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Report 34

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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

COST OF CROP PRODUCTION

From
Data Secured in 1929
on the

FARM ACCOUNTING ROUTE

In

ROCK & NOBLES COUNTIES, MINNESOTA

By

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Division of Farm Management and Agricultural Economics
University Farm
St. Paul, Minn.
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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 on 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 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 operations. 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 production and other significant facts will be presented in later reports as the information becomes available.

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 wildhay are the principal roughages grown.

Description of Farms

The average size of the farms studied was 323 acres. This is approximately 55% larger than the average size of farms in these two counties. The larger farms are better adapted to beef production. Two hundred forty-one acres or about 75% of the total acreage is in harvested crops. Of the balance there are 64 acres of pasture and 18 acres of farmstead roads, headlands and waste. The crop land included 106 acres of corn, 56 acres of oats, 20 acres of barley, 10 acres of flax, 11 acres other small grains, 12 acres alfalfa, 14 acres wild hay, 7 acres other hay, and 5 acres of miscellaneous crops.

Only four of the farms studied are owned by the operators. Eight are rented and of the remaining 12 the operator owns part of the land and rents the balance. Thirty-seven per cent of all the land is owned by the operators. Two-thirds of the rented land is rented for cash and one-third on a share basis. More than half of all farms in these two counties are operated by tenants.

METHODS OF COMPUTING AND PRESENTING DATA

Factors of Cost

Comparative costs and returns for the eight principal crops grown on the farms studied are presented in this report. 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, 2-plow tractors 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, 1929 is used in computing the returns from the various crops. The value of crops such as silage which have no regular market price is computed by comparing their feed value with other crops for which a local price is available. All costs are figured at the farm. No marketing charges have been included. The credits include stubble or stalk pasture, corn picked up after corn binder, and similar items.

Methods of Presentation

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The costs are shown both on/acre and a bushel or ton basis. The returns have been computed on the basis of the net return per acre over costs, the return for the use of the land, 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 the land is the amount of rent earned over and above the other cost items. 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 loss.

The costs presented are relative rather than absolute costs. Since many of the cost items such as the farmers own labor and the use of his own land and his equipment do not represent actual "out-of-pocket" expense, it is necessary to estimate their value. However, uniform rates have been used for all crops so that comparisons may be made between different crops and different farms. Uniform rental rates for land are used for each crop since the varied rental systems and rates on the different farms including cash rented, share rented, and owned land would tend to obscure these comparisons. All crops have been credited at uniform prices except as they vary in quality. Some farmers undoubtedly receive higher prices than these and others lower. The reader in interpreting these figures must make such adjustments in the returns that fit the prices he receives.

USING CROP RECORDS TO INCREASE CROP PROFITS

Variations in Cost

The cost of producing each crop on each farm is shown in addition to the average cost for all farms. This will enable each cooperator to compare his costs and returns with those of the other producers. It is interesting to note that on the average the returns from every crop at the

Table I

Crop	Variations in Production Costs			Dec. 1 Price	% pro- ducing at loss
	Rock and Nobles Counties - 1929				
	Average	High	Low		
Corn	\$.48	\$.92	\$.36	\$.56	25
Oats	.29	.42	.22	.36	18
Barley	.45	1.00	.31	.49	31
Flax	1.58	3.32	1.03	2.83	12½
Alfalfa	7.85	15.36	4.39	15.00	6
Wild Hay	7.87	12.41	5.43	9.00	33

price used is sufficient to cover all the costs listed and leave some margin of profit. However, in case of every crop there was some farmer who failed to cover his costs. This is illustrated in Table I. A study of these variations in costs should call to the attention of each cooperator any weaknesses in his cropping plans or methods. It should afford suggestions for shifts or economies in production.

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 live-stock or combinations of the two that bring in the largest returns.

One of the most important factors in reducing the cost per bushel or ton of crops produced is to increase yields. This is illustrated in the two following tables.

Table II

Effect of Yield per Acre on Cost and Returns for Corn
Rock and Nobles Counties - 1929

Yield per Acre	Number Farms	Average Yield	Net Cost per Acre	Cost per Bushel	Return per Hr. Man Labor
Under 36 bu.	8	32	19.15	.60	.22
36 - 41 bu.	9	39	18.28	.47	.62
Over 41 bu.	7	45	17.37	.39	.91

In Table II is presented a grouping of the farms according to the yield of corn. The higher the yield the lower is the cost per bushel. Although the production on the higher yielding farms is only 41% above the lower group the return per hour for the labor spent on them is more than four times as great. There is not only a larger margin of profit per bushel on the higher yielding farms but there are more bushels on which this profit is made. Apparently it costs as much to raise an acre of low yielding corn as it does a high yielding acre. In fact the costs are even higher in case of the low group.

