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# FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension  
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## Recent Trends in the Minnesota Dairy Industry

E. FRED KOLLER

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The record of the dairy industry in Minnesota from 1920 to the present has been principally one of expansion in nearly all of its branches. From 1920 to 1934 the estimated number of milk cows in the state increased from 1,359,000 to 1,893,000 head, or an average annual increase of about 38,000 head. The only major reversal to the steady increase in the number of milk cows in the last 70 years occurred between 1934 and 1937. Owing to the shortage of feed in the drouth areas, milk cow numbers in these years were reduced at the rate of 50,000 head annually, which brought the total to 1,671,000 on January 1, 1937.

The estimates for 1938 and 1939 show a resumption of the increase in milk cows in the state. The relatively high prices of milk cows and the favorable prices of dairy products in relation to feeds have encouraged the saving of heifers and tended to reduce culling. Unless butterfat prices are very unfavorable during the remainder of 1939, the outlook is that the number of milk cows in Minnesota in 1940 will exceed considerably the January 1, 1939 total of 1,705,000.

The quantity of milk produced in Minnesota increased from 5,925,000,000 pounds in 1920 to 8,166,000,000 pounds in 1933. Milk output declined to 7,384,000,000 pounds in 1935, but under the stimulus of a favorable relationship of butterfat to feed prices rose to an all-time high of 8,175,000,000 pounds in 1938.

### Manufacture of Dairy Products

As approximately 80 per cent of Minnesota's milk output is used for manufacturing dairy products, the increase in dairying has meant a corresponding increase in these products, especially butter. Between 1920 and 1933 the volume of creamery butter manufactured in this state rose from 139 million pounds to 299 million pounds, or an increase of 115 per cent. Since 1933 the state's output of butter has averaged about 282 million pounds annually. Preliminary reports indicate that the second highest output in any year was 296 million pounds made during 1938.

Although much of the increase in creamery butter manufactured in this period occurred in the older butter-

producing counties, including Freeborn and Steele counties, the largest gains were made in counties toward the northwestern part of the state, especially Ottertail County. Between 1910 and 1937 the geographic center of creamery butter output in the state has gradually shifted northward from a point in the southeastern corner of Wright County to a point in the southeastern corner of

Stearns County.

There was only a small increase in the number of creameries in Minnesota from 830 plants in 1920 to 870 plants in 1937. As a result, the average output of butter per plant in this period increased from 167,747 pounds to 317,900 pounds annually. This was undoubtedly an important factor in the improvement of the economic efficiency of creameries in this area.

The number of cooperative creameries rose from 642 in 1920 to 671 in 1928, but decreased to 629 in 1937. Although the number of cooperatives has decreased slightly, the proportion of the state's output of butter made in these plants increased from 65.8 per cent in 1920 to 70.8 per cent in 1937.

The number of centralizer plants reached a high of 58 in 1923 but declined to 27 in 1938. The number of cream stations, which, in the main, supply the centralizers, has likewise been reduced from 1,204 stations in 1928 to 1,054 in 1938. Thus another important change in the marketing of butterfat in this state is gradually being effected. From 1920 to 1937 independently controlled plants have increased from 144 to 209. The proportion of the total output of butter made by these plants has increased from 9.7 per cent to 14 per cent over the same time.

Another important development in the dairy industry of the state since 1920 has been the increased output of various other products such as cheese, evaporated and dried milk products. According to Table 1, the quantity of cheese manufactured nearly doubled between 1921 and 1937. The largest growth occurred since 1933. The number of cheese factories was reduced from 81 plants in 1921 to 63 in 1937. As a result of these changes, the cheese output per plant rose from 95,739 pounds in 1921 to 215,129 pounds in 1937.

Although Minnesota's output of condensed and eva-

porated milk products is only about 1.4 per cent of the national total, there has been a considerable increase in these products in recent years. Table 1 shows that the combined production of evaporated and condensed whole milk reached a peak in 1930, when 34,759,000 pounds were manufactured. During the depression years, the demand for these products from eastern food manufacturers and other consumers fell off sharply. With better business conditions and consumer incomes after 1934, Minnesota plants were again able to dispose of more of these products. It is likely that this outlet for Minnesota milk will become more important as economic conditions improve. It will be observed from Table 1 that the volume of evaporated and condensed skim milk also has risen significantly since 1921.

