



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
Paul E. Miller, Director Agricultural Extension

NO. 220

UNIVERSITY FARM, ST. PAUL

APRIL 1941

Comparative Returns from Farm Crops in Winona County

S. A. ENGENE

Farm crops differ widely in the quantity of feed produced per acre, in the cost of feed nutrients, and in the net return per acre. Accurate information concerning these variations to aid in planning profitable cropping programs has been obtained for the rolling to hilly section of southeastern Minnesota from records kept by 20 to 24 Winona County farmers, 1935 through 1940.

The average yields per acre obtained on these farms during this six-year period are presented in table 1. The crops listed in this table are the principal ones raised in this area. According to yield data reported by the Agricultural Marketing Service of the U. S. Department of Agriculture, small grain yields were slightly lower during this period than during previous years, while corn yields were slightly higher. The higher corn yields were partially due to favorable weather conditions and partially to the use of hybrid seed, a practice which is likely to be continued.

Since the crops raised in this area are utilized largely as feed for livestock the yields can be compared most accu-

University Farm Radio Programs

Monday through Friday

UNIVERSITY FARM HOUR—6:00 a.m.

MID-MORNING MARKETS—10:30 a.m.

Station WLB—770 on the dial

ately on the basis of total digestible nutrients produced. This more nearly measures the value that livestock can obtain from the feed. The pounds of total digestible nutrients produced per acre is shown in the second column of table 1.

The highest yields per acre of feed nutrients were obtained from corn, with 2,822 pounds from silage and 2,273 pounds from husked corn.

Since the practice in this region is to use the best land for corn, the yields probably could not be maintained if the acreage were expanded materially. The hay crops were second in yield per acre of feed nutrients. Alfalfa ranked first among the hay crops, followed by soybean and mixed clover and timothy hays, while timothy ranked last. Small grains produced the smallest yields of feed nutrients. Among the small grain crops, mixed oats and barley ranked first, followed in order by barley, oats, winter wheat, and spring wheat.

Production Costs of Feed Nutrients

The cost of producing feed nutrients must be considered along with the yield per acre in planning a profitable cropping system. The production costs per acre and per 100 pounds of nutrients are presented in the third and fourth columns of table 1. The costs include those for labor, power, seed, twine, manure and fertilizer, custom work hired, machinery, and land rental. Variations in the removal of soil nutrients were not considered in determining the land rental; the same rental charge was used for all crops. The cost of nutrients was highest for the small grain crops. There were only small differences in the costs for oats, barley, or a mixture of the two, but the costs were considerably higher for wheat. The costs were lowest for alfalfa and the clover and timothy mixture. The cost of feed nutrients from these crops was less than half as high as that from small grains. The cost of feed nutrients from timothy hay was fairly high, due largely to the low yield per acre. The cost of feed nutrients from soybean hay was somewhat higher; even though the production per acre was higher, this was more than offset by the high cost per acre. The costs of nutrients from ear-

Table 1. Comparative Yields and Costs of Producing Feed Nutrients
Winona County Farm Accounting Route, 1935-40

	Average yield per acre	Total digest- ible nu- trients per acre*	Cost per acre	Cost per 100 lbs. of digest- ible nu- trients	Per cent protein is of total nu- trients*
	bushels	pounds			
Grains:					
Corn	49.8	2,273	\$17.43	\$0.77	9.0
Oats and barley**	32.6	956	12.91	1.35	13.6
Barley	24.9	921	12.71	1.38	12.6
Oats	37.9	843	12.18	1.44	14.7
Winter wheat	16.9	803	12.87	1.60	11.1
Spring wheat†	11.5	546	11.91	2.18	11.1
Roughages:	tons				
Alfalfa hay	2.2	2,266	11.29	.50	20.2
Clover and timothy hay	1.7	1,676	9.84	.59	10.6
Corn silage	8.4	2,822	19.58	.69	7.1
Timothy hay‡	1.1	1,056	8.39	.79	6.0
Soybean hay†	1.7	1,700	15.43	.91	15.8

* Analysis of feeds obtained from "Feeding the Dairy Herd," Gulickson and Fitch, Minn. Exp. Station Bulletin 218 (1938 revision).

