	248	233	224	207	189	226
Man labor, hours	119	129	130	142	140	126	131
Horse work, hours	2.2	2.5	2.3	4.1	5.2	3.9	3.4
Costs:							
Feed	$40.62	$36.43	$35.01	$41.87	$37.49	$27.57	$36.50
Man labor	23.79	25.78	26.09	27.53	28.11	25.23	26.09
Horse work	.23	.23	.26	.41	.52	.32	.33
Shelter	6.97	6.95	6.92	7.16	7.25	7.83	7.18
Equipment	4.48	4.61	4.30	3.87	4.06	3.89	4.20
Interest at 5%	2.82	2.79	2.62	2.67	2.43	2.19	2.59
Misc. cash	1.94	1.73	1.48	1.22	1.24	1.04	1.44
Total costs	80.85	78.52	76.68	84.73	81.10	68.07	78.33
Manure credit	4.54	4.88	4.47	4.28	3.75	2.61	4.09
Appreciation	3.04	6.23	.77	2.69	.42	2.26	2.57
Total credit	7.58	11.11	5.24	6.97	4.17	4.87	6.66
Net cost	73.27	67.41	71.44	77.76	76.93	63.20	71.67
Value of dairy products:							
Sold	80.84	69.42	65.10	77.26	69.73	54.93	69.55
Used in house	3.69	3.31	3.01	4.06	4.17	4.18	3.74
Fed to livestock	13.85	14.11	12.64	16.15	15.22	11.70	13.94
Total product	98.38	86.84	80.75	97.47	89.12	70.81	87.23
Return over all costs	25.11	19.43	9.31	19.71	12.19	7.61	15.56
Return over feed cost	60.80	56.64	46.51	58.29	52.05	45.50	53.30
Price recd. for B.F., ¢	34.2	30.2	30.4	37.3	36.5	33.1	33.6
Feeds:							
Corn, lb.	468	451	422	211	187	86	304
Small grain, lb.	1258	1158	771	693	677	323	813
Other concentrates, lb.	284	279	304	268	229	214	263
Hay, lb.	3259	3207	3148	3307	3266	2029	3036
Fodder and stover, lb.	357	484	439	359	260	230	355
Silage, lb.	6982	6522	5644	5701	5908	6311	6178
Total concentrates, lb.	2010	1888	1497	1172	1093	623	1380
Total roughage,* lb.	5943	5865	5468	5566	5495	4363	5450
Pasture, days	170	167	144	138	168	142	155
% Protein in ration	13.2	13.2	14.1	13.8	13.7	12.5	13.4
Range for specified items, 1940:							
No. of head per farm					5	to	46
Butterfat per cow, lb.					181	to	373
Man labor, hours					60	to	181
Horse work, hours					0	to	4.8
Net cost					$50.68	to	$105.55
Value of total product					63.76	to	158.18
Return over all costs					-7.65+	to	57.90
Return over feed cost					30.64	to	111.12
Price rec.per lb.of b.f., ¢					31.2	to	45.0
Total concentrates fed, lb.					675	to	3919
Total roughages,* lb.					4311	to	10462
Pasture, days					127	to	191
% Protein in ration					10.3	to	15.0

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	17	18	18	20	17	13	
Number of head per farm	22	21	20	20	18	20	20
Man labor, hours	21	19	20	22	23	18	21
Horse work, hours	1.3	1.2	1.2	1.9	2.1	1.5	1.5
Costs:							
Feed	$22.16	$19.92	$20.91	$25.07	$22.53	$19.47	$21.68
Man labor	4.28	3.75	4.08	4.42	4.58	3.64	4.13
Horse work	.13	.11	.12	.19	.20	.13	.15
Shelter	3.85	4.15	5.05	5.54	5.22	5.91	4.95
Equipment	.22	.22	.38	.27	.05	.21	.22
Interest at 5%	1.59	1.53	1.50	1.54	1.62	1.34	1.52
Misc. cash	.42	.45	.36	.41	.41	.26	.38
Total costs	32.65	30.13	32.40	37.44	34.61	30.96	33.03
Manure credit	2.42	2.29	2.28	2.09	1.94	1.50	2.09
Net cost	30.23	27.84	30.12	35.35	32.67	29.46	30.94
Value of product	28.07	32.80	30.50	32.27	30.02	28.86	30.42
Return over all costs	-2.16*	4.96	.38	-3.08*	-2.65*	-.60*	-.52*
Return over feed cost	5.91	12.88	9.59	7.20	7.49	9.39	8.74
Feeds:							
Grain, lb.	468	478	387	338	295	228	366
Mill feeds, lb.	16	23	26	23	26	33	24
Hay, lb.	1985	1739	1788	1624	1440	825	1567
Fodder and stover, lb.	253	365	293	206	132	89	223
Silage, lb.	3140	2902	2323	2148	2177	3070	2626
Total concentrates, lb.	484	501	413	361	321	261	390
Total roughages+	3285	3071	2855	2546	2298	1937	2665
Whole milk, lb.	306	292	304	274	273	275	287
Skimmilk, lb.	1950	1828	2229	2077	2152	1909	2024
Pasture, days	118	108	85	100	124	111	108
Range for specified items, 1940:							
No. of head per farm					13	to	54
Net cost					$23.50	to	$40.00
Value of product					12.55	to	58.19
Return over all costs					-17.03*	to	23.31
Return over feed cost					-12.22	to	37.35
Total concentrates, lb.					12	to	1112
Total roughage,+ lb.					2250	to	4425
Whole milk, lb.					176	to	489
Skimmilk, lb.					109	to	3593
Pasture, days					56	to	162

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	3	3	5	5	7	7	
Number of head per farm	31	27	39	39	45	34	36
Man labor, hours	15	17	17	15	15	11	15
Horse work, hours	.1	.9	.7	.8	1.2	.9	.8
Costs:							
Feed	$27.01	$28.66	$24.06	$24.71	$19.82	$16.35	$23.43
Man labor	3.03	3.46	3.33	2.94	3.08	2.20	3.01
Horse work	.01	.04	.10	.08	.10	.07	.07
Shelter	5.60	6.45	4.95	3.14	3.95	4.63	4.79
Equipment	.49	.45	.13	.08	.09	.16	.23
Interest at 5%	1.72	1.60	1.78	1.40	1.52	1.17	1.53
Misc. cash	.52	1.29	.50	.16	.25	.13	.48
Total costs	38.38	41.95	34.85	32.51	28.81	24.71	33.54
Manure credit	2.74	3.14	2.78	2.05	1.74	1.39	2.31
Net cost	35.64	38.81	32.07	30.46	27.07	23.32	31.23
Value of product	27.68	30.72	35.55	23.22	24.34	27.55	28.18
Return over all costs	-7.96*	-8.09*	3.48	-7.24*	-2.73*	4.23	-3.05*
Return over feed cost	.67	2.06	11.49	-1.49	4.52	11.20	4.75
Feed:							
Grain, lb.	1287	1514	902	566	271	247	798
Mill feeds, lb.	16	26	41	5	6	8	17
Hay, lb.	1615	2037	1833	1583	1398	871	1556
Fodder and stover, lb.	0	45	839	428	286	460	343
Silage, lb.	4658	4160	2348	2131	1989	2349	2939
Total concentrates, lb.	1303	1540	943	571	277	255	815
Total roughages,+ lb.	3168	3469	3455	2721	2347	2114	2879
Whole milk, lb.	101	154	139	110	155	220	147
Skimmilk, lb.	1319	1947	1746	1321	818	837	1331
Pasture, days	128	120	78	92	135	121	112
Range for specified items, 1940:							
No. of head per farm					21	to	40
Net cost					$33.57	to	$39.28
Value of product					20.71	to	35.02
Return over all costs					-12.86*	to	-4.26*
Return over feed cost					- 5.97	to	8.00
Total concentrates, lb.					1111	to	1403
Total roughages,+ lb.					2178	to	3875
Whole milk, lb.					55	to	146
Skimmilk, lb.					702	to	1847
Pasture, days					104	to	147

