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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 1941, 1942, 1943, 1944, and 1945
on the
FARM ACCOUNTING ROUTE
in
NICOLLET COUNTY, MINNESOTA
by
S. A. Engene and G. A. Pond

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Introduction

A study of the organization and management of a selected group of farms in Nicollet County was started on January 1, 1941. The objectives of this study are (a) to compare the types of farm organization and the methods of operation used on dairy farms in southeastern Minnesota and to determine their adaptation and relative profitability and (b) to determine the factors of cost involved in the production of crops and livestock in this area with particular reference to dairy products. Some of the information gained from work done in 1941, 1942, 1943, 1944 and 1945, is presented in this report.

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 managed farms in the area were chosen with the aid of the county agricultural agent, Mr. E.M. Nelson and by his successor, F.E. Wetherill. These farmers 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 significant facts about the farm business*. Completed records were obtained from 26 farmers in 1941, 27 in 1942, 24 in 1943, 9 in 1944, and 7 in 1945. This report on earnings, crop and livestock returns, and other information was prepared from these records.

Nicollet County lies in the south central part of the state. The topography is gently rolling to level, with some hilly land along the Minnesota River. The soils (Clarion-Webster) are typical of a large part of south central Minnesota. On the higher, gently rolling land the soils are very dark grayish brown loams with heavy subsoils carrying a small amount of stone while on the lower, level land the surface is black and heavier. These soils rank with the best for corn production. The normal rainfall is 28 inches, 75 per cent of which falls during the months of April to September, inclusive. The average growing season (last killing frost in the spring to first killing frost in the fall) is 150 days. About three-fourths of the farmers' income is obtained from the sale of livestock and livestock products and one-fourth from the sale of crops.

The farms studied are somewhat larger than the average of all farms in Nicollet County, but the crops grown and livestock kept are typical.

Financial Summaries

Summaries of inventories, earnings, family living from the farm, and household and personal expenses are presented in Tables 1 through 4. The inventories and earnings were computed on a full owner basis; that is, the assets, expenses and receipts of the landlord were included. Earnings were high in each of these years, due to high wartime prices and a large volume of production. An unusually wet spring in 1943 reduced yields and earnings.

*F.E. Wetherill served as fieldman from January 1, 1941 to March 1, 1943; C.J. Heming from April 1, 1943 to October 1, 1943; and V.G. Dose from October 1, 1943 to September 1, 1945.

Table 1. Summary of Farm Inventories, Nicollet County

Items	1941 Avg. of 26 farms 5 years	1942 Avg. of 27 farms	1943 Avg. of 24 farms	1944 Avg. of 9 farms	1945 Avg. of 7 farms
Size of farm (acres)	227	212	217	219	242
Size of business (work units)	655	605	634	627	681
Beginning of the Year					
Productive lvstk. (total)	\$3943	\$2655	\$3445	\$4606	\$4595
Dairy & dual purpose cows	1219	1047	1151	1153	1311
Other dairy & dual pur. cattle	747	576	619	754	931
Beef cattle (incl. feeders)	184	300	299	319	-
Hogs	1593	564	1193	2162	2139
Sheep (incl. feeders)	24	29	35	36	21
Poultry (incl. turkeys)	176	139	148	182	193
Horses	286	345	366	335	240
Crop, seed, and feed	2742	2143	1989	2606	3473
Mach. & equipment (total)	3171	2613	2952	3055	3471
Power mach. (f.a share)	1090	919	1061	1099	1214
Crop & gen. mach. (f. share)	1552	1277	1438	1416	1655
Livestock equip. & supplies	529	417	453	540	602
Buildings, fences, etc.	6930	5985	6551	6928	7787
Land	8353	8072	8305	8512	8701
Total farm capital	\$25,425	\$21,813	\$23,603	\$26,042	\$28,267
End of Year					
Productive lvstk. (total)	\$4309	\$3338	\$4588	\$4190	\$4128
Dairy & dual purpose cows	1237	1101	1145	1220	1374
Other dairy & dual pur. cattle	810	612	819	891	896
Beef cattle (incl. feeders)	191	274	233	141	-
Hogs	1654	1161	2116	1671	1645
Sheep (incl. feeders)	20	35	32	32	3
Poultry (incl. turkeys)	197	155	193	235	210
Horses	251	365	350	273	171
Crop, seeds, and feed	2893	2070	2743	2878	3756
Mach. & equipment (total)	3338	2836	3136	3099	3490
Power mach. (f. share)	1109	1025	1114	1066	1043
Crop & gen. mach. (f. share)	1663	1407	1485	1411	1842
Livestock equip. & supplies	566	454	537	622	605
Buildings, fences, etc.	7054	6123	6682	7049	7808
Land	8352	8072	8305	8512	8701
Total farm capital	\$26,202	\$22,654	\$25,809	\$26,001	\$28,054
					\$28,294

Table 2. Summary of Farm Earnings, Nicollet County

Items	Average 5 years	1941	1942	1943	1944	1945
		Avg. of 26 farms	Avg. of 27 farms	Avg. of 24 farms	Avg. of 9 farms	Avg. of 7 farms
FARM EXPENSES						
Horses bought	\$ 23	\$ 55	\$ 18	\$ 42	\$ -	\$ -
Dairy & milk & beef cows bought	49	80	75	90	-	-
Other dairy cattle bought	79	51	146	135	52	12
Beef cattle bought (incl. feeders)	131	169	139	-	-	345
Hogs bought	144	79	171	223	80	168
Sheep bought (incl. feeders)	15	26	21	26	-	-
Poultry bought (incl. turkeys)	89	72	81	131	78	84
Misc. crop expenses	332	182	229	326	450	474
Feed bought	1388	642	1295	1750	1358	1894
Power mach. (farm share) (new)	204	250	217	130	6	419
Power mach. (farm share) (upkeep)	540	404	435	504	625	732
Custom work hired	133	80	86	129	152	218
Crop and general mach. (new)	312	307	205	176	403	469
Crop and general mach. (upkeep)	86	59	79	102	86	104
Livestock equipment (new)	107	86	147	154	79	72
Livestock equipment (upkeep)	53	24	44	73	40	82
Misc. livestock expense	131	109	137	164	120	124
Building & fencing (new)	333	269	332	344	269	453
Building & fencing (upkeep)	196	144	137	215	249	235
Hired labor	497	279	422	525	653	604
Taxes	222	210	209	203	249	240
General farm	70	53	57	78	79	83
(1) Total farm purchases	\$5134	\$3630	\$4682	\$5520	\$5028	\$6812
(2) Decrease in farm capital	-	-	-	41	207	-
(3) Board furnished hired labor	129	98	153	171	122	100
(4) Interest on farm capital	1291	1117	1235	1301	1408	1392
(5) Unpaid family labor	458	384	438	481	434	553
(6) Total farm expenses	\$7012	\$5229	\$6508	\$7514	\$7199	\$8857
FARM RECEIPTS						
Horses sold	\$ 25	\$ 14	\$ 20	\$ 60	\$ 20	\$ 10
Dairy & milk & beef cows sold	393	299	410	409	219	627
Dairy products sold	2002	1269	1473	1743	2045	3482
Other dairy & milk & beef cattle sold	506	336	492	485	537	678
Beef cattle sold (incl. feeders)	297	452	459	369	-	206
Hogs sold	3482	1957	3446	4294	4121	3592
Sheep & wool sold (incl. feeders)	31	34	49	57	13	-
Poultry sold (incl. turkeys)	208	167	163	263	175	269
Eggs sold	770	399	654	1016	783	997
Crop sold - corn	283	161	290	171	457	337
Crop sold - small grain	315	219	358	452	214	327
Other crops sold	232	201	317	161	119	364
Machinery & equip. sold	98	134	66	108	87	97
Misc.	53	93	101	48	12	11
Income from work off the farm	151	55	91	128	202	282
Agricultural adjustment payment	213	394	351	226	51	45
(7) Total farm sales	\$9059	\$6184	\$8740	\$9990	\$9055	\$11324
(8) Increase in farm capital	779	1041	2201	-	-	901
(9) Family living from the farm	625	497	610	696	668	653
(10) Total farm receipts	\$10,463	\$7,722	\$11,551	\$10,686	\$9,723	\$12,878
(6) Total farm expenses	7012	5229	6508	7514	7199	8857
(11) Operator's labor earnings	\$ 3451	\$ 2493	\$ 5043	\$ 3172	\$ 2524	\$ 4021

Table 3, Family Living from the Farm, Nicollet County

Items	Average 5 years	1941	1942	1943	1944	1945
		Avg. of 26 farms	Avg. of 27 farms	Avg. of 24 farms	Avg. of 9 farms	Avg. of 7 farms
No. of persons (family)	3.6	3.7	3.5	3.4	3.7	3.5
Adult equiv. (other)	.4	.4	.5	.4	.4	.2
Whole milk, qts.	863	963	860	840	716	937
Skimmilk, "	447	409	544	627	441	215
Cream, pts.	314	307	318	344	354	246
Eggs, doz.	167	167	187	185	152	146
Cattle, lbs.	452	360	389	618	345	546
Hogs, lbs.	601	546	613	548	593	698
Sheep	-	-	-	-	-	-
Poultry, lbs.	134	138	139	129	146	118
Potatoes, bu.	13	15	17	16	8	8
Farm fuel, cds.	6	8	6	7	7	3
Whole milk	\$39.59	\$29.21	\$32.57	\$40.89	\$40.01	\$55.26
Skin milk	2.32	1.48	2.64	3.54	2.66	1.27
Cream	54.99	38.39	45.29	61.66	73.41	55.71
Farm made butter	.56	.03	-	-	.67	2.10
Eggs	50.24	34.85	53.14	66.59	45.54	50.75
Cattle	41.64	29.66	36.24	58.21	32.67	52.43
Hogs	74.85	44.95	76.83	74.93	79.77	97.76
Sheep	-	-	-	-	-	-
Poultry	25.76	16.85	22.28	25.90	31.91	31.97
Potatoes	15.64	11.76	16.40	24.43	9.51	14.11
Vegetables and fruit	43.27	29.62	49.96	49.79	35.55	51.43
Farm fuel	40.03	48.65	43.71	44.38	39.44	24.00
Rental value of house	235.75	210.53	228.91	246.42	276.67	215.90
Total	\$624.66	\$496.76	\$610.27	\$696.74	\$667.81	\$652.69

Table 4. Household and Personal Expenses for Those Farmers Who Kept Complete Accounts of These Expenses, Nicollet County

Items	Average 5 years	1941	1942	1943	1944	1945
		Avg. of 23 farms	Avg. of 21 farms	Avg. of 18 farms	Avg. of 5 farms	Avg. of 6 farms
No. of persons - family	4.3	4.7	4.2	4.1	4.2	4.4
No. of persons (Family adult equivalent (Other	3.4 .4	3.6 .5	3.3 .5	3.2 .5	3.3 .4	3.5 .2
Food and meals bought	\$423	\$363	\$423	\$415	\$457	\$458
Operating and supplies	135	92	105	135	144	198
Clothing & Clothing materials	210	160	217	225	225	223
Personal care, personal spending	75	79	83	58	53	99
Furnishings & equipment	102	155	103	68	39	140
Education, recreation & dvlpt.	102	88	74	81	101	167
Medical care & health insurance	94	87	102	87	105	91
Church, welfare, gifts & inc. tax	232	89	108	314	258	389
Personal share of auto expense	95	147	120	62	63	83
H.H. share of elec. & gas eng. exp.	44	43	45	38	48	
H.H. & pers. share of new auto, gas engine	29	98	17	29	-	-
Life ins. & other investment	582	67	213	588	965	77
Total H.H. & pers. cash expense	\$1923	\$1469	\$1618	\$2107	\$2448	\$1973
Food furnished by farm	343	238	325	365	380	403
Fuel furnished by farm	38	51	39	40	36	23
House rental	239	213	229	239	320	192
Total cash expense & perquisites	\$2543	\$1971	\$2211	\$2751	\$3184	\$2596

Crop Summaries

A summary of the crops grown on these farms is presented in Table 6. Flax, barley, oats, corn, and alfalfa were raised on most farms. The other crops were raised on only a limited number of farms.

