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 1930
on the

FARM ACCOUNTING ROUTE

In

ROCK & NOBLES COUNTIES, MINNESOTA

By

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SOURCE OF DATA

Method of Study

The Divisions of 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. This preliminary report deals with the costs and returns in 1930 for the principal crops grown on these farms. The averages for the 1929 crop season are also included for comparison. 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 is 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 1930 was 347 acres. This is approximately 66% larger than the average size of the farms in these two counties. Corn, oats, barley, alfalfa, wild hay and flax are the principal crops grown. 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 12 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 the 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 10½ cents per hour in 1930, at 12 cents in 1929, 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 pro-rated 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. 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. The costs for flax include marketing labor where the flax was marketed direct from the threshing machine. All other marketing costs are excluded from all crops and the costs are figured at the farm. The costs for corn fodder include the labor only through shocking. The labor for hauling it in is excluded from these tabulations. The hay costs do not include any labor for hauling stacked hay to the barns or feed lots.

Methods of Presentation

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 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 and the inclusion of 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.

THE 1930 CROP SEASON

Weather and Yields

The 1930 crop season was very favorable from the standpoint of seed-bed 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 average yields on the farms studied in 1929 and 1930, as well as the five year average yields for Rock and Nobles Counties are presented in the following table. County averages are not available for several of the crops and hence only the route averages are given.

YIELD OF CROPS

Crop	10 Year Average Rock & Nobles Co.*	Route Average 1929	Route Average 1930
Corn, bu.	34	38	32
Oats, bu.	35	51	54
Barley, bu.	30	32	29
Flax, bu.	10¾	11	13
Alfalfa, ton	--	2.0	1.6
Corn Silage, ton	--	7.3	5.1
Corn Fodder, ton	--	3.3	1.9
Wild Hay, ton	.96	1.00	1.2

*From reports of State Department of Agriculture.

Since the farms studied are better than the average of these counties and since they carry more than the average amount of livestock, the yields on these farms would normally be expected to be above the averages for the counties.

Price

The 1930 crop season was further marked by lower prices. A comparison of the December 1 farm price for the important crops grown on these farms with the seven year average for these two counties is presented in the following table.

DECEMBER 1st FARM PRICES

Crop	7 yr. Average Rock & Nobles Co.*	Farms Studied 1929	Farms Studied 1930
Corn, per bu.	$ .64	$ .56	$ .53
Oats, per bu.	.35	.36	.24
Barley, per bu	.55	.49	.38
Flax, per bu	2.21	2.83	1.48
Alfalfa hay, per ton	--	15.00	14.00
Corn Silage, per ton	--	5.00	4.50
Corn Fodder, per ton	--	10.00	8.00
Wild Hay, per ton	8.72	9.00	7.00

* Prices from reports of State Department of Agriculture. Alfalfa, corn silage, and corn fodder prices are not published.

The 1930 prices for all crops were lower than in 1929 and also lower than the seven year average. Corn was approximately 17 per cent, oats, barley and flax 30 to 33 per cent, and wild hay 20 per cent below the seven year averages. Several farmers sold their flax at harvest time at a price 30 to 40 cents higher per bushel than the December 1, 1930 price. To that extent flax was just that much more profitable to them.

With generally lower prices and in some cases lower yields, the 1930 returns from the various crops were considerably below those of 1929. A summary of the average cost and return per acre for each of the important crops is presented on page 9. 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 Average	High	Low	Dec. 1 price	% producing at a cost above Dec. 1 price
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 1st 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 & 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 overlooked is 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 crop 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 prices 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.

