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 1930 on the FARM ACCOUNTING ROUTE in ROCK & NOBLES COUNTIES - MINNESOTA

By

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Mimeographed Report No. 50
Division of Agricultural Economics
University Farm
St. Paul, Minn.
May 1931

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Source of Data

Method of Study

The Division of Farm Management and Agricultural Economics and of Animal Husbandry of the University of Minnesota are cooperating with the Bureau of Agricultural Economics of the United States Department of Agriculture in an accounting study of twenty-four farms in Rock and Nobles Counties in Southwestern Minnesota. This study was started March 1, 1929. The farms were selected in cooperation with the county agricultural agents in the respective counties, Mr. C. G. Gaylord in Rock County and Mr. C. J. Gilbert in Nobles County. Only farms in which some type of beef production is a major enterprise were chosen. The farmers cooperating in this work keep complete record of cash receipts and cash expenditures, a daily record of the labor used on each crop and each class of livestock, a record of the labor used on each crop and each class of livestock, a record of the farm produce used in the house and other detailed information regarding their business. These records are checked at least twice a month by the route man and supplemented with inventories, livestock feed records, reports of crop yields and practices and other significant facts about the farm operation. The data collected is sent to the central office at University Farm, St. Paul, where a detailed set of records for each farm is kept. From these records the costs presented in this report have been computed. The financial returns from these farms, the cost and income from livestock and crop production and other significant facts are presented for the year March 1, 1930 to February 28, 1931, together with the averages for 1929.

Description of Area

Rock and Nobles Counties are located in the southwestern corner of Minnesota. The soil in Rock County and the western edge of Nobles County is a wind-blown loess. This is one of the most fertile soil types in the state. The balance of Nobles County is covered with a glacial till, the prevailing soil type of the southern and central part of the state. This too is a production type well supplied with lime. According to the 1925 census, only four counties in the state had higher land values per acre than Rock and Nobles and in three of these the high land values were due largely to their nearness to the Twin Cities. Both counties are level to gently rolling with practically all land tillable. There

are some sections, especially in southern Nobles County that need drainage to insure regular cropping and in Rock County there are limited areas of rock out-crop. The annual rainfall averages between 26 and 28 inches and the average growing season is from 130 to 140 days. Beef cattle and hogs are the principal classes of livestock raised. Corn, oats, and barley are the principal grain crops. They are raised primarily for feed although there is a considerable surplus for sale on many farms. Alfalfa and wild hay are the principal roughages grown.

Description of Farms

The average size of the farms studied in 1929 was 323 acres and in 1930 it was 360 acres. This is approximately 55% and 72% larger, respectively, than the average size of the farms in these two counties as reported in the 1925 census. Corn, oats, barley, alfalfa, wild hay and flax are the principal crops grown. The distribution of the acreage in these farms as well as other facts about the organization of them is indicated on page 8. With the exception of the landlord's share of the crop, which is usually sold, practically all of the grain and hay produced is fed on the farm.

Only two of the farms studied were owned entirely by the operators. Ten farms were entirely rented and twelve were partly owned and partly rented. Only thirty-five per cent of the land operated was owned by the operator. Both share and cash rental leases were employed. More than one-half of all the farms in these counties are operated by tenants.

Financial returns

The average farm inventory for the farms studied in 1930 was approximately $44,800. The investment in productive livestock, including poultry, was over $5,000, (see page 10.) For the period March 1, 1930 to February 28, 1931, 40% of the cash receipts on these farms came from the sale of cattle, 5% from dairy products, 30% from hogs, 3% from sheep and wool and 3% from poultry, a total of 81% from livestock. The percentages for 1929 were, respectively, 35%, 7%, 32%, 3% and 4%, a total of 81%. About 13% of the cash receipts in 1930 and 15% in 1929 were from crops.

The total cash receipts for 1930 were approximately 13% lower than in 1929 whereas cash expenses were only 6% lower. However, when inventory changes and other non-cash items are included the earnings of the operator for his labor and management showed a decrease of approximately $2600.00.

The severe decline in prices together with lower crop yields due to the drouth were largely responsible for the lower earnings. The prices received by the farmers for the principal products sold are the following:

	1929	1930
Cattle, per cwt.	$11.50	$8.70
Hogs, per cwt.	9.53	7.81
Butterfat, per cwt.	.43	.35
Eggs, per doz.	.28	.20
Sheep, per cwt.	11.91	7.42
Wool, per cwt.	.28	.16
Flax, per bu.	2.74	1.73

Method of Computing and Presenting Livestock and Crop Data.

Comparative costs are presented for each of the important classes of livestock and crops raised. These data represent comparative costs and not absolute costs. They have been computed on an owner basis as though the operator owned all land, buildings, livestock and tools. In studying the tables and in considering the income from the different enterprises, one should keep in mind that these figures represent charges which are not all actual cash expenses. All man labor and horse work, interest on the investment, the use of the buildings and equipment, as well as feed have been charged to the livestock. All man labor and horse or tractor work, machinery and equipment and manure have been charged to the crops. Therefore a minus return means that the particular enterprise has failed to pay the prices charged for the different factors. There may be no other more profitable alternative use for some of these factors. A return above the price of marketable feeds and cash expenses may justify continued production although these comparative figures fail to show a gain.

Livestock

Comparative cost and returns for each of the different classes of livestock produced in 1930, together with the averages for 1929 are presented on pages 11 to 17 inclusive. In so far as possible local prices were used in determining the cost and returns. Marketable feeds were charged at local prices and non-marketable feeds on a comparative feeding value basis. Man labor was figured at 30 cents per hour. Horse work was charged to the individual farm at the rate determined for that farm. The shelter charge was based on the annual cost of the buildings housing the livestock prorated on the basis of space occupied. The equipment charge is based on the annual cost of the particular class of equipment used by that class of livestock. The manure credit is based on a value of 75 cents per ton in the barnyard. Only the amount of the manure actually spread on the fields was credited to the livestock.