*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, are 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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	17	18	18	20	17	13	
Units per farm	34	32	32	31	27	39	32
Man labor, hours	90	96	100	103	126	99	102
Horse work, hours	2.5	2.6	2.1	4.4	5.5	4.1	3.5
Costs:							
Feed	$41.11	$37.26	$36.17	$43.35	$40.78	$31.36	$38.34
Man labor	18.05	19.34	19.97	20.61	24.79	19.76	20.42
Horse work	.26	.23	.23	.43	.56	.34	.34
Shelter	6.76	7.03	7.55	7.99	8.74	9.53	7.94
Equipment	2.98	3.07	3.17	2.66	2.99	2.49	2.89
Interest at 5%	2.87	2.83	2.70	2.80	2.88	2.43	2.75
Miscellaneous cash	1.51	1.48	1.18	1.12	1.21	.83	1.22
Total costs	73.54	71.24	70.97	78.96	81.95	66.74	73.90
Manure credit	4.58	4.75	4.42	4.16	3.76	2.67	4.06
Net cost	68.96	66.49	66.55	74.80	78.19	64.07	69.84
Value of product:							
Animal	20.65	25.05	18.66	21.07	20.57	21.24	21.20
Dairy	65.70	57.42	55.40	65.76	65.94	47.54	59.63
Total product	86.35	82.47	74.06	86.83	86.51	68.78	80.83
Return over all costs	17.39	15.98	7.51	12.03	8.32	4.71	10.99
Return over feed cost	45.24	45.21	37.89	43.48	45.73	37.42	42.49
Feeds:							
Corn, lb.	355	376	302	172	178	68	242
Small grain, lb.	1068	999	705	626	597	351	724
Mill feeds, lb.	179	176	176	178	179	172	177
Hay, lb.	3432	3280	3224	3307	3054	1719	3003
Fodder and stover, lb.	418	600	471	326	306	199	386
Silage, lb.	6645	6111	5312	5549	5502	6510	5938
Milk, lb.	196	190	176	131	176	171	173
Skimmilk, lb.	1532	1451	1688	1536	1596	1450	1542
Total concentrates,*lb.	1891	1824	1493	1254	1249	861	1429
Total roughage,+ lb.	6065	5917	5465	5483	5194	4088	5368
Pasture, days	190	181	153	164	204	166	176
Range for specified items, 1940:							
Units per farm					16	to	74
Man labor, hours					46	to	144
Net cost					$53.08	to	$90.93
Total value of product					50.82	to	133.22
Return over all costs					-4.65	to	42.29
Return over feed cost					10.19	to	88.86
Total concentrates,* lb.					729	to	2958
Total roughage,+ lb.					4647	to	9332
Pasture, days					151	to	224

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	3	3	5	5	7	7	
Units per farm	29	28	38	42	44	37	36
Man labor, hours	72	72	82	75	67	65	72
Horse work, hours	.2	.9	1.5	1.5	2.9	2.1	1.5
Costs:							
Feed	$47.11	$41.81	$41.03	$38.24	$39.92	$28.78	$39.48
Man labor	14.26	14.30	16.32	14.98	13.42	12.93	14.37
Horse work	.03	.12	.22	.15	.26	.16	.16
Shelter	10.10	10.29	8.48	5.55	7.14	7.60	8.19
Equipment	2.79	2.58	1.89	1.66	1.86	2.42	2.20
Interest at 5%	3.23	2.92	3.05	2.28	2.73	2.09	2.72
Miscellaneous cash	1.58	1.77	1.31	.60	.77	.67	1.11
Total costs	79.10	73.79	72.30	63.46	66.10	54.65	68.23
Manure credit	4.83	4.98	4.89	3.47	3.92	2.72	4.13
Net cost	74.27	68.81	67.41	59.99	62.18	51.93	64.10
Value of product:							
Animal	30.92	34.32	35.64	22.67	27.27	26.14	29.49
Dairy	36.38	33.64	35.11	36.16	37.83	33.85	35.50
Total product	67.30	67.96	70.75	58.83	65.10	59.99	64.99
Return over all costs	-6.97‡	-.85‡	3.34	-1.16‡	2.92	8.06	.89
Return over feed cost	20.19	26.15	29.72	20.59	25.18	31.21	25.51
Feed:							
Corn, lb.	1118	867	764	281	261	192	580
Small grain, lb.	1087	1184	787	644	532	262	749
Mill feeds, lb.	64	79	145	54	67	32	74
Hay, lb.	3068	3240	3345	2798	3367	2065	2980
Fodder and stover, lb.	-	88	1086	661	399	607	474
Silage, lb.	8491	7633	4903	3677	5118	5044	5811
Milk, lb.	110	145	137	95	152	191	138
Skimmilk, lb.	1398	1792	1732	1161	916	872	1312
Total concentrates,*lb.	2520	2453	2008	1188	1038	663	1645
Total roughage,+ lb.	5899	5872	6065	4685	5473	4352	5391
Pasture, days	211	197	144	141	223	201	186

Range for specified items, 1940:			
Units per farm	16	to	37
Man labor, hours	40	to	106
Net cost	$63.64	to	$85.70
Total value of product	54.11	to	78.14
Return over all cost	-19.35‡	to	5.99
Return over feed cost	4.82	to	31.73
Total concentrates,* lb.	1976	to	2798
Total roughage,+ lb.	4270	to	6859
Pasture, days	178	to	242

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	7	7	8	12	12	12	
Number of sheep per farm	46	59	42	39	35	33	42
Man labor, hours	4.5	2.9	4.2	3.6	2.4	2.6	3.4
Horse work, hours	.4	.2	.3	.3	.1	.3	.3
Costs:							
Feed	$2.38	$1.75	$1.57	$1.84	$1.49	$1.56	$1.77
Man labor	.90	.59	.84	.73	.48	.51	.68
Horse work	.03	.02	.02	.02	.01	.03	.02
Shelter	1.07	.34	.74	.59	.70	.59	.67
Equipment	.10	.04	.26	.10	.11	.12	.12
Interest at 5%	.40	.24	.26	.25	.24	.25	.27
Miscellaneous cash	.19	.18	.17	.15	.19	.18	.18
Total cost	5.07	3.16	3.86	3.68	3.22	3.24	3.71
Manure credit	.20	.19	.15	.16	.13	.11	.16
Net cost	4.87	2.97	3.71	3.52	3.09	3.13	3.55
Value produced:							
Sheep	3.30	3.66	2.59	3.60	3.50	2.77	3.24
Wool	2.56	1.48	1.20	1.71	1.84	1.73	1.75
Total product	5.86	5.14	3.79	5.31	5.34	4.50	4.99
Return over all costs	.99	2.17	.08	1.79	2.25	1.37	1.44
Return over feed cost	3.48	3.39	2.22	3.47	3.85	2.94	3.22
Weight of fleece, lb.	8.1	7.5	8.4	8.8	7.9	8.3	8.2
% lamb crop	83	70	122	98	104	86	94
% death loss, lambs	18	14	5	9	13	19	13
% death loss, sheep	16	10	7	14	13	10	12
Feeds:							
Grain, lb.	95	52	49	24	16	21	43
Hay and fodder, lb.	153	178	161	188	168	108	159
Silage, lb.	339	307	152	114	58	240	202
Total roughage,* lb.	266	280	212	226	187	188	226
Pasture, days	218	223	221	210	211	156	207