Cash Crop Prospects for 1931

In planning cash crops for 1931, one must look ahead as to probable future prices. The price relation of the past seven years are not necessarily those of 1931. The Outlook Report of the United States Department of Agriculture just issued throws some light on this subject. In spite of the fact that the 1930 corn crop was the smallest in 29 years the price is 11 cents below the seven year average prices. With a normal crop in 1931 we may expect a still lower price for this years crop than for the 1930 crop unless an unexpected revival of business occurs. With normal yields barley prices will probably maintain about the same relation to corn prices as they have the past seven years. The same may be said of the price of oats. If anything oats will bring a relatively lower price. The price of flax this fall will depend on the size of the crop. The acreage of flax in 1930 was the largest ever grown in the United States. With the same acreage in 1931, the usual abandonment and an average yield, the total production will be about 14% below the probable domestic requirements. Flax yields vary widely. A large yield or a material increase in acreage in 1931 may reduce the effectiveness of our flax tariff and depress prices. No considerable increase in flax acreage is justified except for those producers who yields are high enough to reduce cost to a point where they can still get a fair return with lower prices. However, those now growing flax in southwestern Minnesota and getting satisfactory yields cannot hope to increase their profits in 1931 by shifting out of flax into corn, barley, or oats. They may well distribute their risks by maintaining their present flax acreage, using good seed and planting early.

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 expensive 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 wild hay 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.

Planning for the Future

The data in this report should prove useful in planning the cropping system for 1931 if one keeps in mind the comparisons on the basis of 10-year average yields and prices and the 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. There must be small grain to balance up the cropping system. Barley seems to have the advantage as a feed crop. Hence it would seem wise to substitute barley for oats as far as possible. Alfalfa promises the most economical roughage and unless there is an unusually large hay crop in 1931 any surplus should be saleable at a profitable price.

These crop cost studies will be continued thru 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 and 1930 to continue the work thru the next year 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.

Comparative Cost and Return per Acre of Principal Crops
Rock and Nobles Counties, 1929-1930

	Husked Corn		Oats		Barley		Flax		Alfalfa		Wild Hay		Corn Fodder		Corn Silage	
	1929	1930	1929	1930	1929	1930	1929	1930	1929	1930	1929	1930	1929	1930	1929	1930
No. of farms	24	24	22	22	16	15	8	13	17	17	15	12	12	15	8	6
Avg. acres per farm	96	97	64	68	30	31	28	27	13	14	22	27	8	13	16	21
Man hours	13¾	12¾	7¼	7	6¾	7¼	8	8	10¾	9½	5½	5½	13¼	13	21¾	17½
Horse hours	40½	35¼	15¾	14¾	15	16¾	23	18⅕	16½	15¾	8¾	9	30	30	48¼	41
Tractor hours	½	¾	1/5	1/5	-	¼	-	½	-	-	-	-	½	1	1¼	1¼
Costs:																
Man labor	$4.13	$3.83	$2.18	$2.10	$2.03	$2.18	$2.40	$2.40	$3.23	$2.85	$1.58	$1.58	$3.98	$3.90	$6.53	$5.25
Horse & tractor work	5.32	4.44	1.94	1.70	1.86	1.97	2.76	2.45	2.08	1.70	1.04	.91	3.95	3.98	6.86	5.24
Seed	.42	.42	1.58	1.21	1.49	1.06	2.21	2.57	1.00	1.00	-	-	1.01	.63	.71	.60
Twine	-	-	.34	.40	.36	.34	.22	.26	-	-	-	-	.63	.50	.48	.40
Threshing	*.37	.47	1.21	1.11	.99	.80	1.64	1.65	-	-	-	-	-	-	2.53	1.95
Manure & fertilizer	1.75	1.90	.89	.76	.96	.73	.77	.72	2.16	1.30	-	-	1.58	1.69	3.10	1.72
Machine charge	.95	.95	.95	.95	.95	.95	.99	.94	1.63	1.53	.90	.85	1.65	1.65	1.56	1.53
Operating costs	12.94	12.01	9.09	8.22	8.64	8.03	10.99	10.99	10.10	8.38	3.52	3.34	12.80	12.26	21.77	16.69
Land charge	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.00	5.00	6.00	6.00	6.00	6.00
Total costs	18.94	18.01	15.09	14.22	14.64	14.03	16.99	16.99	16.10	14.38	8.52	8.34	18.80	18.26	27.77	22.69
Credit	1.00	1.00	-	-	-	-	-	-	.14	.29	-	-	-	-	1.24	.54
Net cost	17.94	17.01	15.09	14.22	14.64	14.03	16.99	16.99	15.96	14.09	8.52	8.34	18.80	18.26	26.53	22.15
Yield, grain bu.	38.0	31.7	50.7	53.7	32.2	29.2	11.2	13.0	-	-	-	-	-	-	-	-
Yield, roughage T.	-	-	-	-	-	-	-	-	2.0	1.6	1.00	1.2	3.3	1.9	7.3	5.1
Cost per unit	.47	.54	.29	.27	.45	.48	1.50	1.31	7.98	8.80	8.52	6.95	5.70	10.52	3.63	4.34
December 1 price	.56	.48	.36	.24	.49	.38	2.83	1.48	15.00	14.00	9.00	7.00	10.00	8.00	5.00	4.50
Crop value	21.27	15.24	18.25	12.88	15.78	11.10	31.84	19.24	30.00	22.40	9.00	8.40	33.00	15.20	36.50	22.95
Net return	3.33	-1.77	3.16	-1.35	1.14	-2.93	14.85	2.25	14.04	8.31	.48	.06	14.20	-3.06	9.97	.80
Return for land	9.33	4.23	9.16	4.65	7.14	3.07	20.85	8.25	20.04	14.31	5.48	5.06	20.20	2.94	15.97	6.80
Return per man hour	.54	.16	.74	.10	.47	none	2.16	.58	1.61	1.17	.39	.31	1.37	.06	.76	.35