All tables for livestock have been computed on a per hundred pounds gain in weight, a per head, or some other similar basis so that the data for different farms are directly comparable. A few items may need explanation. The pounds of corn are for shelled corn or at 56 pounds per bushel. The gain or return over all costs is the amount left after deducting all the charges listed. The return per 56 pounds of grain is what is left to pay for the farm grain consumed by the livestock, after paying all other charges. The return over feed cost is the amount left after deducting feed cost from the total income. The return per hour of man labor is what was left to the farmer for each hour of man labor expended on the enterprise after all costs except man labor had been paid.

Feeder cattle The costs and returns for feeder cattle are for the cattle being fattened for market. The return per 56 pounds of farm grain was obtained by deducting from the sale price all the expenses listed, except the charge for the common farm grown grains, and then dividing this residual by the number of pounds of farm grain fed. It represents what the farmer had left to pay for his grain after all the other expenses had been paid. Due to the impossibility of determination, the credit for gains made by hogs following the cattle, was omitted from the calculations.

Breeding herd. The breeding herd is composed of the cows and the bull. Changes in inventory values due to changing price levels, insofar as possible, have been eliminated. The net cost of the herd was divided by the calves raised in order to determine the cost per calf. The farmers

have been divided into two groups depending upon the relative emphasis placed on dairy production. The herds kept for both beef and dairy production were of so-called dual purpose or of beef type. None of the herds studied were of the specialized dairy breeds.

All cattle Three types of beef production were found on these farms and an average for each type as well as an average for all farms is presented in the table for all cattle. Group A is composed of the farmers who were attempting to produce both beef and dairy products. Group B is composed of the farmers who fattened a larger number of cattle than were raised on their farms this year. They either bought additional cattle or had accumulated cattle from previous years. Group C is composed of the farmers who kept cows primarily for raising calves to fatten. In 1930, as in 1929, this latter group received larger returns than the others.

Hogs. The data on hog production on page 14 include all hogs on the farm, including those kept for raising pigs. The return per 56 pounds of farm grain was calculated in the same way as for feeder cattle. No charge was made for the feed picked up by the hogs following the feeder cattle. This fact should be considered in making any comparison of the returns from cattle and hogs.

Sheep Sheep are of minor importance on the farms studied. Only seven of the farms studied maintained flocks. The sheep enterprise, like all other farm enterprises, suffered from a severe decline in sale prices.

Poultry Poultry was raised on all of the farms studied. However, with a few exceptions, the poultry enterprise was relatively unimportant. In the data presented, ducks, geese, and turkeys were reduced to their equivalent in chickens for comparative purposes.

Horse work Separate averages are computed for the tractor farms and the non-tractor farms. The cost per hour of horse labor was slightly higher on the tractor farms than on the non-tractor farms. There was a decided drop in the cost per hour from 1929 to 1930 due in part to a larger number of hours worked, but largely to decreased feed costs.

Crops Comparative costs and returns for the eight principal crops grown on the farms studied are presented following the livestock data. The factors of cost are charged at the local market prices. The man labor rate, 30 cents per hour, is based on the wages to hired men on these farms and includes an allowance for board. Horse work is charged at 12 cents per hour in 1929 and 10.5 cents in 1930, 2-plow tractors are charged at 75 cents per hour and 3-plow tractors at $1.00 per hour. Manure is charged at 75 cents per ton plus the cost of hauling. Fifty per cent of this is charged against the crop to which the manure is applied and the balance prorated to the other crops in the rotation on an acre basis. Machinery is charged at a flat rate which includes an allowance for interest, depreciation, repairs, and other costs. The land rent charge is based on prevailing cash rental rates in the community. The local market price on December 1, is used in computing the returns from the various crops. All costs are figured at the farm. No marketing charges have been included, except for flax. The credits include stubble or stalk pasture, corn picked up after corn binder, and similar items.

The costs are shown both on an acre and a bushel or ton basis. The returns have been computed on the basis of the net return per acre over all charges and the return per hour the farmer received for the labor used on the

crop. The net return is the gain or loss left after subtracting from the value of the crop the items of cost that are presented. The return for labor is the amount left to pay the labor after the other costs indicated have been met. A minus figure (-) indicates a failure to cover the expenses charged.

The 1930 crop season was very favorable from the standpoint of seedbed preparation, seeding and harvesting. Generally speaking, the crops were planted in good season and under favorable soil conditions. However, the lack of moisture later in the season greatly reduced the yield of a number of the common crops. The oat and flax crops escaped with relatively less damage than the others. The 1930 crop season was also characterized by lower crop prices andhence returns in 1930 were below those for 1929. Alfalfa and flax gave the greatest returns.

USING CROP RECORDS TO INCREASE CROP PROFITS

Variation in Production Costs

On the pages following the discussion are presented data on the cost and return per acre for each of the farms growing each of the important crops. The data in these tables show a wide range in cost per unit between the different farms. These variations for corn, oats, barley, flax, alfalfa hay and wild hay are summarized in the following table.

VARIATIONS IN PRODUCTION COSTS
ROCK & NOBLES COUNTIES-1930

Crop	Cost per unit			Dec. 1 price	% producing at a cost above Dec. 1 price
	Average	High	Low		
Corn	$.54	$.77	$.43	$.48	62
Oats	.27	.43	.20	.24	82
Barley	.48	.90	.36	.38	80
Flax	1.31	7.07	.87	1.48	23
Alfalfa Hay	8.80	21.08	4.66	14.00	18
Wild Hay	6.95	13.35	5.08	7.00	42

Alfalfa hay and flax were the two most consistently profitable crops in 1930. This was also true in 1929. Only 18 per cent of those growing alfalfa hay and 23 per cent of those growing flax failed to produce these crops in 1930 at a cost which was lower than the December 1 price. Corn was profitable on a greater per cent of the farms growing it than was either barley or oats. The wide variation in the cost per unit suggests the possibility of increasing crop returns through changes in production methods and practices.

There are in general two ways in which the farmer may adjust his own business so as to make it more profitable. He may either (1) reduce his cost per unit of product or (2) select those crops or kinds of livestock or combinations of the two that bring in the largest returns.

High Yields Reduce Unit Costs

One of the most important factors in reducing the cost per bushel or ton of crops produced is to increase yields. The relationship between yield and cost per unit is illustrated by the data on corn contained in the following table.