Range for specified items, 1940:			
Number of sheep per farm	5	to	161
Man labor, hours	1.7	to	10.7
Net cost	$2.65	to	$8.63
Total product	3.53	to	10.05
Return over all costs	-3.38	to	3.72
Return over feed cost	1.62	to	6.61
Weight of fleece, lb.	5.0	to	13.2
% lamb crop	33	to	150
% death loss, lambs,	0	to	40
% death loss, sheep	0	to	43
Grain, lb.	0	to	229
Total roughage,* lb.	62	to	614
Pasture, days	82	to	292

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	20	21	23	23	24	19	
Lbs. produced per farm	16,470	15,582	17,715	12,643	13,124	9,741	14,213
Man labor, hours	2.9	3.2	2.8	3.4	3.4	2.9	3.1
Horse work, hours	.1	.2	.2	.2	.3	.3	.2
Costs:							
Feed	$5.22	$5.18	$4.30	$6.36	$6.62	$4.94	$5.43
Man labor	.58	.63	.56	.69	.67	.57	.62
Horse work	.02	.02	.02	.02	.03	.03	.02
Shelter	.16	.14	.20	.25	.20	.24	.20
Equipment	.10	.12	.09	.11	.09	.19	.12
Interest at 5%	.11	.11	.15	.16	.15	.18	.14
Miscellaneous cash	.06	.08	.04	.05	.06	.05	.06
Total cost	6.25	6.28	5.36	7.64	7.82	6.20	6.59
Manure credit	.41	.42	.39	.40	.35	.37	.39
Net cost	5.84	5.86	4.97	7.24	7.47	5.83	6.20
Avg. sell. price per cwt.	5.52	5.86	7.66	9.31	9.18	8.99	7.75
Return over all costs	-.32	.00	2.69	2.07	1.71	3.16	1.55
Return over feed	.30	.68	3.36	2.95	2.56	4.05	2.32
Avg. weight of hogs sold	239	238	231	236	226	235	234
Pigs raised per litter	6.2	6.3	7.3	6.4	6.0	5.9	6.3
Feeds:							
Corn, lb.	295	309	272	189	214	236	252
Small grain, lb.	189	203	159	223	147	151	179
Other concentrates, lb.	4	4	5	12	12	17	9
Total concentrates, lb.	488	516	436	424	373	404	440
Skimmilk equivalent,*lb.	512	612	637	713	660	597	622
Pasture, days	35	46	34	9	27	27	30
Range for specified items, 1940:							
Pounds produced per farm					3469	to	42715
Man labor, hours					1.6	to	5.8
Net cost					$4.35	to	$10.98
Average selling price per cwt.					4.90	to	6.24
Return over all costs					-5.79	to	1.12
Average weight of hogs sold					89	to	317
Pigs raised per litter					3.0	to	9.5
Total concentrates; lb.					323	to	875
Skimmilk equivalent,* lb.					194	to	1219
Pasture, days					0	to	120

*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. One rooster, or two chicks under six months of age, are considered as one unit in calculating the number of other chickens. 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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	19	19	22	24	23	19	
No. laying hens per farm	125	136	158	145	136	124	137
No. other chickens per farm	64	68	87	71	77	79	74
Eggs per hen	145	146	150	141	121	119	137
Man labor, hours	251	270	281	296	355	329	297
Horse work, hours	7.1	4.8	6.3	7.7	9.1	9.0	7.3
Costs:							
Feed	$162.13	$154.27	$138.57	$190.96	$201.93	$175.76	$170.60
Man labor	50.28	54.12	56.21	59.25	71.04	65.82	59.45
Horse work	.57	.39	.70	.73	.90	.77	.68
Shelter	16.69	16.45	17.15	16.79	18.31	18.51	17.32
Equipment	12.39	16.32	18.53	21.44	15.96	20.08	17.45
Interest at 5%	3.41	3.45	3.58	3.65	3.83	3.65	3.60
Miscellaneous cash	10.27	10.14	12.29	11.77	13.05	17.36	12.48
Total cost	255.74	255.14	247.03	304.59	325.02	301.95	281.58
Manure credit	9.74	9.91	9.10	8.52	9.22	9.49	9.33
Net cost	246.00	245.23	237.93	296.07	315.80	292.46	272.25
Value of product:							
Poultry	61.84	54.03	54.93	63.53	69.32	76.49	63.36
Eggs	194.78	191.67	234.44	220.40	209.08	218.44	211.46
Total product	256.62	245.70	289.37	283.93	278.40	294.93	274.82
Return over all costs	10.62	.47	51.44	-12.14*	-37.40*	2.47	2.57
Return over feed cost	94.49	91.43	150.80	92.97	76.47	119.17	104.22
Price per dozen eggs	.16	.16	.19	.19	.21	.23	.19
Feeds:							
Corn, lb.	4384	4108	3590	2719	3687	3244	3622
Small grain, lb.	5011	4926	4437	4228	4226	5851	4780
Other concentrates, lb.	2634	2494	2601	3054	2778	2477	2673
Meat scraps, lb.	442	619	532	417	425	337	462
Skimmilk, lb.	3383	4582	4179	3769	6217	6126	4709
Total concentrates, lb.	12029	11528	10628	10001	10691	11572	11075
Skimmilk equivalent, +lb.	10903	15101	13226	10858	13448	11855	12565

Range for specified items, 1940:			
Number of laying hens per farm	65	to	200
Number of other chickens per farm	0	to	154
Eggs per hen	85	to	207
Man labor, hours	113	to	514
Net cost	$138.76	to	$387.28
Value of poultry	-29.15*	to	209.80
Value of eggs	113.15	to	278.44
Value of total product	84.00	to	470.98
Return over all costs	-104.13*	to	156.71
Return over feed cost	-7.30	to	285.59
Selling price per dozen eggs	13.5	to	19.6

*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 and of the poults which were covered by windstorm insurance, were not included.

Cost and Return per 100 Pounds of Turkeys Produced

	1940	1939	1938	1937	1936	Avg. 5 yrs.
Number of farms	7	7	7	6	3	
Pounds produced per farm	9476	11282	12266	10629	8323	10395
Man labor, hours	7.4	7.8	8.8	7.3	8.1	7.9
Horse work, hours	.2	.2	.5	.4	.3	.3
Costs:						
Feed	$10.65	$8.37	$8.96	$14.47	$14.85	$11.46
Man labor	1.48	1.57	1.77	1.46	1.63	1.58
Horse work	.02	.01	.06	.04	.04	.03
Shelter and equipment	.95	.58	.89	.70	1.16	.86
Interest at 5%	.16	.15	.20	.20	.19	.18
Miscellaneous cash	.64	.47	.66	.70	.77	.65
Total cost	13.90	11.15	12.54	17.57	18.64	14.76
Credits:						
Eggs sold	.06	.00	1.56	.60	2.34	.91
Manure	.65	.50	.55	.64	.58	.58
Total credits	.71	.50	2.11	1.24	2.92	1.49
Net cost	13.19	10.65	10.43	16.33	15.72	13.27
Value produced	14.53	15.22	20.61	21.89	13.64	17.18
Return over all costs	1.34	4.57	10.18	5.56	-2.08*	3.91
Return over feed cost+	3.94	6.85	13.21	8.02	1.13	6.63
Average weight of turkeys sold	16.2	15.2	14.7	14.4	14.8	15.1
Average selling price per lb.	15.7	16.1	19.5	20.9	16.6	17.8
Per cent hatch	63	60	64	64	60	62
Per cent death loss of poults	30	26	26	26	37	29
Feeds:						
Corn, lbs.	218	174	200	248	303	229
Small grain, lbs.	303	157	140	164	61	165
Other concentrates, lbs.	258	245	289	350	320	292
Total concentrates, lbs.	779	576	629	762	684	686
Meat scraps and tankage, lbs.	37	26	37	22	40	32
Skimmilk and buttermilk, lbs.	65	68	44	65	44	57
Range for specified items, 1940:						
Pounds produced per farm				2602	to	15120
Man labor, hours				4.3	to	10.1
Net cost				$9.48	to	$20.77
Value produced				10.99	to	20.53
Return over all costs				-3.38*	to	4.55
Average weight of turkeys sold, lbs.				14.3	to	18.5
Average selling price per pound				14.4¢	to	17.3¢
Per cent death loss of poults				9	to	60
Total concentrates, lbs.				539	to	1448
Meat scraps and tankage, lbs.				0	to	93
Skimmilk and buttermilk, lbs.				0	to	195

*A minus (-) indicates a loss or a failure to cover the charges.
+Includes value of eggs sold.