Table III

Effect of Yield per Acre on Cost and Returns for Alfalfa
Rock and Nobles Counties - 1929

Yield per Acre	Number Farms	Average Yield	Net Cost per Acre	Cost per Ton	Return per Hr. Man Labor
Under 1 $\frac{1}{2}$ tons	4	1.2	14.90	12.88	.57
1 $\frac{1}{2}$ - 2 $\frac{1}{4}$ "	7	1.9	14.90	7.84	1.68
Over 2 $\frac{1}{4}$ "	6	2.8	17.18	6.14	2.17

The advantage of high yields of alfalfa is shown in Table III. The high yields may cost slightly more per acre but the returns are more than proportionately greater. The same advantage of high yields is true of the other crops. It is impossible in this preliminary report to analyze all the causes for the difference in yield and costs. In some cases it is due to quality of soil. In other it may be due to kind or quality of seed, cultural methods, and other factors directly within the farmers control. These factors will be analyzed in later reports but each farmer is urged to compare his own figures with the others reported in order to locate any weakness in his own production methods.

Selecting Profitable Crops

The second way to increase crop returns is to select those crops or combinations of crops which have proven most profitable. In this connection it should be remembered that these figures cover the results in only one year. Crop costs and returns vary from year to year with crop yields, crop prices, and the prices of the cost factors. Those crops which proved most profitable in 1929 may be disappointing in 1930. One must first determine how nearly representative these figures are before drawing any conclusions. In Table IV is presented a comparison between the yield of the grain crops on these farms in 1929 and the average yield on all farms in the two counties for the ten year period 1919 to 1928 and a similar comparison between the December 1 prices used in these tables with the average December 1 price for the state for the 10 years 1920 to 1929 inclusive.

Table IV

Comparison of Yields on Farms Studied and Prices Used with
10-year Averages

		Corn	Oats	Barley	Flax
<u>Yield</u>	- farms studied, 1929 - bu.	38 $\frac{1}{2}$	51 $\frac{1}{4}$	33 $\frac{1}{4}$	10 $\frac{3}{4}$
	10-year avg. county yields, 1919-1928 bu.	34	35	28 $\frac{1}{2}$	10 $\frac{1}{2}$
<u>Dec. 1 Price</u>	- farms studied	\$.56	\$.36	\$.49	\$2.83
	10-year average state price, 1920-1929	.59	.35	.52	2.11

All yields on these farms in 1929 are higher than the 10-year county averages. Since these farms maintain considerable livestock, the yields would probably average higher over a period of years than the average yields of the two counties. The advantage in yield, however, is not uniform between crops. Flax yielded only 8% above the 10-year county average, and corn and barley 13% above, but oats exceeded the average by 46%. The high return for oats must be discounted to some extent in line with this comparison. Oats also have an advantage in price as compared with the other crops. The price of oats is 3% above the 10-year state average price whereas corn is 5% below and barley 6% below. Since this is an area of surplus production for these crops their price is normally somewhat below the state average price. The state flax price in 1929 was the highest in 10 years. The December 1 price used in these studies is 34% above the 10-year average state price.

In order to present a more fair picture of the relative returns from these four crops over a period of years the costs and returns have been re-computed on the basis of 10-year average county yields and 10-year average state prices. These data are shown in Table V. Apparently corn is the most profitable of the feed grains in the long run with barley second. The high yield in 1929 gives oats a special advantage for the one year. Flax appears a remunerative crop for this section on the basis of the ten year figure.

Table V

Comparison between 1929 Crop Costs and Returns and 10-year County Average

	Corn	Oats	Barley	Flax
Cost per bushel:				
1929	\$.48	\$.29	\$.45	\$1.58
10-year average	.54	.42	.52	1.61
Net return per acre:				
1929	3.25	3.40	1.43	13.43
10-year average	1.75*	2.40	.11	5.21
Return per hour per labor:				
1929	.53	.77	.50	1.98
10-year average	.38	none	.32	.78

* Loss

Hay, corn fodder, and silage all show favorable returns. Roughages, however, vary widely in quality from farm to farm and the latter two have no regular market price. For this reason the cost comparisons are of more significance than are the return figures. It is worth while noting that it costs no more to produce a ton of alfalfa than it did a ton of wild hay. Since alfalfa has a much higher feeding value than wild hay, it would not seem worth while to keep the latter in the cropping system except on land too wet or otherwise unfit for cultivation. The abundance of lime in the soil in these counties adapts them well for alfalfa production.

Planning for the Future

The data in this report should prove useful in planning the cropping system for 1930 if one keeps in mind the comparisons on the basis of 10-year average yields and prices and of prospects for the coming year. Since these are livestock farms feed crops must be given first place. Corn and alfalfa hay seem to deserve the most consideration. These must be small grain to balance up the cropping system. The relative prices of corn and barley will probably be about the same as in 1929 but if there is any change in oat prices they will be relatively lower. Hence it would seem wise to substitute as much barley as possible for oats as a small grain crop, especially if it is grown for sale. Flax offers the best possibility as a cash crop. Because of our high tariff on flax and our heavy imports, flax growers are reasonably sure of a price in 1930 that will insure fair profits wherever average yields can be obtained. Alfalfa promises the most economical roughage.

These crop cost studies will be continued thru 1930 and 1931. Averages secured from the farms cooperating in this study will furnish a better basis for planning the cropping systems for these farms than do county averages. It is therefore especially important to those farmers who have kept records in 1929 to continue the work thru the next two years in order to work out cropping systems best adapted to the particular conditions under which they are working. At the end of the three years, the data secured will be analyzed and suggestions will be developed as to the

best long time cropping plans not only for these farms but for other farms of similar type in this section of the state. Definite records of what has been done in the past coupled with the best information available as to probable trends of production and prices serve as the safest basis for planning profitable farming systems for the future.

