

Current Information Letter

For the Information of County Extension Agents and Extension Workers Only
AGRICULTURAL EXTENSION DIVISION—PAUL E. MILLER, DIRECTOR
File for Future Reference—Complete Index Will Be Furnished Annually

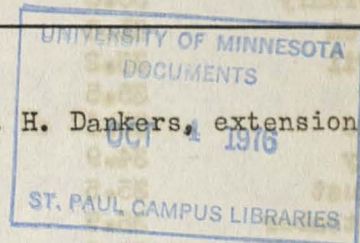
March 20, 1942

UNIVERSITY FARM
ST. PAUL, MINNESOTA

No. 00026

FILE UNDER: AGRICULTURAL ECONOMICS - Marketing - Selling

Milk Diversion Problems and the Dairy Situation -- By W. H. Dankers, extension marketing specialist.



The government's program for increasing our production of cheese, evaporated milk and dry skim milk has created some very serious problems for Minnesota dairy interests. Right now the question of milk drying is of paramount interest to local creameries. This factual and analytical statement by Dr. Dankers is one county agents should not only study for their own information, but one they should pass along to managers and directors of cooperative creameries.--Paul E. Miller, Director.

Farmers in general, members of boards of directors and managers of cooperative creameries have asked numerous questions about "milk diversion" and especially about the manufacture of dry skim milk. Some of the most common questions have been:

1. To fulfill our patriotic duty, what is required of us? Do some areas have a greater responsibility than other areas in supplying the desired milk products?
2. To what extent is the production of the desired products---cheese, evaporated milk and dry skim milk---interrelated? Will the situation of one affect that of the others?
3. After the war, what may be the picture?
4. How much will it cost a local creamery to use government equipment, and what are necessary plant and farm adjustments in changing from the purchase and sale of cream to milk?

To answer these questions, and throw light on the general situation, it is necessary to consider other more specific questions as follows:

1. How do current price relationships of butter and dry skim milk, cheese and evaporated milk compare with normal long-time price relationships?

The special demand arising for certain manufactured dairy products from lend-lease activities has considerably altered the long-time price relationships. As one illustration, cheese prices over a ten-year period were 56 per cent as high as butter prices. From October 1941 to February 1942 cheese prices were about 65 per cent as high as butter prices. Evaporated milk prices also have been relatively favorable. As a result, there has been a considerable increase in the production of these products. Changes in price of the various dairy products during 1941 can be observed from the following table:

Wholesale Prices of Dairy Products - 1941

Month	Butter - N.Y. 92 score per pound	American Cheddar Cheese - Wisconsin per pound	Evap. Milk U.S. average per case	Dry Skim Milk human consumption U.S. average per pound
January	31.1¢	15.6¢	\$2.96	7.06¢
February	30.8	14.8	2.95	6.78
March	31.6	14.7	2.95	6.58
April	33.2	16.5	3.04	7.02
May	35.5	17.8	3.18	7.15
June	35.6	18.4	3.29	7.74
July	34.9	20.5	3.42	8.48
August	35.5	21.6	3.56	9.33
September	36.9	22.9	3.65	10.65
October	35.6	23.2	3.67	11.85
November	36.2	23.2	3.67	12.43
December	35.0	23.2	3.67	12.77

As production increases of those dairy products that now bring a relatively favorable price, this price advantage will tend to diminish.

From October through January the price of cheese and evaporated milk remained about the same, cheese at 23½ cents per pound and evaporated milk at \$3.67 per case. Largely the result of increased supplies, the government's buying price for cheese recently has been 1½ cents per pound lower and the price paid for evaporated milk has been reduced 20 cents per case. In coming months of heavy production, the prices of the various dairy products may be closer to the normal relation to each other than they have been in recent months.

2. Where can the increases in output of certain manufactured dairy products come from?

Increased Total Milk Production

It is the intention of government officials to have increased amounts of fluid milk and cream available for domestic consumption. Further, the production goals for manufactured dairy products are as follows:

Commodity	Goal for 1942	Increase over 1941
Creamery Butter	2,080 million lbs.	9%
Cheese (all)	1,075 million lbs.	17%
Cond. & Evap. Milk	4,320 million lbs.	25%
Dry Skim Milk	619 million lbs.	31%

(The goal for dry skim milk for human consumption is 525 million pounds - an increase of about 50% over 1941.)