Summaries of the costs and returns for each of the principal crops grown on these farms are presented in Tables 7 thru 15. The summaries provide a basis for comparing the relative costs and returns for different crops. An accurate knowledge of the costs and returns from each crop will help farmers to plan more profitable crop rotations. These comparisons will be even more valuable to a farmer if he will substitute in the summaries the yields or the yields and costs that will apply to his farm.

In the preparation of these summaries, man labor was charged at 25 cents per hour in 1941, 30 cents in 1942, 40 cents in 1943, 45 cents in 1944 and 50 cents in 1945. Horse work and tractor use on each farm were charged at cost. Seeds were charged at cost if purchased, otherwise at farm price 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. Uniform charges per acre for all farms were made for seed for hay crops, for the use of machinery, and for the use of the land. The costs of power and of rig operators for threshing were included with "threshing", but the costs of power and rig operators for all other harvesting operations, as silo filling, were included with the labor and power costs.

The costs presented are relative rather than absolute costs. Many of the constituents, such as farmer's own labor and the use of his own land, machinery, and equipment do not represent actual current "out-of-pocket" cash expense. For purposes of comparison it was necessary 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.

Variations in weather conditions from year to year affect both costs and returns for crops. The precipitation and average temperature by months at the two nearest weather reporting stations, St. Peter and New Ulm, are presented in Table 5.

Table 5. Monthly and Annual Precipitation and Temperature, Average of Data for St. Peter and New Ulm, Nicollet County

Precipitation (Inches)							Temperature (Degrees)						
	1945	1944	1943	1942	1941		1945	1944	1943	1942	1941		
	Normal	Dep.*	Dep.*	Dep.*	Dep.*		Normal	Dep.*	Dep.*	Dep.*	Dep.*	Dep.*	
Jan.	1.0	-0.1	-0.4	+0.9	-0.9	-0.3	14.1	+1.6	+12.2	-3.4	+5.3	+4.3	
Feb.	.9	+0.9	+0.3	+0.1	-0.5	+0.5	17.0	+3.9	+3.8	+0.4	+2.8	-1.6	
March	1.4	+0.5	+0.1	0.0	+2.3	0.0	31.1	+9.1	-5.5	-6.3	+4.2	-2.7	
April	2.2	+1.2	+0.5	-1.3	-0.2	+0.7	46.6	-1.0	-5.2	-1.3	+5.3	+5.1	
May	3.5	+ .3	+2.7	+4.7	+1.1	+1.1	53.4	-5.2	+3.1	-3.2	-2.4	+5.4	
June	4.7	+2.4	+1.4	+1.4	-1.0	+1.1	68.2	-5.3	+2.0	+1.8	-1.5	-0.2	
July	3.5	+1.9	+0.3	+4.9	-0.3	-0.4	73.3	-2.4	-2.8	+1.4	-1.6	+1.0	
Aug.	3.5	-0.5	+1.6	+1.1	-1.9	-2.7	70.8	+0.6	-0.9	+0.6	+0.4	+2.2	
Sept.	3.4	+0.3	-1.6	-1.3	+3.9	+0.6	62.1	-2.0	+0.6	-5.1	-4.8	+2.4	
Oct.	2.2	-1.3	-1.9	-0.6	-1.9	+3.6	49.4	+0.2	+2.0	-0.9	+0.4	+1.7	
Nov.	1.3	+0.3	+0.2	+0.7	-0.6	-0.2	33.1	-0.6	+5.2	-4.9	+0.3	+2.5	
Dec.	.9	+1.4	-0.7	-0.8	+0.4	+0.1	19.6	-6.2	+0.8	+1.4	-4.7	+7.3	
Total	28.5	+6.8	+2.5	+0.8	+0.4	+4.1	45.3	-0.7	+1.3	-2.0	+0.4	+2.3	

*Departure from normal

Table 6. Distribution of Acres in Farm, Nicollet County

Crop	Average of 5 years	1941 Avg. of 26 farms	1942 Avg. of 27 farms	1943 Avg. of 24 farms	1944 Avg. of 9 farms	1945 Avg. of 7 farms
Canning peas	1.5	.8	2.5	1.7	1.1	1.4
Flax	9.4	11.3	11.5	14.0	2.8	7.2
Barley	10.1	15.9	17.4	7.3	5.6	4.4
Wheat	6.6	8.8	8.9	6.8	6.3	2.1
Oats and barley	5.6	5.3	9.5	10.0	3.1	-
Oats and wheat	2.9	.7	1.9	1.0	2.2	8.9
Oats	25.4	26.3	17.2	23.9	23.8	35.7
Rye	1.2	1.4	1.9	1.7	.6	.6
Miscellaneous	2.2	.3	.8	1.6	6.4	2.0
Total small grain & peas	64.9	70.8	71.6	68.0	51.9	62.3
Sugar beets, hybrid seed corn, potatoes & truck crops	4.2	2.2	5.4	3.1	3.3	9.1
Sweet corn	3.6	2.8	2.9	4.7	4.3	3.4
Corn grain	46.3	31.9	39.3	43.0	59.7	57.3
Corn silage	10.2	7.0	7.8	10.9	13.1	12.1
Total cultivated	64.3	43.9	53.4	61.7	80.4	81.9
Alfalfa hay	12.1	14.7	16.1	12.3	9.1	8.1
Red clover hay	1.2	.7	-	.7	.7	4.0
Soybean hay	.5	.4	-	.3	2.0	-
Mixed leg. & non-legumes	3.7	3.4	3.0	4.4	5.1	2.6
Legumes for seed	.7	1.8	1.5	.2	.1*	-
Timothy and/or brome	2.9	2.9	2.2	2.3	3.9	2.9
Other annual hay	1.2	.4	1.5	.5	3.1	.6
Total tillable land in hay	22.3	24.3	24.3	20.7	24.0	18.2
Alfalfa pasture	2.8	1.1	1.0	2.6	3.5	5.6
Sweet clover pasture	1.7	2.7	2.1	1.9	.5	1.1
Other legumes & mixtures	2.5	1.7	2.2	3.4	3.8	1.3
Sudan grass or rape past.	2.2	3.9	2.0	1.6	1.6	2.2
Other tillable pasture	8.0	4.2	7.6	6.0	10.1	12.2
Total till. land in pasture	17.2	13.6	14.9	15.5	19.5	22.4
Till. land not cropped	7.9	6.5	3.8	5.5	13.0	10.8
Total tillable land	176.6	159.1	168.0	171.4	188.8	195.6
Phalaris hay (non-till.)	.8	1.1	1.3	1.3	.3	.2
Wild hay (non-tillable)	7.8	9.8	6.7	4.9	10.1	7.6
Non-tillable pasture	20.9	25.0	22.9	22.9	17.4	16.3
Timber (not pasture)	5.5	2.8	3.7	4.9	7.9	8.4
Road and waste	8.6	7.4	7.5	7.3	10.1	10.6
Farmstead	6.9	7.1	6.5	6.3	7.0	7.4
Total acres in farm	227.1	212.3	216.6	219.0	241.6	246.1
% land tillable	78.7	74.9	77.6	78.4	78.3	84.1

*Timothy for seed

Table 7. Costs and Returns per Acre for Mixtures of Oats and Barley,
Nicollet Co.

	Avg. of 3 years	1941 6 farms	1942 13 farms	1943 11 farms
Acres per farm	21.5	22.9	19.8	21.8
COSTS AND RETURNS:				
Man labor	\$2.30	\$2.09	\$2.22	\$2.60
Horse and tractor	2.33	2.46	1.96	2.57
Seed	1.69	1.49	1.60	1.99
Twine	.26	.19	.31	.27
Manure	1.67	1.82	1.37	1.81
Threshing	1.25	1.00	1.67	1.09
Machinery	1.16	1.01	1.18	1.29
Operating costs	\$10.66	\$10.06	\$10.31	\$11.62
Land charge	5.00	5.00	5.00	5.00
Total costs	\$15.66	\$15.06	\$15.31	\$16.62
Crop value	17.42	10.18	23.13	18.96
Crop value less costs	\$1.76	\$4.88	\$7.82	\$2.34
Yield, bushels	33.8*	27.5*	50.0*	23.9*
Cost per bushel	\$.46	\$.55	\$.31	\$.70
Average price for year	.52	.37	.46	.79
Amounts of labor, power & materials:				
Before harvest:				
Man labor, hrs.	2.3	2.4	1.9	2.6
Horse work, hrs.	1.5	1.8	1.3	1.4
Tractor use, hrs.	1.8	1.7	1.6	2.1
Harvest:				
Man labor, hrs.	5.1	6.0	5.5	3.9
Horse work, hrs.	3.9	5.3	4.1	2.4
Tractor use, hrs.	.8	.9	.8	.7
Total:				
Man labor, hrs.	7.4	8.4	7.4	6.5
Horse work, hrs.	5.4	7.1	5.4	3.8
Tractor use, hrs.	2.6	2.6	2.4	2.8
Thresh time**	.41	.53	.44	.26
Seed, bushels	2.4	2.7	2.2	2.4
Twine, pounds	3.2	2.9	3.7	2.9

* At 40 pounds per bushel.

** Hours machine was operated.

Table 8. Costs and Returns per Acre for Oats and Barley, Nicollet County

Items	Oats						Barley						
	Avg. of 5 years	1941 25 farms	1942 20 farms	1943 23 farms	1944 9 farms	1945 7 farms	Avg. of 5 years	1941 20 farms	1942 23 farms	1943 11 farms	1944 4 farms	1945 3 farms	
	Acres per farm	28.3	27.4	23.2	24.4	26.3	40.0	Acres per farm	15.8	20.0	20.4	15.9	12.5
COSTS AND RETURNS:													
Man labor	\$2.74	\$1.76	\$2.50	\$2.78	\$3.07	\$3.60	\$2.45	\$1.81	\$2.03	\$2.38	\$2.20	\$3.81	
Horse and tractor	2.22	1.84	2.27	2.60	2.19	2.21	2.26	2.02	1.90	2.73	1.95	2.69	
Seed	2.09	1.19	1.94	2.60	2.47	2.24	2.63	1.09	1.55	2.14	3.13	5.26	
Twine	.27	.22	.30	.32	.20	.29	.21	.23	.27	.29	.13	.13	
Manure	1.84	1.83	1.75	1.80	2.09	1.71	1.62	1.60	1.58	2.06	1.78	1.12	
Threshing	1.50	.87	1.71	1.07	1.80	2.05	1.15	1.05	1.22	.46	.58	2.43	
Machinery	1.22	1.04	1.17	1.32	1.27	1.23	1.19	1.04	1.13	1.31	1.23	1.19	
Operating costs	\$11.87	\$8.75	\$11.64	\$12.49	\$13.09	\$13.38	\$11.51	\$8.84	\$9.73	\$11.37	\$11.00	\$16.63	
Land charge	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
Total costs	\$16.87	\$13.75	\$16.64	\$17.49	\$18.09	\$18.38	\$16.51	\$13.84	\$14.73	\$16.37	\$16.00	\$21.63	
Crop value	22.52	8.06	23.23	21.62	23.64	36.05	16.17	10.16	14.79	8.19	5.48	42.21	
Crop value less costs	\$5.65	\$5.69	\$6.59	\$4.13	\$5.55	\$17.67	\$-348	\$3.68	\$.06	\$-3.18	\$-10.52	\$20.58	
Yield, bushels	40.1	23.7	55.0	31.4	34.2	56.3	22.4	25.4	28.6	7.7	5.6	44.9	
Cost per bushel	\$.42	\$.58	\$.30	\$.56	\$.53	\$.33	\$.74	\$.54	\$.52	\$2.13	\$ 2.86	\$.48	
Average price for the year	.56	.34	.42	.69	.69	.64	.72	.40	.52	1.06	.98	.94	
Amounts of labor, power & materials													
Before harvest:													
Man labor, hrs.	2.3	2.2	2.6	2.4	2.0	2.5	2.4	1.9	2.1	2.6	2.6	2.5	
Horse work, hrs.	1.3	2.5	1.5	1.2	1.0	.3	1.7	2.7	1.5	1.5	1.7	1.0	
Tractor use, hrs.	2.0	1.5	2.2	2.0	1.8	2.4	1.9	1.1	1.7	2.1	2.2	2.3	
Harvest:													
Man labor, hrs.	4.9	4.3	5.7	4.6	4.8	4.7	4.1	5.4	4.7	3.4	2.1	5.1	
Horse work, hrs.	3.3	4.7	4.4	3.4	2.6	1.4	3.3	5.8	3.7	2.5	1.8	2.8	
Tractor use, hrs.	.9	.6	.9	.6	1.1	1.4	.8	.6	.7	.6	.5	1.8	
Total:													
Man labor, hrs.	7.2	7.0	8.3	7.0	6.8	7.2	6.5	7.3	6.8	6.0	4.9	7.6	
Horse work, hrs.	4.6	7.2	5.9	4.5	3.6	1.7	5.0	8.5	5.2	4.0	3.5	3.8	
Tractor use, hrs.	2.9	2.1	3.1	2.6	2.9	3.8	2.7	1.7	2.4	2.7	2.7	4.1	
Threshing time*	.43	.45	.52	.36	.46	.34	.35	.44	.42	.24	.30	.50	
Seed, bushels	2.7	2.8	2.8	2.5	2.8	2.8	2.1	2.0	2.0	2.2	2.4	1.3	
Twine, pounds	3.2	2.8	3.7	2.9	3.0	3.4	2.7	3.0	3.3	2.8	1.4	3.2	

