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# FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension  
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NO. 293

UNIVERSITY FARM, ST. PAUL

MAY 30, 1947

## Agriculture and the National Economy

HARLOW W. HALVORSON

The economic relations between agriculture, on the one hand, and the nonagricultural part of our national economy, on the other, have been viewed differently from time to time by various individuals. The differences in points of view arise from a number of reasons, not the least important of which has been the cause advocated by each individual. By way of illustration, two

opposing views may be cited. Some individuals argue that high farm incomes are necessary for a high national income and high labor incomes. Others have declared that agriculture plays a minor role in influencing the activity of the economy and that this influence is largely of a random nature due to variations in production. These individuals take the view that the economic well-being of agriculture is primarily dependent on the level of nonagricultural income.

Several estimates of agriculture's relative importance may be made. The percentage of gainfully employed engaged in agriculture has declined from 48.2 per cent in 1870 to 16.9 per cent in 1940. The proportion of total national production of goods and services produced by agriculture has decreased from 12.1 per cent in 1910 to 6.0 per cent in 1940. The share of the national income received by agriculture has declined from 12.3 per cent of the national income in 1910 to 6.0 per cent in 1940. Thus, though the level of agriculture's economic importance may be subject to some question, it is certainly one of declining relative importance. Other aspects of our total economy have become increasingly important as determiners of its level of activity.

In the evolutionary process of our economic development, the character of American agriculture has tended more and more to become one of production for the market rather than production for home consumption. Production for market implies that farmers' incomes will be increasingly dependent upon the condition of that market. The condition of this market in terms of its ability to purchase the farm production may be indicated by the level of the national income. It is, in part, through this chan-

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nel that the nonagricultural part of our economy exerts its influence upon the agricultural sector.

Another important way in which nonagricultural economic factors make their influence felt on agriculture is in the prices charged farmers for goods and services used in both farm living and farm production. Periods of high nonagricultural income are often associated

with periods of relatively high prices; thus one of the influences of these higher levels of national income is transmitted to agriculture in the form of higher prices charged for goods and services used in living and production.

On the other hand, the effect of changes in agriculture on the nonagricultural part of our economy flows through several important channels. Thus, changes in the volume of agricultural products affect nonagricultural sectors such as transport and processing as well as final consumers. Changes in farmers' incomes influence the amounts of goods and services that farmers purchase for living and production purposes. Consequently each branch of industry is affected to a degree depending upon the extent to which agriculture is important as a purchaser of its products or as a user of its facilities.

Some of the changes that occur are relatively large while others are relatively small. The magnitude of the relative changes in these factors is greatest in cash farm receipts and national income and smallest in volume of agricultural production.

Our tendency to speak loosely of agriculture on the one hand and nonagriculture on the other often leads us to ignore important differences that exist in the relationships between the nonagricultural economy and various well-defined branches of agriculture. The export market has been relatively important as a market for several major agricultural products, such as cotton and wheat. For many others, like dairy products and livestock, this market fades into relative insignificance. The character of domestic demand is such that increases in national income result in greatly enlarged purchases of such things as fruits and dairy products, while for others, such as wheat and pota-

toes, increased national income may result in only slightly increased purchases. Even decreased purchases may occur for some products.

While the year-to-year changes in agricultural production as a whole are relatively small, the changes in production of specific branches of agriculture may vary considerably from the national average. The size of these relative changes and the influence they have on prices at which the individual products clear their respective markets give rise to considerable differences between the various branches of agriculture. For example, a 10 per cent increase in quantity is likely to depress beef cattle prices by relatively much less than a similar increase in the quantity of potatoes. Thus, as we examine the various branches of agriculture, we find each of them affected in differing degree by a large variety of influences; and when we say that a 10 per cent increase in national income is likely to increase agricultural income by 12 per cent, the statement may be true for agriculture as a whole, but only by accident is it likely to be true for any particular branch of agriculture.

Similarly, when the national money income changes because of increased prices and wage rates rather than increased output, farmers feel the consequences in terms of higher production and living costs. But here again, vast differences exist between different branches of agriculture, depending on how important nonagricultural items of expense are in the total costs of production, and whether these expense items are of the type that are subject to relatively large or small fluctuations in price.

Because each branch of agriculture is affected by a different set of market and cost conditions, the net income position of each of them will change with a somewhat different pattern from year to year. In view of this, the relative importance of each segment of the agricultural economy as a market for nonagricultural products will vary depending on the particular set of circumstances it has been and is likely to be exposed to.

