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FARM BUSINESS NOTES

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Factors Affecting The Farmer's Plans

EDWIN G. STRAND AND GEORGE A. POND

Farming is a highly dynamic business. Changes are constantly occurring in the crop and livestock enterprises and in management practices on most farms. These changes range from minor and transitory variations to adjustments of a rather permanent character. Most changes are the result of the farmer's own plans and activities, but some are brought about by forces beyond his control.

In this article the findings in a study of changes on 29 southeastern Minnesota farms during the period from 1928 through 1938 are summarized. The purpose of the study was to determine the reasons for changes in the acreage of land used for various crops, in the numbers and production of livestock, in the kinds of feed used, in the rates of feeding, and in various management practices. Farm records kept by these farmers served as a basis for determining what changes were made; the reasons for the changes were obtained through personal interviews with the farmers. The role of chance in causing changes from year to year is very great and often overshadows the effects of other forces. Changes or trends over a period of years, however, represent more clearly the farmer's planned adjustments to changed conditions. In this study the changes analyzed were those occurring from the beginning to the middle of the period, from the middle to the end, and from the beginning to the end of the period.

In the analysis of changes, 54 separate items in crop and livestock production were studied. A total of 3,127 changes of 10 per cent or larger were found to have taken place, and explanations were obtained from the farmers for over 2,500 of these changes.

Changes in the farm business may be the result either of planning or of chance. Planning can affect only such forces as are subject to the farmer's control; it may be either direct or indirect. Chance includes the external forces that are beyond the farmer's control. Of the changes for which explanations were obtained, 2,388 were planned while 139 were the direct result of chance factors.

The figures given above do not include the large number of chance changes of less than 10 per cent nor the short-time changes apparent only from year to year. It is well

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known that chance factors have an important influence on agricultural production and make it necessary for farmers constantly to be making adjustments, or planned changes, in order to make the best use of their resources in a changing environment. Examples of factors causing chance changes in agricultural production are diseases of plants and animals, unusual infestations by in-

sects, biological variations, and weather conditions such as frosts, severe winters, drouth, excessive rainfall, and storms. Weather is an important chance factor because of its characteristic variability and its strong direct and indirect effects on crop and livestock production.

The reasons for planned changes may be grouped into two broad classes—economic and non-economic. Economic reasons are motives of economic gain such as the desire to maintain or to increase one's income. Economic reasons underlie the farmer's attempts to choose the most profitable crops, livestock, equipment, and techniques. Non-economic reasons are motives of personal satisfaction not associated with a desire for financial gain. Included in this group of reasons are personal likes and dislikes, personal pride, the desire for more leisure, and the wish to please other persons.

The conditioning factors or reasons for planned changes on the farms studied are summarized in the following table:

Table 1. Reasons Given by 29 Farmers for Planned Changes, 1928-1938

Reason	Per cent of Changes Made for Given Reasons			
	First half of period	Second half of period	Beginning to end of period	All changes studied
Price conditions	25	25	25	25
New techniques	15	26	28	24
Educational work	19	8	15	14
Changed opportunities	10	14	16	13
Weather conditions	13	5	2	7
Condition of soil or land	6	5	5	5
Govt. agricultural program	3	4	3	3
Financial situation	4	2	1	2
Other economic reasons	2	7	3	4
Non-economic reasons	3	4	2	3
Total	100	100	100	100

Price conditions, new techniques, educational work, and changed opportunities were the reasons most frequently given in explanation of planned changes (see table). Price conditions were consistently important in influencing changes throughout the period. Educational work showed the most effect in the first half of the period while new techniques accounted for a larger percentage of the changes in the last half. Changed opportunities are associated with external factors as well as with the farmer's ability and desire to take advantage of them. Weather conditions are of importance during a short term of years but tend to cancel out over a longer period.

Price conditions are of importance in the farmer's planning because of changing relationships between the prices of individual items. Three phases of price relationships are of significance to the farmer: the relative prices of goods produced or which might be produced by him, the relative prices of goods purchased by him, and the relationship between the prices of goods purchased and of goods sold. Examples of expansion in response to higher prices are the increase in acreage of barley following the rise in barley prices in 1933 and 1934 and the increase in beef production since 1935. During the worst depression years, when prices of all farm products were at a low level, several farmers reduced the amount of labor hired, postponed making expenditures for new machinery and improvements, increased their number of milk cows, or added sheep as an additional source of income.