*Hours machine was operated

Table 9. Costs and Returns for Wheat and Flax, Nicollet County

Items	Wheat						Flax					
	1941		1942		1943		1944		1945		1941	
	Avg. of 5 years	15 farms	16 farms	11 farms	4 farms	4 farms	Avg. of 5 years	19 farms	21 farms	20 farms	2 farms	4 farms
Acres per farm	14.5	13.9	15.0	15.3	15.0	13.4	14.3	15.4	14.6	16.6	12.5	12.6
COSTS AND RETURNS:												
Man labor	\$2.87	\$2.22	\$2.58	\$3.05	\$2.80	\$3.69	\$2.36	\$2.20	\$2.20	\$2.76	\$3.12	\$4.00
Horse and tractor	2.63	2.29	2.44	3.35	2.35	2.69	2.73	2.46	2.27	2.76	3.21	3.17
Seed	2.53	1.22	2.15	2.39	3.14	3.72	2.73	1.75	2.52	3.29	2.69	3.66
Twine	.20	.18	.26	.29	.07	.22	.08	.10	.05	.20	-.03	
Manure	1.81	1.95	1.73	1.26	1.71	2.40	1.59	2.24	1.43	1.64	1.34	1.32
Threshing	1.40	.83	1.51	.92	2.08	1.59	1.34	1.04	.97	1.06	2.05	1.60
Machinery	1.24	1.03	1.16	1.52	1.21	1.29	1.19	1.03	1.17	1.31	1.20	1.22
Operating costs	\$12.67	\$9.77	\$11.33	\$12.81	\$13.36	\$15.50	\$12.62	\$10.82	\$10.61	\$13.04	\$13.61	\$15.00
Land charge	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Total costs	\$17.67	\$14.77	\$16.33	\$17.81	\$18.36	\$20.50	\$17.62	\$15.82	\$15.61	\$18.04	\$18.61	\$20.00
Crop value	19.36	9.09	26.06	12.44	13.92	35.29	17.73	13.05	13.15	17.68	9.53	30.49
Crop value less costs	\$ 1.69	\$-5.68	\$ 9.23	\$-5.37	\$-4.44	\$14.69	\$ 1.68	-2.77	\$ 2.54	\$- .36	\$-9.08	\$10.49
YIELD, bu.	15.7	10.0	25.0	9.9	10.3	23.5	7.1	7.7	7.9	6.1	3.3	10.5
Cost per bushel	\$ 1.13	\$ 1.48	\$.67	\$ 1.80	\$ 1.78	\$.58	\$2.48	\$2.05	\$ 1.98	\$ 2.96	\$ 5.63	\$ 1.90
Average price for the yr.	1.23	.91	1.05	1.25	1.35	1.50	2.50	1.69	2.30	2.00	2.69	2.90
Amounts of labor, power & materials:												
Before harvest:												
Man labor, hrs.	2.4	2.4	2.4	3.1	2.0	2.5	2.6	3.1	2.5	2.6	2.2	2.7
Horse work, hrs.	1.2	1.7	1.3	.5	.8	1.2	1.4	3.2	1.9	1.3	-.6	
Tractor use, hrs.	2.1	1.9	1.9	2.8	1.8	2.2	2.1	2.2	2.0	2.1	2.0	2.3
Harvest:												
Man labor, hrs.	5.3	6.5	6.2	4.5	4.2	4.9	5.0	5.7	4.8	4.3	4.8	5.3
Horse work, hrs.	4.6	6.8	5.1	3.4	4.5	3.2	4.1	6.2	4.6	2.7	3.0	4.0
Tractor use, hrs.	.9	.6	1.0	.7	1.2	.9	1.3	-.7	-.7	1.1	2.3	1.7
Total:												
Man labor, hrs.	7.7	8.9	8.6	7.6	6.2	7.2	7.6	8.8	7.3	6.9	7.0	8.0
Horse work, hrs.	5.3	8.5	6.9	3.9	5.3	4.4	5.5	9.4	6.5	4.0	3.0	4.6
Tractor use, hrs.	3.0	2.5	2.9	3.5	3.0	3.1	3.4	2.9	2.7	3.2	4.3	4.0
Threshing, time*	.41	.55	.48	.32	.43	.29	.63	.74	.66	.51	.39	.88
Seed, bushels	1.8	1.5	1.7	1.9	1.7	2.4	.9	1.8	.8	.9	.8	1.0
Twine, pounds**	2.4	2.4	3.2	2.6	1.3	2.4	1.7	2.6	2.6	2.6	-.	.9

* Hours machine was operated

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Table 10. Costs and Returns per Acre for Canning Peas and Sweet Corn, Nicollet County

Items	Canning Peas			Sweet Corn							
	Avg. of 2 years		1942	1943	Avg. of 5 years		1941	1942	1943	1944	1945
	4 farms	3 farms			5 farms	7 farms	6 farms	3 farms	3 farms		
Acres per farm	15.6	16.4	15.4		13.1	14.6	12.1	18.0	13.0	7.6	
COSTS AND RETURNS:											
Man labor	\$2.76	\$2.64	\$2.87		\$2.98	\$1.74	\$3.24	\$3.48	\$3.20	\$3.25	
Horse and tractor	1.16	1.09	1.23		3.25	2.22	2.50	3.00	4.77	3.78	
Twine	-	-	-		.01	.03	-	-	-	-	
Manure	1.85	2.34	1.36		2.94	1.86	2.59	2.84	2.29	5.12	
Machinery	.97	.90	1.04		1.34	1.61	1.20	1.29	1.30	1.30	
Operating costs	\$6.74	\$6.97	\$6.50		\$10.52	\$7.46	\$9.53	\$10.61	\$11.56	\$13.45	
Land charge	4.86	5.00	4.72		4.97	5.00	5.00	4.85	5.00	5.00	
Total costs	\$11.60	\$11.97	\$11.22		\$15.49	\$12.46	\$14.53	\$15.46	\$16.56	\$18.45	
Silage, fodder & stover credit	3.17	3.79	2.54		1.18	1.50	.91	.57	1.85	1.06	
Net costs	\$8.43	\$8.18	\$8.68		\$14.31	\$10.96	\$13.62	\$14.89	\$14.71	\$17.39	
Crop value	27.36	37.70	17.01		21.10	21.35	26.11	18.52	19.65	19.90	
Crop value less costs	\$18.93	\$29.52	\$8.33		\$6.79	\$10.39	\$12.49	\$3.53	\$4.94	\$2.51	
YIELD, lbs. and tons	1553	2547	558		2.5	3.0	4.0	1.4	1.9	2.1	
Cost per lb. or ton	.54	.34	1.64		\$6.20	\$3.69	\$3.41	\$10.64	\$8.72	\$8.78	
Average price for the year	1.84	1.54	3.14		\$8.44	7.12	6.53	13.23	10.34	9.47	
Amounts of labor, power											
Before harvest:											
Man labor, hrs.	2.8	2.4	3.1		6.1	6.2	5.2	5.5	7.0	6.5	
Horse work, hrs.	.3	.5	-		2.6	2.4	3.5	2.5	3.3	1.1	
Tractor use, hrs.	2.7	2.3	3.1		4.6	4.1	3.5	4.3	5.3	6.0	
Harvest:*											
Man labor, hrs.	5.2	6.4	4.1		2.0	.8	5.6	3.3	.2	-	
Horse work, hrs.	-	-	-		1.3	-	4.3	2.1	.1	-	
Tractor use, hrs.	-	-	-		.1	.3	-	.1	.1	-	
Total:											
Man labor, hrs.	8.0	8.8	7.2		8.1	7.0	10.8	8.8	7.2	6.5	
Horse work, hrs.	.3	.5	-		3.9	2.4	7.8	4.6	3.4	1.1	
Tractor use, hrs.	2.7	2.3	3.1		4.7	4.4	3.5	4.4	5.4	6.0	

*Sweet corn harvested by canning company on most farms.

Table 11. Costs and Returns per Acre for Husked Corn and Silage Corn, Nicollet County