Some of the interrelations or influences between agricultural and nonagricultural people are much more concentrated and channelized than others. When the national income increases, the effect on the value of farmers' sales is concentrated on a relatively small number of producers. The effect of increased prices of goods and services for living is spread much more evenly over the entire farm population. This is because 10 per cent of the farmers normally sell almost half the dollar value of agricultural products. Consequently changes in the level of the national income are much more important, in dollar terms, to a relatively small group of larger-scale agricultural producers via the income from the sales side than they are to the larger group of relatively small-scale producers via the living expenses side.

While agriculture today employs less than 17 per cent of the working population, this is just a national average. The census of 1940 reports 5.8 per cent of the gainfully employed males in New York engaged in agriculture while in Nebraska 46.1 per cent of the gainfully employed males were so engaged. Thus considerable differences exist from state to state. In some areas of the country agriculture is even less important in the economic life of those

areas than the proportion of people employed in agriculture there would indicate. In those regions agriculture takes on the character of a service industry—one whose welfare is almost completely dependent upon the economic welfare of the other industries in that particular community. Consequently, in these regions agriculture does not bulk very significantly in influencing the economic life of the community. It is almost completely dependent on that economic life but is not an important determiner of it. The agriculture in New York is largely of this nature.

Where agricultural goods comprise a significant part of the exports of the local area, a different situation exists. In these areas agriculture constitutes one of the important channels through which changes in the rest of the economy make their influence felt upon this local community. Here a considerable proportion of the people is engaged in performing services to agriculture which is one of the primary exporting industries of the area. Consequently, any change in the economic well-being of agriculture will have considerable influence upon the economic position of the other occupations of the area. A million-dollar increase in the income of agriculture in these areas is likely to be associated with an increase in total income for that particular community that is much greater than a million dollars. Agriculture in many of the midwest states has this sort of relationship to the rest of the economy of the region.

In view of the complexity of the interrelations that exist between agriculture and the nonagricultural economy, and considering the important changes that have taken place in time or over areas, it is not surprising that different individuals have emphasized different aspects of these interrelations.

## Sheltering Young Dairy Cattle

H. W. OTTOSON

In planning a dairy barn, space should be included for approximately six calves, four yearlings, and two to three two-year-old heifers for every 10 cows in the milking herd. The amount of space needed for young stock in a herd of any other size would be in the same proportion. In a herd of 25 cows, for instance, two and one-half times as much space would be needed for the young dairy cattle as in a 10-cow herd.

Table 1. Average and Maximum Numbers of Young Dairy Cattle, Nicollet County Detailed Accounting Route, 1941-1946\*

	Calves		Yearling Heifers		Two-Year-Olds	
	Average	Maximum	Average	Maximum	Average	Maximum
January	5.5	7.3	4.4	6.5	2.4	4.4
February	5.9	7.8	4.3	6.6	2.0	3.9
March	5.9	7.7	4.1	6.3	1.7	3.6
April	6.0	7.8	3.8	6.0	1.4	3.1
May	5.9	7.7	3.3	5.0	1.7	3.1
June	2.0	3.7	4.2	6.3	3.1	5.8
July	1.9	3.3	4.2	6.2	4.1	6.0
August	2.0	3.5	4.2	6.2	3.9	5.7
September	2.4	4.3	4.2	6.1	3.8	5.6
October	3.3	5.9	4.4	6.0	3.6	5.3
November	5.2	7.1	4.2	6.0	3.3	4.7
December	6.2	8.2	4.2	6.0	2.8	4.3

\*All figures converted to the basis of a 10-cow herd.

Table 1 shows the number of young stock, by months, for 14 dairy herds in the Nicollet County Detailed Accounting route. These are expressed as the number for each 10 cows in the herd. These records were obtained during the five-year period 1941-1946, with records for at least three consecutive years for each farmer.

Some farmers will want to plan space for the average numbers of young stock which they are likely to have on hand. It must be recognized that these numbers will fluctuate from month to month and from year to year. As a result, some crowding will be necessary during peak periods. Several conditions, however, may help to reduce the amount of such crowding. Since the older heifers will be on pasture during the summer months, space will not have to be provided for them during this period. It is likely that a two-year-old heifer can be kept in a cow stall part of the time, as old and cull cows are disposed of. Also, when a larger than average number of one age group, such as yearlings, is on hand, this excess will often be balanced by a smaller number of calves or two-year-olds.