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 1940 and 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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	20	21	23	25	24	19	
Horses per farm	4	5	5	5	6	6	5
Crop acres per horse	35	34	31	30	33	34	33
Man labor, hours	51	47	54	55	63	54	54
Costs:							
Feed	$30.12	$30.11	$30.30	$35.91	$40.14	$40.87	$34.57
Labor	10.24	9.41	10.79	10.95	12.56	10.78	10.79
Shelter	7.33	7.71	8.84	10.01	8.44	10.14	8.78
Equipment	4.28	3.09	4.37	4.30	4.82	5.49	4.39
Interest at 5%	4.79	4.85	5.32	5.32	5.20	4.91	5.07
Miscellaneous cash	.91	1.91	1.76	1.08	1.02	.79	1.24
Depreciation	11.80	8.59	11.49	6.90	9.00	6.50	9.05
Total cost	69.67	65.67	72.87	74.47	81.18	79.48	73.89
Manure credit	3.30	3.40	3.55	3.00	4.15	5.50	3.82
Net cost	66.37	62.27	69.32	71.47	77.03	73.98	70.07
Hours worked	599	695	717	745	848	887	748
Cost per hour, cents	11.1	9.0	9.7	9.6	9.1	8.3	9.4
Feed:							
Grain, lb.	1686	1980	2021	1727	2328	2286	2005
Roughages,* lb.	4888	4461	4253	3713	4536	4073	4321
Pasture, days	135	130	88	72	82	70	96
Range for specified items, 1940:							
Horses per farm					2	to	7
Crop acres per horse					9	to	124
Man labor, hours					13	to	83
Net cost					$32.54	to	$111.68
Hours worked					221	to	1001
Cost per hour, cents					5.0	to	24.1
Grain, lb.					601	to	4109
Roughage,* lb.					533	to	7467
Pasture, days					103	to	171

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Two-Plow Tractors							
Number of farms	15	13	13	10	9	4	
Hours worked per year:							
Drawbar	352	388	351	275	194	292	309
Belt	88	123	106	71	59	79	87
Totals	440	511	457	346	253	371	396
Per 100 hours of operation:							
Labor, hours	6.7	7.7	6.4	8.8	10.6	9.4	8.3
Fuel, gallons	177	203	197	212	235	192	203
Oil, quarts	15	16	14	17	25	26	19
Cost per hour of operation:							
Labor	$.014	$.016	$.013	$.018	$.021	$.029	$.019
Fuel, oil and grease	.237	.263	.258	.267	.309	.236	.262
Other cash expenses	.060	.026	.030	.050	.033	.066	.044
Auto, truck & horses	.001	.002	.001	.003	.003	.005	.002
Depreciation	.129	.105	.169	.144	.085	.108	.123
Interest at 5%	.069	.060	.085	.068	.099	.046	.071
Total cost	.510	.472	.556	.550	.550	.490	.521
Range for specified items, 1940:							
Total hours worked per year					223	to	847
Fuel per 100 hours, gallons					104	to	235
Oil per 100 hours, quarts					5	to	28
Cost per hour of operation					$.358	to	$.803
Three-Plow Tractors							
Number of farms	6	6	7	11	9	9	
Hours worked per year:							
Drawbar	312	395	394	388	443	372	384
Belt	142	155	158	161	137	183	156
Total	454	550	552	549	580	555	540
Per 100 hours of operation:							
Labor, hours	6.9	8.0	8.2	8.7	10.6	10.7	8.9
Fuel, gallons	243	247	265	246	245	252	250
Oil, quarts	20	22	22	22	31	35	25
Cost per hour of operation:							
Labor	$.014	$.016	$.016	$.017	$.021	$.021	$.018
Fuel, oil and grease	.307	.308	.349	.313	.307	.192	.296
Other cash expenses	.084	.054	.123	.099	.053	.195	.101
Auto, truck and horses	.003	.003	.002	.002	.002	.005	.003
Depreciation	.126	.142	.144	.145	.087	-.002*	.107
Interest at 5%	.075	.058	.068	.067	.056	.050	.062
Total cost	.609	.581	.702	.643	.526	.461	.587
Range for specified items, 1940:							
Total hours worked per year					221	to	634
Fuel per 100 hours, gallons					179	to	294
Oil per 100 hours, quarts					6	to	36
Cost per hour of operation					$.473	to	$.762

*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

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	17	17	21	22	23	18	
Miles driven per car	9620	10262	8761	8254	8422	7409	8788
Miles per gal. gas.	15.7	16.0	15.6	15.5	15.0	14.0	15.3
Cost per mile of travel:							
Labor	$ -	$ -	$ -	$ -	$.001	$.001	$ -
Gas., oil and grease	.013	.012	.013	.013	.012	.013	.013
Other cash expenses	.014	.009	.010	.011	.012	.013	.011
Depreciation	.005	.006	.008	.007	.005	.008	.007
Interest at 5%	.003	.002	.003	.002	.002	.002	.002
Total cost	.035	.029	.034	.033	.032	.037	.033
Range for specified items, 1940:							
Miles driven per car					2500	to	20215
Miles per gallon gasoline					7.4	to	24.6
Cost per mile of travel, cents					2.1	to	6.2

Cost per Mile for Trucks

	1940	1939	1938	1937	1936	1935	Avg. 6 yrs.
Number of farms	10	12	14	15	14	12	
Miles driven per truck	6485	5744	5279	6365	4792	4126	5465
Miles per gal. of gas.	13.5	14.0	12.3	14.3	12.4	12.7	13.2
Cost per mile of travel:							
Labor	$.001	$.001	$.001	$.001	$.002	$.004	$.002
Gas., oil and grease	.015	.016	.015	.015	.017	.016	.016
Other cash expenses	.011	.017	.017	.014	.022	.026	.018
Depreciation	.008	.008	.012	.010	.009	.011	.009
Interest at 5%	.003	.003	.004	.003	.004	.004	.003
Total cost	.038	.045	.049	.043	.054	.061	.048
Range for specified items, 1940:							
Miles driven per truck					2373	to	17200
Miles per gallon gasoline					7.7	to	19.5
Cost per mile of travel, cents					2.2	to	6.4

CROP STATEMENTS

Methods of Computing and Presenting Data

The comparative cost and return for all six years 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 in 1939 and 1940. Two-plow tractors were charged at 45 cents per hour in 1935, 50 cents in 1936, 1937 and 1940, and at 55 cents in 1938 and 1939; and three-plow tractors at 60 cents in 1935, at 65 cents in 1936, 1937 and 1940, 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. Uniform charges per acre were made for seed for hay crops, for the use of machinery, and for land. The cost of power was included with the cost of the machine for threshing, shredding and silo filling. The prices used are the averages of market value on the 15th of each month.