Table VI
Comparative Costs and Returns per Acre on Principal Crops
Rock and Nobles Counties, Minnesota - 1929

	Corn	Oats	Barley	Flax	Alfalfa	Wild Hay	Corn Fodder	Corn Silage
No. of Farms	24	22	16	8	17	15	12	8
Avg. Acres per Farm	96	64	30	28	13	22	8	16
Man Hours	14	7 $\frac{1}{4}$	7 $\frac{1}{4}$	8	11 $\frac{1}{8}$	5 $\frac{1}{8}$	13 $\frac{3}{8}$	21 $\frac{1}{4}$
Horse Hours	41	15	16 $\frac{1}{4}$	23	17 $\frac{1}{8}$	9 $\frac{1}{8}$	30 $\frac{3}{8}$	49 $\frac{1}{4}$
Tractor Hours	$\frac{1}{8}$	$\frac{1}{4}$	-	-	-	-	$\frac{1}{8}$	1
Costs:								
Man Labor	\$4.20	\$2.18	\$2.18	\$2.40	\$3.45	\$1.65	\$3.69	\$6.38
Horse & Tractor Work	5.42	1.94	1.95	2.76	2.10	1.14	4.54	6.75
Seed	.44	1.61	1.47	2.21	1.00	-	.98	.69
Twine	-	.34	.34	.22	-	-	.65	.51
Threshing	*.35	1.27	1.03	1.64	-	-	-	**2.52
Manure & Fertilizer	1.93	.90	.94	.77	1.66	-	1.57	2.15
Machine Charge	.95	.95	.95	.99	1.62	.89	1.65	1.56
OPERATING COSTS	13.29	9.19	8.86	10.99	9.83	3.68	13.08	20.56
Land Charge	6.00	6.00	6.00	6.00	6.00	5.00	6.00	6.00
Total costs	19.29	15.19	14.86	16.99	15.83	8.68	19.08	26.56
Credit	.98	.14	-	-	.14	.02	-	1.00
NET COST	18.31	15.05	14.86	16.99	15.67	8.66	19.08	25.56
YIELD - Grain, bu.	38 $\frac{1}{2}$	51 $\frac{1}{4}$	33 $\frac{1}{4}$	10 $\frac{3}{4}$	-	-	-	-
Roughage, tons	-	-	-	-	2	1.1	3.2	7.3
COST PER UNIT	\$.48	\$.29	\$.45	\$1.58	\$7.85	\$7.87	\$5.96	\$3.50
December 1 Price	.56	.36	.49	2.83	15.00	9.00	10.00	5.00
Crop Value	21.56	18.45	16.29	30.42	30.00	9.90	32.00	36.50
NET RETURN	3.25	3.40	1.43	13.43	14.31	1.24	12.92	10.94
RETURN FOR LAND	9.25	9.40	7.43	19.43	20.31	6.24	18.92	16.94
RETURN PER MAN HOUR	.53	.77	.50	1.98	1.55	.53	1.24	.81