** At 40 pounds per bushel.

† Records for three years only.

‡ Records for four years only.

corn and corn silage were low, with only alfalfa hay and clover and timothy hay showing lower costs.

The high protein content of alfalfa hay, as shown in table 1, is an important consideration in the planning of a crop rotation. An ample supply of protein is needed in the ration, but protein supplements are among the most costly feeds to purchase. Alfalfa combines a high protein content with low cost of production and good soil building qualities. It can be used effectively as a basic part of the cropping system on those farms where it can be grown without too great risk of failure. The protein content of clover and soybean hay is also high. Low protein content is one disadvantage of silage. It must be fed with a high protein legume hay or be supplemented with a high protein concentrate. Among the grains the protein content of corn is lower than that of the small grains.

Comparison of Crop Returns

Crops grown for sale can be compared most effectively in terms of the net return per acre after allowing for all costs. The net returns per acre for the cash crops grown on these Winona County farms are shown in table 2. Corn was the outstanding cash crop on these farms during this period. The value of the crop exceeded the cost by almost \$12. Malting barley ranked second. However, it is not possible to produce barley of malting quality at all times. During the six-year period covered by this study 42 per cent of the barley produced on these farms was sold, most of it at malting barley prices; the remainder was seeded or fed. Some barley of malting quality was fed, but since the amount was not large probably about one half of the barley produced was of malting quality. If one half of the barley had been sold at malting barley prices and one half at feed barley prices the net return per acre would have been 36 cents. Winter wheat and flax left a small profit while oats and spring wheat showed a loss.

Table 2. Comparative Return Per Acre for Cash Crops
Winona County Farm Accounting Route, 1935-40

	Yield per acre	Average price*	Value per acre	Cost per acre	Net return per acre
Corn, ear	49.8 bu.	\$0.59	\$29.38	\$17.43	\$11.95
Malting barley	24.9 bu.	.63	15.69	12.71	2.98
Winter wheat	16.9 bu.	.85	14.36	12.87	1.49
Flax	9.4 bu.	1.70	15.98	14.59	1.39
Oats	37.9 bu.	.31	11.75	12.18	-.43
Spring wheat	11.5 bu.	.91	10.46	11.91	-1.45
Feed barley	24.9 bu.	.42	10.46	12.71	-2.25

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

The comparisons presented in this discussion are based on the averages for a particular group of farmers. Individual farmers may find that the comparisons differ somewhat for their farms. The ratio of yields of one crop to another varies with soil conditions. The relative production costs per acre vary with the type of farm organization. The prices may be considerably different in another period of time. By substituting in tables 1 and 2 yields, costs, and prices which apply to their farms, individual farmers may adjust these comparisons to their own situation.

The Poultry Enterprise on Southeast Minnesota Farms¹

GEORGE WILKENS

The sale of poultry products represents 10 per cent of the total farm income on southeastern Minnesota dairy farms, according to 1,592 farm accounts made available over the past 11 years through the Southeast Farm Management Service. Since poultry are found on 87 per cent of the farms in this area it appears that most farmers consider the laying flock a profitable farm enterprise.

These records show the average flock of 165 laying hens provides a gross return of \$416 per year. Of this \$416, 15 per cent or \$62 represents poultry products used in the farm home, and the remaining \$354 represents receipts from the sale of poultry and eggs to markets off the farm.

The investment in the poultry enterprise is not large. On the average farm \$451, or 2.2 per cent of the total farm investment, is in the poultry enterprise. Of this amount \$239 is invested in the permanent laying house, \$69 in brooder houses, brooder stoves, and miscellaneous equipment, and \$143 in the laying hens.