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 1935-40	Oats 1935-40	Oats and barley 1935-40	Winter wheat 1935-40	Spring wheat 1935, 37, 39	Flax 1935, 39, 40	Corn Husked standing 1935-40	Corn Cut and shredded 1935-40
No. farm-years	112	101	39	72	21	18	90	66
Acres per farm	35	35	20	13	8	11	14	10
Costs and return:								
Man labor	$1.77	$1.70	$1.85	$1.92	$1.68	$2.50	$4.08	$5.60
Horse and tractor	2.19	2.14	2.16	2.37	2.15	3.12	4.61	4.92
Seed	1.71	1.08	1.48	1.78	1.89	1.71	.68	.65
Twine	.22	.21	.22	.19	.20	.15	-	.38
Threshing	.74	1.10	1.04	.57	.39	1.19	.31	1.98
Manure	1.53	1.40	1.61	1.44	1.05	1.36	2.70	3.46
Machinery	1.05	1.05	1.05	1.10	1.05	1.06	1.55	2.50
Operating costs	9.21	8.68	9.41	9.37	8.41	11.09	13.93	19.49
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Total costs	12.71	12.18	12.91	12.87	11.91	14.59	17.43	20.45+
Crop value	15.69	11.75	11.74	14.36	10.23	15.04	29.38	28.56
Crop value less cost*	2.98‡	-.43	-1.17	1.49	-1.68	.45	11.95	8.11
Yield, bushels	24.9	37.9	32.6x	16.9	11.5	9.4	49.8	48.4
Cost per bushel	$.51	$.32	$.40	$.76	$1.04	$1.55	$.35	$.42
Avg. price for year	.63	.31	.36	.85	.89	1.60	.59	.59
Amounts of labor, power & materials:								
Before harvest:								
Man labor, hrs.	3.3	3.3	3.6	3.6	3.3	4.4	10.3	10.4
Horse work, hrs.	7.2	8.4	8.8	8.4	7.8	9.2	18.9	21.8
Tractor use, hrs.	1.4	1.2	1.2	1.5	1.3	1.9	2.4	1.3
Harvest:								
Man labor, hrs.	5.5	5.2	5.7	6.0	5.1	8.1	10.1	17.6
Horse work, hrs.	5.6	5.4	5.4	6.6	5.6	8.4	15.4	22.3
Tractor use, hrs.	.4	.4	.4	.3	.4	.7	.4	-
Seed, bushels	2.0	2.3	2.1	1.7	1.6	.7	.16	.17
Twine, pounds	2.6	2.7	2.8	2.5	2.6	2.0	-	4.8

*A minus (-) indicates a cost greater than the value of the crop.
+Net cost after deducting credit for stover of $2.54.
‡At malting barley prices. Using feed barley price of $.42 crop value less cost would have been $-2.25.
xAt 40 pounds per bushel.

Comparative Cost per Acre for the Principal Roughage Crops

	Corn for silage 1935-40	Soybean hay 1935, 39,40	Alfalfa 1935-40	Alfalfa & timothy 1939-40	Clover 1936,37	Timothy 1937,38, 39,40	Clover & timothy 1935,37, 38,39,40	Wild hay 1935,37, 38,40
Number farm-years	128	29	100	11	20	30	55	27
Acres per farm	13	7	16	13	14	7	14	5
Costs:								
Man labor	$4.13	$3.18	$2.01	$1.30	$1.15	$1.15	$1.40	$1.32
Horse & tractor	4.52	3.59	1.58	1.33	.93	.95	1.19	.97
Seed	.66	1.70	1.63	1.28	2.66	.64	1.40	-
Twine	.37	.10	-	-	-	-	-	-
Silage cutter	2.20	-	-	-	-	-	-	-
Manure	2.99	1.66	1.47	1.67	1.16	1.60	1.61	.08
Machinery	2.50	1.70	1.10	1.04	.57	.55	.74	.62
Operating cost	17.37	11.93	7.79	6.62	6.47	4.89	6.34	2.99
Land	3.50	3.50	3.50	3.50	3.50	3.50	3.50	2.00
Total cost	19.58*	15.43	11.29	10.12	9.97	8.39	9.84	4.99
Yield, tons	8.4	1.7	2.2	1.5	1.0	1.1	1.7	1.2
Cost per ton	$2.33	$9.08	$5.13	$6.75	$9.97	$7.63	$5.79	$4.16
Amt. of labor, power and materials:								
Before harvest or first cutting:								
Man labor, hrs.	9.8	6.8	5.8	4.0	5.8	5.7	5.8	6.6
Horse work, hrs.	18.5	12.5	8.2	4.7	8.6	9.0	8.5	10.0
Tractor use, hrs.	2.3	2.2	.4	.6	.4	.2	.4	.2
Harvest or second cutting:								
Man labor, hrs.	10.8	9.2	3.5	1.9	-	-	1.2	-
Horse work, hrs.	16.6	9.6	5.2	2.6	-	-	2.0	-
Tractor use, hrs.	.2	.4	.2	.2	-	-	-	-
Third cutting:								
Man labor, hrs.			.9	.6	-	-	-	-
Horse work, hrs.			1.2	.9	-	-	-	-
Tractor use, hrs.			-	-	-	-	-	-
Seed, bushels	.20	1.0						
Twine, lbs.	4.7	-						
Per cent of acreage cut twice			88	73	0	0	34	0
Per cent of acreage cut three times			21	28	0	0	0	0

*Net cost after deducting credit of $1.29 for corn picked up in field.

Cost and Return per Acre for Barley and Oats

	Barley						Oats					
	1940	1939	1938	1937	1936	1935	1940	1939	1938	1937	1936	1935
Number of farms	13	17	21	23	19	19	15	16	17	18	17	18
Acres per farm	27	30	31	30	40	53	38	27	36	36	34	40
Costs and return:												
Man labor	$1.96	$1.59	$1.93	$1.93	$1.62	$1.61	$1.65	$1.51	$2.00	$1.78	$1.65	$1.63
Horse and tractor	2.50	2.22	2.31	2.23	2.07	1.84	2.10	2.17	2.35	2.16	2.13	1.94
Seed	1.36	1.17	1.63	2.41	1.55	2.12	1.19	.89	.89	1.29	.87	1.34
Twine	.24	.22	.21	.30	.17	.16	.23	.20	.20	.29	.18	.17
Threshing	1.06	.71	.78	.77	.49	.61	1.33	1.22	1.00	1.26	.87	.90
Manure	1.72	1.72	1.96	1.68	1.29	.79	1.46	1.62	1.68	1.78	1.10	.75
Machinery	1.05	1.07	1.05	1.05	1.05	1.06	1.05	1.06	1.05	1.05	1.05	1.06
Operating costs	9.89	8.70	9.87	10.37	8.24	8.19	9.01	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	3.50	3.50
Total costs	13.39	12.20	13.37	13.87	11.74	11.69	12.51	12.17	12.67	13.11	11.35	11.29
Crop value	15.65	10.12	12.10	20.96	16.46	13.74	15.17	12.29	7.92	15.26	10.37	9.54
Crop value less cost*	2.26+	-2.08+	-1.27+	7.09+	4.72+	2.05+	2.66	.12	-4.75	2.15	- .98	-1.75
Yield, bushels	36.4	24.1	25.2	26.2	16.8	20.5	47.4	43.9	33.0	42.4	28.8	31.8
Cost per bushel: Average	$.37	$.51	$.53	$.53	$.70	$.57	$.26	$.28	$.38	$.31	$.39	$.36
Lowest	.24	.32	.39	.32	.40	.35	.18	.19	.26	.20	.29	.24
Highest	.67	1.21	.71	.76	1.16	.91	.36	.46	.58	.48	.69	.64
Average price for year (malting barley)	.43	.42	.48	.80	.98	.67	.32	.28	.24	.36	.36	.30
Amounts of labor, power and materials:												
Before harvest:												
Man labor, hours	3.4	2.9	3.4	3.4	3.7	3.1	3.0	2.9	3.4	3.4	4.0	3.2
Horse work, hours	3.8	4.5	7.0	7.7	10.2	10.3	4.8	4.8	8.2	8.6	12.2	11.6
Tractor work, hours	2.3	1.7	1.4	1.4	1.1	.8	1.7	1.6	1.3	1.2	1.0	.7
Harvest:												
Man labor, hours	6.4	5.0	6.2	6.2	4.4	4.9	5.2	4.6	6.6	5.5	4.2	4.9
Horse work, hours	5.9	5.0	5.9	6.2	5.2	5.3	4.0	5.2	6.0	6.2	4.8	5.9
Tractor work, hours	.4	.4	.5	.4	.3	.3	.4	.4	.5	.2	.3	.3
Seed, bushels	2.1	2.2	2.0	2.0	2.0	1.7	2.3	2.3	2.4	2.1	2.2	2.3
Twine, pounds	2.8	3.2	2.6	3.2	1.8	2.2	2.8	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 34 cents in 1940, 31 cents in 1939, 30 cents in 1938, 56 cents in 1937, 57 cents in 1936, and 42 cents in 1935, crop value less cost would be $-1.55, $-4.73, $-5.81, $.89, $-2.16, and $-3.08, respectively.