Relation Between Yield per Acre and Cost and Returns for Corn
Rock and Nobles Counties - 1930

Yield per Acre	Number of Farms	Average Yield	Net Cost Per Acre	Cost Per Bushel	Return per hour of man labor
Under 30 bu.	7	24	$16.12	$.68	$ -.11
30 - 35 "	9	33	16.63	.51	.24
Over 35 "	8	37	18.22	.48	.31

As the yield increased the cost per bushel decreased and the return per man hour increased. The same relationship holds for the other crops. There are numerous causes for differences in yield, including differences in soils, seed-bed preparation, seed, and care of the crop. One of these factors, the importance of which is overlookedis that of seed.

Increasing yields by the use of good seed.

The importance of planting good seed of a desirable variety is indicated by the data in the following table=

Variety and Yield
Rock and Nobles Counties - 1930

Crop	Variety	Total Acres	Yield Per Acre
Oats:	Gopher	295	62
	Green Russian	443	54
	Common*	426	49
Barley:	Velvet	199	34
	Common*	218	28

*Common includes the cases where the name of the variety was not definitely known. Other known varieties of both oats and barley were seeded but on too few acres and farms to justify inclusion in the table.

It will be noticed that Gopher Oats outyielded Green Russian Oats by 8 bushels and the common seed by 13 bushels. Velvet barley outyielded the common barley by 6 bushels per acre. This difference is certainly enough to justify giving careful attention to the selection of good seed. The use of good seed is one of the ways to increase profits through reducing costs that is demonstrated by these cost records.

Increasing Returns by Crop Selection

A second way in which farmers can make their business more profitable is through the selection of the most profitable crops. If crops are to be sold, the crops most profitable as a cash crpp should be chosen. If the crops are to be fed, the crops producing the greatest quantity of desirable food per acre at a low cost should be chosen.

The comparative returns from the various grain crops computed on the basis of 10 year average yields and seven year average prices for Rock and Nobles Counties are presented in the following table.

Comparative Returns per Acre of Crops

	Corn	Oats	Barley	Flax
Cost per acre	$17.40	$14.24	$14.33	$16.85
Yield, 10 year average	34	35½	30	10¾
Cost per bushel	$ .51	$ .40	$ .48	$ 1.57
Dec. 1 price, 7 year average	.64	.35	.55	2.21
Net return per acre	4.36	-1.81	2.17	6.91

On the basis of Rock and Nobles County Average yields and price over a long period of years, flax is by a considerable margin the most profitable of these four crops as a cash crop. Corn is second and barley third. Oats failed by $1.81 per acre to pay all charges.

Selecting most profitable feed crops

Where crops are raised for feed it is important to organize the crop rotation around the crops which produce the largest quantity of desirable feed at a low cost. The production of digestible crude protein, and other digestible nutrients per acre and the cost per hundred pounds of food nutrients, using 10 year average yields for these counties is presented in the following table.

Production per Acre and Relative Cost per Hundred Pounds of Digestible Nutrients

Crop	10 yr. av. Yield	Digestible Nutrients Protein	Other	Total	Cost per 100 lbs. Total Nutrients
Grains	bu.	lbs.	lbs.	lbs.	
Corn	34	135	1769	1904	$1.12
Barley	30	130	1310	1440	1.25
Oats	35½	110	1026	1136	1.78
Roughages	tons				
Alfalfa	2	424	1616	2040	.78
Corn fodder	2¾	204	2442	2646	.70
Wild Hay	1	60	904	964	.87
Silage	6	156	2028	2184	1.10

The above data clearly shows that the lowest cost feed grain crop is corn. It produces more nutrients per acre and at a lower cost than either oats or barley. Barley is next to corn. Oats produces decidedly less nutrients per acre than the other two crops and has the further disadvantage of a much higher cost.

Corn fodder, on the basis of the above data, is the cheapest source of roughage. However, it has the disadvantage of containing a low amount of protein. Alfalfa, on the other hand, has a high percentage of protein. Since protein is most likely to be lacking in the ration, and since it is the most expense element to buy, the higher amount of protein in the alfalfa hay would more than offset the difference in cost between corn fodder and alfalfa and make alfalfa the most desirable roughage. Wild hay has the disadvantages of both a low yield of food nutrients and a higher cost. However, wild hay is usually not grown on land suitable for other crops and hence the cutting of wildhay is generally a matter of securing some feed from what would otherwise be waste land. Silage has two disadvantages, namely, high cost and low protein content. The fact that silage is used as extensively as it is indicates that feeders have felt that it has a value greater than that indicated by its nutrient content.

Judging from the data presented above, flax and corn have been the most profitable cash crops, corn and barley have been the best grain crops to raise for feed, and alfalfa has been the best source of roughage.

The data presented indicate the possibility of increasing farm earnings through better organization and more efficient production. Records such as these farmers are keeping locate the weaknesses of the particular organization and point the way to their correction.

FACTS ABOUT THE ORGANIZATION OF THE FARMS

	Per Farm:			
	1929	1930		
	Average	Average	High	Low
Acres in corn	105.7	116.3	184.7	51.3
Acres in oats	56.5	61.3	170.2	-
Acres in barley	20.3	21.9	53.8	-
Acres in flax	9.5	15.2	64.7	-
Acres in other grains & grain mixtures	11.3	14.3	103.9	-
Acres in alfalfa	11.6	12.2	39. 7	-
Acres in tame hay	4.1	7.6	38.3	-
Acres in wild hay	14.2	14.6	49.6	-
Acres in miscellaneous hay	6.2	1.0	4.9	-
Acres in miscellaneous crops	1.8	4.4	43.9	-
Total crop acres	241.2	268.8	486.3	101.6
Acres in pasture	63.8	69.7	166.9	22.7
Acres in farmstead, roads,waste, etc.	17.8	21.5	80.5	8.1
Total acres per farm	322.8	360.0	652.1	158.6
Number of cows	19	19	34	4
Number of pounds cattle produced	20089	22416	94434	3205
Number pounds pork produced	29029	31288	66513	12415
Number of sheep	31	23	194	-
Number of chickens	255	261	534	69
Number of laying hens	132	139	259	53
Total hours man labor per farm	8156	8043	17206	4685
Total hours livestock labor	3866	3348	7603	2099
Total hours crop labor	3138	2946	5688	1041
Total hours miscellaneous labor	1153	1749	3953	766
Total hours hired labor	2656	2807	7392	187
Total hours unpaid family labor	1492	2166	13595	149
Total hours proprietor labor	2882	3128	3733	1208
Hours per man per work day	9.8	9.4	11.5	7.1
Hours per man per Sunday	3.3	3.0	4.6	1.4
Tractor farms:				
Number of farms using tractors:	10	12		
Total crop acres	276	287	486	130
Number work horses per farm	9.7	10	19	5
Average hours worked per horse	885	815	1087	605
Number of crop acres per horse	28.9	28.7	34.4	21.9
Non-tractor farms:				
Number of farms using horses only	11	11		
Total crop acres	222	249	376	102
Number of work horses per farm	8.5	8.9	12.0	4.7
Average hours worked per horse	945	917	1318	699
Number of crop acres worked per horse	28.2	28.2	35.1	19.8