*Corn Picker

**Silo Filling Machinery

Cost per Acre of Producing Corn - Rock and Nobles Counties - 1929

Farm No.	Hours of Work			Cost					Total Cost	Credit	Net Cost	Yield bu.	Cost per bu.	Net Return	Return per Four	
	Man	Horse	Tractor	Labor	Seed	Manure	Picker	Machine								Land
107	11 $\frac{3}{4}$	38	$\frac{1}{2}$	\$6.88	\$.46	\$.82	\$.70	\$.95	\$6.00	\$17.31	\$1.00	\$16.31	**45	\$.36	\$14.89	\$1.06
401	14 $\frac{1}{4}$	39	$\frac{1}{2}$	9.38	.44	2.53	-	.95	6.00	19.30	1.00	18.30	*49 $\frac{1}{2}$	.37	15.41	1.05
213	11 $\frac{3}{4}$	42 $\frac{1}{4}$	-	8.64	.19	1.74	.70	.95	6.00	18.22	1.00	17.22	*45	.38	14.88	1.06
201	14 $\frac{3}{4}$	36 $\frac{1}{2}$	-	8.80	.33	2.27	-	.95	6.00	18.35	1.00	17.35	**44 $\frac{1}{2}$	.39	13.57	.81
113	14	40 $\frac{1}{2}$	-	9.04	.39	1.69	-	.95	6.00	18.07	1.00	17.07	*43	.40	12.87	.79
302	8 $\frac{3}{4}$	37	-	7.08	.50	1.53	.70	.95	6.00	16.76	1.00	15.76	**39	.40	12.08	.99
402	10 $\frac{1}{2}$	44 $\frac{1}{2}$	-	8.42	.42	.37	.70	.95	6.00	16.86	1.00	15.86	**38	.42	10.66	.75
116	11 $\frac{3}{4}$	46	-	9.09	.33	1.55	.70	.95	6.00	18.62	1.00	17.62	**41	.43	10.52	.68
119	10 $\frac{1}{4}$	42 $\frac{1}{2}$	-	8.17	.45	1.51	.70	.95	6.00	17.73	1.00	16.78	*38 $\frac{1}{2}$	.44	11.55	.84
106	14 $\frac{1}{2}$	27 $\frac{1}{2}$	$\frac{3}{4}$	10.41	.50	1.10	.70	.95	6.00	19.66	1.00	18.66	**42 $\frac{1}{2}$	.44	11.00	.65
212	12 $\frac{1}{2}$	27 $\frac{3}{4}$	1 $\frac{1}{2}$	8.70	.35	1.87	-	.95	6.00	17.87	1.00	16.87	**37 $\frac{1}{2}$	.45	11.13	.72
112	15 $\frac{3}{4}$	46	-	10.27	.41	1.80	-	.95	6.00	19.43	1.00	18.43	**41	.45	10.53	.59
202	16 $\frac{1}{2}$	47 $\frac{1}{2}$	1	12.03	.45	.59	-	.95	6.00	20.02	1.00	19.02	**39	.49	8.82	.45
319	10 $\frac{3}{4}$	38	1	8.78	.42	1.10	.70	.95	6.00	17.95	1.00	16.95	**32	.53	6.97	.39
219	12	24 $\frac{3}{4}$	2 $\frac{1}{2}$	8.46	.45	3.01	.70	.95	6.00	19.57	1.00	18.57	**35	.53	7.03	.39
111	12 $\frac{3}{4}$	41	$\frac{1}{2}$	9.07	.50	1.01	-	.95	6.00	17.53	1.00	16.53	**31 $\frac{1}{2}$	.53	6.35	.33
419	12 $\frac{1}{4}$	42 $\frac{1}{2}$	$\frac{1}{2}$	9.05	.46	2.74	.70	.95	6.00	19.90	1.00	18.90	**33 $\frac{1}{2}$	.56	5.86	.29
118	19 $\frac{1}{4}$	46 $\frac{1}{4}$	-	11.31	.40	2.01	-	.95	6.00	20.67	1.00	19.67	**34 $\frac{1}{2}$	.57	5.65	.28
301	13 $\frac{3}{4}$	43 $\frac{3}{4}$	$\frac{1}{2}$	9.75	.37	.86	.70	.95	5.00	18.63	1.00	17.63	**30 $\frac{1}{2}$	.58	4.84	.22
105	21	54	-	12.74	.51	3.38	-	.95	6.00	23.58	1.00	22.58	*39 $\frac{1}{2}$	.58	6.19	.31
128	12 $\frac{3}{4}$	39 $\frac{1}{4}$	$\frac{1}{2}$	8.67	.30	1.79	-	.95	6.00	17.71	1.00	16.71	**29	.58	5.46	.26
312	15	55	-	11.12	.62	3.21	.70	.95	6.00	22.60	1.00	21.60	**37 $\frac{1}{2}$	.58	5.40	.26
102	16 $\frac{1}{2}$	47 $\frac{1}{2}$	-	10.63	.47	.51	-	.95	6.00	18.56	.63	17.93	**30	.60	4.87	.23
101	20 $\frac{1}{4}$	36	3 $\frac{1}{2}$	12.99	.74	7.38	-	.95	6.00	28.06	1.00	27.06	**29 $\frac{1}{2}$	.92	-5.13	none
Avg.																
23071	14.	41.	$\frac{1}{2}$	9.62	.44	1.93	.35	.95	6.00	19.29	.98	18.31	37 $\frac{3}{4}$	.49	8.83	.50

December 1 price:

- * Grade #4 - 58¢ per bu.
- ** " #5 - 56¢ " "
- *** " #6 - 54¢ " "