Table 1. Dairy Products Manufactured in Factories in Minnesota, 1921-1938\*

Year	Creamery† butter	Cheese† (except cottage)	(thousands of pounds)				Dried‡ buttermilk
			Evaporated† and condensed whole milk	Evaporated† and condensed skim milk	Dried† skim milk	Dried† skim milk	
1921.....	169,948	7,755	2,611	16	361	2,033	
1923.....	217,955	8,077	1,549	1,464	916	2,810	
1925.....	260,639	9,030	10,651	2,750	1,338	5,372	
1927.....	275,387	7,100	18,755	5,327	3,153	9,255	
1929.....	286,613	10,980	32,019	9,167	8,711	13,656	
1930.....	283,240	11,457	34,759	9,619	10,658	13,088	
1931.....	285,109	10,657	22,295	7,329	10,675	11,490	
1932.....	289,659	8,069	15,808	7,674	13,245	9,295	
1933.....	299,283	7,874	16,861	6,606	13,665	10,860	
1934.....	293,838	10,513	15,962	6,878	13,080	10,608	
1935.....	273,360	11,059	21,724	9,434	11,224	10,403	
1936.....	290,474	13,145	26,641	11,327	16,459	12,743	
1937.....	277,573	13,553	21,801	12,617	16,783	13,289	
1938.....	296,208§	.....	.....	.....	.....	.....	

\* It should be noted that this table does not include all types of dairy products manufactured in Minnesota.

† Compiled from annual reports of the Minnesota Department of Agriculture, Dairy and Food.

‡ Compiled from annual reports of the Bureau of Agricultural Economics, U.S.D.A.

§ Preliminary.

In recent years the manufacturers of dairy products in this state have given more attention to the dried milk products. Table 1 shows that the output of dried skim milk rose from 361,000 pounds in 1921 to an all-time high of 16,783,000 pounds in 1937. Although some creameries over the state shifted to the whole milk basis in recent years, the manufacture of skim milk powder is still largely confined to the market milk area near the Twin Cities.

The manufacture of ice cream has gained in importance. About 8,000,000 gallons of various ice cream products were manufactured in Minnesota in 1937 as compared with about 3,428,000 gallons in 1921.

### Marketing of Dairy Products

A significant trend in marketing of butter has been that of more direct sale with less dependence on wholesale receivers. The increase in the chain stores buying directly from creameries has been one factor in this change. The

butter sales of the A & P Tea Company rose from about 35 million pounds in 1920 to 203 million pounds in 1932, but declined to 150 million pounds in 1936.<sup>1</sup> This and other large chains buy large quantities of butter directly from Minnesota creameries. The development of the Land O'Lakes creameries also has resulted in lessening the dependence on wholesale receivers. The volume of butter sold by this organization increased from 32.8 million pounds in 1924 to a peak of about 101 million in 1930. The volume handled in 1938 was about 72 million pounds.

In recent years two other groups of large national distributors have become important purchasers of butter directly from Minnesota plants. The meat packers, especially Swift and Armour, have been buying larger quantities of butter directly from creameries and have manufactured less of their requirements in this area. The second group to adopt this method have been the large national dairy corporations, especially National Dairy Products Corporation.

Complete information on the market outlets of Minnesota creameries is not available, but a summary of the channels through which 174 representative cooperative creameries market their products is a fair indication of the magnitude of the movements described above. In March (1939) 68 of these 174 creameries were marketing through Land O'Lakes, 26 to various chain store organizations, 29 to New York and Philadelphia wholesale receivers, 14 to Chicago wholesalers, 20 to the National Butter Co., a division of National Dairy Products Corporation, and 17 to meat packers.

The shift toward the more direct distribution of butter and toward cooperative marketing after 1920 has involved important economies which undoubtedly have been reflected back to the dairymen of the state in whole or in part. Truck transportation of butter (some of it on a cooperative basis), more extensive use of Great Lakes' shipping facilities, and other marketing developments have brought additional gains to dairy farmers. In the manufacture of dairy products, the larger output per plant and the greater diversification of products made have helped to improve the relative income from dairying and improved the position of the industry in this area.

<sup>1</sup> Nicholls, William H. Post-War Developments in the Marketing of Butter. Iowa State College Research Bul. 250, February 1939, p. 382.

## Better Pastures

W. P. RANNEY

Farm accounts from 122 dairy farms in southeastern Minnesota in 1938 show that an average of 58 acres, or about 25 per cent of the acreage in the farms, was utilized as pasture. The average number of animal units<sup>1</sup> of livestock using pastures on these farms was 47, or a little less than one animal unit per acre. Cattle, sheep, and colts obtained all of their feed from pastures on the majority of

<sup>1</sup> An animal unit represents one cow or the equivalent in other kinds of livestock.

the farms for several months during the pasture season. Pastures generally furnished part of the ration for hogs, turkeys, and work horses for a season varying up to about six months.