The poultry flock represents a market outlet for farm grown grains since 82 per cent of the feeds fed to poultry are raised on the farm. Feeding the average ration provided for these farm flocks in 1939, a flock of 165 hens plus the chicks for replacement, would require 121 bushels of corn, 79 bushels of barley, 108 bushels of oats, and 58 bushels of wheat. This represents the production from 11 crop acres on the basis of average yields obtained on these farms. In addition to these farm grains the flock was fed 750 gallons of skim milk, and 3,300 pounds of purchased commercial feeds. The commercial feeds included meatscrap, middlings, bran, and prepared mashes used to supplement the farm grains.

Since the poultry flock utilize the production from a significant portion of the crop land on the farm, the farmer is interested in the alternative uses of these grains. Because both poultry and hogs use very little roughage and are principally grain consuming livestock, they can be compared as market outlets for farm grains. During the 11-year period 1929-39, poultry made an average return of \$181 per \$100 of feed fed. Hogs during this same period made an average return of \$137 for each \$100 worth of feed. Poultry on most farms require a larger investment and also require more labor than do hogs. However, on those farms where the equipment is available and where labor is not being fully utilized otherwise, poultry may provide a means for increasing the farm income.

Farm labor records show that a farm flock of 165 laying hens requires 400 hours of labor for the entire year. Analysis of 108 detailed farm labor records shows the proprietor and his grown sons perform 51 per cent, and the hired help 9 per cent of the work on poultry. The farmer's wife performs 33 per cent of the poultry chores

¹ Assistance in the preparation of this material was furnished by the personnel of the Work Projects Administration, Official Project No. 65-1-71-140, Sub-project 486.

and the children and other part-time family workers the remaining 7 per cent. The peak demand for labor on the poultry enterprises comes at the same time as the spring planting in April, May, and June. However, the increase in labor requirements during the peak season does not seriously compete for labor needed in the field because much of the increase in poultry work is performed by the farmer's wife. The work done on poultry by the hired help does not change with the seasons and the increase in the combined time of the proprietor and sons, from 3.5 to 4.5 hours per week is not likely to interfere with spring field work. If the operator should increase his flock from 165 to 400 or 500 laying hens it may then compete for labor needed for spring crop operations. On most farms the wife could not assume a proportionate share of the work on a large flock, therefore, most of the added hours of work on the larger flock would have to be performed by the regular full-time farm workers.

For the operator of a small farm who cannot add to the land area of his farm, poultry might be considered as one way of expanding the size of the business and adding to the farm income.

Has Erosion Control Changed Land Use?

A. W. ANDERSON and C. R. HOGLUND

An organized program of soil erosion control has been in operation on a number of farms in southeastern Minnesota for the past five years. It is quite commonly thought that over a period of years a program such as this will result in an increase in hay crops, and necessitate a reduction in grain and intertilled crops. A study of detailed records kept by a small group of Winona County farmers over a period of years gives some information regarding the use of land before the program, and during the five years that it has been in existence.

The average acres devoted to various uses and the proportion of crop land planted to different crops on seven of these farms are presented in table 1. The acreages for the year 1935 show the average use that was made of the land on these farms before the establishment of a program of soil erosion control. During the winter of 1935 and prior to the crop season of 1936, these farmers signed five-year agreements with the Soil Conservation Service. The acreages for 1936 and the following years show any changes that have occurred since the program was inaugurated.

Over the six-year period, the average acreage of total crop land per farm was decreased from 186 acres in 1935 and 1936 to 168 acres in 1939 and 1940. During the same period, the average acreage of permanent pasture and woods was increased from 120 acres to 141 acres. This increase in the permanent pasture acreage has been accompanied by a small decrease in the average acres in tillable pasture. The farm records also show that some of the steep land in the permanent pasture and woods has been fenced off to prevent grazing and to insure tree growth.