Items	Husked Corn						Silage Corn							
	Avg. of 5 years		1941	1942	1943	1944	1945	Avg. of 5 years		1941	1942	1943	1944	1945
	farms	farms	farms	farms	farms	farms	farms	farms	farms	farms	farms	farms	farms	
Acres per farm	43.3	28.3	36.8	38.7	49.5	62.6	12.8	8.2	8.6	13.9	16.1	17.3		
COSTS:														
Man labor	\$3.58	\$2.65	\$3.21	\$3.69	\$4.35	\$4.01	\$5.70	\$4.65	\$5.14	\$5.70	\$6.25	\$6.77		
Horse and tractor	3.80	3.27	3.80	4.20	4.44	3.29	5.58	5.63	5.43	5.99	5.49	5.36		
Seed	1.10	.82	.89	1.22	1.27	1.32	1.16	.95	.91	1.20	1.43	1.30		
Twine	-	-	-	-	-	-	.38	.39	.40	.34	.32	.44		
Manure	2.72	2.57	2.78	2.95	2.82	2.88	2.66	2.12	2.65	2.52	3.25	2.74		
Picker or filler	1.32	.80	1.20	1.23	1.50	1.86	1.53	1.68	1.63	1.26	1.72	1.38		
Machinery	1.23	1.05	1.20	1.30	1.30	1.30	2.16	2.18	2.63	1.94	1.94	2.10		
Operating Costs	\$13.75	\$10.76	\$13.08	\$14.59	\$15.68	\$14.66	\$19.17	\$17.60	\$18.79	\$18.95	\$20.40	\$20.09		
Land charge	5.00	5.00	5.00	5.00	5.00	5.00	4.94	5.00	5.00	4.89	4.80	5.00		
Total Costs	\$18.75	\$15.76	\$18.08	\$19.59	\$20.68	\$19.66	\$24.11	\$22.60	\$23.79	\$23.84	\$25.20	\$25.09		
Credit for stover & corn picked up	.01	-	-	-	.05	-	.25	.40	.32	-	-	-		
Net Costs	\$18.74	\$15.76	\$18.08	\$19.59	\$20.63	\$19.66	\$23.86	\$22.20	\$22.97	\$23.84	\$25.20	\$25.09		
Crop value	37.45	28.86	44.81	38.04	52.17	23.41	29.84	26.44	25.43	27.09	36.06	34.20		
Crop value less costs	\$18.71	\$13.10	\$26.73	\$18.45	\$31.54	3.75	\$5.98	\$4.24	\$2.46	\$3.25	\$10.36	\$9.11		
YIELD: Grain, bu.	49.4	56.6	66.9	42.2	52.2	29.3	-	-	-	-	-	-		
Roughage, tons	-	-	-	-	-	-	8.1	10.1	9.8	6.8	6.8	6.8		
Cost per bushel	\$.38	\$.28	\$.27	\$.46	\$.40	\$.67	-	-	-	-	-	-		
Cost per ton	-	-	-	-	-	-	\$2.95	\$2.21	\$2.34	\$3.51	\$3.71	\$3.69		
Average price for the year	.76	.51	.67	.90	1.00	.79	3.68	2.62	2.60	3.98	5.30	\$5.03		
Amounts of labor, power & material:														
Before harvest:														
Man labor, hrs.	5.6	5.4	5.9	5.6	5.5	5.6	5.4	5.7	5.9	5.1	5.0	5.4		
Horse work, hrs.	2.8	3.7	3.8	2.8	1.6	2.1	2.5	3.8	3.6	2.4	1.7	1.2		
Tractor use, hrs.	4.3	3.8	4.3	4.3	4.7	4.4	4.2	4.1	4.3	3.9	4.2	4.6		
Harvest:														
Man labor, hrs.	4.0	5.2	4.8	3.6	4.1	2.2	10.1	12.9	11.3	9.2	8.9	8.1		
Horse work, hrs.	3.6	5.9	4.8	3.2	3.2	.9	9.0	15.7	11.7	8.4	5.5	3.5		
Tractor use, hrs.	1.3	1.2	1.3	1.1	1.6	1.2	2.9	2.7	2.6	2.6	3.4	3.3		
Seed, bushels	.15	.13	.14	.16	.16	.16	.16	.17	.17	.16	.16	.16		
Twine, lbs.	-	-	-	-	-	-	4.2	4.4	5.1	3.6	3.2	4.6		
Operating time for filler, hrs.	-	-	-	-	-	-	1.3	2.0	1.5	1.3	.9	.9		

Table 12. Cost per Acre for Alfalfa and Other Tame Hay, Nicollet County

Items	Alfalfa						Other Tame Hay*							
	Avg. of 5 years		1941	1942	1943	1944	1945	Avg. of 5 years		1941	1942	1943	1944	1945
	24 farms	24 farms	24 farms	20 farms	5 farms	5 farms	8.6	10 farms	13 farms	11 farms	6 farms	7 farms		
Acres per farm		15.4	17.2	13.3	15.9	11.4		8.6	6.3	8.6	9.7	8.6	9.8	
COSTS:														
Man labor	\$4.43	\$2.54	\$3.46	\$3.97	\$4.65	\$7.52	\$3.10	\$2.03	\$2.68	\$3.37	\$3.17	\$4.22		
Horse and tractor	3.14	2.08	2.61	3.15	3.33	4.52	2.93	2.43	2.10	3.51	2.92	3.67		
Seed	2.21	2.20	2.20	2.20	2.24	2.20	1.24	1.12	1.07	1.17	1.52	1.31		
Manure	2.27	2.12	1.94	2.42	2.35	2.51	1.45	1.02	1.63	1.33	1.30	1.29		
Machinery**	2.32	1.56	2.11	2.20	2.35	2.90	1.77	1.17	1.42	1.60	1.55	2.81		
Operating Costs	\$14.37	\$10.50	\$12.32	\$13.94	\$15.42	\$19.65	\$10.49	\$7.82	\$9.10	\$10.98	\$11.26	\$13.30		
Land charge	4.98	5.00	5.00	5.00	5.00	4.92	5.00	5.00	5.00	5.00	5.00	5.00		
Total Costs	\$19.35	\$15.50	\$17.32	\$18.94	\$20.42	\$24.57	\$15.49	\$12.82	\$14.10	\$15.98	\$16.26	\$18.30		
Pasture credit	.03	-	.06	.08	-	-	.04	.09	.10	-	-	-		
Net Costs	\$19.32	\$15.50	\$17.26	\$18.86	\$20.42	\$24.57	\$15.45	\$12.73	\$14.00	\$15.98	\$16.26	\$18.30		
Yield, ton - Legumes	3.0	2.7	2.8	2.6	2.8	4.3	.7	.5	.6	.7	.9	1.0		
Non-legumes	-	-	-	-	-	-	1.1	1.0	1.1	1.3	1.2	1.0		
Cost per ton	6.44	5.74	\$ 6.16	\$ 7.25	\$ 7.29	\$ 5.71	\$ 8.58	\$ 8.43	\$ 8.24	\$ 7.99	\$ 7.74	\$ 9.15		
Per cent cut second time	94	91	96	85	98	98	66	42	57	72	100	57		
Per cent cut third time	61	59	57	53	55	79	10	9	12	11	10	10		
Amounts of														
First cutting:														
Man labor, hrs.	5.3	4.8	5.4	5.1	4.7	6.6	5.3	6.3	5.5	4.7	4.1	5.0		
Horse work, hrs.	5.1	5.4	6.4	5.5	3.9	4.3	7.0	8.7	7.4	6.9	4.8	7.2		
Tractor use, hrs.	1.0	.8	.6	.6	1.2	1.7	.6	.5	.2	.3	1.1	1.1		
Second cutting:														
Man labor, hrs.	4.1	3.4	4.4	3.0	4.3	5.6	2.5	1.8	2.9	3.2	2.7	2.0		
Horse work, hrs.	3.8	4.0	5.1	3.4	3.3	2.9	3.5	2.8	4.6	4.9	3.3	1.7		
Tractor use, hrs.	.7	.5	.4	.4	1.1	1.4	.3	-	-	.2	.5	.8		
Third cutting:														
Man labor, hrs.	2.0	2.0	1.9	1.7	1.3	2.8	.4	.2	.5	.5	.5	.4		
Horse work, hrs.	2.1	2.4	2.4	1.9	1.2	2.8	.5	.3	.8	.8	.3	.2		
Tractor use, hrs.	.4	.3	.3	.4	.4	.7	-	-	-	.1	-	-		
Total:														
Man labor, hrs.	11.4	10.2	11.7	9.8	10.3	15.0	8.2	8.3	8.9	8.4	7.1	8.4		
Horse work, hrs.	11.0	11.8	13.9	10.8	8.4	10.0	11.0	11.8	12.8	12.6	8.4	9.1		
Tractor use, hrs.	2.1	1.6	1.3	1.4	2.7	3.8	1.0	.5	.2	.5	1.7	1.9		

* Tame hay other than alfalfa and annual hay crops.
** Includes cost of baling wire.

Table 13. Costs per Acre for Phalaris and Wild Hay, Nicollet County

Items	Phalaris			Wild Hay					
	1942		1943	1941		1942	1943	1944	1945
	Avg. of 2 years	10 farms	6 farms	Avg. of 5 years	12 farms	12 farms	11 farms	5 farms	4 farms
Acres per farm	7.8	9.4	6.2	14.8	15.9	12.4	12.8	19.4	13.4
COSTS:									
Man labor	\$2.26	\$2.50	\$2.03	\$1.80	\$1.37	\$1.21	\$1.90	\$2.31	\$2.21
Horse and tractor	1.71	1.94	1.47	1.58	1.20	1.05	2.66	1.70	1.30
Seed	.38	.35	-	.02	.08	-	-	-	-
Manure	1.37	.94	1.80	.04	.08	.08	-	.02	-
Machinery	1.20	1.33	1.07	1.04	.78	.80	1.18	1.29	1.15
Operating Costs	\$6.72	\$7.06	\$6.37	\$4.48	\$3.51	\$3.14	\$5.74	\$5.32	\$4.66
Land charge*	4.18	4.04	4.33	3.16	3.24	3.34	3.24	3.00	3.00
Total Costs	\$10.90	\$11.10	\$10.70	\$7.64	\$6.75	\$6.48	\$8.98	\$8.32	\$7.66
Pasture Credit	.04	.07	-	-	-	-	-	-	-
Net Costs	\$10.86	\$11.03	\$10.70	\$7.64	\$6.75	\$6.48	\$8.98	\$8.32	\$7.66
Yield, tons	1.6	2.1	1.0	1.4	1.5	1.3	1.6	1.6	1.0
Cost per ton	\$6.78	\$5.25	\$10.70	\$5.46	\$4.50	\$4.98	\$5.61	\$5.20	\$7.66
Per cent cut second time	42	66	17	24	26	8	21	41	24
Per cent cut third time	3	5	0	-	2	0	0	0	0
Amounts of labor, power & materials:									
First cutting:									
Man labor, hrs.	4.4	5.2	3.5	3.9	4.4	3.8	3.7	3.7	3.7
Horse work, hrs.	5.3	7.7	2.8	4.5	6.1	5.7	3.8	3.3	3.3
Tractor use, hrs.	.4	-	.8	.6	.3	.1	1.0	.8	.8
Second cutting:									
Man labor, hrs.	2.3	3.0	1.6	.9	1.0	.3	1.0	1.4	.7
Horse work, hrs.	3.5	4.9	2.2	1.1	1.4	.3	1.2	1.8	1.0
Tractor use, hrs.	-	-	-	.1	-	-	.3	.2	.1
Third cutting:									
Man labor, hrs.	.1	.2	-	-	.1	-	-	-	-
Horse work, hrs.	.2	.3	-	-	.1	-	-	-	-
Tractor use, hrs.	-	-	-	-	-	-	-	-	-
Total:									
Man labor, hrs.	6.8	8.4	5.1	4.8	5.5	4.1	4.7	5.1	4.4
Horse work, hrs.	9.0	12.9	5.0	5.6	7.6	6.0	5.0	5.1	4.3
Tractor use, hrs.	.4	-	.8	.7	.3	.1	1.3	1.0	.9

*Land charge at \$5.00 per acre for tillable land and \$3.00 per acre for non-tillable land.