FINANCIAL STATEMENT

	1929	1930		
	All Farms	All Farms	Five Highest	Five Lowest
RECEIPTS				
Cattle	$3278.23	$3249.61	$1591.51	$3927.67
Hogs	3016.82	2443.98	1935.54	3998.26
Sheep & wool	252.48	242.81	163.20	247.74
Poultry & eggs	349.55	238.54	264.43	336.40
Dairy products	623.43	377.44	487.74	437.78
Horses	45.63	47.23	148.20	25.00
Corn	491.56	409.21	561.04	604.82
Oats	334.90	229.61	208.98	323.03
Barley	198.55	72.42	63.58	57.94
Flax	375.53	286.54	128.75	656.79
Hay	26.85	16.36	35.20	17.50
Other crops	31.39	185.43	669.54	63.45
Outside	92.26	132.45	41.14	75.45
Miscellaneous	222.03	157.46	60.88	318.60
(1) Total Cash Farm Receipts	9339.21	8089.09	6353.73	11090.43
(2) Farm produce used in house	431.85	390.74	502.40	317.62
(3) Increase in farm inventory	777.20	67.63	-	-
(4) TOTAL RECEIPTS	10548.25	8547.46	6856.13	11408.05
EXPENSES				
Hired labor	467.77	566.93	384.80	827.12
Cattle bought	1052.20	958.81	114.00	1343.90
Hogs bought	313.68	265.75	150.30	641.12
Sheep bought	349.55	20.29	6.50	70.46
Poultry bought	47.65	49.71	51.74	62.50
Horses bought	72.75	31.82	10.00	30.00
Other livestockexpense	120.89	103.20	85.65	144.32
Feed bought	776.90	1078.15	355.10	2057.64
Crop expense (twine,threshing etc.)	288.33	326.83	316.73	420.72
Real estate	319.62	226.95	76.91	536.01
Machinery	586.09	494.39	366.39	717.84
Auto (farm share)	97.55	62.37	9.06	162.99
Gasoline, kerosene,oil,etc.(farm share)	158.12	144.57	93.75	183.59
Taxes	400.24	423.10	345.72	569.90
Insurance	32.62	26.19	11.80	36.07
Miscellaneous	47.45	54.00	41.23	93.88
(5) Total Cash Farm Expense	5133.41	4833.06	2419.68	7898.06
(6) Decrease in farm inventory	645.42	1911.76	1351.31	2351.39
(7) Board for hired labor	205.89	209.63	91.62	194.44
(8) TOTAL FARM EXPENSES(sum of 5,6,&7)	5984.72	6954.45	3862.61	10443.89
(9) Returns to capital and family labor (4-8)	4563.53	1593.01	2993.52	964.16
(10) Interest on farm inventory at 5%	2374.49	2243.61	1939.26	2990.88
(11) Family Labor Earnings (9-10)	2189.04	-650.60	1054.26	-2026.72
(12) Estimated value of unpaid family labor	587.54	431.53	793.37	294.81
(13) OPERATOR'S LABOR EARNINGS (11-12)	1601.50	-1082.13	260.89	-2321.53

AVERAGE FARM INVENTORIES

	1929	1930		
	All Farms	All Farms	Five Highest	Five Lowest
Land	$32182.95	$30915.00	$27392.00	$41181.60
Buildings	3620.66	3482.69	2763.90	4263.05
Work Horses	918.01	853.58	662.75	1128.50
Other Horses	94.77	97.39	211.00	114.50
Cattle	4177.35	3562.19	2721.50	5013.95
Hogs	1503.79	1310.03	965.10	2252.80
Sheep	277.50	264.13	149.70	364.60
Poultry	204.28	175.15	185.63	210.61
Machinery	1811.21	1943.55	1702.10	2370. 91
Auto (farm share)	155.82	85.38	49.35	159.64
Feeds	2543.52	2091.41	1982.29	2753.55
Total	47489.86	44780.50	38785.32	59813.71

FARM PRODUCE USED IN THE HOUSE

	1929	1930		
	All Farms	All Farms	Five Highest	Five Lowest
Cream	$ 47.1[illegible]	$ 30.78	$ 29.34	$ 32.78
Farm churned butter	29.57	20.43	47.76	21.76
Wholemilk	34.96	33.07	38.67	20.75
Skimmilk	.83	.39	-	.10
Hogs	107.68	73.14	105.23	36.18
Cattle	21.71	29.88	22.55	23.70
Sheep	.47	.63	2.10	-
Poultry	25.75	28.66	29.43	40.32
Eggs	45.65	36.87	45.62	39.14
Potatoes	25.20	28.08	31.86	24.76
Fruits, vegetables, etc.	31.23*	31.23	54.54	27.95
Value of fuel saved	61.70*	61.70	78.20	50.20
Total	431.85	374.86	485.30	317.64
Size of Family (man equivalent)	4.41	4.80	5.52	4.23

*Same as for 1930. Not summarized for 1929.