Table 1. Average Use of Land on Seven Farms in Winona County, 1935-1940

Use of Land	1935	1936	1937	1938	1939	1940
Acres of:						
Intertilled crops	32	25	26	26	27	33
Small grain	103	96	93	87	85	88
Hay	40	49	43	46	49	41
Tillable pasture	10	10	10	12	6	6
Fallow, seedings, etc.	1	6	6	2	1	.....
Total crop land	186	186	178	173	168	168
Permanent pasture and woods	120	120	131	135	141	141
Roads, farmstead, and waste	12	12	9	10	9	9
Total acres	318	318	318	318	318	318
Per cent of crop land:						
Intertilled crops	17.2	13.6	14.8	15.2	16.1	19.5
Small grain	55.3	51.5	52.1	50.2	50.7	52.4
Hay	21.5	26.5	24.2	26.3	29.4	24.1

Intertilled crops first were decreased in 1936 by an average of 7 acres, then were increased slightly in 1937 and 1939, and were again increased by 6 acres in 1940 to 33 acres—the highest acreage of any year in the period. Of the crops classified as intertilled, corn was decreased by 5 acres, but soybeans were increased by 3.5 acres and cane and sorghum by 2.5 acres during the six-year period. The high intertilled crop acreage in 1940 was due to this increase in soybeans for hay and in cane and sorghum for silage. The average small grain acreage was decreased from 103 acres in 1935 to 88 acres in 1940, a net decrease of 15 acres. The acres of land in hay were increased by 9 in 1936, remained relatively high until in 1940, when an 8-acre decrease brought it down almost to the 1935 figure. This decrease in 1940 represents largely a failure to get a stand from new seedings and a plowing up of old hay fields.

The proportion of total crop land on these farms devoted to intertilled, small grain, and hay crops may also be illustrated by expressing them in terms of percentages as shown in the lower part of the table. On this basis the net increase from 1935 to 1940 in intertilled and hay crops becomes more significant and the net decrease in grain crops less important due to the 18-acre decrease in the total crop land during the period.

The foregoing indicates that, other than the decrease in total crop acres, not much change has taken place in the proportion of land used by the different kinds of crops on this group of farms. However, the number of fields on these farms has almost doubled, and the shape, size, and arrangement of these fields and the manner of working them have changed considerably.

Healthy Hens for Profit

Analyses of farm poultry flock records indicate that the per cent of death loss in the laying flock is one of the most important factors determining the profit from the enterprise. Dead hens cannot be sold, therefore poultry meat returns are materially reduced. In addition to a reduction in meat return, southeast Minnesota flocks reporting a 28 per cent death loss have a 30 per cent lower egg production per hen than do the flocks with but 6 per cent loss. Flocks with an average loss of 6 per cent had a return above feed cost of \$1.49 per hen, while flocks averaging 28 per cent loss had a return of only 63 cents.

Minnesota Farm Prices for March, 1941

Prepared by W. C. WAITE and W. B. GARVER

The index number of Minnesota farm prices for the month of March, 1941, was 74. When the average of farm prices of the three Marchs, 1924-25-26, is represented by 100, the indexes for March of each year from 1924 to date are as follows:

1924—84	1929—108	1934—54	1939—66*
1925—105	1930—97	1935—84	1940—67*
1926—111	1931—68	1936—81	1941—74*
1927—109	1932—47	1937—101	
1928—101	1933—36	1938—77	

* Preliminary.

The price index of 74 for the past month is the net result of increases and decreases in the prices of farm products in March, 1941, over the average of March 1924-25-26, weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, March 15, 1941, with Comparisons*

	Mar. 15, 1941	Feb. 15, 1941	Mar. 15, 1940		Mar. 15, 1941	Feb. 15, 1941	Mar. 15, 1940
Wheat	\$0.73	\$0.69	\$0.87	Cattle	\$7.70	\$8.00	\$6.70
Corn .....	.45	.43	.44	Calves	9.70	10.20	8.80
Oats .....	.28	.27	.33	Lambs—Sheep	8.84	8.65	7.80
Barley .....	.38	.38	.42	Chickens .....	.11	.11	.10
Rye .....	.39	.37	.53	Eggs .....	.14	.14	.14
Flax	1.54	1.53	1.93	Butterfat .....	.32	.33	.30
Potatoes .....	.41	.42	.55	Hay	6.16	5.61	4.78
Hogs	7.10	7.10	4.75	Milk	1.55	1.55	1.50
				Wool† .....	.31	.29	.25

* These are the average prices for Minnesota as reported by the United States Department of Agriculture.