Inasmuch as these dairy farmers have considerable investment in pasture land, they can enhance their farm earnings by utilizing this land effectively. They need to get as much feed and livestock income as possible per acre of pasture land. This calls for careful selection of kinds of pasture and wise management of the pastures and the livestock.

While an exact measure of the amount of feed or income obtained from pasture land is not available, accounts kept by a group of dairy farmers in southeastern Minnesota show that pastures consisting of legumes or legumes in mixtures tended to increase livestock returns per acre of pasture.

Table 1. Effect of Kind of Pasture on Dairy Returns

Legumes included in pastures?	No. of farms	Lbs. of butterfat per cow	T.D.N.* per cow	Per cent protein in ration†	Acres pasture per cow
Yes	44	248	4381	13.1	1.39
No	28	233	4333	13.2	2.03

\* Total digestible nutrients in feed other than pasturage.  
 † In feed other than pasturage.

The data in Table 1 show that the inclusion of legumes as part or all of the pasturage for the dairy herd tended to increase dairy production. The average amount of feed other than pasturage and the percentage of protein in that feed were practically the same for both groups of farms.

The data in the above table also show that the acreage of pasture required per cow was about 50 per cent greater on those farms that had only non-leguminous pastures. Of course, a large part of the latter constituted non-tillable land. But quite often parts of these permanent pastures could be improved with applications of manure or fertilizers and with seedings of legumes.

It is quite obvious that in most cases legumes or mixtures including legumes should be used for rotated pastures. In general, pasture mixtures yield more feed than single-crop pastures. Also, more feed per acre is usually obtained when stock is not turned on until there is a good growth of plants, and when the stock are alternated between two or more pasture fields.

Proper pasture management and full utilization of pasturage offer opportunities to increase livestock returns and farm earnings. The expense of harvesting crops is saved; the manure is utilized more fully and economically; and, if legumes are included in the pasturage, nitrogen is added to the soil.

## Another Farm Receipt Too Often Overlooked

S. A. ENGINE

Products of the farm that are utilized in the home constitute an important form of income that is too often overlooked. Recent studies made in Minnesota show values of

food and fuel used in the home of from \$215 to \$359 per farm. These data, presented in Table 1, were obtained from records kept by farmers. Prices received by the farmers for products which they sold were used in determining these values. If retail prices had been used, the total value would have been at least twice as large.

Table 1. Value of Farm Produce Used in the Home

Item	14 S.E. counties 1935-38	Winona County 1935-38	Fillmore, Houston, Winona counties 1935-38	Meeker County 1937-38	Farm-Security clients 1936-37
Number farm years	590	92	233	87	1408
Whole milk	\$41	\$46	\$33	\$39	\$37
Cream	33	27	38	22	27
Farm-made butter	2	.....	7	1	20
Eggs	35	39	35	33	16
Poultry	18	22	15	13	8
Cattle	19	22	16	24	8
Hogs	44	71	45	42	29
Potatoes	15	23	16	12	16
Fruits and vegetables	33	41	71	73	29
Wood	36	68	50	64	26
Total	\$276	\$359	\$326	\$323	\$216

Dairy products, principally whole milk and cream, contributed almost one quarter of the total value of these products. In four of these studies, the average value of farm-made butter was small, for a large proportion of the farmers obtained their butter from a creamery. Eggs and poultry contributed about one sixth of the total value, with eggs being the more important of the two. Beef and pork contributed almost one quarter, with pork about three times as important as beef. Potatoes, fruits, and vegetables contributed almost one quarter, and wood less than one sixth.

Table 2. Quantities of Farm Produce Used in the Home

Item	14 S.E. counties 1935-38	Winona County 1935-38	Fillmore, Houston, Winona counties 1935-38	Meeker County 1937-38	Farm-Security clients 1936-37
Whole milk, qts.	1,326	1,488	1,048	1,300	726
Cream, pts.	302	343	400	226	217
Farm-made butter, lb.	6	1	21	3	61
Eggs, doz.	183	211	177	182	78
Poultry, hd.	40	88	32	20	19
Cattle, lb.*	354	325	283	334	134
Hogs, lb.*	519	786	531	516	321
Potatoes, bu.	25	38	26	20	21
Wood, cords	8	14	18	11	10

\* Live weight.

The quantities of the various products used are presented in Table 2. The quantities were large enough to provide the basis for an adequate diet on most of the farms, especially in the first four groups. Most of these farmers were more successful financially than the average. The quantities used in the homes of the Rural Rehabilitation clients of the Farm Security Administration were considerably smaller. Their earnings, likewise, were lower than on the farms included in the other studies.