A few farmers will want to provide space for the greatest number of young stock that they are likely to raise. The maximum numbers shown in table 1 are averages of the monthly peaks on each farm during the period studied. If this amount of space is provided, there will be little crowding at any time. During some periods the pen space will not be fully utilized. It must be remembered that the cost of housing per head will be higher when space is provided for the maximum rather than the average number of young stock which are likely to be raised.

The farmer raising purebred cattle will probably want to provide more space for his young stock than will the average dairyman. He will keep many of his bull calves to an older age in order that he may sell them for breeding purposes instead of for veal. For the same reason he will also keep more heifers than the number required for herd replacement.

Each farmer, in planning his barn, must adapt it to the herd which he intends to raise. These figures, based on actual numbers of cattle of different ages on representative dairy farms in southern Minnesota, should be a useful guide in determining the relative amount of space needed for cows and young cattle.

## Rained Out!

S. A. ENGINE

The fair would have been a great success—if it had not rained. That frequent comment applies not only to fairs, but to picnics, parades, farm work—all activities that must take place out-of-doors. The dates must be set so far ahead that persons in charge cannot obtain accurate weather forecasts. They must set a date and gamble on the weather. Weather records of the past, however, can be of help. They can give an indication of the probabilities that it will rain.

Chances of rain for eight weather-reporting stations in Minnesota, determined from the frequencies of rainfall during 1896 through 1945, are presented in table 1. On

**Table 1. Number of Chances in 100 That It Will Rain on Any Day Selected from April to September\***

	April	May	June	July	August	September
Crookston .....	23	29	33	27	27	24
Morris .....	24	31	36	26	28	23
Worthington .....	27	35	35	27	28	26
New Ulm .....	31	37	38	29	30	30
Grand Meadow .....	32	39	36	28	29	32
Minneapolis .....	32	38	40	30	30	32
Leech Lake Dam .....	27	35	39	32	30	32
Duluth .....	30	37	44	36	35	36

\*Based upon data obtained from published reports of the Weather Bureau, United States Department of Commerce.

the basis of records from Crookston there are 23 chances in 100 that it will rain any day during April. No matter what date is set in June, there are 33 chances in 100 that it will be marred by rain.

For all of these weather-reporting stations the probabilities of rain are greatest in May and June. The probabilities among the other four months shown in the table vary little. The type of showers, however, must be considered. Midsummer rains are usually showers, and many of them fall at night or at other times that do not interfere with work or other activities. Spring and fall rains, however, may last for several hours or for the entire day. Events scheduled for July or early August, therefore, are least likely to be spoiled by the interference of rain.

The chances or probabilities of rain vary somewhat within months, but the differences are small. They increase from early April until about the middle of June, then decrease until the last half of July. At most of these weather stations the chances of rain rise slightly in mid-August and then drop again. At most of the stations, particularly in the southern half of the state, the probabilities of rain grow somewhat greater about the middle of September, becoming less again by the end of the month.

Rains fall least frequently in the western half of the state and particularly in the northwestern corner. Rains fall only 80 per cent as often in Crookston as they do in Duluth.

The figures in table 2 show the frequencies of dry periods, that is, periods of five or more consecutive days without rain. In Crookston, for example, there are 39 chances out of 100 that there will be no rain during any five-day period that might be selected in April. There are only 21 chances in 100 that a five-day period selected in June will have no rain. June is the poorest choice for work or events that need several consecutive days without rain. April is the best, followed by September and August.

**Table 2. Number of Chances in 100 That It Will Not Rain During Any Five-Day Period Selected from April to September**

	April	May	June	July	August	September
Crookston .....	39	27	21	21	27	31
Morris .....	39	22	15	23	25	32
Worthington .....	31	19	14	22	20	27
New Ulm .....	24	17	15	20	21	22
Grand Meadow .....	23	14	13	23	23	22
Minneapolis .....	24	16	12	18	20	19
Leech Lake Dam .....	30	21	14	15	21	20
Duluth .....	26	18	10	12	16	18

## Minnesota Farm Prices For April, 1947

Prepared by W. C. WAITE and O. K. HALLBERG

The index number of Minnesota farm prices for April, 1947, is 253.5. This index expresses the average of the increases and decreases in farm products prices in April, 1947, over the average of April, 1935-39, weighted according to their relative importance.