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

	Oats and Barley						Rye	Flax			Oats & wheat
	1940	1939	1938	1937	1936	1935	1935	1940	1939	1935	1935
Number of farms	7	9	6	6	7	4	5	8	6	4	5
Acres per farm	26	24	15	21	19	18	27	13	13	6	23
Cost and return:											
Man labor	$1.80	$1.66	$2.27	$2.03	$1.83	$1.52	$1.39	$2.48	$2.24	$2.78	$1.76
Horse and tractor	2.23	2.16	2.35	2.26	2.04	1.90	1.50	3.07	3.06	3.24	2.04
Seed	1.17	1.06	1.25	2.13	1.28	2.00	1.84	1.87	1.68	1.57	1.85
Twine	.24	.22	.22	.27	.22	.16	.17	.19	.25	.02	.19
Threshing	1.25	1.03	1.10	1.40	.82	.67	.36	1.13	.98	1.48	.71
Manure	2.18	1.86	2.01	1.64	1.59	.35	.65	1.43	2.26	.38	.73
Machinery	1.05	1.06	1.05	1.05	1.05	1.05	1.05	1.07	1.05	1.05	1.05
Operating cost	9.92	9.05	10.25	10.78	8.83	7.65	6.96	11.24	11.52	10.52	8.33
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	13.42	12.55	13.75	14.28	12.33	11.15	10.46	14.74	15.02	14.02	11.83
Crop value	13.03	9.87	9.23	18.49	12.65	7.67	5.21	17.00	19.04	9.36	11.53
Crop value less cost*	- .39	-2.68	-4.52	4.21	.32	-3.48	-5.25	2.26	4.02	-4.66	- .30
Yield, bushels	39.5+	32.9+	34.2+	40.2+	27.5+	21.3+	12.4	10.9	11.4	6.0	22.6+
Cost per bushel; Average	$.34	$.38	$.40	$.36	$.45	$.52	$.84	$1.35	$1.32	$2.30	$.52
Lowest	.28	.28	.28	.28	.34	.35	.60	.81	.74	1.33	.38
Highest	.46	.80	.86	.42	.86	.83	1.59	7.78	3.17	4.59	1.52
Average price	.33	.30	.27	.46	.46	.36	.42	1.56	1.67	1.56	.51
Amounts of labor, power and materials:											
To harvest:											
Man labor, hours	3.1	3.2	3.8	3.9	4.0	3.3	2.4	4.1	3.6	5.6	2.9
Horse work, hours	3.1	4.8	10.8	9.3	12.0	12.6	6.1	5.5	4.7	17.5	7.7
Tractor work, hours	2.1	1.6	1.0	1.3	.8	.5	.8	2.4	2.4	1.0	1.1
Harvest:											
Man labor, hours	5.9	5.1	7.6	6.1	5.1	4.3	4.6	8.4	7.6	8.3	5.9
Horse work, hours	5.5	5.1	6.7	5.6	5.2	4.0	4.7	5.8	8.2	11.3	5.6
Tractor work, hours	.5	.4	.4	.4	.5	.5	.3	1.1	.6	.4	.5
Seed, bushels	2.0	2.2	2.0	2.3	2.1	2.2	1.7	.6	.6	.8	2.0
Twine, pounds	3.0	3.2	2.7	2.9	2.7	2.3	2.3	2.2	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		
	1940	1939	1938	1937	1936	1935	1939	1937	1935
Number of farms	9	8	15	17	13	10	6	6	9
Acres per farm	13	8	14	14	13	14	6	7	10
Cost and return:									
Man labor	$1.62	$1.90	$2.01	$1.84	$1.94	$2.22	$1.68	$1.67	$1.70
Horse and tractor	2.36	2.86	2.45	2.17	2.31	2.08	2.34	2.25	1.85
Seed	1.52	1.21	1.71	2.32	1.95	1.97	1.22	2.61	1.83
Twine	.19	.15	.18	.24	.16	.21	.17	.25	.18
Threshing	.76	.29	.35	.57	.67	.75	.26	.49	.42
Manure	1.90	1.94	1.61	1.56	1.08	.58	1.42	1.05	.68
Machinery	1.13	1.09	1.11	1.05	1.16	1.05	1.06	1.05	1.05
Operating cost	9.48	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	3.50
Total cost	12.98	12.94	12.92	13.25	12.77	12.36	11.65	12.87	11.21
Crop value	16.83	6.53	6.44	17.58	18.48	23.03	6.44	16.95	8.80
Crop value less cost*	3.85	-6.41	-6.48	4.33	5.71	10.67	-5.21	4.08	-2.41
Yield, bushels	23.7	9.6	11.1	16.9	16.8	23.5	8.7	15.0	11.0
Cost per bushel: Average	$.55	$1.35	$1.16	$.78	$.76	$.53	$1.34	$.86	$1.02
Lowest	.36	.66	.85	.54	.46	.34	.76	.59	.70
Highest	.78	3.23	2.79	1.25	1.79	1.10	2.87	1.24	1.51
Average price	.71	.68	.58	1.04	1.10	.98	.74	1.13	.80
Amounts of labor, power & materials:									
Before harvest:									
Man labor, hours	3.4	4.1	3.6	3.6	4.2	2.7	3.3	3.3	3.2
Horse work, hours	4.9	5.3	7.1	9.9	13.7	9.6	6.3	6.4	10.8
Tractor work, hours	2.1	2.4	1.8	1.0	.8	.7	1.6	1.6	.6
Harvest:									
Man labor, hours	4.7	5.4	6.4	5.6	5.5	8.4	5.1	5.0	5.3
Horse work, hours	3.6	7.1	6.2	6.0	7.0	9.4	4.8	6.7	5.2
Tractor work, hours	.6	.2	.3	.3	.2	.3	.5	.2	.4
Seed, bushels	1.8	1.9	1.6	1.6	1.7	1.6	1.4	1.7	1.6
Twine, pounds	2.3	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.