New Techniques Lead to Changes

Under new techniques are grouped such factors as new varieties of crops, improved techniques for handling crops and livestock, and improved farm machinery and power units. For the purpose of this analysis, techniques were considered new when they had recently become known or available to the farmer. It is obvious that the adoption of new techniques is difficult to separate from educational work. Some examples of new techniques adopted by farmers during the period studied are the growing of reed canary grass, the use of hybrid corn, improved methods of feeding and management of chickens and turkeys, and the use of general purpose tractors.

In the class of educational work are grouped those explanations that point specifically to educational activity as the primary conditioning factor for the change. Educational work includes the influence of agricultural extension workers, state and federal agricultural bulletins, farm magazines, agricultural short courses attended, observations of the practices of neighbors, and the operator's own study of his farm records. Educational work was a factor of primary importance in the substitution of alfalfa for clover and timothy hay, in the substitution of oats and barley mixtures for these feed crops grown separately, and in the increase in size of poultry flocks.

Changed opportunities include such developments as changes in the availability of near-by land for rent or purchase and changes in available market outlets. In this area practically all land is included in farms, but occasionally there are tracts which become available when

operators move or when owners offer the lands for rent or sale to neighboring farmers who have not previously been able to obtain their use. Examples of changes in market outlets are the establishment of a canning factory in the community, the development of an egg and poultry sales route, and the building up of a roadside market business.

Weather conditions which affect the farmer's plans include drouth, winterkilling, excessive precipitation, and unusually late spring or early fall frosts. Also included in this class are length of pasture season and the yields of crops and pasture as affected by weather.

Reasons grouped under the heading, "condition of soil or land," include changes in factors such as drainage, general workability, weediness, and soil fertility.

The agricultural adjustment programs of the federal government have been conditioning factors for some important changes on farms in this area. The corn-hog program affected the number of hogs raised and the acreage of corn planted. The program in operation since 1936 has had a less marked effect on farming operations but has, nevertheless, been a considerable factor in influencing changes on many farms.

The financial situation of an operator may affect his plans and practices directly or indirectly. A farmer in danger of losing his farm through foreclosure is likely to produce quick return crops and curtail expenditures for farm improvements. Many farmers work harder and economize more when the pressure for funds is increased—if the outlook is not hopeless. On the other hand, most farmers make investments in farm improvements and new operating equipment when their financial situation is improved. A farmer's credit rating affects his opportunity to borrow money and may thereby limit or encourage his activities along certain lines.

A number of other factors were of some significance in explaining changes in organization and practices on individual farms, but they were of minor importance for the whole group of farms. The most important factors causing changes were price conditions, new techniques, educational work, and changed opportunities.

Pasture—A Valuable Feed Crop

By SELMER A. ENGENE

Pasture is a cheap source of feed for livestock. Although the economy of pasture as a source of feed has been generally recognized, little definite information is available concerning its exact value. Data obtained from a group of Winona County farmers during the four years, 1935-1938, provide some valuable information concerning the contribution of pasture to dairy production. Records were obtained from approximately 24 farmers during each of these four years.

Each of these farmers kept monthly records of the quantity and value of feed used and of the production of milk. At the end of the period they estimated the weights of the cows. The average weight per cow was 1100 pounds, and the average annual production was 5550

pounds of 3.65 per cent milk. According to the feeding standards, approximately 4600 pounds of total digestible nutrients are required to maintain cows of this weight for a year and to produce this amount of milk.¹

The nutrients supplied by grain, hay, and silage represented approximately 70 per cent of the total nutrients required. The remaining 30 per cent, or 1400 pounds of total digestible nutrients, was apparently obtained from pasture. The market value of this grain, hay, and silage was \$35 per cow. To have supplied with similar feeds the nutrients supplied by pasture would have cost \$15.

The production obtained from pasture compared favorably with that from other crops. On farms using tillable land for pasture, approximately one acre was used per cow, yielding, according to the above data, 1400 pounds of total digestible nutrients. During these same years the small grains raised on these farms yielded 900 pounds of total digestible nutrients per acre, corn 2000 pounds, and hay 1800 pounds. Since one half of the tillable land other than pasture was used for small grain, one sixth for corn, and two sixths for hay, the average production of total digestible nutrients per acre from these crops was 1400 pounds. These farmers obtained as much feed from land used for pasture as from land used for other crops.