† Not included in computation of the index number.

Except for barley and potatoes, prices in the crops group showed strong trends, advancing somewhat more than the usual February to March seasonal rise. Poorest relative showing for prices was in the livestock group, with hogs failing to advance the usual seasonal amount and with cattle declining rather than rising seasonally. Calves declined more than the usual seasonal amount, while lambs and sheep rose to about the customary seasonal extent. The trend in chickens and butterfat was in a downward direction, while a somewhat strong upward trend was in evidence for eggs and milk.

Indexes and Ratios of Minnesota Agriculture*

	Mar. 15 1941	Feb. 15 1941	Mar. 15 1940	Average Mar. 15 1924-26
U. S. farm price index.....	73.0	72.5	68.8	100
Minnesota farm price index	74.0	76.1	66.8	100
U. S. purchasing power of farm products	92.6	92.0	88.0	100
Minn. purchasing power of farm products	93.9	96.5	85.4	100
Minn. farmers share of consumers food dollar		44.3	41.6	53.4
U. S. hog-corn ratio	12.4	12.8	8.7	12.2
Minnesota hog-corn ratio	15.8	16.5	10.8	15.6
Minnesota beef-corn ratio	17.1	18.6	15.2	9.1
Minnesota egg-grain ratio	14.4	14.8	12.2	12.9
Minnesota butterfat-farm-grain ratio	38.3	40.7	32.2	39.8

* Explanation of the computation of these data may be had upon request.

March 1 Planting Intentions

United States plantings for all important Minnesota crops except barley, flax, and tame hay will be below the 1930-39 average for 1941 according to the March 1 intentions to plant as reported by the Crop Reporting Board. All crops except oats and hay will be below the 1940 planted acreage, according to the report.

For Minnesota, corn acreage will be below the 10-year average but about 1 per cent above the figure for last year. Durum and other spring wheat acreage in the state will be below the 10-year average and 5 to 6 per cent below 1940 plantings. Oats plantings appear to be planned at a level below the 10-year average and about 1 per cent below last year. Barley acreage for Minnesota will apparently be somewhat under the average and about 9 per cent less than 1940.

Flax acreage will be more than double that averaged for the 1930-39 period but around 6 per cent less than 1940. All three important flax states, Minnesota, North Dakota, and South Dakota, show reduction of acreage from last year of from 3 per cent to 10 per cent, but some states such as Iowa, Montana, and California, with roughly 200,000 acres each, are showing planting intentions to increase last year's acreages by 5 per cent, 10 per cent, and 52 per cent, respectively.

Minnesota tame hay acreage indications are substantially above the 10-year average and about 2 per cent above 1940. Potato acreages for 1941 for the state appear to be about 20 per cent below the 10-year average and 9 per cent below the acreage planted in 1940.

For the country as a whole the most important decreases from last year in plantings are: spring wheat—8 per cent; corn— $\frac{1}{2}$ per cent; flaxseed—2 per cent; potatoes—4 per cent. Increases of importance are: for oats—2 per cent; tame hay—1 per cent. The decreases in grain crops will probably just about offset the increase in winter wheat and rye shown for last fall. When account is taken of the offsetting changes between similar crops there appears in prospect a reduction of about 1 per cent this year in the acreages planted to feed grains.

UNIVERSITY OF MINNESOTA
Department of Agriculture
Agricultural Extension
University Farm, St. Paul, Minn.

PAUL E. MILLER, Director

PENALTY FOR PRIVATE
USE TO AVOID PAYMENT
OF POSTAGE, \$300

FREE—Co-operative Agricultural Extension
Work, Acts of May 8 and June 30, 1914.

UNIVERSITY FARM, ST. PAUL, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture Cooperating, Paul E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.