Cost per Acre of Producing Oats - Rock & Nobles Counties - 1929

Farm No.	Hours of Work			Costs						Total		Net Cost	Yield bu.	Cost per bu.	Net Return	Return per Hour	
	Man	Horse	Tractor	Labor	Seed	Twine	Threshing	Manure	Machine	Land	Cost						Credit
219	6 $\frac{1}{2}$	13 $\frac{3}{4}$	$\frac{1}{4}$	\$3.82	\$1.92	\$.44	\$1.83	\$1.26	\$.95	\$6.00	\$16.22	-	\$16.22	73	\$.22	\$16.06	\$1.85
105	11 $\frac{1}{2}$	17	-	5.50	1.19	.43	1.83	1.19	.95	6.00	17.09	-	17.09	76	.22	16.27	1.19
401	7 $\frac{1}{2}$	17 $\frac{1}{2}$	-	4.37	1.23	.49	1.30	1.22	.95	6.00	15.56	1.42	14.14	59	.24	13.10	1.25
119	7 $\frac{1}{4}$	18 $\frac{1}{4}$	-	4.54	1.32	.43	1.37	.58	.95	6.00	15.19	-	15.19	58 $\frac{1}{2}$	.26	11.78	1.05
213	6 $\frac{1}{4}$	9 $\frac{3}{4}$	-	3.06	1.36	.23	1.39	.65	.95	6.00	13.64	.65	12.99	49	.27	10.65	1.04
106	7 $\frac{1}{2}$	10 $\frac{1}{2}$	1 $\frac{1}{4}$	4.41	1.60	.30	1.29	.45	.95	6.00	15.00	-	15.00	56 $\frac{1}{2}$	.27	11.25	1.00
402	5 $\frac{1}{4}$	16 $\frac{1}{4}$	-	3.69	1.54	.28	1.21	.12	.95	6.00	13.79	-	13.79	51 $\frac{1}{2}$	.27	10.75	1.13
403	5	17	-	3.53	1.43	.30	1.09	.58	.95	6.00	13.88	-	13.88	51 $\frac{3}{4}$	.27	10.75	1.25
102	6 $\frac{1}{4}$	13 $\frac{3}{4}$	-	3.56	1.69	.31	1.28	.45	.95	6.00	14.24	-	14.24	53	.27	10.84	1.07
123	7 $\frac{1}{2}$	15 $\frac{3}{4}$	-	4.14	1.57	.48	1.41	.81	.95	6.00	15.36	-	15.36	56 $\frac{1}{2}$	.27	10.89	.95
113	6	17	-	3.88	1.96	.32	1.30	1.33	.95	6.00	15.34	-	15.34	55	.28	10.46	1.04
107	8 $\frac{3}{4}$	16 $\frac{1}{2}$	1	5.25	2.03	.32	1.50	.84	.95	6.00	16.89	-	16.89	56 $\frac{1}{2}$	.30	9.36	.68
319	6 $\frac{1}{2}$	14 $\frac{1}{2}$	$\frac{1}{2}$	3.93	1.44	.40	1.26	.55	.95	6.00	14.53	-	14.53	47 $\frac{1}{2}$	.31	8.48	.68
118	8 $\frac{3}{4}$	18 $\frac{3}{4}$	-	4.90	1.58	.30	1.00	.62	.95	6.00	15.35	.11	15.24	49	.31	8.40	.57
419	8	17 $\frac{1}{2}$	-	4.44	1.71	.45	1.19	1.18	.95	6.00	15.92	.79	15.13	47 $\frac{3}{4}$	.32	8.06	.56
111	4 $\frac{1}{2}$	11 $\frac{1}{2}$	-	2.82	1.57	.28	1.00	.67	.95	6.00	13.29	-	13.29	40	.33	7.11	.55
201	4 $\frac{3}{4}$	12	-	2.86	1.81	.24	1.12	1.03	.95	6.00	14.01	-	14.01	42	.33	7.11	.47
202	6 $\frac{1}{2}$	9	1 $\frac{1}{4}$	3.91	1.59	.28	1.24	1.17	.95	6.00	15.14	-	15.14	43 $\frac{1}{2}$	.35	6.43	.37
312	9 $\frac{1}{4}$	23	-	5.49	1.59	.38	1.07	1.98	.95	6.00	17.46	-	17.46	48 $\frac{1}{4}$	.36	5.91	.29
301	7 $\frac{1}{2}$	12 $\frac{1}{2}$	-	3.74	1.93	.26	1.05	.47	.95	6.00	14.42	-	14.42	39 $\frac{1}{2}$	.37	5.80	.27
116	6 $\frac{1}{2}$	18 $\frac{1}{4}$	-	4.12	1.78	.30	1.14	1.43	.95	6.00	15.72	-	15.72	39 $\frac{1}{2}$	.40	4.50	.07
112	8 $\frac{3}{4}$	17	-	4.66	1.72	.34	1.15	1.34	.95	6.00	16.16	-	16.16	38 $\frac{1}{2}$	.42	3.70	.04
Avg.																	
1422	7 $\frac{1}{4}$	15	$\frac{1}{4}$	4.12	1.61	.34	1.27	.90	.95	6.00	15.19	.14	15.05	51 $\frac{1}{4}$	.29	9.40	.77
Acres																	

Price December 1, 1929 - 36¢ per bushel.