Table 14. Costs per Acre for Sudan Grass Pasture, Nicollet County

Items	Avg. of 5 years	1941	1942	1943	1944	1945	
		farms	farms	farms	farms	farms	
Acres per farm		7.6	7.8	9.0	5.4	7.9	8.0
COSTS:							
Man labor	\$1.13	\$1.54	\$.85	\$1.16	\$1.13	\$2.00	
Horse and tractor	1.38	.95	1.29	1.54	1.00	2.10	
Seed	2.27	1.32	1.24	2.00	3.98	2.31	
Manure	2.25	1.87	1.60	2.16	1.57	4.05	
Machinery	.97	.80	.90	1.05	1.05	1.05	
Operating Costs	\$8.00	\$5.98	\$5.88	\$7.91	\$8.73	\$11.51	
Land charge	5.00	5.00	5.00	5.00	5.00	5.00	
Total costs	\$13.00	\$10.98	\$10.88	\$12.91	\$13.73	\$16.51	
Amounts of labor, power & materials							
Man labor, hrs.	2.7	2.2	2.8	2.9	1.5	4.0	
Horse work, hrs.	1.1	2.2	.8	.6	.8	1.1	
Tractor use, hrs.	2.5	1.4	2.5	2.7	2.2	3.8	
Seed, pounds	30	35	27	32	33	24	

Table 15. Costs per Acre for Small Grain Pasture, Nicollet County

Items	Avg. of 5 years	1941	1942	1943	1944	1945	
		farms	farms	farms	farms	farms	
Acres per farm		6.1	8.5	6.1	6.3	5.4	4.1
COSTS:							
Man labor	\$.85	\$.37	\$.67	\$.97	\$1.17	\$1.09	
Horse and tractor	1.05	.61	1.01	1.23	1.22	1.19	
Seed	1.73	1.03	1.61	1.38	2.35	2.20	
Manure	1.88	1.87	1.64	1.35	1.91	2.64	
Machinery	.97	.80	.90	1.05	1.05	1.05	
Operating Costs	\$6.48	\$4.73	\$5.83	\$5.98	\$7.70	\$8.17	
Land charge	5.00	5.00	5.00	5.00	5.00	5.00	
Total costs	\$11.48	\$9.73	\$10.83	\$10.98	\$12.70	\$13.17	
Amounts of labor, power & material							
Man labor, hrs.	2.2	1.5	2.2	2.4	2.6	2.2	
Horse work, hrs.	1.6	1.1	2.8	1.2	1.4	1.4	
Tractor use, hrs.	1.7	1.0	1.4	2.1	2.3	1.7	
Seed, bushels	2.1	2.3	1.7	1.7	2.2	2.8	

Most of the crops raised in southern Minnesota are utilized as feed for livestock. It is desirable that the feed crops yield a large quantity of feed nutrients at a low cost. The production per acre and the relative cost per hundred pounds of digestible nutrients for the principal feed crops raised in Nicollet County are presented in Table 16. More feed nutrients were produced per acre and at a lower cost per pound with roughages than with grains. Average yields in Nicollet County for the twenty-five year period from 1917 thru 1941 were used. The costs per acre for producing crops in 1941-1943, as presented in the preceding tables, were used. The cost per hundred pounds of digestible nutrients in alfalfa hay was only 81 per cent as high as in corn silage. The nutrients in alfalfa are more valuable than those in silage because the protein content is higher. The cost of producing a hundred pounds of nutrients was only half as high with corn as with small grains. On the farms studied during this three-year period the advantage of corn and alfalfa over small grains was even larger than is shown in Table 16.

Table 16. Comparative Yields and Costs of Producing Feed Nutrients, Nicollet Co.

	Average yield per acre (1917-41)*	Total digestible nutrients per acre**	Cost per acre	Cost per 100 lbs. of digestible nutrients	Per cent protein in of total nutrients**
	bushels	pounds			
Grain					
Corn	45.6	2032	\$17.74	\$.85	9.0
Barley	28.4	1051	14.93	1.42	12.6
Oats	33.7	860	15.96	1.86	14.7
Winter Wheat	18.1	860	15.98	1.86	11.1
Spring wheat	15.4	732	16.09	2.20	11.1
Roughages	tons				
Alfalfa	2.4	2472	17.20	.70	20.2
Corn silage	8.0	2688	23.00	.86	7.1

* Calculated from Minnesota Annual Crop and Livestock Statistics. Corn yields for the twenty-year period 1917-36 increased by 15 per cent to adjust to hybrid corn yields. Alfalfa and corn silage yields calculated from records of the Southeast Minnesota Farm Management Service.

** Analysis of feeds obtained from "Feeding the Dairy Herd," Minnesota Extension Bulletin 218 (1941 edition).

With serious shortages of farm labor during the war period, it is necessary to grow those crops which yield the greatest return per hour. On the basis of the long time average yields shown in Table 16 and the man hours required per acre shown in the preceding tables, the pounds of total digestible nutrients produced per hour of labor are:

Corn (husked)	206 lbs.	Alfalfa hay	273 lbs.
Barley	157 "	Corn silage	151 "
Oats	116 "		
Winter wheat	115 "		
Spring wheat	100 "		

More feed can be produced per hour of labor as well as per acre with corn and alfalfa than with any other crops. By raising as large an acreage of these crops as possible the farmers can increase their total production without materially affecting the labor requirement.

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 Nicollet County is shown in Table 17.

Table 17. Comparative Return Per Acre for Cash Crops, Nicollet County

	Average Yield per acre (1917-41)	price 1938 1943	Value per acre	Adjusted cost per acre	Net returns per acre
Corn	45.6	\$.59	\$26.90	\$17.81	\$9.09
Winter wheat	18.1	.92	16.65	15.98	.67
Flax	10.0	1.93	19.30	16.49	2.81
Spring wheat	15.4	.94	14.48	16.09	-1.61
Barley	28.4	.55	15.62	14.98	.64
Oats	38.7	.38	14.71	15.96	-1.25

In addition to selecting high return crops, it is also necessary to produce those crops at the lowest cost possible. In the preceding tables of crop costs the group of farmers with the highest cost per bushel or per ton had costs approximately twice as high as the group with the lowest costs per unit. Differences among individual farmers were even larger. These differences are similar to those obtained in other studies of crop production costs. In years of average yields, these differences in costs can mean the difference between profit and loss.

These differences in costs per unit are due partially to differences in costs per acre. There are big differences among farms in the costs for labor and power, due both to variations in the costs per hour and the hours of use on each crop. There are also big differences in the other cost items. By better planning and more effective work, the costs per acre can be reduced on many farms.

The biggest factor causing differences in costs per unit is differences in yield per acre. For every crop presented in the preceding tables, the farmers with low costs per unit had high yields. For most crops, the differences were quite large. The cost per acre was usually higher on the high yielding farms, but the difference was not enough to offset the difference in yields. This relationship of cost per unit to the yield per acre is shown more clearly in Table 18. It is important to study carefully every possible method for increasing yields. Among these methods are good seedbeds, timely work, good seed of high yielding varieties and proper fertilization.

Table 18. High Yields Give Low Costs per Unit, Nicollet County

Yield	Oats			Husked Corn			Flax		
	Cost per acre	Bu. per acre	Cost per bu.	Cost per acre	Bu. per acre	Cost per bu.	Cost per acre	Ft. per acre	Cost per bu.
Lowest third	\$15.40	24.2	\$.64	\$16.95	44.4	\$.38	\$16.09	3.5	\$4.60
Middle third	15.31	35.6	.43	17.41	56.2	.31	16.17	7.1	2.28
Highest third	17.29	47.8	.36	18.67	67.1	.28	17.33	11.1	1.56

The efficiency with which the crop operations are performed is one factor influencing the cost of producing crops. The amounts of labor and power used per acre for the principal crop operations are presented in Table 19. An individual farmer can compare the time he spends per acre with the data in this table in order to check his efficiency.

Table 19. Amount of Labor and Power Used per Acre for Crop Operations, Nicollet County

Operations	No. of farms			Avg. 3 yrs.	Average			Range 1943
	1941	1942	1943		1941	1942	1943	
<u>Seedbed Preparation:</u>								
Flowing: man hrs. with medium tractor*	13	13	12	1.32	1.28	1.35	1.32	1.11 - 1.50
Disking: (single)								
Man hrs. with medium tractor	13	13	10	.43	.46	.47	.37	.17 - .73
Man hrs. with 4 horses	7	7	3	.73	.70	.71	.77	.36 - 1.00
<u>Springtoothing:</u>								
Man hrs. with medium tractor	10	8	10	.53	.56	.62	.42	.16 - .64
<u>Harrowing:</u>								
Man hrs. with medium tractor	12	14	13	.23	.26	.19	.23	.15 - .37
Man hrs. with 4 horses	12	13	6	.36	.40	.37	.32	.24 - .39
<u>Seeding and Planting:</u>								
Drilling grain:								
Man hrs. with medium tractor	5	6	8	.45	.46	.41	.47	.26 - .77
Man hrs. with 4 horses	11	16	7	.59	.62	.56	.59	.40 - .69
Planting corn with 2 horses	21	24	19	.79	.82	.80	.77	.49 - 1.23
<u>Cultivating:</u>								
Corn with medium tractor	12	13	9	.54	.49	.57	.56	.46 - 1.07
<u>Harvesting Hay:</u>								
Mowing, man hrs. with 2 horses	19	24	21	1.05	1.04	1.05	1.07	.64 - 1.93
Raking, (side delivery) man hrs. with 2 horses	21	24	20	.68	.66	.72	.66	.33 - 1.12
<u>Stacking by hand:</u>								
Man hrs.	10	13	10	2.65	3.04	2.26	2.66	1.22 - 6.44
Horse hrs.	10	13	10	2.57	3.18	2.21	2.31	.70 - 4.36
Tractor hrs.	10	13	10	.21	.23	.13	.26	.17 - .64
<u>Hauling hay:</u>								
Man hrs.	20	26	20	2.44	2.34	2.72	2.27	.40 - 3.33
Horse hrs.	20	26	20	2.31	2.47	2.80	1.67	.79 - 4.79
Tractor hrs.	20	26	20	.32	.29	.20	.47	.34 - 2.26
<u>Harvesting Grain:</u>								
Cutting grain with medium tractor								
Man hrs.	10	13	10	1.15	1.19	1.16	1.11	.48 - 1.75
Tractor hrs.	10	13	10	.64	.63	.60	.69	.36 - 1.45
Cutting flax with medium tractor								
Man hrs.	7	7	8	1.42	1.46	1.37	1.42	.56 - 2.60
Tractor hrs.	7	7	8	.80	.72	.74	.95	.36 - 2.60

Table 19. Amount of Labor and Power Used per Acre for Crop Operations, Nicollet County (Cont.)

Operations	No. of farms			Avg. 3 yrs.	Average			Range 1943
	1941	1942	1943		1941	1942	1943	
<u>Harvesting Grain:</u>								
Shocking grain, man hrs.	21	21	23	1.10	1.02	1.22	1.05	.49 - 1.67
Shocking flax, man hrs.	6	8	6	1.27	1.60	.86	1.36	.71 - 1.88
<u>Threshing:</u>								
Oats, barley and mixtures								
Man hrs.	23	25	22	3.05	3.33	3.08	2.74	1.33 - 6.82
Horse hrs.	23	25	22	4.17	5.07	3.95	3.48	1.12 - 6.85
Wheat								
Man hrs.	14	14	9	3.37	3.38	3.76	2.98	1.78 - 6.16
Horse hrs.	14	14	9	4.48	5.42	4.58	3.44	1.33 - 7.09
Flax								
Man hrs.	15	17	17	3.52	4.30	3.67	2.59	1.05 - 6.58
Horse hrs.	15	17	17	5.05	6.67	4.46	4.02	.83 - 10.04
<u>Harvesting Corn:</u>								
Cutting corn with medium tractor								
Man hrs.	7	5	7	2.08	2.40	2.33	1.50	.67 - 2.81
Tractor hrs.	7	5	7	1.39	1.55	1.58	1.03	.67 - 1.42
Cutting corn with 3 horses								
Man hrs.	10	7	4	1.61	1.58	1.19	2.06	1.04 - 3.61
Shocking corn, man hrs.	6	9	13	3.19	3.04	3.21	3.31	.71 - 7.50
Filling silo with filler								
Man hrs.	18	22	18	9.27	10.76	9.08	7.98	4.73 - 15.38
Horse hrs.	18	22	18	10.95	14.76	10.15	7.95	1.95 - 13.33
Tractor hrs.	18	22	18	1.74	1.76	1.74	1.73	.64 - 4.94
Husking corn by hand								
Man hrs.	7	8	8	6.95	7.46	7.51	5.87	1.05 - 8.71
Horse hrs.	7	8	8	10.82	12.93	12.19	7.35	2.10 - 14.05
Husking corn by machine with medium tractor								
Man hrs.	6	10	9	4.13	4.48	4.58	3.33	1.89 - 7.65
Horse hrs.	6	10	9	3.45	4.70	3.33	2.31	1.85 - 8.92
Tractor hrs.	6	10	9	1.57	1.45	1.84	1.41	.61 - 2.48

* Drawbar horsepower 12.00 to 18.50 (see discussion on page 28).

Livestock Summaries

The number of livestock on the farms included in this study is summarized in Table 20. Dairy cattle and hogs were the principal classes of livestock. All farmers kept some chickens. Only a few farmers kept beef cattle or sheep.