Cost and Return per Acre for Corn for Grain

	Husked from Standing Stalks						Cut and Shredded					
	1940	1939	1938	1937	1936	1935	1940	1939	1938	1937	1936	1935
Number of farms	17	15	18	15	10	15	9	11	12	16	11	7
Acres per farm	15	17	13	11	15	10	7	10	10	10	10	11
Cost and return:												
Man labor	$3.46	$3.80	$4.13	$4.01	$4.62	$4.45	$5.32	$5.63	$5.82	$5.74	$5.18	$5.92
Horse and tractor	4.66	4.96	5.13	4.36	4.16	4.40	5.19	5.10	5.15	4.93	4.34	4.83
Seed	.76	.73	.73	.67	.76	.42	.80	.80	.65	.52	.64	.48
Twine	-	-	-	-	-	-	.42	.37	.45	.49	.25	.27
Husker or shredder	.55	.49	.36	.28	-	.19	2.02	2.33	2.04	2.23	1.49	1.74
Manure	2.73	2.57	3.74	2.26	3.12	1.80	4.19	3.74	3.80	3.48	3.08	2.48
Machinery	1.55	1.55	1.55	1.55	1.55	1.55	2.50	2.52	2.50	2.50	2.48	2.50
Operating cost	13.71	14.10	15.64	13.13	14.21	12.81	20.44	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	3.50	3.50
Total cost	17.21	17.60	19.14	16.63	17.71	16.31	21.33+	20.63+	20.60+	20.70+	18.88+	20.54+
Crop value	29.99	23.79	26.09	38.64	25.12	22.86	29.20	25.38	24.29	41.16	22.00	19.38
Crop value less cost*	12.78	6.19	6.95	22.01	7.41	6.55	7.87	4.75	3.69	20.46	3.12	-1.16
Yield, bushels	61.2	62.6	59.3	46.0	31.4	38.1	59.6	66.8	55.2	49.0	27.5	32.3
Cost per bushel: Average	$.28	$.28	$.32	$.36	$.56	$.43	$.36	$.31	$.37	$.42	$.69	$.64
Lowest	.20	.21	.23	.26	.35	.26	.23	.24	.25	.27	.33	.36
Highest	.48	.44	.64	.99	1.90	1.07	.47	.41	.53	.95	2.21	1.31
Average price	.49	.38	.44	.84	.80	.60	.49	.38	.44	.84	.80	.60
Amounts of labor, power and materials:												
Before harvest:												
Man labor, hours	9.0	9.2	10.4	9.7	11.8	11.8	9.4	9.0	10.4	11.1	10.5	11.9
Horse work, hours	11.9	13.8	18.0	17.3	24.3	28.1	15.9	17.9	21.9	22.8	24.1	28.1
Tractor use, hours	3.8	2.9	2.7	2.5	1.4	1.1	2.6	1.8	1.9	1.8	1.2	.9
Harvest:												
Man labor, hours	8.3	9.8	10.3	10.3	11.3	10.4	17.2	19.2	18.7	17.6	15.4	17.6
Horse work, hours	11.8	15.1	16.6	14.3	17.3	17.0	21.0	22.1	21.8	21.2	21.8	25.8
Tractor use, hours	.5	.6	.6	.3	-	.3	.2	.1	.1	-	-	-
Seed, bushels	.15	.14	.14	.16	.20	.19	.15	.15	.17	.17	.19	.19
Twine, pounds	-	-	-	-	-	-	4.9	5.3	4.8	6.0	3.2	4.4

+Net cost after deducting credit for stover of $2.61 in 1940, $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.	
	1940	1939	1938	1937	1936	1935	1940	1939	1938	1937	1936	1935	1940	1939
Number of farms	20	21	22	23	22	20	14	11	20	21	15	19	5	6
Acres per farm	11	11	12	14	18	13	12	13	21	23	11	15	17	9
Costs:														
Man labor	$4.18	$3.96	$4.29	$4.07	$3.92	$4.34	$1.78	$1.44	$1.75	$1.81	$2.50	$2.80	$1.30	$1.31
Horse and tractor	5.19	4.68	4.73	4.48	4.00	4.06	1.55	1.41	1.51	1.48	1.69	1.86	1.57	1.08
Seed	.76	.72	.54	.56	.74	.64	1.75	1.65	1.65	1.60	1.60	1.50	1.30	1.25
Twine	.44	.33	.39	.46	.26	.34	-	-	-	-	-	-	-	-
Silage cutter	2.11	2.29	2.32	2.05	2.05	2.40	-	-	-	-	-	-	-	-
Manure	3.12	2.94	3.51	2.66	3.28	2.41	1.50	1.54	1.79	1.79	1.44	.75	1.24	2.10
Machinery	2.50	2.50	2.50	2.50	2.50	2.50	1.16	.93	1.06	1.06	1.20	1.21	1.12	.96
Operating cost	18.30	17.42	18.28	16.78	16.75	16.69	7.74	6.97	7.76	7.74	8.43	8.12	6.53	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	3.50	3.50	3.50
Total cost	21.15*	19.79*	21.08*	19.19*	16.90*	19.39*	11.24	10.47	11.26	11.24	11.93	11.62	10.03	10.20
Yield, tons	10.3	9.9	9.3	8.2	5.1	7.4	2.2	1.3	2.3	2.1	1.9	3.1	1.6	1.4
Cost per ton: Average	$2.05	$2.00	$2.27	$2.34	$3.31	$2.62	$5.11	$8.05	$4.90	$5.35	$6.28	$3.75	$6.27	$7.29
Lowest	1.51	1.14	1.42	1.50	.96	2.02	2.77	6.53	2.47	3.30	2.35	2.29	4.87	4.31
Highest	3.41	3.51	3.60	3.77	5.68	3.96	10.07	10.13	12.45	7.77	13.43	6.68	9.92	11.03
Amount of labor, power and materials:														
Before harvest or first cutting:														
Man labor, hours	8.8	8.5	9.5	10.5	11.3	10.1	4.7	4.6	5.0	6.3	6.6	7.6	3.7	4.2
Horse work, hours	11.0	13.2	17.5	20.5	24.8	24.0	5.3	6.3	7.1	9.2	10.0	11.4	4.5	4.9
Tractor use, hours	3.9	2.7	2.2	2.2	1.5	1.1	.6	.4	.4	.3	.2	.2	.8	.4
Harvest or 2nd cutting														
Man labor, hours	12.0	11.3	11.9	9.8	8.3	11.6	2.9	2.7	3.5	2.8	3.8	5.2	2.0	1.8
Horse work, hours	17.3	16.2	17.5	15.0	14.4	19.0	4.0	3.6	5.3	4.3	6.3	7.6	2.7	2.4
Tractor use, hours	.5	.2	.4	.1	-	-	.2	.3	.2	.1	.1	.2	.3	.1
Third cutting:														
Man labor, hours	-	-	-	-	-	-	1.4	-	.3	.2	2.1	1.2	.8	.5
Horse work, hours	-	-	-	-	-	-	1.8	-	.5	.3	2.9	1.7	1.2	.6
Tractor use, hours	-	-	-	-	-	-	.1	-	-	-	-	-	.1	-
Seed, bushels	.19	.15	.17	.21	.22	.24	-	-	-	-	-	-	-	-
Twine, pounds	5.1	5.3	4.6	5.5	3.0	4.8	-	-	-	-	-	-	-	-
% of acreage cut twice	-	-	-	-	-	-	87	75	91	88	96	90	79	67
% of acreage cut 3 times	-	-	-	-	-	-	39	0	14	14	35	26	40	17