# Minnesota Farm Prices for March 1939

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

The index number of Minnesota farm prices for the month of March 1939 was 66. When the average of farm prices for March 1924, 1925, and 1926 is represented by 100, the indexes for March of each year from 1924 to date are as follows:

1924—84	1928—101	1932—47	1936—81
1925—105	1929—108	1933—36	1937—101
1926—111	1930—97	1934—54	1938—76*
1927—109	1931—68	1935—84	1939—66*

\* Preliminary

The price index of 66 for the past month is the net result of increases and decreases in the prices of farm products in March 1939 over the average of March 1924, 1925, and 1926 weighted according to their relative importance.

## Average Farm Prices Used in Computing the Minnesota Farm Price Index, March 15, 1939, with Comparisons\*

	Mar. 15, 1939	Feb. 15, 1939	Mar. 15, 1938		Mar. 15, 1939	Feb. 15, 1939	Mar. 15, 1938
Wheat	\$0.60	\$0.59	\$0.87	Cattle	\$6.90	\$6.80	\$6.20
Corn	.34	.35	.42	Calves	8.60	8.90	8.10
Oats	.22	.21	.23	Lambs-sheep	7.35	7.36	7.38
Barley	.35	.35	.54	Chickens	.12	.11	.13
Rye	.30	.32	.55	Eggs	.14	.14	.15
Flax	1.67	1.65	1.87	Butterfat	.24	.27	.32
Potatoes	.49	.50	.41	Hay	4.41	4.60	6.05
Hogs	7.20	7.30	8.50	Milk	1.35	1.45	1.75

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

There was a slight net gain for March over February in the price level for grains and crops, with the rises in wheat, oats, and flax virtually offset by the declines in corn, rye, potatoes, and hay. In the livestock group, declines from February predominated, the most serious being for hogs, which declined 10 cents from the \$7.30 average for February. The sharpest declines of the 16 commodities, however, was for butterfat, which declined from 27 cents for February to 24 cents for March. This drop appears for the most part to be accounted for by the fact that early in March the Federal Surplus Commodities Corporation announced the cessation of its support of price through open market purchases.

## Indexes and Ratios of Minnesota Agriculture\*

	Mar. 1939	Feb. 1939	Mar. 1938	Average Mar. 1924-26
U. S. farm price index	64.5	64.8	68.1	100
Minnesota farm price index	66.3	69.7	76.3	100
U. S. purchasing power of farm products	83.9	84.3	84.3	100
Minnesota purchasing power of farm products	86.2	90.7	94.4	100
Minnesota farmer's share of consumer's food dollar		43.0	47.2	53.3
U. S. hog-corn ratio	16.0	16.4	16.3	12.2
Minnesota hog-corn ratio	21.2	20.9	20.2	15.6
Minnesota egg-grain ratio	17.8	17.4	14.2	12.9
Minnesota butterfat-farm-grain ratio	35.4	40.5	38.6	39.8

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

# Flax Expansion

March 1 "intentions to plant," as reported by the U. S. Department of Agriculture, indicate that Minnesota farmers intend to plant this year double the 458,000 acres planted to flax in 1938. For the United States the prospective acreage for seed is estimated at 2,023,000 for 1939, as compared with 1,096,000 seeded for 1938. Assuming an average yield of six bushels, this acreage would yield a crop of approximately 12 million bushels, as compared with 8,171,000 bushels for 1938. The prospective 12 million bushel crop for 1939 would be smaller than the 1935 crop, but otherwise larger than any crop since 1930.

The indicated plantings of 916,000 acres for Minnesota for 1939 will, if the plantings are made according to intentions, represent the largest acreage ever planted to the crop for the state. The highest previous record was 861,000 acres (harvested) in 1931. The explanation for the exceptional expansion indicated for 1939 in this state appears to lie chiefly in the A.A.A. program for 1939. Considerable reduction is required in wheat plantings for the current year, leaving land available for other uses. Moreover, payments will be made for acreages planted to flax under certain conditions. The combination of the two has given the stimulus to flax acreage increases.

During the last ten years, 45 per cent of the total supply for the United States has been composed of net imports, chiefly from Argentina. These imports come in over a protecting tariff, 65 cents at present. Of the total supply produced in the United States, Minnesota has in recent years produced one half to two thirds. In 1938 Minnesota produced 56 per cent of the United States' total production.

Price outlook for flax is very uncertain at the present time. Since good prices for an unusually large crop would require a very considerable pick-up in demand, those who would find the price outlook promising would have to predicate their optimism upon greatly increased building activity with its correlative requirements for paints and other building materials using flax.

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