Table 20. Summary of Amount of Livestock, Nicollet County

Items	1941 Avg. of 5 years	1942 Avg. of 26 farms	1943 Avg. of 27 farms	1944 Avg. of 24 farms	1945 Avg. of 7 farms
Head of dairy and dual pur. cows	15.9	14.9	14.8	15.0	16.7
Head of other dairy & dual pur.	19.2	17.0	17.0	19.1	22.7
Pounds of feeder cattle produced	832	1700	1289	330	0
Litters of pigs	13	16	20	20	13
Pounds of hogs produced	27652	23849	29473	27726	26841
Head of sheep (2 lambs =1 head)	1.8	3.4	2.1	2.3	1.3
Number of hens	236	208	224	270	240
Total number of productive livestock animal units	43.1	40.7	43.0	43.9	42.8
					44.9

Summaries of the costs and returns for each class of livestock are presented in Tables 21 thru 26. Data on the quantities of labor, feed, etc. used in livestock production are included.

The man and horse 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. Man labor was figured at 25 cents per hour in 1941, 30 cents in 1942, 40 cents in 1943, 45 cents in 1944, and 50 cents in 1945, and horse work at cost for each farm. Commercial feeds were valued at cost and farm raised feeds at average local prices. 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; it includes a charge for the use of the auto, truck, and tractor 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, horseshoeing, and sheep shearing. The manure credit was calculated on the basis of the kind and the amount of feed consumed and the proportion of the fertilizing elements returned in the manure. Credit was allowed for manure produced even if it was not 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. Transfers from one group to another were considered the same as purchases and sales. Butterfat produced was the sum of sales, used in the home, and fed.

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 rates at which the different factors have been charged. There may be no other more profitable alternative use for the buildings, much of the labor, or for the nonmarketable feed. A return above the price of the marketable feeds and cash expenses may justify continued production for a time even though these figures fail to show a gain.

Table 21. Costs and Returns per Dairy Cow, Nicollet County

	Avg. of 5 years	1941 26 farms	1942 27 farms	1943 24 farms	1944 9 farms	1945 7 farms
Number of cows per farm	15.9	14.8	14.8	15.0	16.7	18.3
Butterfat per cow, lbs.	239	253	244	228	217	251
Man labor, hrs.	135	148	138	141	127	119
Horse work, hrs.	3	3	4	3	2	1
COSTS:						
Feed	\$74.56	\$50.77	\$58.24	\$80.57	\$87.74	\$95.49
Man labor	50.26	37.06	41.45	56.50	56.97	59.30
Horse work	.51	.43	.54	.74	.58	.27
Shelter	6.93	7.37	7.22	7.15	6.93	5.99
Equipment	5.11	3.86	4.34	5.44	5.78	6.14
Interest	3.80	3.68	3.89	3.91	3.90	3.59
Miscellaneous cash	3.48	2.63	2.83	3.39	4.70	3.78
Depreciation*	26.48	2.24	7.80	8.12	2.94	11.28
Total Costs	\$138.17	\$103.63	\$110.71	\$149.58	\$163.66	\$163.28
Manure credit	5.22	4.97	5.28	5.60	4.92	5.31
NET COST	\$132.95	\$98.66	\$105.43	\$143.98	\$158.74	\$157.97
Value of Dairy Products:						
Sold	\$122.04	\$87.43	\$99.70	\$114.47	\$121.91	\$186.69
Used in the house	6.37	4.92	5.80	7.60	7.43	6.10
Fed to livestock	18.20	17.86	18.52	19.25	23.66	11.74
Total Product	\$146.61	\$110.21	\$124.02	\$141.32	\$153.00	\$204.53
Return over all costs	\$ 13.66	\$ 11.55	\$ 18.59	\$- 2.66	\$ 5.74	\$ 46.56
Return over feed costs	78.53	61.68	73.58	68.87	68.20	120.31
Return per hour	.49	.33	.43	.38	.40	.89
Price rec'd per lb. of butterfat	.569	.384	.454	.554	.656	.796
Cost per lb. of butterfat	.56	.39	.43	.63	.73	.63
FEEDS:						
Corn, lbs.	1090	880	911	987	1003	1672
Small grain, lbs.	867	1323	966	966	538	540
Com. feeds, under 25% protein	122	116	97	112	128	159
Com. feeds, over 25% protein	112	82	84	96	124	170
Legume hay, lbs.	3546	3391	3955	4021	3298	3063
Other hay, lbs.	850	498	406	570	1412	1365
Fodder and stover, lbs.	425	337	286	549	568	384
Total Concentrates, lbs.	2191	2401	2058	2161	1793	2541
Total Dry Roughages, lbs.	4821	4226	4647	5140	5273	4812
Silage, lbs.	6598	5666	6194	7953	6175	7000
Total digestible nutrients, lbs.	5189	4870	4976	5535	5016	5547
T.D.N. per lb. of butterfat	22.2	19.3	20.4	25.5	23.6	22.3
% Protein in the ration	13.6	14.1	14.3	13.8	13.1	12.7
Days of pasture	149	150	145	164	160	137
Per cent of fall freshening	59	65	67	58	58	45

* A Minus (-) represents an increase in value.

Table 22. Costs and Returns per Head of Other Dairy Cattle*, Nicollet County

	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>
Avg. of 5 years	26 farms	27 farms	24 farms	9 farms	7 farms
Number of head per farm	19.3	17.0	17.4	19.1	22.7
Man labor, hrs.	28	33	31	31	24
Horse work, hrs.	2	2	2	2	1
COSTS:					
Feed	\$39.80	\$29.82	\$31.46	\$39.39	\$44.63
Man labor	10.50	8.20	9.58	12.24	11.02
Horse work	.35	.25	.27	.55	.50
Shelter	3.87	4.04	4.34	3.78	3.32
Equipment	.40	.40	.14	.31	.52
Interest	1.97	1.76	2.03	2.07	2.00
Miscellaneous cash	.67	.93	.44	.90	.43
Total costs	\$57.56	\$45.40	\$48.26	\$59.24	\$62.42
Manure credit	2.35	2.47	2.51	2.43	1.86
NET COST	\$55.21	\$42.93	\$45.75	\$56.81	\$60.56
Net increase in value	\$40.90	\$37.56	\$43.13	\$42.82	\$33.27
Return over all costs	-14.31	-5.37	-2.62	-13.99	-27.29
Return over feed cost	1.10	7.74	11.67	3.43	-11.36
Return per hour	none	.09	.22	none	none
FEEDS:					
Corn, lbs.	397	273	229	355	379
Small grain, lbs.	320	375	310	363	259
Com. feeds - under 25% protein	15	18	23	20	7
Com. feeds - over 25% protein	22	6	7	14	22
Legume hay, lbs.	1153	1525	1553	1427	424
Other hay, lbs.	962	505	700	728	1322
Fodder and stover, lbs.	323	295	370	238	363
Total Concentrates, lbs.	754	672	569	752	667
Total Dry Roughages, lbs.	2438	2325	2623	2393	2109
Silage, lbs.	2658	2696	2788	2440	2412
Whole milk, lbs.	364	449	356	205	434
Skim milk, lbs.	1452	2021	1775	1708	1158
Days on pasture	112	106	118	108	130
Pounds of B.F. per cow	239	253	244	228	217
					251

*Including herd bulls.

Table 23. Costs and Returns per Cow for All Dairy Cattle, Nicollet County

	Avg. of 5 years	26 farms	27 farms	24 farms	9 farms	7 farms	1941	1942	1943	1944	1945
Number of cows	15.9	14.9	14.8	15.0	16.7	16.3					
Total Animal Units of Cattle	26.0	23.8	23.9	24.9	28.4	28.3					
Butterfat per cow, lbs.	239	253	244	228	217	251					
Man labor, hrs.	168	184	176	178	158	146					
Horse work, hrs.	5	6	5	6	4	2					
COSTS:											
Feed*	\$108.92	\$72.34	\$63.51	\$116.19	\$127.45	\$143.10					
Man labor	62.73	46.11	52.39	71.14	71.32	72.95					
Horse work	.94	.69	.86	1.41	1.21	.53					
Shelter	11.55	11.94	12.29	11.96	11.30	10.28					
Equipment	5.60	4.30	4.50	5.83	6.54	6.81					
Interest	6.19	5.72	6.29	6.62	6.51	5.81					
Miscellaneous cash	4.12	3.60	3.35	4.47	4.46	4.53					
Total Costs	\$200.10	\$144.90	\$163.19	\$219.62	\$228.79	\$244.01					
Manure credit	8.00	7.71	8.20	8.62	7.36	8.10					
NET COSTS	\$192.10	\$137.19	\$154.99	\$211.00	\$221.43	\$235.91					
Value of dairy products*	\$134.20	\$ 98.57	\$113.18	\$130.14	\$135.73	\$193.40					
Net increase in val. of cattle	53.40	44.35	57.49	60.22	44.47	60.47					
Total value produced	\$187.60	\$142.92	\$170.67	\$190.36	\$180.20	\$253.87					
Return over all costs	\$ -4.50	\$ 5.73	\$ 15.68	\$-20.64	\$-41.23	\$ 17.96					
Return over feed costs	78.63	70.58	87.16	72.17	52.75	110.77					
Return per hour	.35	.23	.38	.30	.19	.62					
FEEDS:											
Corn, lbs.	1560	1194	1190	1430	1446	2536					
Small grain, lbs.	1233	1750	1333	1402	1124	832					
Com. feeds-under 25% prot.	139	137	118	136	138	164					
Com. feeds-over 25% prot.	138	69	95	117	156	236					
Legume hay, lbs.	4880	5066	5741	5761	3822	4009					
Other hay, lbs.	2072	1122	1256	1524	3270	3188					
Fodder and stover, lbs.	807	648	700	802	1087	797					
Total concentrates, lbs.	3125	3170	2736	3035	2866	3768					
Total dry roughage, lbs.	7759	6836	7697	8087	8179	7994					
Silage, lbs.		5710	9566	11125	9391	10581					
Whole milk, lbs.**	391	478	374	249	.504	349					
Skim milk, lbs.**	1634	2195	1957	2058	1417	544					
Days on pasture	273	270	263	320	301	210					

*Does not include value of milk fed to young cattle.

**All milk fed to young cattle.

Cost of Keeping a Bull

Interest in artificial insemination has been developing rapidly in Minnesota. The cost of keeping a bull compared with the cost of obtaining the services for artificial insemination is one of the factors considered by farmers before changing the method of breeding. The data obtained in this study together with data from a similar study conducted in Winona County during the six-year period 1935 - 1940 provides information on the cost of keeping a bull. These data are presented in Table 24. The sale price of the bulls was approximately equal to the original cost. There was, therefore, no appreciation or depreciation.

Table 24. Cost per Farm for Keeping a Bull

	Nicollet Co. Avg. 1941-45	Winona Co. 1935-40
Number of farms per year	14	21
Number of bulls per farm	1.0	1.0
Man hours	87	62
Horse hours	4.1	2.4
COSTS:		
Food	\$58.46	\$34.49
Man labor	32.17	15.50
Horse work	.71	.23
Shelter	12.57	16.68
Equipment	.88	.36
Interest	5.67	4.26
Miscellaneous cash	1.41	.70
Total cost	\$111.57	\$72.22
Manure credit	4.28	3.30
Net cost	\$107.59	\$68.92
Number of cows in herd	17.1	20.0
Number of cows served*	20.5	24.0
Cost per cow in herd	\$6.29	\$3.45
Cost per cow served	5.25	2.87
FEEDS:		
Corn, lbs.	730	202
Small grains, lbs.	748	1095
Commercial feeds, lbs.	62	53
Legume hay, lbs.	2970	3238
Other hay, lbs.	2085	1039
Fodder and stover, lbs.	403	309
Total concentrates, lbs.	1590	1356
Total dry roughage, lbs.	5453	4636
Silage, lbs.	3394	3263
Days on pasture	51	53

* The number of cows served is higher than the average number of cows kept in the herd. Deaths, sales, and heifers freshening account for the difference.