*Net cost after deducting credit for corn knocked off by binder of $.65 in 1940, $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 and Timothy				
	1937	1936	1940	1939	1938	1937	1940	1939	1938	1937	1935
Number of farms	6	14	5	8	10	7	13	12	10	13	7
Acres per farm	10	18	6	7	8	6	14	10	17	15	12
Costs:											
Man labor	$.85	$1.45	$1.37	$.66	$1.42	$1.15	$1.50	$1.18	$1.32	$1.32	$1.70
Horse and tractor	.74	1.12	1.18	.58	1.26	.80	1.41	1.02	1.18	1.07	1.28
Seed	2.70	2.63	.25	.25	.75	1.30	1.10	1.32	1.60	1.85	1.10
Manure	1.07	1.25	1.61	1.16	1.77	1.85	1.74	1.67	1.88	1.96	.81
Machinery	.56	.57	.55	.52	.58	.54	.89	.68	.73	.56	.82
Operating cost	5.92	7.02	4.96	3.17	5.78	5.64	6.64	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	3.50	3.50
Total cost	9.42	10.52	8.46	6.67	9.28	9.14	10.14	9.37	10.21	10.26	9.21
Yield, tons	.8	1.3	1.0	.7	1.3	1.2	1.4	1.1	2.3	1.4	2.3
Cost per ton: Average	$11.78	$8.09	$8.46	$9.53	$7.14	$7.62	$7.24	$8.52	$4.44	$7.33	$4.00
Lowest	9.35	4.68	5.07	7.27	4.56	4.77	4.75	5.27	3.61	4.49	2.76
Highest	14.17	13.37	12.95	18.03	26.60	30.57	13.06	22.28	13.44	13.83	5.34
Amounts of labor and power:											
First cutting:											
Man labor, hours	4.2	7.3	6.8	3.3	7.1	5.7	5.1	4.9	5.2	6.5	7.2
Horse work, hours	6.4	10.9	11.0	5.0	11.3	8.6	7.0	6.4	7.8	9.3	11.8
Tractor use, hours	.3	.4	.2	.2	.4	-	.6	.4	.5	.4	.2
Second cutting:											
Man labor, hours	-	-	-	-	-	-	2.4	1.0	1.4	.1	1.3
Horse work, hours	-	-	-	-	-	-	3.2	1.7	1.9	.1	3.2
Tractor use, hours	-	-	-	-	-	-	.2	-	-	-	-
Per cent of acreage cut twice	0	0	0	0	0	0	68	25	40	3	34

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

	Soybean hay			Wild hay			
	1940	1939	1935	1940	1938	1937	1935*
Number of farms	11	13	5	6	5	6	10
Acres per farm	8	8	6	4	6	5	4
Costs and returns:							
Man labor	$3.24	$2.86	$3.46	$1.07	$1.18	$1.08	$1.96
Horse and tractor	3.80	3.54	3.42	.74	.99	.98	1.15
Seed	1.81	1.52	1.76	-	-	-	-
Twine	.06	.09	.14	-	-	-	-
Manure	2.04	1.82	1.12	.28	.04	-	-
Machinery	1.77	1.83	1.51	.55	.65	.55	.74
Operating cost	12.72	11.66	11.41	2.64	2.86	2.61	3.85
Land	3.50	3.50	3.50	2.00	2.00	2.00	2.00
Total cost	16.22	15.16	14.91	4.64	4.86	4.61	5.85
Yield, tons	1.7	1.7	1.7	1.0	1.2	.9	1.5
Cost per ton: Average	$9.54	$8.92	$8.77	$4.64	$4.05	$5.12	$3.90
Lowest	5.73	4.62	5.85	3.57	3.30	4.39	2.10
Highest	26.28	14.09	16.65	9.42	8.08	6.98	12.69
Amounts of labor, power and materials:							
Before harvest:							
Man labor, hours	6.9	5.7	7.7	-	-	-	-
Horse work, hours	9.7	8.5	19.4	-	-	-	-
Tractor work, hours	3.1	2.4	1.2	-	-	-	-
Harvest:							
Man labor, hours	9.3	8.6	9.6	5.3	5.9	5.4	9.8
Horse work, hours	9.2	8.5	11.2	7.1	9.6	8.8	14.4
Tractor work, hours	.4	.7	.1	.1	.2	.4	-
Seed, bushels	1.1	.9	1.0	-	-	-	-
Twine, pounds	.7	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 $2493, and on the five least successful farms was $273, a range of $2220. 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 those 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 the volume of business on the farm. 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, 1935-40

Size of farm business	No. of farms	Per farm	
		Total work units	Operator's labor earnings
Small	42	449	$ 817
Medium	49	588	1097
Large	42	889	1842

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
Comparative Yields and Costs of Producing Feed Nutrients
1935-40

	Average yield per acre	Total digestible nutrients per acre*	Cost per acre	Cost per 100 lbs. of digestible nutrients	Per cent protein is of total nutrients*
	bushels	pounds			
Grains:					
Corn	49.8	2,273	$17.43	$ .77	9.0
Oats and barley**	32.6	956	12.91	1.35	13.6
Barley	24.9	921	12.71	1.38	12.6
Oats	37.9	843	12.18	1.44	14.7
Winter wheat	16.9	803	12.87	1.60	11.1
Spring wheat+	11.5	546	11.91	2.18	11.1
Roughages:	tons				
Alfalfa hay	2.2	2,266	11.29	.50	20.2
Clover and timothy hay	1.7	1,676	9.84	.59	10.6
Corn silage	8.4	2,822	19.58	.69	7.1
Timothy hay‡	1.1	1,056	8.39	.79	6.0
Soybean hay+	1.7	1,700	15.43	.91	15.8

*Analysis of feeds obtained from "Feeding the Dairy Herd," Gullickson and Fitch, Minn. Exp. Station Bulletin 218 (1938 revision).
**At 40 pounds per bushel.
+Records for three years only.
‡Records for four years only.

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 Cash Crops, 1935-40

	Yield per acre	Average price*	Value per acre	Cost per acre	Net return per acre
Corn, ear	49.8 bu.	$ .59	$29.38	$17.43	$11.95
Malting barley	24.9 bu.	.63	15.69	12.71	2.98
Winter wheat	16.9 bu.	.85	14.36	12.87	1.49
Flax	9.4 bu.	1.70	15.98	14.59	1.39
Oats	37.9 bu.	.31	11.75	12.18	- .43
Spring wheat	11.5 bu.	.91	10.46	11.91	-1.45
Feed barley	24.9 bu.	.42	10.46	12.71	-2.25

*Average of 15th of month farm prices in Winona County, 1935-1940.

Selection of Livestock

Cattle, hogs, sheep, chickens and turkeys 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, 1935-40

	Quantity of livestock	Concentrates, lbs.	Roughage, lbs.	Skimmilk, lbs.	Man labor, hours
Dairy cattle	.9 head	1000	4696	1349	89
Milk-and-beef cattle	.7 head	1000	3842	935	51
Sheep	23.3 head	1000	3698	-	79
Swine	227 lbs.*	1000	-	1414	7
Chickens	9.0 hens	1000	-	425	27
Turkeys	146 lbs.*	1000	-	83	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, 1935-40

Crop yields	Number of farms	Yields, % of average	Operators' earnings
Low	42	80	$ 820
Medium	49	100	1282
High	42	120	1622

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, during the six years of the study earnings 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
Return Over Feed Cost per Animal Unit and Operator's Earnings, Winona County, 1935-40

Return over feed cost per unit of productive livestock	Number of farms	Average return over feed cost	Operator's earnings
Low	42	$28	$960
Medium	49	43	1228
High	42	60	1545

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, 1935-40

Work per worker	Number of farms	Units per worker	Operator's earnings
Low	42	192	$730
Medium	49	256	1424
High	42	327	1546

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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.