**Average Farm Prices Used in Computing the Minnesota Farm Price Index, April 15, 1947, with Comparisons\***

	April 15, 1947	March 15, 1947	April 15, 1946		April 15, 1947	March 15, 1947	April 15, 1946
Wheat .....	\$2.44	\$2.53	\$1.59	Hogs .....	\$24.90	\$26.80	\$14.10
Corn .....	1.48	1.28	.98	Cattle .....	18.50	18.10	12.80
Oats .....	.81	.83	.71	Calves .....	21.00	21.40	13.60
Barley .....	1.65	1.65	1.14	Lambs-sheep ..	19.07	19.56	12.82
Rye .....	2.87	3.35	2.33	Chickens .....	.210	.200	.195
Flax .....	7.40	8.20	2.92	Eggs .....	.384	.378	.308
Potatoes .....	1.25	1.15	1.30	Butterfat .....	.740	.790	.540
Hay .....	13.00	12.80	8.90	Milk .....	3.25	3.35	2.85
				Wool† .....	.43	.43	.44

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

†Not included in the price index number.

Prices of Minnesota farm products dropped 2.5 per cent from March to April. A gain of 2 per cent in crop prices was offset by a drop in livestock prices of 3 per cent, and in livestock products prices of 4 per cent. Purchasing power of Minnesota farm products dropped slightly from March.

Feed ratios also fell as a result of a decrease in prices for hogs and dairy products and an increase in corn prices. Decreases in butterfat and milk prices represented a normal seasonal decline.

The largest increases in prices received were corn, 16 per cent; potatoes, 9 per cent; and chickens, 5 per cent; while decreases noted were rye, 14 per cent; flax, 10 per cent; hogs, 7 per cent; butterfat, 6 per cent; wheat, 4 per cent; and milk, 3 per cent.

**Indexes and Ratios for Minnesota Agriculture\***

	April 15, 1947	April 15, 1946	April 15, 1945	Average April 1935-39
U. S. farm price index .....	252.3	193.8	185.5	100
Minnesota farm price index .....	253.5	177.9	173.4	100
Minn. crop price index .....	251.1	185.5	175.8	100
Minn. livestock price index .....	282.7	177.9	173.2	100
Minn. livestock product price index .....	227.0	175.3	172.8	100
U. S. purchasing power of farm products .....	137.8	129.5	129.4	100
Minn. purchasing power of farm products .....	138.4	118.8	121.0	100
Minn. farmers' share of consumers' food dollar .....	59.8†	65.3	60.7	47.9
U. S. hog-corn ratio .....	14.9	12.2	13.2	12.5
Minnesota hog-corn ratio .....	16.8	12.2	16.7	15.4
Minnesota beef-corn ratio .....	12.5	13.1	14.5	12.6
Minnesota egg-grain ratio .....	12.0	13.9	15.6	13.7
Minnesota butterfat-farm-grain ratio .....	26.6	25.2	28.3	31.8

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

†Figure for February, 1947.

## Crop Acreages for 1947

O. K. HALLBERG

Except for much higher increases in barley and soybean acreages, intended crop acreages in Minnesota for 1947 follow the national shift rather closely, according to recent reports of the United States Department of Agriculture. An increase of 60 per cent in flax acreage is slightly less than the national increase of 70 per cent, even though Minnesota is an important flax-producing state. Shifts to the oil-bearing crops both on a state-wide and a national basis are significant, and are the result of the strong demand for fats and oils. While farmers should be considering crop rotations that would lessen the drain on their soil resources, operating costs are high and farmers must consider the possible incomes from all competing crops.

Actual planted acreages of various crops in Minnesota may differ from intended planted acreages to a marked degree this year, for cold, wet weather has hampered seeding operations in many sections of the state. A planned increase of 25 per cent in barley acreage will probably be cut to some extent, while decreases of 9 per cent in oat acreages and 3 per cent in wheat acreages may be even greater. In place of these grains, farmers in the northwestern and west central counties will probably plant larger acreages of flax and corn, and in the southern counties, more soybeans and corn. With a support price of \$6.00 a bushel for flaxseed, farmers will be willing to substitute larger acreages of flax for small grains. The goal of one and one-half million acres of flax for Minnesota thus will probably be surpassed, and soybean acreage will be the largest ever grown. The acreage of corn, the largest crop in the state, will probably be higher than last year's level if seeding conditions at corn planting time remain favorable.

Seeding conditions in northwestern counties have not been as adverse as in central and southern areas. This spring seeding operations were at about the same stage in all areas, whereas normally the northern half of the state is one to two weeks behind the southern half.

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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.