Table 25. Costs and Returns per 100 Pounds Hogs Produced, Nicollet County

	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>
Avg. of 5 years	26 farms	27 farms	24 farms	9 farms	7 farms
Pounds produced per farm	27630	23849	29473	27726	26730
Man labor, hrs.	2.6	2.6	2.2	3.1	2.7
Horse work, hrs.	.1	.1	.1	.1	.1
COSTS:					
Feeds	\$8.95	\$5.72	\$7.46	\$10.86	\$10.79
Man labor	1.01	.67	.65	1.24	1.20
Horse work	.02	.02	.02	.03	.03
Shelter	.13	.07	.09	.11	.27
Equipment	.16	.11	.10	.20	.17
Interest	.31	.18	.28	.36	.36
Miscellaneous cash	.22	.19	.25	.24	.24
Total Cost	\$10.80	\$6.96	\$8.85	\$13.04	\$13.06
Manure credit	.39	.38	.37	.43	.40
NET COST	\$10.41	\$6.58	\$8.48	\$12.61	\$12.66
Value produced	\$13.17	\$10.60	\$14.51	\$13.18	\$13.66
Return over all costs	2.76	4.02	6.03	.57	1.00
Return over feed costs	4.22	4.38	7.05	2.32	2.37
Return per hour	1.52	1.80	3.04	.58	.82
Aver. selling price per cwt.	12.65	9.18	13.16	13.82	12.88
Aver. wt. of hogs sold	270	266	257	255	265
No. of spring litters raised	11	10	13	14	9
No. of fall litters raised	6	6	7	6	4
No. of pigs born per litter	7.2	8.3	7.7	7.2	6.7
No. of pigs weaned per litter	5.6	5.9	5.9	5.6	6.0
FEEDS:					
Corn, lbs.	411	345	365	450	453
Small grain, lbs.	104	164	123	106	59
Com. feeds, under 25%	9	6	9	11	5
Com. feeds, over 25%	23	12	17	24	28
Total Concentrates	547	527	519	591	543
Skin milk, lbs.	146	194	177	186	144
Days on pasture	21	17	27	27	15

Table 26. Costs and Returns per Hen* Nicollet County

	<u>Avg.</u> <u>of 5 years</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>
		<u>24 farms</u>	<u>25 farms</u>	<u>22 farms</u>	<u>8 farms</u>	<u>6 farms</u>
Number of hens	267	225	242	295	293	279
Eggs produced	136	124	139	143	123	148
Pounds meat produced	5.7	7.4	5.3	5.3	5.2	5.0
Man hours	2.2	2.8	2.2	2.1	2.0	1.8
Horse hours	.1	.1	.1	.1	.1	-
COSTS:						
Feed	\$2.50	\$1.71	\$2.00	\$2.64	\$2.90	\$3.25
Man labor	.79	.69	.65	.84	.89	.90
Horse work	.02	.01	.01	.02	.03	.01
Shelter	.11	.14	.12	.10	.10	.09
Equipment	.17	.14	.17	.19	.19	.15
Interest	.04	.04	.04	.04	.04	.05
Misc. cash	.15	.12	.12	.16	.10	.23
Total Cost	\$3.78	\$2.35	\$3.11	\$3.99	\$4.25	\$4.63
Manure credit	.09	.09	.09	.09	.09	.10
Net Cost	\$3.69	\$2.76	\$3.02	\$3.90	\$4.16	\$4.53
Value of Product:						
Eggs sold & used in house	\$3.44	\$2.17	\$3.28	\$4.14	\$3.21	\$4.40
Net incr. in value of poultry	.84	.64	.72	.79	.76	1.28
Total Product	\$4.28	\$2.81	\$4.00	\$4.93	\$3.97	\$5.68
Return over all costs	\$1.59	\$1.05	\$1.93	\$1.03	\$1.19	\$1.10
Return over feed costs	1.78	1.10	2.00	2.29	1.07	2.43
Return per hour	.68	.27	.75	.89	.40	1.11
Price rec'd. per doz. eggs	\$.299	.211	.281	.344	.299	.360
Cost per dozen eggs	.26	.21	.21	.28	.32	.29
% of hens that were pullets	77	73	77	80	80	77
% death loss of hens	20	23	20	20	18	19
FEED:						
Corn, lbs.	31	39	23	29	25	35
Small grain, lbs.	58	62	57	65	51	57
Com. feeds, lbs.	29	23	25	26	33	37
Total concentrates	118	124	110	120	109	129
Skim milk	14	26	13	13	17	0

*Includes costs and returns for the roosters and chicks.

Power, Machinery and Labor Summaries

Table 27. Cost per Head for Work Horses, Nicollet County

	Avg. of 5 years	1941 24 farms	1942 25 farms	1943 22 farms	1944 8 farms	1945 6 farms
Number of work horses	3.4	3.9	4.0	3.8	3.1	2.4
Grain, lbs.	1795	2417	2187	1922	1424	1024
Roughage, lbs.	5739	5896	6006	6304	5294	5195
Pasture days	104	100	92	116	116	98
Man hours	70	70	68	64	61	66
Costs:						
Feed	\$47.56	\$39.56	\$43.95	\$58.50	\$53.04	\$42.77
Man labor	23.66	17.64	20.35	25.66	27.45	27.20
Shelter	7.19	6.91	7.34	6.32	7.42	7.96
Equipment	4.67	4.76	4.59	4.65	4.01	5.32
Interest	3.58	3.98	3.71	4.18	3.22	2.80
Miscellaneous cash	1.14	1.88	.74	2.05	.67	.36
Depreciation	13.57	14.27	8.00	14.75	11.30	19.52
Total cost	\$101.37	\$89.00	\$63.68	\$116.11	\$107.11	\$105.93
Manure credit	3.29	3.77	3.68	3.71	2.80	2.49
Net Cost	\$ 98.08	\$65.23	\$85.00	\$112.40	\$104.31	\$103.44
HOURS WORKED	474	610	533	437	412	377
COST PER HOUR	21¢	14¢	16¢	26¢	25¢	27¢
Acres tillable land per farm	166	165	175	171	167	153
Hours tractor use per farm	793	618	715	743	536	107 ¹

Table 28. Costs and Returns for Horses Other Than Work Horses, Nicollet County

	Avg. of 3 years	1941 14 farms	1942 14 farms	1943 12 farms
Number of misc. horses	2.2	2.1	2.7	1.9
Grain, lbs.	563	667	609	413
Roughage, lbs.	3310	3439	3697	2794
Skin milk, lbs.	110	333	-	-
Pasture days	147	178	132	131
Man hours	32	41	26	29
Horse hours	3	4	3	2
Costs:				
Feed	\$13.12	\$16.96	\$19.35	\$18.04
Man labor	9.91	10.15	7.83	11.75
Horse work	.43	.40	.37	.53
Shelter	3.88	6.17	1.38	4.09
Equipment	.04	.04	-	.09
Interest	2.35	2.79	2.81	2.97
Misc. cash	.56	.69	.49	.49
Total cost	\$35.79	\$37.20	\$32.23	\$37.96
Manure credit	1.53	1.65	1.70	1.25
Net Cost	\$34.26	\$35.55	\$30.53	\$36.71
INCREASE IN VALUE	\$12.54	\$21.48	\$13.64	\$ 2.50
RETURN OVER COST	\$-21.72	\$-14.67	\$-16.98	\$-24.21

Table 29. Cost per Hour for Tractor Operation, Nicollet County

Drawbar horsepower*	Avg. Small (5.50-11.99 HP) of 3 years				Avg. Medium (12.00-18.49 HP) of 5 years			
	1941	1942	1943	1944	1941	1942	1943	1944
Number of tractors	4	6	3	3	13	16	17	16
Average drawbar hse. power*	10.2	10.3	10.1	10.2	15.9	16.3	16.0	15.9
Labor, hours (servicing)**	.2	.2	.2	.1	.2	.2	.2	.2
Fuel, gallons**	13.1	13.7	12.6	13.0	16.9	17.1	16.1	18.1
Oil, quarts**	1.3	1.0	2.1	.8	1.7	1.5	1.6	2.1
Costs per hour:								
Fuel	\$.15	\$.15	\$.15	\$.14	\$.21	\$.20	\$.21	\$.22
Oil and lubricants	.02	.02	.04	.02	.03	.03	.03	.04
Labor (servicing)	.01	.01	.01	.01	.01	.01	.01	—
Horses, auto, truck	—	.00	.01	.00	.00	.00	.00	.00
Other cash expense	.05	.05	.04	.07	.05	.02	.03	.08
Depreciation	.05	.03	.06	.16	.12	.10	.12	.12
Interest	.05	.04	.04	.05	.05	.05	.05	.04
Total Cost.	\$.37	\$.30	\$.35	\$.45	\$.47	\$.41	\$.45	\$.46
Hours worked, total	439	460	497	361	650	654	673	611
Drawbar:								
Seedbed preparation	175	183	215	129	226	264	251	236
Seeding and planting	3	17	4	2	22	20	18	10
Cultivating	52	42	37	76	91	73	87	82
Harvesting	99	121	88	89	135	122	152	119
Hauling manure	38	34	53	27	34	29	19	32
Miscellaneous	44	13	90	28	39	30	26	53
Total drawbar	516	410	487	351	547	533	553	512
Belt:								
Threshing, shredding, filling silo	14	24	10	10	62	66	75	64
Grinding feed and shelling corn	7	21	—	—	27	38	35	25
Miscellaneous	2	5	—	—	14	12	10	10
Total belt	23	50	10	10	103	116	120	99
Range in cost per hour from to	.18	.21	.22	—	\$.22	\$.25	\$.26	\$.25
Range in hours worked from to	204	245	160	—	.56	.60	1.05	.56
	766	764	602	—	278	224	222	359
				1008	1000	978	885	86

*According to Nebraska tractor tests

**Per 10 hours of operation

Table 29. Cost per Hour for Tractor Operation, Nicollet County, continued.

Drawbar horsepower*	Avg. of 5 years	Large (18:50 - higher H.P.)				
		1941	1942	1943	1944	1945
Number of tractors	8	.5	11	12	5	5
Average drawbar hse.power*	22.1	24.1	22.0	21.8	21.4	21.2
Labor, hours (servicing)**	.3	.3	.3	.2	.2	.3
Fuel, gallons**	17.5	18.3	18.2	17.7	15.7	17.5
Oil, quarts**	1.4	1.4	1.5	1.3	1.4	1.2
Costs per hour:						
Fuel	\$.21	\$.22	\$.20	\$.21	\$.19	\$.21
Oil and lubricants	.02	.02	.02	.02	.02	.03
Labor (servicing)	.01	.01	.01	.01	.01	.02
Horses, auto, truck	.00	.00	.00	.00	.00	.00
Other cash expense	.04	.02	.04	.04	.05	.07
Depreciation	.15	.16	.15	.15	.10	.18
Interest	.05	.06	.06	.05	.03	.04
Total Cost	\$.48	\$.49	\$.48	\$.48	\$.40	\$.55
Hours worked, total	671	621	598	587	844	707
Drawbar:						
Seedbed preparation	247	258	235	222	288	231
Seeding and planting	21	20	18	18	31	18
Cultivating	70	59	74	60	39	70
Harvesting	152	160	132	141	201	126
Hauling manure	31	20	24	27	43	39
Miscellaneous	.65	.18	.19	.39	145	106
Total drawbar	586	535	502	507	797	590
Belt:						
Threshing, shredding, filling silo	.55	.53	69	57	20	75
Grinding feed and shelling corn	23	24	18	15	22	39
Miscellaneous	.7	.9	.9	.8	.5	.3
Total belt	.85	.86	.96	.80	.47	.117
Range in cost per hour from	\$.33	\$.37	\$.33	\$.38	\$.30	\$.27
to	\$.57	\$.58	\$.74	\$.71	\$.52	\$.82
Range in hours worked from	495	503	342	422	785	421
to	872	608	804	964	975	1010

*According to Nebraska tractor tests

**Per 10 hours of operation

Table 30. Cost of Operating Automobiles, Nicollet County

	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>
Avg. of 5 years	28 autos	32 autos	27 autos	10 autos	8 autos
Miles driven per automobile	7484	9809*	8304*	6163*	5844*
Miles per gallon of gas	15.2	14.3	15.2	14.6	16.4
Quarts of oil per mile	.008	.006	.006	.006	.016
Costs per mile:					
Gas	1.2¢	1.3¢	1.2¢	1.3¢	1.1¢
Oil & lubricants	.2	.1	.1	.2	.1
Cash expense	1.5	1.2	1.0	1.6	2.1
Labor (servicing)	—	—	—	—	.1
Depreciation	1.0	.6	1.0	1.2	1.3
Interest	.3	.3	.3	.4	.4
TOTAL COST	4.2¢	3.5¢	3.6¢	4.7¢	5.3¢
					4.0¢

*Average miles driven per farm was 10985 in 1941, 9842 in 1942, 6934 in 1943, 6493 in 1944, and 8340 in 1945. There were two cars on each of three farms in 1941 and 1943, on each of five farms in 1942 and on 1 farm in 1944 and 1945.