Cost per Acre of Producing Barley - Rock and Nobles Counties - 1929

Farm No.	Hours of Work		Cost							Net Cost	Yield bu.	Cost per bu.	Net Return	Return per Hour
	Man	Horse	Labor	Seed	Twine	Threshing	Manure	Machine	Land					
219	7 $\frac{3}{4}$	15	\$4.11	\$1.15	\$.41	\$1.31	\$.57	\$.95	\$6.00	\$14.50	47 $\frac{1}{2}$	\$.31	\$15.65	\$1.55
319	5 $\frac{1}{4}$	16 $\frac{1}{2}$	3.71	1.51	.28	1.22	.73	.95	6.00	14.40	42	.34	12.18	1.37
123	6 $\frac{1}{4}$	15	3.69	.89	.46	1.20	.86	.95	6.00	14.06	40	.35	11.54	1.19
113	7	15 $\frac{1}{2}$	3.97	1.17	.37	1.22	.69	.95	6.00	14.37	40 $\frac{3}{4}$	.35	11.60	1.10
213	7 $\frac{3}{4}$	13 $\frac{1}{2}$	3.94	.96	.17	1.14	.64	.95	6.00	13.80	35 $\frac{1}{2}$	.39	9.60	.76
107	5 $\frac{1}{4}$	12 $\frac{3}{4}$	3.12	1.28	.32	1.00	1.31	.95	6.00	13.99	32 $\frac{1}{2}$	.43	7.94	.67
118	7 $\frac{1}{4}$	17 $\frac{1}{2}$	4.25	1.77	.31	.96	-	.95	6.00	14.24	37	.43	7.93	.57
106	6 $\frac{1}{2}$	15	3.68	1.82	.31	1.22	.45	.95	6.00	14.43	32 $\frac{1}{2}$	.45	7.37	.52
102	7 $\frac{3}{4}$	16 $\frac{1}{4}$	4.27	1.40	.30	.93	.66	.95	6.00	14.51	31	.47	6.68	.39
112	9	19	5.00	1.76	.35	1.02	.84	.95	6.00	15.92	33 $\frac{1}{4}$	.48	6.37	.34
105	12	20	6.02	1.68	.30	1.17	2.59	.95	6.00	18.71	38 $\frac{3}{4}$	.48	6.19	.32
301	6 $\frac{3}{4}$	15 $\frac{1}{2}$	3.91	1.62	.57	.97	1.75	.95	6.00	15.77	32	.49	5.91	.29
419	9	19 $\frac{1}{4}$	5.07	1.78	.38	.93	1.18	.95	6.00	16.29	31	.53	4.90	.18
116	5 $\frac{3}{4}$	11 $\frac{3}{4}$	3.07	1.55	.31	.84	1.55	.95	6.00	14.27	25	.57	3.98	none
201	5 $\frac{1}{4}$	12 $\frac{3}{4}$	3.15	1.27	.31	.66	.81	.95	6.00	13.15	20 $\frac{3}{4}$	.63	3.02	none
111	8 $\frac{3}{4}$	22 $\frac{3}{4}$	5.38	1.86	.21	.64	.43	.95	6.00	15.47	15 $\frac{1}{2}$	1.00	-1.87	none
Avg.														
488	7 $\frac{1}{2}$	16 $\frac{1}{2}$	4.13	1.47	.34	1.03	.94	.95	6.00	14.86	33 $\frac{1}{2}$	.45	7.43	.50
Acres														

Price December 1, 1929 - 49¢ per bushel.

Cost per acre of Producing Flax - Rock and Nobles Counties - 1929

Farm No.	Hours of Work		Cost							Net Cost	Yield bu.	Cost per bu.	Net Return	Return per Four
	Man	Horse	Labor	Seed	Twine	Threshing	Fertilizer	Machine	Land					
113	7 $\frac{1}{4}$	20 $\frac{3}{4}$	\$4.70	\$2.33	-	\$2.29	\$.69	\$.95	\$6.00	\$16.96	16 $\frac{1}{2}$	\$1.03	\$35.74	\$4.40
111	6 $\frac{1}{4}$	17 $\frac{1}{2}$	3.94	1.34	.06	1.24	.43	.95	6.00	13.96	10 $\frac{1}{2}$	1.36	21.05	2.71
401	8	22 $\frac{3}{4}$	5.09	2.46	-	1.90	1.22	.95	6.00	17.62	12 $\frac{1}{2}$	1.41	23.76	2.52
301	6 $\frac{1}{2}$	15 $\frac{1}{2}$	3.75	2.70	.29	1.84	.47	.95	6.00	16.00	11 $\frac{1}{2}$	1.42	21.84	2.83
302	7 $\frac{1}{4}$	18	4.29	1.04	.52	1.59	.58	.95	6.00	14.97	9 $\frac{1}{2}$	1.62	17.21	1.85
312	10	34 $\frac{1}{2}$	7.17	2.66	.43	1.80	1.89	.95	6.00	20.90	12 $\frac{3}{4}$	1.64	21.18	1.82
201	9	23 $\frac{1}{2}$	5.50	1.39	-	1.19	.77	.95	6.00	15.80	7 $\frac{1}{2}$	2.11	11.43	.90
402	10 $\frac{3}{4}$	31 $\frac{3}{4}$	7.03	3.75	.47	1.27	.12	1.30	6.00	19.94	6	3.32	3.04	.02
Avg.														
226 Acres	8	23	5.16	2.21	.22	1.64	.77	.99	6.00	16.99	10 $\frac{3}{4}$	1.58	19.43	1.98

Price December 1, 1929 - \$2.83 per bushel.