Cost and Return for Feeder Cattle
(Per 100 pounds gain in weight)

	Average	High	Low
Number of farms	22		
Pounds produced	11608	56545	1105
Man Labor, hours	3¼	10¾	1
Horse Work, hours	1½	4¼	-
Costs			
Feed	$12.81	$29.29	$4.31
Labor	1.12	3.44	.39
Shelter	.25	1.94	-
Equipment	.15	.93	-
Interest	1.13	6.20	.04
Misc. Cash	.07	.73	-
Total Cost	15.53	39.89	8.53
Manure credit	.64	4.25	.05
Net Cost	14.89	35.64	8.19
Average Selling Price	8.82	11.46	6.47
Return per 56 lbs. Grain	.32	.77	-
Feeds			
Corn, lb.	889	1808	249
Small grain, lb.	186	820	-
Protein feeds, lb.	12	42	-
Hay and Fodder, lb.	373	1208	113
Silage, lb.	91	1064	-
Pasture, days	5	112	-

Cost per Head for Breeding Herds

(1930 only)

	Beef Herds			Beef and Dairy Herds		
	Average	High	Low	Average	High	Low
Number of farms	9			15		
Man labor, hours	39½	62	22	113	168¾	71¼
Horse work, hours	4	8	1	6¼	14	2¼
Costs:						
Feed	$22.35	$37.77	$12.75	$34.64	$55.69	$9.85
Labor	12.21	19.03	6.89	34.52	50.83	22.02
Shelter	1.52	3.27	.62	4.64	8.35	1.74
Equipment	.59	1.52	.26	1.41	3.54	.08
Interest	4.30	5.20	3.40	3.57	4.55	2.53
Misc. Cash	.34	.55	.11	.79	2.78	-
Depreciation	7.00	13.56	-	8.89	27.52	-
Total Cost	48.31	71.98	31.97	88.46	127.59	56.46
Credits:						
Cream sold	$6.79	$ 15.70	$1.44	$32.28	$54.11	$10.48
Dairy products used	2.64	4.37	1.26	7.77	20.70	2.00
Skimmilk fed	1.14	3.45	.05	5.28	10.08	.83
Manure	2.10	5.12	1.39	3.05	5.59	.36
Total credit	12.67	19.97	6.66	48.38	71.06	28.39
Net cost	35.64	55.88	16.81	40.08	88.63	4.06
Cost per calf	45.83	68.98	22.75	59.66	168.73	10.70
Calves raised per cow	.80	.98	.69	.74	1.11	.39
Feeds:						
Corn, lb.	118	602	-	442	1100	-
Small grain, lb.	268	579	95	964	2606	26
Hay and Fodder, lb.	2017	3419	815	2656	4554	121
Silage, lb.	1212	6311	-	715	6477	-
Pasture, days	240	250	210	247	273	212

Cost and Returns for All Cattle
(per 100 pounds gain in weight)

	Route Average		Group A*		Group B		Group C	
	1929	1930	1929	1930	1929	1930	1929	1930
No. of farms	22	24	11	9	6	8	6	5
Pounds produced	18683	22416	14359	12803	28045	29262	17423	23437
Man labor, hours	14½	14	19½	18½	13⅝	11	12	7
Horse work, hours	1½	1½	2	1½	1¾	1½	1¼	1
Costs:								
Total labor	$4.67	$3.90	$6.08	$5.79	$4.28	$3.43	$3.15	$2.19
Total feed	11.52	9.67	12.28	10.01	12.36	10.50	9.52	8.11
Shelter	.90	.80	.96	1.00	.75	.74	.71	.67
Equipment	.14	.16	.16	.15	.13	.18	.13	.16
Interest	1.19	.93	1.23	.93	1.17	.92	1.04	.89
Cash	.12	.15	.12	.10	.13	.19	.07	.10
Total Cost	18.53	15.61	20.83	17.98	18.82	15.96	14.62	12.12
Credits:								
Manure	.88	.69	1.12	.85	.89	.62	.78	.55
Dairy products	5.26	3.87	7.94	6.95	4.88	2.89	2.47	1.21
Total Credit	6.14	4.56	9.06	7.80	5.77	3.51	3.25	1.76
Net cost	12.39	11.05	11.77	10.18	13.05	12.45	11.37	10.36
Value of animal product**	11.09	4.37	9.11	3.35	12.89	3.84	11.76	6.44
Return over all costs***	-1.31	-6.68	-2.66	-6.83	-.16	-8.61	.39	-3.92
Return per 56 lbs. of farm grain fed	.53	-.11	.41	-.31	.67	-.16	.73	.17
Average selling price	11.50	8.70	10.95	7.18	11.65	9.28	11.91	9.86
Feeds Fed:								
Corn	331	375	318	355	408	423	287	344
Small grain	174	206	200	211	174	255	147	166
Commercial feeds	7	6	2	2	14	11	8	5
Hay and fodder	436	466	513	587	423	388	379	382
Silage	231	137	203	141	377	173	-	-
Pasture days	44	64	52	86	32	54	52	47

* Group A - Farmers combining dairying and beef production; Group B - Farmers feeding more cattle than are raised on their farms; Group C - Farmers specializing on baby beef production.

** Value of animal product is the net value of animals produced after allowing for differences in inventory values.

*** A minus (-) indicates a failure to cover the expenses charged.

Cost and Returns per 100 pounds
Hogs Produced

	1929	1930		
	Average	Average	High	Low
Number of farms	22	24		
Pounds of hogs produced	29029	31288	66513	12415
Man labor, hours	2¾	2	4¼	1
Horse work, hours	¾	½	1	¼
Costs				
Feed	7.07	5.18	6.64	2.98
Total Labor	.87	.62	1.33	.31
Shelter	.24	.21	.56	.03
Equipment	.09	.08	.27	-
Interest at 5%	.31	.20	.41	.11
Veterinary, medicine, minerals, etc.	.28	.20	.51	-
Total Costs	8.86	6.49	8.55	4.08
Manure credit	.09	.07	.23	.02
Net cost	8.77	6.42	8.52	3.97
Average selling price	9.53	7.81	9.28	6.98
Return per 56 lbs. farm grain	.74	.71	1.17	.41
Feeds:				
Corn	446	339	498	196
Small grain	104	142	348	25
Commercial feed	4	4	15	-
Tankage	5	6	25	-
Skimmilk	35	52	155	-
Pasture days	21	31	55	2
Pigs raised per litter	4.9	5.5	7.9	3.6