*Corn picker.

Comparative Cost and Return per Acre of Husked Corn
Rock and Nobles Counties - 1930

Farm No.	Hours of Work: Man	Horse	Tractor	Costs: Labor	Seed	Husker	Manure & Fertil.	Machine	Land	Total Costs	Credit	Net Cost	Yield: Bu.	Grade	Cost per Bushel	Net Return	Return per Man Hour
123	10 3/4	31 1/2	-	$6.66	$.27	$	$2.36	$.95	$6.00	$16.24	$1.00	$15.24	35.3	4	$.43	$1.70	$.46
402	10 3/4	34	-	6.78	.49	1.47	1.42	.95	6.00	17.11	1.00	16.11	36.6	4	.44	1.46	.44
401	12 3/4	37 1/2	1	8.73	.48	.70	1.94	.95	6.00	18.80	1.00	17.80	39.8	4	.45	1.30	.40
107	9 1/4	17 1/4	2 1/4	6.26	.56	1.23	.95	.95	6.00	15.95	1.00	14.95	32.9	4	.45	.84	.39
502	12	27 1/4	1 1/4	7.82	.45	-	.85	.95	6.00	16.07	1.00	15.07	33.3	4	.45	.91	.38
119	9 1/4	34 1/2	-	6.37	.52	.70	2.02	.95	6.00	16.56	1.00	15.56	33.6	4	.46	.57	.36
213	9 3/4	33 1/2	-	6.46	.35	.70	2.10	.95	6.00	16.56	1.00	15.56	33.1	4	.47	.33	.33
113	13 1/2	42	-	8.47	.32	-	2.64	.95	6.00	18.38	1.00	17.38	36.5	4	.48	.14	.31
211	12 3/4	34 1/2	1 1/4	8.74	.30	.70	1.91	.95	6.00	18.60	1.00	17.60	35.2	3	.50	-	.30
118	14 1/2	26 1/4	1 1/2	8.68	.39	-	1.24	.95	6.00	17.26	1.00	16.26	32.6	4	.50	-.61	.26
104	18 1/4	50 1/4	1/4	11.25	.63	-	2.24	.95	6.00	21.07	1.00	20.07	38.5	4	.52	-1.59	.21
218	16 3/4	42 3/4	1 1/2	10.60	.42	-	.65	.95	6.00	18.62	1.00	17.62	33.2	4	.53	-1.68	.20
219	10 3/4	26 1/2	2 3/4	8.76	.62	.70	2.58	.95	6.00	19.61	1.00	18.61	34.3	3	.54	-1.46	.16
202	17 1/4	34	2 3/4	10.90	.47	-	2.25	.95	6.00	20.57	1.00	19.57	35.4	4	.55	-2.58	.15
105	21 1/2	56 3/4	-	12.41	.36	-	3.23	.95	6.00	22.95	1.00	21.95	40.0	4	.55	-2.75	.17
312	12	41 1/4	-	7.94	.53	.70	2.46	.95	6.00	18.58	1.00	17.58	30.7	3	.57	-2.23	.11
116	11 1/4	45 1/2	-	8.17	.34	.70	1.12	.95	6.00	17.28	1.00	16.28	27.4	4-5	.59	-3.47	none
419	11 1/2	37 1/4	3/4	8.21	.50	.70	3.05	.95	6.00	19.41	1.00	18.41	31.2	4	.59	-3.44	"
501	12 1/2	21	2 3/4	8.10	.46	-	.33	.95	6.00	15.84	1.00	14.84	24.0	5	.62	-3.80	"
302	10 1/4	30 1/4	-	6.29	.43	1.47	4.09	.95	6.00	19.23	1.00	18.23	28.4	4	.64	-4.60	"
301	13 1/4	47 3/4	-	8.94	.36	.70	2.15	.95	6.00	19.10	1.00	18.10	26.9	4	.67	-5.19	"
319	8 1/4	26 1/4	1 1/4	6.23	.29	.70	1.54	.95	6.00	15.71	1.00	14.71	20.7	4	.71	-4.77	"
201	13 1/2	30 3/4	1 1/2	7.80	.30	-	1.49	.95	6.00	16.54	1.00	15.54	21.3	5	.73	-5.74	"
102	14 1/4	34 3/4	-	7.90	.35	-	.91	.95	6.00	16.11	1.00	15.11	19.7	4	.77	-5.65	"
Aver.																	
1930	12 3/4	35 1/4	3/4	8.27	.42	.47	1.90	.95	6.00	18.01	1.00	17.01	31.7	4	.54	-1.77	.16
1929	13 3/4	40 1/2	1/2	9.45	.42	.37	1.75	.95	6.00	18.94	1.00	17.94	38.0	5	.47	3.33	.54