Table 31. Cost of Operating Trucks, Nicollet County

	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>	<u>1945</u>
Avg. of 5 years	9 trucks	15 trucks	11 trucks	6 trucks	5 trucks
Miles driven per truck	3640	4600*	3278*	3617*	2566*
Miles per gallon of gas	10.6	10.9	11.0	10.5	9.8
Quarts of oil per mile	.014	.009	.009	.009	.016
Costs per mile:					
Gas	1.8¢	1.7¢	1.6¢	1.7¢	1.9¢
Oil & lubricants	.3	.1	.2	.2	.3
Cash expense	3.1	2.1	2.3	4.8	3.7
Labor (servicing)	.2	.1	.3	.1	.4
Depreciation	1.1	1.0	.7	1.2	1.1
Interest	.5	.5	.7	.4	.4
TOTAL COST	7.0¢	5.5¢	5.8¢	8.4¢	7.8¢
					7.3¢

*Average miles driven per farm was 5176 in 1941, 3512 in 1942, 3979 in 1943, 3079 in 1944, and 5174 in 1945. There were two trucks on one farm in each of the five years.

The costs and returns for colts and other horses is presented in Table 28. On the basis of the cost of \$35.55 per colt (not including breeding fees) in 1941, \$30.53 in 1942, and \$36.71 in 1943, the cost of raising a colt to working age of three years would be about one hundred dollars. The cost was higher than the farmers' estimate of the increase in value of the colts.

The cost per hour of tractor use is presented in Table 29. The tractors are classified into three groups according to drawbar horsepower. The small tractors can be rated as one plow or small two plow tractors, the medium as two plow, and the large as three plow.

The cost of operating automobiles and trucks are presented in Tables 30 and 31. All driving, farm and personal, is included in this summary.

Crop machinery costs per farm and per acre of cropland were:

	1941	1942	1943	1944	1945
Depreciation	\$110	\$139	\$129	\$177	\$234
Purchased parts and repairs	59	79	103	86	104
Servicing & repairs with farmer's labor & equipment	28	29	45	66	72
Shelter	13	21	20	22	33
Interest	67	73	71	87	103
Total cost per farm	\$277	\$341	\$368	\$438	\$546
Cost per acre of cropland	\$1.85	\$2.17	\$2.35	\$2.63	\$3.22

These costs are equal to 20 per cent of the average investment in machinery in 1941, 23 per cent in 1942, 25 per cent in 1943, 25 per cent in 1944, and 26 per cent in 1945.

The utilization and source of the man labor on these farms are presented in Table 32. More than one-half of the labor was spent on livestock. Work on crops took less than half as much time as work on livestock. The work of the operator was the largest single source of labor on these farms. The amount of labor hired was largest on the most profitable farms because they were the larger farms.

Table 32. Utilization and Source of Man Labor, Nicollet County

Item:	Avg. of 5 years					
	1941	1942	1943	1944	1945	
Utilization:						
Buildings and fences	365	379	269	297	341	538
Machinery and equipment	137	122	118	124	164	160
Truck, tractor and auto	35	29	28	27	41	49
General farm overhead	197	135	161	176	230	284
Wood	121	160	141	135	120	50
Household and personal	48	46	37	51	52	52
Total miscellaneous labor	903	871	754	810	948	1133
Horses	222	289	289	241	177	114
Dairy cows	2021	2048	1920	2066	1988	2084
All other cattle	578	608	610	602	530	541
Sheep	12	12	18	17	11	-
Hogs	585	536	554	698	555	582
Poultry	463	485	452	567	431	381
Grinding and mixing feed	80	84	69	68	56	122
Total livestock labor	3961	4062	3912	4259	3748	3824
Total crop labor	1800	1850	1925	1704	1812	1706
Total labor on farm	6664	6783	6591	6773	6508	6663
Labor off farm: paid	55	85	91	40	32	27
exchange & gratis	240	228	250	231	261	230
Total labor off farm	295	313	341	271	293	257
Total all labor	6959	7096	6932	7044	6801	6920
Sources:						
Operator's labor	3263	2968	3112	3332	3333	3569
Other family labor	1951	2106	1998	1487	1867	2297
Hired labor	1523	1781	1572	2007	1404	853
Exchange labor received	222	241	250	218	197	201

Table 33. Seasonal Distribution of Man Labor by Source, Nicollet County

Month	Total labor					Hours per farm					Other family labor				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
Jan.	494	509	494	555	464	231	242	251	246	218	148	150	94	143	161
Feb.	445	445	470	463	430	203	219	247	223	231	136	132	91	131	141
March	528	510	551	510	554	245	243	283	269	302	153	148	107	143	180
April	583	562	613	557	577	259	274	306	291	310	176	168	131	138	196
May	643	572	610	625	529	282	268	301	322	338	210	174	140	166	211
June	606	583	614	624	589	254	249	280	304	294	190	174	129	176	196
July	772	689	685	590	667	235	271	301	298	323	222	208	150	188	220
Aug.	762	837	744	619	778	265	273	298	286	326	207	219	144	166	247
Sept.	633	548	665	580	578	250	246	279	262	313	185	153	147	159	186
Oct.	554	610	640	633	643	251	288	298	296	325	174	161	144	168	205
Nov.	550	569	484	579	537	226	234	244	287	298	158	164	110	163	200
Dec.	526	498	474	466	474	217	245	244	249	281	147	147	100	126	154
Total	7096	6932	7044	6801	6920	2968	3112	3332	3333	3569	2106	1998	1487	1867	2297

Month	Hired labor					Exchange labor received				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
Jan.	114	113	146	165	79	1	4	3	1	6
Feb.	102	92	130	109	58	4	2	2	-	-
March	126	114	160	95	69	4	1	3	3	3
April	143	118	172	116	55	5	2	4	12	16
May	148	128	167	110	71	3	2	2	27	9
June	157	154	201	133	97	5	6	4	11	2
July	207	188	217	99	117	58	22	17	5	2
Aug.	190	189	216	120	129	100	151	86	47	76
Sept.	155	122	166	119	55	43	27	73	40	19
Oct.	118	137	178	136	60	11	24	20	33	53
Nov.	164	112	125	111	128	2	9	5	18	11
Dec.	157	105	129	91	35	5	1	1	-	4
Total	1781	1572	2007	1404	853	241	250	213	197	201

Hours of work per day operator's only

Month	Work day					Sunday				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
Jan.	7.8	8.2	8.6	8.3	7.3	5.0	5.5	5.9	6.2	5.2
Feb.	7.7	8.2	9.2	8.0	8.7	5.0	5.5	6.2	5.8	5.8
March	8.4	8.4	9.6	9.1	10.3	5.4	5.4	6.3	6.0	5.9
April	9.2	9.6	10.9	10.4	11.2	5.2	5.3	5.9	6.0	6.2
May	9.7	9.5	10.6	10.9	11.7	4.8	4.5	5.3	7.0	5.7
June	9.4	9.3	10.1	10.9	10.4	4.1	4.3	4.9	5.2	5.6
July	10.0	9.8	10.5	10.7	11.4	4.2	4.2	5.0	5.0	6.2
Aug.	9.4	10.3	10.5	10.1	11.2	4.1	4.3	5.1	3.5	5.8
Sept.	9.1	8.8	10.1	9.5	11.4	3.8	4.2	4.8	3.5	6.2
Oct.	8.7	10.0	10.6	10.5	11.2	4.0	4.8	4.5	4.2	5.8
Nov.	8.2	10.3	8.6	10.2	10.4	4.6	5.4	5.2	5.5	6.6
Dec.	7.4	8.3	8.3	8.6	9.5	4.8	5.5	5.3	5.4	6.7
Average	8.8	9.2	9.8	9.8	10.4	4.6	4.9	5.4	5.2	6.0

Table 34. Seasonal Distribution of Man Labor by Enterprise, Nicollet County

Month	Total					Hours per farm					Crops				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
Jan.	494	509	494	555	464	402	383	416	412	373	43	39	33	45	34
Feb.	445	445	470	463	430	359	352	390	370	337	26	33	30	26	31
March	528	510	551	510	554	419	395	452	410	375	43	41	40	34	65
April	583	562	613	557	577	386	345	393	382	341	128	140	153	68	115
May	643	572	610	625	629	344	331	369	332	334	229	157	158	196	183
June	606	583	614	624	589	314	296	330	271	287	202	215	187	267	163
July	772	689	685	590	667	294	282	319	248	285	336	310	257	258	249
Aug.	762	837	744	619	773	284	263	309	237	278	330	267	272	238	308
Sept.	633	548	665	560	578	274	264	271	221	258	205	171	236	201	154
Oct.	554	610	640	633	643	289	291	284	249	263	164	225	237	255	246
Nov.	550	569	484	579	537	331	317	353	281	322	100	177	58	181	128
Dec.	525	498	474	466	474	366	388	373	335	371	44	50	38	43	30
Total	7096	6932	7044	6801	6920	4062	3912	4259	3748	3824	1850	1925	1704	1812	1706

Month	Miscellaneous					Work off farm					Exchange or gratis				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
Jan.	44	72	41	88	51	2	4	2	4	2	3	6	2	6	4
Feb.	53	55	43	59	56	4	2	3	4	3	3	3	4	4	3
March	58	66	49	60	100	6	5	4	2	4	2	3	6	4	10
April	60	70	54	23	113	3	4	3	3	1	6	3	5	11	7
May	60	75	72	62	100	5	5	5	1	2	4	4	6	34	10
June	74	60	89	71	125	9	4	4	2	2	7	8	4	13	12
July	78	72	85	67	121	12	6	4	1	2	52	19	20	16	10
Aug.	59	48	67	96	91	18	24	2	7	2	71	135	94	41	99
Sept.	95	78	95	105	136	3	5	3	3	4	54	30	60	50	26
Oct.	79	63	92	74	96	9	10	6	1	2	13	21	21	54	36
Nov.	106	41	66	94	77	10	19	1	2	2	3	15	6	21	8
Dec.	105	54	57	79	67	3	3	5	2	1	10	3	3	7	5
Total	871	754	810	948	1133	65	91	40	32	27	228	250	231	261	230

The seasonal distribution of the man labor by source is presented in Table 33. The number of hours worked per month was lowest in January and February and highest in July and August. The number of hours worked per month by the operators were larger during the summer than during the winter. Since the number of operators remained the same throughout the year, this represents longer days during the summer. The number of hours worked by other family workers was also largest during the summer when work days are longer and children are not in school. More labor is hired during the summer, altho a large number of these farmers hired help throughout the year.