Cost and Return per Sheep

	1929	1930		
	Average	Average	High	Low
Number of farms	7	7	-	-
Average number of sheep(2 lambs equal) (to one sheep)	106	80	195	26
Man labor, hours	2	1 1/4	2 1/2	3/4
Horse labor, hours	1/2	1/2	1/4	1/4
Costs				
Feed	$3.49	$2.44	$3.37	$1.51
Total labor	.66	.45	.82	.26
Shelter	.21	.13	.32	-
Equipment	.26	.02	.06	-
Interest	.50	.48	.70	.34
Miscellaneous cash	.16	.20	.31	.05
Total Expense	5.28	3.72	4.83	2.57
Credits				
Manure	.03	.18	1.16	-
Miscellaneous	.03	.01	.04	-
Total credit	.06	.19	1.16	-
Net expense	5.22	3.53	4.77	1.41
Value Produced				
Sheep	3.22	.56	2.75	-2.19
Wool	1.33	.96	1.39	.14
Total product	4.56	1.52	3.80	-.97
Gain	-.67	-2.01	.88	-4.69
Return over Feed Cost	1.07	-.91	1.92	-3.22
Feeds				
Grain, lb.	86	58	201	-
Hay and fodder, lbs.	113	101	206	-
Silage, lbs.	31	35	231	-
Pasture, days	245	227	247	209
Lambs raised per ewe	1.0	.9	.7	1.2
Per cent death loss, lambs	12.	17.	27.	6.
Per cent death loss, sheep	16.	11.	33.	0
Average selling price of sheep, per cwt.	$11.91	$7.42	$8.49	$6.18
Average selling price of wool sold, per lb.	.28	.16	.17	.13

Cost and Returns per 100 Chickens

	1929	1950		
	Average	Average	High	Low
Number of farms	22	(23)		
Size of flock	250	261	534	69
Percent laying hens	57	57	89	33
Man labor, hours	166¼	125	265¼	52
Horse work, hours	4½	1¼	8½	-
COSTS:				
Total feed	$59.90	$45.27	$100.02	$12.43
Man labor and horse work	50.45	37.66	79.56	15.75
Shelter	16.85	14.78	38.05	3.15
Equipment	6.39	6.27	28.56	.15
Interest	3.97	3.51	5.79	1.75
Misc. cash expense	4.49	7.42	22.96	-
Total cost	142.05	114.91	198.69	54.36
Manure credit	3.71	2.40	8.70	-
Net production cost	138.34	112.51	198.08	52.91
Value Product:				
Poultry	45.31	21.19	109.55	-105.23
Eggs	94.33	68.90	124.46	18.60
Total product	139.64	90.09	189.93	-32.29
Return over all charges	1.30	-22.42	69.62	-151.45
Return per hour of man labor	.31	.12	1.01	-.53
FEEDS:				
Grain, lb.	38.47	30.60	76.76	625
Commercial feeds, lb.	395	332	1417	-
Skimmilk, lb.	436	1565	6016	-
Eggs per hen	75	76	121	40
Selling price of eggs, per doz.	$.28	$.20	$.31	$.12

Cost of Horse Work per Horse

	1929	1930		
	Average	Average	High	Low
Farm Using Tractors				
No. of farms	10	12	-	-
Hours of man labor	57¾	48	73¾	26
Costs:				
Feed	$59.55	$41.03	$51.59	$23.96
Man labor	17.32	14.40	22.11	7.77
Shelter	5.48	6.00	9.67	1.80
Equipment	5.25	3.73	6.62	1.28
Interest	4.82	4.73	6.93	2.55
Miscellaneous cash	.49	.47	1.35	.04
Depreciation	8.67	8.18	20.00	-
Total cost	$101.58	$78.54	$106.24	$46.65
Credits:				
Manure	$4.41	$3.75	$10.50	$.89
Miscellaneous	.22	1.12	7.30	-
Total credit	4.63	4.87	11.50	.89
Net cost	$96.95	$73.67	$104.24	$35.47
Hours worked	884½	814¾	1087	605
Cost per hour, cents	11.1	9.1	15.3	4.7
Crop acres per horse	28.9	28.7	34.4	21.9
Feeds:				
Hay, lb.	3382	3115	5714	1766
Grain, lb.	3229	2642	4350	1651
Pasture days	139	162	198	110
Farms not Using Tractors				
No. of farms	11	11	-	-
Hours of man labor	47	53½	73½	31½
Costs:				
Feed	$67.61	$49.46	$64.79	$44.47
Man labor	17.38	16.02	22.07	9.46
Shelter	7.95	6.75	15.10	3.38
Equipment	6.73	3.75	5.41	1.43
Interest	5.50	4.92	6.92	3.08
Miscellaneous cash	.67	.38	1.32	.06
Depreciation	11.67	7.97	17.36	.99
Total cost	$117.51	$89.26	$104.64	$69.21
Credits:				
Manure	$5.05	$4.64	$10.33	$.60
Miscellaneous	1.52	.48	2.03	-
Total credit	6.57	5.12	10.33	1.75
Net cost	$110.94	$84.14	$94.31	$64.55
Hours worked	945	916½	1317½	699
Cost per hour	11.8	9.2	13.1	7.2
Crop acres per horse	28.2	28.2	-	-
Feeds:				
Hay, lb.	3582	3766	6354	1972
Grain, lb.	4094	3504	4120	2647
Pasture days	125	148	188	70

Cost per Acre of Producing Husked Corn

	1929	1930		
	Average	Average	High	Low
No. of farms	24	24	-	-
Acres per farm	96	97	181	42
Man labor, hours	13¾	12¾	21½	8¼
Horse work, hours	40½	35¼	56¾	17¼
Tractor use, hours	½	¾	2¾	-
Total cost - man, horse & tractor	$9.45	$8.27	$12.41	$6.23
Seed	.42	.42	.63	.27
Husker	.37	.47	1.47	-
Manure	1.75	1.90	4.09	.33
Machinery	.95	.95	.95	.95
Land charge	6.00	6.00	6.00	6.00
Total cost	$18.94	$18.01	$22.95	$15.71
Credit	1.00	1.00	1.00	1.00
Net cost	17.94	17.01	21.95	14.71
Yield, bu.	38.0	31.9	40.1	19.9
Cost per bu.	$.47	$.54	$.76	$.43
Dec. 1 price	.56	.48	.46	.50
Crop value at Dec. 1 price	21.28	15.31	19.23	9.55
Net return	3.34	-1.70	1.70	-5.74
Return per hour of man labor	.54	.12	.46	none