December 1 price per bu. 1930 - No. 3, 50¢; No. 4, 48¢; No. 5, 46¢.
December 1 " " " 1929 - - - No. 4, 58¢; No. 5, 56¢; No. 6, 54¢.

Comparative Cost and Return per Acre of Oats
Rock and Nobles Counties - 1930

Farm No.	Hours of Work: Man	Horse	Tractor	Costs: Labor	Seed	Twine	Thresh.	Manure	Machine	Land	Total Cost	Yield (bu.)	Cost per bu.	Net Return	Return per Hour
302	5½	14¼	-	$3.16	$1.39	$.39	$1.35	$1.15	$.95	$6.00	$14.39	72.6	$.20	$3.03	$.85
402	6	15¾	-	3.42	1.22	.37	1.25	.56	.95	6.00	13.77	64.8	.21	1.78	.60
107	5¾	11½	-	2.92	1.25	.35	1.54	.57	.95	6.00	13.58	59.3	.23	.65	.41
213	6¼	11½	-	3.10	1.38	.38	1.09	.53	.95	6.00	13.43	56.1	.24	.03	.30
218	6¾	16½	-	3.78	1.30	.43	1.24	.65	.95	6.00	14.35	59.4	.24	-.09	.29
201	5¼	13¼	-	2.95	1.13	.49	1.09	.54	.95	6.00	13.15	52.5	.25	-.55	.20
102	8	18	-	4.28	1.06	.39	1.16	.47	.95	6.00	14.31	56.8	.25	-.68	.21
202	6¼	11½	½	3.43	.90	.32	1.05	.76	.95	6.00	13.41	54.0	.25	-.45	.23
319	5¼	11¼	¼	2.88	1.30	.37	1.19	.81	.95	6.00	13.50	54.5	.25	-.42	.22
113	5¾	14½	-	3.23	1.32	.43	1.21	.64	.95	6.00	13.78	53.9	.26	-.84	.15
301	6½	15¼	-	3.56	1.17	.42	1.03	.65	.95	6.00	13.78	51.5	.27	-1.42	.08
502	6¼	10½	¾	3.77	1.14	.50	1.03	.28	.95	6.00	13.67	51.4	.27	-1.33	.09
118	6	11¾	½	3.40	1.23	.29	.99	.49	.95	6.00	13.35	49.1	.27	-1.56	.04
116	7¼	17	-	3.95	1.36	.47	1.00	.44	.95	6.00	14.17	51.6	.27	-1.79	.05
123	5¾	11¼	-	2.88	1.36	.52	1.14	1.86	.95	6.00	14.71	54.0	.27	-1.75	-
401	9¼	19½	-	4.82	1.17	.46	1.14	.69	.95	6.00	15.23	54.5	.28	-2.15	.07
105	10¼	20¾	-	5.28	1.28	.35	1.21	1.76	.95	6.00	16.83	59.2	.28	-2.62	.04
119	6½	16½	-	3.68	.90	.27	.97	.64	.95	6.00	13.41	47.8	.28	-1.94	none
419	9	20¼	-	4.90	1.43	.38	1.14	1.38	.95	6.00	16.18	56.2	.29	-2.69	"
211	7	13¾	¾	4.17	1.00	.34	.84	.69	.95	6.00	13.99	42.2	.33	-3.86	"
312	7	19	-	4.09	1.17	.32	.98	1.08	.95	6.00	14.59	44.0	.33	-4.03	"
501	9¾	12	1¼	5.87	1.24	.48	.73	.18	.95	6.00	15.45	35.6	.43	-6.91	"
Aver.															
1930	7	14¾	1/5	3.80	1.21	.40	1.11	.76	.95	6.00	14.22	53.7	.27	-1.35	.10
1929	7¼	15¾	1/5	4.12	1.58	.34	1.21	.89	.95	6.00	15.09	50.7	.29	3.16	.74