The yields were considerably smaller for permanent than for rotation pasture. From 2 to 3 acres of open or sparsely wooded pasture was provided for each cow on most farms. Most of this land was inferior crop land, being quite steep and able to support only a sparse growth of grass.

The cost of feed nutrients provided by pasture was low compared with other crops. During the five years, 1935 to 1939, seeding and harvesting costs on these farms were \$9 per acre for small grains, \$16 for corn, and \$7 for hay. None of these costs applied to permanent pastures. There was a seed cost for rotation pasture, but there were no labor or machinery costs since the seeding was generally done along with the previous crop. Some fencing costs were involved, but they were not large. Insofar as the livestock could utilize the feeds economically, pasture was a source of low cost nutrients on these farms.

Twenty-one Winona County farmers worked an average of 10.3 hours per day on weekdays and 4.1 hours on Sundays during 1939. This was revealed by the farm accounting records kept by these farmers in cooperation with the Division of Agricultural Economics. The hours represent actual time spent at farm labor, and do not include time for meals, visiting, or work of a personal nature. One-half of the average farmer's time was spent on livestock, one-fourth was occupied in crop production, and one-fourth was spent on repair and maintenance of machinery, equipment, buildings, and fences, on business in connection with the farm, working with wood, and on work outside of the farm.

¹ Nutrient requirements and analysis of feeds obtained from Minnesota Bulletin 218, "Feeding the Dairy Herd," by T. W. Gullickson and J. B. Fitch.

The Farm Woodlot— Income and Expense

By SELMER A. ENGENE AND ARTHUR W. ANDERSON

The woodlot provides products for home use for many southeastern Minnesota farmers. It also provides a source of cash income for a few farmers. Farm management records obtained from 24 Winona County farmers during the five-year period, 1935-1939, provide some information concerning the income and expense for woodlots in this area.

These farmers used an average of 13 cords of wood for fuel. The amount varied widely from farm to farm, depending upon the supply of wood available and the size and condition of the house. About 125 to 150 posts, together with braces and stakes, were used each year. About 500 board feet of home-sawed lumber were used. This varied widely from year to year, depending upon the amount of building and repairing done. At \$5 a cord of fuel wood, 15 cents a post, and \$20 a thousand board feet of lumber, the total value of the wood products used on the farm amounted to \$95 per farm annually. In addition to the products used, there was an average income of \$20 per farm from the sale of railroad ties and cordwood. The sale of wood represented a substantial source of income on a few farms with a very large acreage of woodland. The total value of the wood harvested per farm was about \$115 annually.

Cash Outlay for Harvesting is Small

Only a small proportion of the costs involved in harvesting this wood was represented by direct cash outlays. The average cost for sawing was \$4 per farm. This was in addition to the costs for those farmers who used their own saw rigs. Tractors were used an average of 7 hours per farm for sawing with some cash outlay for gasoline and oil. Almost 350 hours of man labor were spent working with the wood. Although some extra labor was hired for this work, most of it was done by the regular farm workers. Eighty-five per cent of the work was done between November 15 and April 1, when other work on the farm was not pressing. If it had been necessary to hire this labor, or if this work had interfered with work on crops or livestock, the cost of labor would have offset a large proportion of the value of the wood harvested. Although horses were used to a limited extent in the woods, this work involved little or no additional cost.

Since the average size of these woodlots was about 70 acres, the value of the forest products harvested per acre was \$1.60. Although this is very small compared with other farm crops, much of the wood was raised on land too steep or rough to be suitable for any other use except pasture. The value of the pasture would be very small on much of this land. With improved forest management practices, the income from the woodlot could probably be increased. In addition to these direct returns, the woodlot yields an indirect return, not easily measured, in flood and erosion control on hilly land and as a windbreak.

Minnesota Farm Prices for June, 1940

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

The index number of Minnesota farm prices for the month of June, 1940 was 65. When the average of farm prices of the three Junes, 1924-25-26, is represented by 100, the indexes for June of each year from 1924 to date are as follows:

1924—84	1929—109	1934—56	1939—63*
1925—108	1930—90	1935—78	1940—65*
1926—110	1931—58	1936—78	
1927—100	1932—39	1937—94	
1928—110	1933—48	1938—73	

* Preliminary.