Cost per Acre of Producing Oats

No. of farms	22	22	-	-
Acres per farm	65	63	170	27
Man labor, hours	7¼	7	10¼	5¼
Horse work, hours	15¾	14¾	20¾	10½
Tractor use, hours	1/5	1/5	1¼	-
Total cost - man, horse & tractor	$4.12	$3.79	$5.87	$2.88
Seed	1.58	1.21	1.43	.90
Twine	.34	.40	.52	.27
Threshing	1.21	1.11	1.54	.73
Manure	.89	.76	1.86	.18
Machinery	.95	.95	.95	.95
Land charge	6.00	6.00	6.00	6.00
Total cost	$15.09	$14.22	$16.83	$13.15
Yield, bu.	50.7	53.5	68.4	35.6
Cost per bu.	$.29	$.27	$.43	$.21
Dec. 1 price	.36	.24	.24	.24
Crop value at Dec. 1 price	18.25	12.84	16.41	8.54
Net return	3.16	-1.38	2.03	-6.91
Return per hour of man labor	.74	.10	.67	none

Cost per Acre of Producing Barley

	1929	1930		
	Average	Average	High	Low
No. of farms	16	15	-	-
Acres per farm	30	31	54	10
Man labor, hours	6¾	7¼	12-3/8	4
Horse work, hours	15	16¾	47½	8½
Tractor use, hours	-	¼	1¾	-
Total cost - man, horse & tractor	$3.89	$4.15	$8.80	$2.27
Seed	1.49	1.06	1.34	.77
Twine	.36	.34	.46	.11
Threshing	.99	.80	1.14	.46
Manure	.96	.73	1.55	.14
Machinery	.95	.95	.95	.95
Land charge	6.00	6.00	6.00	6.00
Total cost	$14.64	$14.03	$19.08	$12.15
Yield, bu.	32.2	29.0	44.1	15.4
Cost per bu.	$.45	$.48	$.90	$.36
Dec. 1 price	.49	.38	.38	.38
Crop value at Dec. 1 price	15.78	11.04	16.76	5.85
Net return	1.14	-2.99	.64	-8.07
Return per hour of man labor	.47	none	.41	none

Cost per Acre of Producing Flax

No. of farms	8	13	-	-
Acres per farm	28	30	65	13
Man labor, hours	8	8	11¼	5½
Horse work, hours	23	18½	24¼	12
Tractor use, hours	-	½	2½	-
Total cost - man, horse & tractor	$5.16	$4.85	$8.12	$3.37
Seed	2.21	2.57	4.09	.88
Twine	.22	.26	.42	-
Threshing	1.64	1.65	2.70	.28
Manure	.77	.72	1.27	-
Machine	.99	.94	.95	.78
Land charge	6.00	6.00	6.00	6.00
Net cost	$16.99	$16.99	$19.49	$14.15
Yield, bu.	11.2	13.0	19.7	2.0
Cost per bu.	$1.50	$1.31	$7.07	$.87
Dec. 1 price	2.83	1.48	1.48	1.48
Crop value at Dec. 1 price	31.84	19.24	29.16	2.96
Net return	14.85	2.25	11.95	-11.19
Return per hour of man labor	2.16	.58	1.67	none

Cost per Acre of Producing Alfalfa Hay

	1929	1930		
	Average	Average	High	Low
No. of farms	17	17	-	-
Acres per farm	13	14	38	4
Man labor, hours	10¾	9½	20	5¼
Horse work, hours	16½	15¾	26¼	10
Total cost - man & horse	$5.31	$4.55	$8.92	$2.84
Seed	1.00	1.00	1.00	1.00
Manure & fertilizer	2.16	1.30	3.42	.50
Machine	1.63	1.53	2.10	1.50
Land charge	6.00	6.00	6.00	6.00
Total cost	$16.10	$14.38	$18.28	$11.98
Credit	.14	.29	2.62	-
Net cost	15.96	14.09	18.28	10.26
Yield, tons	2.0	1.6	2.7	.6
Cost per ton	$7.98	$8.80	$4.66	$21.08

Cost per Acre of Producing Wild Hay

No. of farms	15	12	-	-
Acres per farm	22	27	49	6
Man labor, hours	5¼	5¼	7	3¼
Horse work, hours	8¾	9	12½	5½
Total cost, man & horse	$2.62	$2.49	$3.36	$1.55
Machine cost	.90	.85	.87	.85
Land charge	5.00	5.00	5.00	5.00
Total cost	$8.52	$8.34	$9.21	$7.40
Yield, tons	1.00	1.2	1.7	0.6
Cost per ton	$8.52	$6.95	$13.35	$5.08

Cost per Acre of Producing Corn Fodder

	1929	1930		
	Average	Average	High	Low
No. of farms	12	15	-	-
Acres per farm	8	13	37	4
Man labor, hours	13¼	13	20¾	9
Horse work, hours	30	30	49½	18½
Tractor use, hours	½	1	3	-
Total cost - man, horse & tractor	$7.93	$7.88	$11.24	$5.43
Seed	1.01	.63	1.14	.29
Twine	.63	.50	.81	.25
Manure	1.58	1.69	3.97	.22
Machine	1.65	1.65	1.65	1.65
Land charge	6.00	6.00	6.00	6.00
Total cost	$18.80	$18.26	$24.11	$14.63
Yield, tons	3.3	1.9	3.2	1.3
Cost per ton	$5.70	$10.52	$14.88	$5.70

Cost per Acre of Producing Corn Silage

No. of farms	8	6	-	-
Acres per farm	16	21	33	11
Man labor, hours	21¾	17½	23	14¼
Horse work, hours	48¼	41	52½	29¼
Tractor use, hours	1¼	1¼	3½	-
Total cost - man, horse & tractor	$13.39	$10.49	$12.67	$8.73
Seed	.71	.60	.84	.34
Twine	.48	.40	.63	-
Manure	3.10	1.72	3.41	.64
Silo filling	2.53	1.95	2.44	1.30
Machine	1.56	1.53	1.65	.95
Land charge	6.00	6.00	6.00	6.00
Total cost	$27.77	$22.69	$27.35	$20.90
Credit*	1.24	.54	1.90	-
Net cost	26.53	22.15	25.45	20.15
Yield, tons	7.3	5.1	6.9	3.4
Cost per ton	$3.63	$4.34	$6.18	$3.54

*Credit for corn picked up after corn binder.