December 1 price per bushel, 1929 - $.36, 1930 - $.24.

Comparative Cost and Return per Acre of Barley
Rock and Nobles Counties - 1930

Farm No.	Hours of Work			Costs							Total Cost	Yield Bu.	Cost per Bushel	Net Return	Return per Hour
	Man	Horse	Tractor	Labor	Seed	Twine	Thresh.	Manure	Mach.	Land					
502	6	11½	¼	$3.30	$1.06	$.44	$1.09	$.28	$.95	$6.00	$13.12	36.2	$.36	$.64	$.41
419	11	22¾	-	5.67	1.34	.38	1.14	1.37	.95	6.00	16.85	46.2	.36	.71	.36
119	5½	13½	-	3.08	1.06	.36	1.01	.64	.95	6.00	13.10	35.6	.37	.43	.38
107	6¾	15	¼	3.79	.77	.34	.92	.84	.95	6.00	13.61	34.4	.40	-.54	.22
218	5¾	14¼	-	3.22	.91	.40	.84	.65	.95	6.00	12.97	29.2	.44	-1.87	none
201	5¾	12½	¼	3.28	.98	.11	.80	.54	.95	6.00	12.66	26.2	.48	-2.70	"
102	7½	16¾	-	4.00	1.09	.32	.84	.68	.95	6.00	13.88	28.2	.49	-3.16	"
211	7½	15	¼	4.18	.90	.37	.85	.69	.95	6.00	13.94	28.4	.49	-3.15	"
301	5¾	12½	-	2.99	1.24	.46	.78	.65	.95	6.00	13.07	25.9	.50	-3.23	"
319	4	8½	¼	2.27	1.09	.31	.70	.83	.95	6.00	12.15	23.8	.51	-3.11	"
118	6¾	12½	1	4.21	1.12	.29	.79	.96	.95	6.00	14.32	26.4	.54	-4.29	"
123	12¾	47½	-	8.80	.84	.46	.48	1.55	.95	6.00	19.08	34.4	.55	-6.01	"
501	8	8½	1¾	5.12	1.32	.31	.79	.14	.95	6.00	14.63	26.3	.56	-4.64	"
116	6½	15½	-	3.56	1.28	.27	.50	.48	.95	6.00	13.04	21.1	.62	-5.02	"
113	7½	24¼	-	4.80	.82	.25	.46	.64	.95	6.00	13.92	15.4	.90	-8.07	"
Aver.															
1930	7¼	16¾	¼	4.15	1.06	.34	.80	.73	.95	6.00	14.03	29.2	.48	-2.93	none
1929	6¾	15	-	3.89	1.49	.36	.99	.96	.95	6.00	14.64	32.2	.45	1.14	.47

December 1 price per bu., 1930 - $.38, 1929 - $.49.