Cost per Acre of Producing Alfalfa - Rock & Nobles Counties - 1929

Farm No.	Hours of Work		Cost					Total	Net	Yield	Cost	Net	Return	
	Man	Horse	Labor	Seed	Manure	Machine	Land	Cost	Credit	Cost	Tons	per Ton	Return	per Hour
213	12 $\frac{3}{4}$	18 $\frac{3}{4}$	\$6.09	\$1.00	\$2.02	\$2.00	\$6.00	\$17.11	-	\$17.11	3.9	\$4.39	\$46.39	\$3.47
111	11 $\frac{3}{4}$	22 $\frac{1}{4}$	6.16	1.00	.77	2.00	6.00	15.93	-	15.93	2.8	5.69	34.07	2.52
105	10 $\frac{1}{4}$	10 $\frac{3}{4}$	4.39	1.00	2.59	1.50	6.00	15.48	.39	15.09	2.3	6.56	25.41	2.19
301	12 $\frac{1}{2}$	21	6.28	1.00	.47	1.50	6.00	15.25	-	15.25	2.3	6.63	25.25	1.84
302	8 $\frac{3}{4}$	13 $\frac{1}{2}$	4.19	1.00	.58	1.86	6.00	13.63	-	13.63	2.0	6.81	22.37	2.17
419	9	13	4.29	1.00	.92	1.50	6.00	13.71	-	13.71	2.0	6.85	22.29	2.11
101	12	19 $\frac{1}{4}$	5.94	1.00	7.26	1.71	6.00	21.91	-	21.91	3.2	6.85	22.09	1.64
202	9 $\frac{1}{2}$	16 $\frac{1}{2}$	4.81	1.00	1.08	1.50	6.00	14.39	-	14.39	2.0	7.20	21.61	1.94
212	9 $\frac{3}{4}$	15 $\frac{3}{4}$	4.81	1.00	.96	2.00	6.00	14.77	-	14.77	2.0	7.39	21.23	1.86
107	11 $\frac{1}{2}$	14 $\frac{1}{2}$	5.17	1.00	.57	1.50	6.00	14.24	1.29	12.95	1.7	7.62	18.55	1.39
401	15 $\frac{1}{2}$	28 $\frac{1}{4}$	8.06	1.00	1.22	1.50	6.00	17.78	-	17.78	2.3	7.73	22.72	1.38
102	10 $\frac{3}{4}$	18	5.36	1.00	3.55	1.50	6.00	17.41	.73	16.68	2.1	7.94	20.82	1.68
106	10	14 $\frac{1}{2}$	4.75	1.00	.45	1.50	6.00	13.70	-	13.70	1.3	10.54	11.80	.88
118	18 $\frac{1}{2}$	21	8.08	1.00	1.61	1.50	6.00	18.19	-	18.19	1.6	11.37	11.81	.61
219	9	16 $\frac{1}{2}$	4.66	1.00	1.64	1.50	6.00	14.80	-	14.80	1.2	12.33	9.20	.66
319	14	23 $\frac{3}{4}$	7.03	1.00	1.76	1.50	6.00	17.29	-	17.29	1.3	13.30	8.21	.46
201	8 $\frac{3}{4}$	16	4.55	1.00	.77	1.50	6.00	13.82	-	13.82	.9	15.36	5.68	.26
Avg.														
215	11 $\frac{1}{2}$	17 $\frac{1}{2}$	5.55	1.00	1.66	1.62	6.00	15.83	.14	15.69	2.0	7.85	20.01	1.55
Acres														

Price December 1, 1929 - \$15.00 per ton.

Cost per Acre of Producing Wild Hay - Rock and Nobles Counties - 1929

Farm No.	Hours of Work		Cost			Total Cost	Credit	Net Cost	Yield Tons	Cost per Ton	Net Return	Return per Ton
	Min	Horse	Labor	Machine	Land							
312	6	13 $\frac{1}{2}$	\$3.38	\$.85	\$5.00	\$9.23	-	\$9.23	1.7	\$5.43	\$11.07	\$1.31
402	6 $\frac{1}{2}$	9	2.97	.85	5.00	8.82	-	8.82	1.5	5.88	9.68	1.05
302	6 $\frac{1}{2}$	10 $\frac{3}{4}$	3.17	.85	5.00	9.02	-	9.02	1.5	6.01	9.48	1.02
219	4 $\frac{3}{4}$	6 $\frac{3}{4}$	2.24	.85	5.00	8.09	.37	*7.72	1.2	6.43	8.08	.95
319	6	10 $\frac{1}{2}$	3.09	1.02	5.00	9.11	-	9.11	1.2	7.59	6.69	.58
116	5 $\frac{3}{4}$	8 $\frac{3}{4}$	2.77	.85	5.00	8.62	-	8.62	1.1	7.84	6.28	.52
301	4	6 $\frac{1}{2}$	1.99	.85	5.00	7.84	-	7.84	1.0	7.84	6.16	.59
213	4 $\frac{1}{2}$	8 $\frac{1}{2}$	2.27	.85	5.00	8.12	-	8.12	1.0	8.12	5.88	.51
102	9	18	4.85	.85	5.00	10.70	-	10.70	1.3	8.23	6.00	.41
105	5 $\frac{1}{2}$	10 $\frac{1}{2}$	2.80	1.02	5.00	8.82	-	8.82	1.0	8.82	5.18	.33
113	3 $\frac{1}{2}$	5 $\frac{3}{4}$	1.68	.85	5.00	7.53	-	7.53	.8	9.41	4.67	.20
112	4 $\frac{1}{4}$	7 $\frac{1}{4}$	2.13	.85	5.00	7.98	-	7.98	.8	9.98	4.22	.12
118	6 $\frac{3}{4}$	9 $\frac{3}{4}$	3.18	1.10	5.00	9.28	-	9.28	.8	11.60	2.92	none
106	6 $\frac{1}{4}$	7 $\frac{3}{4}$	2.81	.85	5.00	8.66	-	8.66	.7	12.37	2.64	none
201	5 $\frac{1}{4}$	10	2.76	.93	5.00	8.69	-	8.69	.7	12.41	2.61	none
Avg. 329 acres	5 $\frac{1}{2}$	9 $\frac{1}{2}$	2.79	.89	5.00	8.68	.02	8.66	1.1	7.87	6.24	.53