Summary of Tractor Expenses - Rock & Nobles County 1930

Two-plow Tractors

Farm No.	Man hrs. servicing	Gals. of Fuel: Gas.	Kerosene	Distillate	Oil gal.	Depreciation	Man labor	Fuel	Oil	Misc. cash	Int. at 5%	Use of auto	Total expense	Hrs. Wkd.: Drawbar	Belt	Total
501	50¼	418	125	450	50	$50.00	$15.08	$118.90	$17.53	$15.00	$36.25	$.78	$253.54	608	37	645
202	13¼	777	15	-	40	80.00	3.98	119.06	26.71	2.85	19.50	.69	252.79	345¼	98	443¼
218	10½	630	-	-	43	100.00	3.15	98.93	20.43	1.15	35.00	-	258.66	340½	71	411½
107	16	160	57	-	9	25.00	4.80	30.15	6.15	1.00	4.88	.54	72.52	111	-	111
123	26½	143	-	-	10	20.00	7.95	18.09	7.38	-	1.75	.84	56.01	-	75½	75½
319	21	1050	75	-	52½	215.00	6.30	191.71	38.59	8.10	24.00	-	483.70	452	29½	491½
Avg.	23	530	45	75	34	81.67	6.88	96.14	19.47	4.68	20.23	.48	229.54	309½	53½	363

Three-plow Tractors

219	171¼	610	-	700	181	150.00	51.38	124.41	101.33	19.98	21.25	28.98	497.33	403½	539½	943
118	24	160	862	-	35	125.00	7.20	135.71	18.75	2.75	41.88	5.70	336.99	403¾	218¼	622¼
201	-	500	-	-	100	20.00	-	60.00	56.00	-	2.25	-	138.25	-	186½	186½
104	29	284	1035	295	80	200.00	8.70	215.78	43.08	7.03	35.00	2.64	512.23	253	387½	640½
502	21¼	75	698	-	30	120.00	6.38	108.54	21.10	17.90	42.00	-	315.92	227¾	129½	357¼
211	51	55	-	1414	50½	180.00	15.30	142.37	26.81	35.00	45.50	1.80	446.78	261¼	191½	452¾
419	203½	1285	-	100	71	50.00	61.05	220.07	40.05	45.12	13.75	5.40	435.44	90¾	272	362¾
401	20	200	-	65	50	160.00	6.00	43.80	30.00	3.30	51.00	.60	294.70	107	100½	207½
Avg.	65	396	324	322	75	125.63	19.50	131.34	42.14	16.38	31.58	5.64	372.21	218⅛	253¼	471¾

Cost per hr.	Fuel per 10 hrs. gal.	Oil per 10 hrs. gal.
.39	15	.8
.57	18	.9
.63	15	1.0
.85	20	.8
.74	19	1.3
.98	23	1.1
.66	18	1.0
.53	17	2.4
.54	16	.6
.74	27	5.4
.80	25	1.2
.88	22	.8
.99	34	1.1
20	38	2.0
42	13	2.4
89	24	2.0

SUMMARY OF AUTO COSTS - ROCK & NOBLES COUNTY 1930

Farm No.	Man labor	Gasoline	Oil	License misc. cash	Int. at 5%	Depreciation	Total costs	Miles driven	Cost per mile (cents)	Miles per gal. gasoline
119	$1.50	$142.68	$12.25	$23.35	$17.50	$100.00	$297.28	10,000	3.0	13.1
219	7.05	116.07	14.30	38.45	20.62	125.00	321.49	10,000	3.2	15.0
302	1.05	122.74	26.25	114.75	36.88	150.00	451.67	13,666	3.3	20.8
213	1.80	45.05	4.75	98.85	7.50	50.00	207.95	5,000	4.2	21.1
104	3.15	102.80	10.89	53.12	22.50	100.00	292.46	7,000	4.2	11.6
502	9.22	126.49	10.43	108.02	41.25	150.00	445.41	10,000	4.5	14.1
501	3.38	52.26	9.30	30.65	6.88	125.00	227.47	5,000	4.6	15.6
102	1.65	108.04	21.33	55.62	30.00	206.50	423.14	9,000	4.7	15.2
319	19.05	177.54	31.23	231.64	38.12	275.00	772.58	15,984	4.8	15.7
202	2.62	83.84	4.51	63.47	8.75	50.00	213.19	4,362	4.9	9.4
211	12.75	91.37	19.00	46.58	31.25	200.00	400.95	8,000	5.0	17.2
401	4.50	74.88	4.20	69.00	15.00	100.00	267.58	5,000	5.4	12.0
123	2.10	94.47	12.71	51.38	18.12	125.00	303.78	5,090	6.0	11.7
118	10.28	124.73	16.92	108.30	57.50	300.00	617.73	10,000	6.2	14.0
218	6.75	58.72	5.50	105.50	12.50	100.00	288.97	4,170	6.9	15.0
107	8.32	75.99	12.75	110.08	14.38	175.00	396.52	5,000	7.9	11.4
113	6.82	113.23	7.85	82.60	52.50	300.00	563.00	7,000	8.0	11.4
201	--	73.10	28.00	209.35	20.62	125.00	456.07	5,600	8.1	13.0
301	4.95	53.01	5.00	85.55	7.50	100.00	256.01	3,046	8.4	10.7
116	--	27.96	14.00	70.75	6.25	50.00	168.96	2,000	8.5	15.5
105	--	59.64	12.00	52.50	36.25	200.00	360.39	4,000	9.0	12.3
312	4.28	27.69	3.60	30.40	5.62	25.00	96.59	954	10.1	6.5
Average	5.06	88.74	13.03	83.64	23.07	142.34	355.88	6,812	5.2	13.7