Comparative Cost and Return per Acre of Flax
Rock and Nobles Counties - 1930

Farm No.	Hours of Work			Costs							Total Cost	Yield Bu.	Cost Per Bu.	Net Return	Return Per Hour
	Man	Horse	Tractor	Labor	Seed	Twine	Threshing	Manure	Machine	Land					
202	8¾	16¼	¾	$5.12*	$1.68	$ -	$2.70	$.76	$.95	$6.00	$17.21	19.7	$.87	$11.95	$1.67
312	7¾	24¼	-	4.90	.88	.30	2.24	1.20	.95	6.00	16.47	17.2	.96	8.99	1.46
401	9	22½	-	5.07	3.68	-	2.26	.97	.95	6.00	18.93	18.8	1.01	8.89	1.29
302	7	13½	-	3.69*	2.55	.40	2.05	1.17	.95	6.00	16.81	16.2	1.04	7.17	1.32
502	8¼	19	½	4.95	2.65	.36	1.91	.28	.95	6.00	17.10	15.1	1.13	5.25	.94
211	6	12	¼	3.37	2.48	.42	1.70	.69	.95	6.00	15.61	13.6	1.15	4.52	1.05
301	8½	22	¼	5.10	3.56	.42	2.14	1.27	.95	6.00	19.44	16.7	1.15	5.28	.92
113	5¾	15¾	-	3.37	2.75	-	1.85	.64	.95	6.00	15.56	13.2	1.18	3.98	.99
402	5½	14¾	-	3.57*	2.58	.41	1.78	.56	.95	6.00	15.85	13.3	1.19	3.83	1.00
319	8½	22¾	½	5.22	1.66	.19	1.07	-	.95	6.00	15.09	10.8	1.40	.89	.40
218	10	20	2¼	6.72	4.09	.29	.79	.65	.95	6.00	19.49	6.6	2.97	-11.04	none
104	11¼	23	2½	8.12	2.39	.38	.74	.65	.95	6.00	19.23	6.2	3.10	-10.05	none
201	6¼	15	½	3.89	2.52	.14	.28	.54	.78	6.00	14.15	2.0	7.07	-11.19	none
Avg.															
1930	8	18½	½	4.85	2.57	.26	1.65	.72	.94	6.00	16.99	13.0	1.31	2.25	.58
1929	8	23	-	5.16	2.21	.22	1.64	.77	.99	6.00	16.99	11.2	1.50	14.85	2.16

December 1 price per bu. 1929 - $2.83, 1930 - $1.48

*Includes a small charge for trucking.

Comparative Cost and Return per Acre of Alfalfa Hay
Rock and Nobles Counties - 1930