Price December 1, 1929 - \$9.00 per ton

Cost per Acre of Producing Corn Fodder - Rock and Nobles Counties - 1929

Farm No.	Hours of work			Cost						Net Cost	Yield Tons	Cost per Ton	Net Return	Return per Hour
	Man	Horse	Tractor	Labor	Seed	Twine	Manure	Machine	Land					
123	13 $\frac{3}{4}$	33 $\frac{1}{2}$	-	\$8.15	\$1.26	\$.58	\$1.82	\$1.65	\$6.00	\$19.55	4.6	\$4.25	\$32.44	\$2.22
112	19 $\frac{1}{2}$	42 $\frac{1}{2}$	-	10.97	.39	.58	1.92	1.65	6.00	21.50	5.0	4.30	34.50	1.76
202	17 $\frac{1}{4}$	36 $\frac{1}{4}$	3	11.64	.54	.66	.45	1.65	6.00	20.94	4.3	4.87	28.06	1.58
312	10	25 $\frac{3}{4}$	-	6.12	1.00	.54	2.79	1.65	6.00	18.11	3.3	5.49	20.89	1.79
319	13 $\frac{1}{4}$	32 $\frac{1}{4}$	-	7.87	.72	.51	-	1.65	6.00	16.74	3.0	5.58	19.26	1.30
116	11 $\frac{1}{4}$	26 $\frac{1}{2}$	-	6.58	1.85	.83	2.52	1.55	6.00	19.43	3.3	5.89	19.57	1.51
119	12 $\frac{1}{4}$	23 $\frac{3}{4}$	-	6.57	.62	.79	1.82	1.65	6.00	17.45	2.7	6.46	15.55	1.08
106	11	18	1 $\frac{3}{4}$	6.72	1.83	.37	.53	1.65	6.00	17.10	2.5	6.84	13.90	1.02
302	15 $\frac{3}{4}$	41 $\frac{1}{2}$	-	9.70	.91	.78	2.72	1.65	6.00	21.75	3.0	7.25	14.25	.82
212	10 $\frac{3}{4}$	19 $\frac{1}{2}$	1 $\frac{1}{2}$	6.79	.98	.42	.96	1.65	6.00	16.81	2.3	7.31	12.19	.88
401	13 $\frac{1}{4}$	30 $\frac{3}{4}$	-	7.64	1.07	.66	1.22	1.65	6.00	18.24	2.1	8.69	8.76	.51
105	18	38 $\frac{3}{4}$	-	10.03	.62	.94	2.08	1.55	6.00	21.32	2.4	8.88	8.68	.45
Avg.	13 $\frac{3}{4}$	30 $\frac{3}{4}$	$\frac{1}{2}$	8.23	.98	.65	1.57	1.65	6.00	19.08	3.2	5.96	18.92	1.24
Acres														

Price December 1, 1929 - \$10.00 per ton

Cost per Acre of Producing Corn Silage - Rock and Nobles Counties - 1929

Farm No.	Hours of Work			Cost							Total		Net Yield Cost Tons per Ton	Yield Tons per Acre	Cost per Ton	Net Return per Hour	
	Man	Horse	Tractor	Labor	Seed	Twine	Silo Mach.	Manure	Machine	Land	Cost	Credit					
401	23 $\frac{1}{2}$	59 $\frac{3}{4}$	-	\$14.08	\$1.04	\$1.13	\$3.40	\$1.22	\$1.65	\$6.00	\$28.52	-	\$28.52	11.5	\$2.48	\$34.98	\$1.53
419	24 $\frac{1}{2}$	55 $\frac{1}{2}$	-	13.98	.67	.54	2.57	2.98	1.65	6.00	28.39	*3.58	24.81	8.6	2.88	24.19	1.04
113	18	52 $\frac{1}{4}$	-	11.66	.51	-	4.16	.69	.95	6.00	23.97	-	23.97	7.6	3.15	20.03	1.08
102	19	46 $\frac{3}{4}$	-	11.53	.73	.40	3.04	.94	1.65	6.00	24.30	-	24.30	6.3	3.86	13.20	.68
101	25 $\frac{1}{4}$	43	3 $\frac{1}{4}$	15.27	.97	.58	2.53	7.31	1.65	6.00	34.31**	3.11	31.20	8.1	3.85	15.30	.67
202	23 $\frac{3}{4}$	48 $\frac{1}{2}$	3	15.09	.54	.66	1.67	.45	1.65	6.00	26.06	-	26.06	6.6	3.95	12.94	.59
111	17 $\frac{1}{2}$	49 $\frac{3}{4}$	$\frac{1}{4}$	11.51	.52	.46	1.73	.95	1.65	6.00	22.82**	1.33	21.49	5.0	4.30	9.51	.50
212	18 $\frac{1}{2}$	36 $\frac{1}{2}$	2	11.97	.51	.29	1.09	2.62	1.65	6.00	24.13	-	24.13	4.8	5.03	5.87	.29
Avg. 126 Acres	21 $\frac{1}{4}$	49 $\frac{1}{2}$	1	13.13	.69	.51	2.52	2.15	1.56	6.00	26.56	1.00	25.56	7.3	3.50	16.94	.81

Price December 1, 1929 - \$5.00 per ton.