The price index of 65 for the past month is the net result of increases and decreases in the prices of farm products in June, 1940, over the average of June, 1924-25-26, weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, June 15, 1940, with Comparisons*

	June 15, 1940	May 15, 1940	June 15, 1939		June 15, 1940	May 15, 1940	June 15, 1939
Wheat	\$0.67	\$0.84	\$0.66	Cattle	\$6.80	\$7.10	\$6.80
Corn .....	.49	.51	.38	Calves	8.50	8.90	8.00
Oats .....	.27	.31	.26	Lambs-sheep	8.04	8.25	7.78
Barley .....	.37	.42	.36	Chickens .....	.10	.11	.11
Rye .....	.32	.49	.38	Eggs .....	.12	.14	.13
Flax	1.55	1.77	1.62	Butterfat .....	.28	.29	.24
Potatoes .....	.55	.55	.49	Hay	4.52	4.69	3.92
Hogs	4.65	5.30	5.90	Milk	1.40	1.40	1.30

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

The index for Minnesota suffered a sharp decline of 7 points from May to June. Potatoes and milk were the only commodities that did not decline. The principal declines were for the grains with wheat and rye showing relatively sharp declines, reflecting the drastic drop that occurred in terminal market prices the latter part of May. Hogs declined more than the usual seasonal amount as slaughter supplies increased seasonally during May, and federally inspected slaughter rose to a point one fourth larger than the figure for a year ago. Eggs declined more than the usual seasonal amount. The 1¢ fall in butter prices represents the usual May-to-June decline.

Indexes and Ratios of Minnesota Agriculture*

	June 1940	May 1940	June 1939	Average June 1924-26
U. S. farm price index.....	68.4	71.0	64.0	100
Minnesota farm price index	64.6	72.0	63.4	100
U. S. purchasing power of farm products	85.0	90.6	81.0	100
Minn. purchasing power of farm products	80.4	91.9	80.2	100
Minn. farmer's share of consumer's food dollar		43.7	39.9	52.4
U. S. hog-corn ratio	7.6	8.4	11.9	12.2
Minnesota hog-corn ratio	9.5	10.4	15.5	14.5
Minnesota egg-grain ratio	12.5	12.4	14.3	14.5
Minnesota butterfat-farm-grain ratio	33.6	31.2	31.4	33.2

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

June Pig Crop Report

The report of the United States Department of Agriculture Agricultural Marketing Service on the June Pig Crop Survey indicates a probable decline of 8 per cent to 10 per cent from the 1939 totals for 1940. Farrowings are expected to be down 8 per cent and with a smaller number of pigs saved per litter the reduction over last year may run to 10 per cent. This would still give a 1940 pig crop larger than any year (except 1939) since 1933.

The decline for the spring pig crop was evident in all regions of the country and in nearly all states. The South Atlantic and South Central States showed declines of 20 per cent while the East North Central States reduced their pig crop only 1 per cent from last year. The West North Central States (which include Minnesota) showed a reduction of 7 per cent. Minnesota's spring crop declined only 1 per cent, while Iowa showed a reduction of 6 per cent. Michigan and Wisconsin showed increases of 2 per cent each, while Kansas and Nebraska indicated a decline of 20 per cent each.

1939 was the peak of the current hog production cycle. The United States hog-corn ratio dropped to 7.6 bushels for June, the lowest point since the summer of 1937. This low ratio is in contrast to that of the period from October 1938 through April 1939 when the ratio ranged between 14 and 18 bushels. The ratio for Minnesota dropped to 9.5 bushels for June in contrast to the range of 16 to 22 bushels shown for 1938 and early 1939.

Unfavorable farrowing conditions throughout most of the country this spring resulted in the smallest number of pigs saved per litter in the past four years. For the United States the average number saved per litter was 6.01 or 2 per cent less than the number, 6.12, for 1939. The loss was most marked in the South Atlantic and South Central States where it amounted to a reduction of approximately 5 per cent. Minnesota was virtually unchanged from last year, with 6.2 pigs per litter saved.

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