Farm No.	Hours of Work		Costs					Total Cost	Credit	Net Cost	Yield Tons	Cost per Ton	Net Return	Return per Hour
	Man	Horse	Total Labor	Seed	Manure & Fertilizer	Machine	Land							
113	5¼	11¾	$2.84	$1.00	$.64	$1.50	$6.00	$11.98	$1.72	$10.26	2.2	$4.66	$20.54	$4.21
213	9¼	14¾	4.33	1.00	3.42	1.50	6.00	16.25	.48	15.77	2.7	5.84	22.03	2.68
319	8¼	14	3.95	1.00	2.70	1.56	6.00	15.21	-	15.21	2.4	6.34	18.39	2.53
302	9½	12	4.15	1.00	1.14	1.63	6.00	13.92	-	13.92	2.1	6.63	15.48	1.97
202	8	13¼	8.34	1.00	1.98	1.50	6.00	14.32	.14	14.18	2.1	6.76	15.22	2.20
102	6¼	11½	3.10	1.00	1.85	1.30	6.00	13.26	-	13.26	1.9	6.98	13.34	2.43
218	9¾	18½	4.88	1.00	.65	1.50	6.00	14.03	-	14.03	1.7	8.25	9.77	1.30
419	11¾	26¼	6.32	1.00	1.45	1.50	6.00	16.27	-	16.27	1.8	9.04	8.93	1.04
401	9¾	15¾	4.55	1.00	1.30	1.50	6.00	14.35	-	14.35	1.4	10.25	5.25	.84
301	6¾	12¼	3.29	1.00	.65	1.50	6.00	12.44	-	12.44	1.2	10.37	4.36	.95
118	13½	19½	6.13	1.00	1.55	1.50	6.00	16.18	2.62	13.56	1.3	10.43	4.64	.64
105	20	28	8.92	1.00	.86	1.50	6.00	18.28	-	18.28	1.7	10.75	5.52	.58
402	9½	15½	4.51	1.00	.56	2.10	6.00	14.17	-	14.17	1.3	10.90	4.03	.72
219	13¾	19	6.11	1.00	1.06	1.50	6.00	15.67	-	15.67	1.2	13.06	1.13	.38
501	8	10	3.69	1.00	.50	1.50	6.00	12.69	-	12.69	.9	14.10	-.09	.29
119	6¾	15½	3.69	1.00	.64	1.50	6.00	12.83	-	12.83	.7	18.33	-3.03	none
211	6¼	10½	3.01	1.00	1.14	1.50	6.00	12.65	-	12.65	.6	21.08	-4.25	"
Aver.														
1930	9½	15¾	4.55	1.00	1.30	1.53	6.00	14.38	.29	14.09	1.6	8.80	8.31	1.17
1929	10¾	16½	5.31	1.00	2.16	1.63	6.00	16.10	.14	15.96	2.0	7.98	14.04	1.61

December 1 price per ton, 1929 - $15.00, 1930 - $14.00.

Comparative Cost and Return per Acre of Wild Hay
Rock and Nobles Counties - 1930

Farm No.	Hours of Work		Costs			Total Cost	Yield Tons	Cost per Ton	Net Return	Return per Man Hour
	Man	Horse	Total Labor	Machine	Land					
218	5½	11	$2.79	$.85	$5.00	$8.64	1.7	$5.08	$3.26	$.89
312	5½	11¼	2.86	.85	5.00	8.71	1.6	5.44	2.49	.75
319	6¾	12½	3.36	.85	5.00	9.21	1.6	5.75	1.99	.59
118	7	9½	3.14	.85	5.00	8.99	1.4	6.42	.81	.42
105	3¾	6¾	1.87	.85	5.00	7.72	1.2	6.43	.68	.48
119	4	8¼	2.10	.85	5.00	7.95	1.2	6.63	.45	.41
302	5½	7¾	2.43	.85	5.00	8.28	1.2	6.90	.12	.32
102	5¾	10¼	2.81	.85	5.00	8.66	1.1	7.87	-.96	.13
113	3¼	5½	1.55	.85	5.00	7.40	.9	8.22	-1.10	none
301	3¼	5¾	1.56	.85	5.00	7.41	.9	8.23	-1.11	"
116	7	10¾	3.22	.85	5.00	9.07	1.0	9.07	-2.07	"
201	4½	7¼	2.14	.87	5.00	8.01	.6	13.35	-3.81	"
Aver.										
1930	5¼	9	2.49	.85	5.00	8.34	1.2	6.95	.06	.31
1929	5¼	8¾	2.62	.90	5.00	8.52	1.0	8.52	.48	.39

December 1 price per ton, 1930 - $7.00, 1929 - $9.00.

Comparative Cost and Return per Acre of Corn Fodder
Rock and Nobles Counties - 1930

Farm No.	Hours of Work			Costs						Total Cost	Yield tons	Cost per Ton	Net Return	Return per Man Hour
	Man	Horse	Tractor	Total Labor	Seed	Twine	Manure	Machine	Land					
502	9¾	19¾	1½	$6.42	$.77	$.81	$.82	$1.65	$6.00	$16.47,	2.9	$5.70	$6.73	$.99
104	12½	28¼	¼	7.28	.53	.44	1.86	1.65	6.00	16.48*	2.4	6.87	2.72	.52
401	20¾	39¼	¾	11.24	1.14	.60	3.48	1.65	6.00	24.11	3.2	7.56	1.49	.37
213	9¼	25½	-	5.43	.50	.52	.53	1.65	6.00	14.63	1.9	7.74	.57	.36
119	10¾	30½	-	6.43	.46	.53	1.08	1.65	6.00	16.15	1.8	8.97	-1.75	.14
105	19¼	49½	-	10.95	.64	.69	1.40	1.65	6.00	21.33	2.3	9.33	-2.93	.15
211	15¾	37	1	9.65	.29	.65	1.49	1.65	6.00	19.73	2.0	10.06	-3.73	.06
123	11¼	38	-	7.36	.91	.57	1.59	1.65	6.00	18.08	1.7	10.70	-4.48	none
218	9	18½	1½	5.69	.32	.44	3.97	1.65	6.00	18.07	1.6	11.15	-5.27	"
319	10½	30½	¼	6.61	.58	.41	1.52	1.65	6.00	16.77	1.4	12.41	-5.57	"
118	15¼	30¾	1½	9.26	.45	.25	.22	1.65	6.00	17.83	1.4	12.42	-5.63	"
202	12	23¾	3	8.27	.74	.27	.78	1.65	6.00	17.71	1.4	12.65	-6.51	"
312	9¼	31¾	-	6.13	1.11	.47	2.59	1.65	6.00	17.95.	1.4	12.65	-5.75	"
501	15½	21¼	2¾	9.00	.47	.28	.47	1.65	6.00	17.87	1.3	13.75	-7.47	"
219	15¼	26¾	1	8.44	.59	.53	3.52	1.65	6.00	20.73	1.4	14.88	-9.53	"
Aver.														
1930	13	30	1	7.88	.63	.50	1.69	1.65	6.00	18.26	1.9	10.52	-3.06	.06
1929	13½	30	½	7.93	1.01	.63	1.58	1.65	6.00	18.80	3.3	5.70	14.20	1.37

*Credit of $1.28 for corn picked up after binder deducted from total expense.

December 1 price per ton, 1929 - $10.00, 1930 - $8.00.

Comparative Cost and Return per Acre of Silage Corn
Rock and Nobles Counties - 1930

Farm No.	Hours of Work			Costs							Total Costs	Credit*	Net Costs	Yield tons	Cost per Unit	Net Return	Return per Man Hr.
	Man	Horse	Tractor	Total Labor	Seed	Twine	Silo Mach.	Manure & Fertiliz. Mach.		Land							
102	19	46¼	-	$10.54	$.65	$.42	$2.44	$1.24	$1.65	$6.00	$22.94	$-	$22.94	6.5	$3.54	$6.31	$.63
419	23	50¼	½	12.67	.84	.63	2.15	3.41	1.65	6.00	27.35	1.90	25.45	6.9	3.68	5.60	.54
113	18½	52½	¾	11.83	.34	-	1.98	.64	.95	6.00	21.74	.37	21.37	5.6	3.82	3.83	.51
401	15½	31	1	8.92	.61	.60	1.87	2.43	1.65	6.00	22.08	-	22.08	4.6	4.81	-1.38	.21
104	14¼	36¾	1½	8.73	.51	.46	1.95	1.83	1.65	6.00	21.13	.98	20.15	3.5	5.72	-4.29	none
202	15¼	29¼	3½	10.27	.63	.27	1.30	.78	1.65	6.00	20.90	-	20.90	3.4	6.18	-5.60	"
Aver.																	
1930	17½	41	1¼	10.49	.60	.40	1.95	1.72	1.53	6.00	22.69	.54	22.15	5.1	4.34	.80	.35
1929	21¾	48¼	1¼	13.39	.71	.48	2.53	3.10	1.56	6.00	27.77	1.24	26.53	7.3	3.63	9.97	.76

*Credit for corn picked up after corn binder.

December 1 price per ton, 1930 - $4.50, 1929 - $5.00.