To meet such intentions, it is apparent that an increase in total milk production is necessary, as follows:

Milk Production in Recent Years and the 1942 Goal

1940 - 109½ billion pounds)
 1941 = 115½ billion pounds) - An increase in 1941 of 5½% over 1940
 1942 = 125 billion pounds (goal) - A requested increase of 8% over 1941

The 1942 national milk production goal provides for sufficient milk to increase our domestic consumption to the highest level on record, to provide for prospective lend-lease and commercial export needs and to build up substantial military reserves of butter and evaporated milk.

Quoting from comments on the national Food Situation by Secretary Wickard, December 18, 1941:

"A milk production goal of 125 billion pounds would provide not only for the increased requirements for exports in 1942, but also for a record per capita consumption of milk and other dairy products next year. If the desired goal is reached, domestic consumption of milk and dairy products (on a milk equivalent basis) could be about 20 pounds per capita larger than in 1941 after allowing for the increased quantities needed for export."

Current Rate of Total Milk Production in United States

November 1, 1940 =	4% larger than a year ago
December 1, 1941 =	8% larger than a year ago
January 1, 1942 =	4 to 5% larger than a year ago
February 1, 1942 =	4% larger than a year ago

The increase in milk production has resulted from:

- a. An increase in number of cows -- about 3% above the number on hand a year ago
- b. Better feeding and management -- grain feeding in the United States during the period of December 1, 1941 to February 1, 1942 was about 16% heavier per animal than the average for the same period of 1936-1940. (Data from "Dairy Production," issued February 16, 1942 by Agricultural Marketing Service)

Diverting Milk from Manufacture of One Product to Another

- a. Whole milk from making butter to making cheese and evaporated milk
- b. Skim milk from making animal feed powder to human food powder
- c. Skim milk from feeding directly on the farm to making human food powder

Domestic consumption of fluid milk and cream in recent months was probably increased about in line with the increase in total milk production (approximately 4%). Cheese and evaporated milk took much more than the normal share of the increase because of the favorable price for those products and also diverted some milk that would normally have gone into butter.

The diversion of milk from one product to another has been considerable as indicated in the following table:

Production of Manufactured Dairy Products
in Recent Months Compared to the Same Month a Year Ago

	Butter	Cheese	Evap. Milk	S.M. Powder
November 1941	- 2%	+44%	+92%	----
December 1941	- 7%	+51%	+93%	----
January 1942	-10%	+49%	+82%	+13%*
February 1942	-10%	----	----	----

*Although the total increase was only 13%, the production of powder for human consumption was up 43%. The production of powder for animal feed was down 60%.

Total production of skim milk powder was reduced from 482 million in 1940 to 474 million in 1941, which indicates further the diversion of whole milk in some areas, especially Wisconsin, to cheese and evaporated milk. However, although total

production was down, the production of skim milk powder for human food was 15% higher in 1941 than in 1940, indicating a second diversion of skim milk from the production of animal feed to the production of human food.

3. Has the government been able to buy the desired products in sufficient amounts to meet lend-lease requirements?

Originally, the period of lend-lease commitments for dairy products to be supplied to our Allies, was from April 1, 1941 to June 30, 1942. Later the period for evaporated milk was shortened to March 15, 1942. The latest figures on amounts agreed to be furnished during that period compared with F.S.C.C. purchases through March 7, 1942 are as follows:

	<u>Commitments</u>	<u>Purchases</u>
Cheese	300 million pounds	248 million pounds
Evaporated and Condensed Milk	21 million cases (43 $\frac{1}{2}$ # per case)	26 million cases
Dry Skim Milk	240 million pounds	67 million pounds

The quota for evaporated and condensed milk was filled by February 1, 1942. Comments by government officials have been that about 22 million cases per year will be desired for lend-lease purposes from now on. On the basis of the original commitment, this goal should be easily attained. For the last five months F.S.C.C. purchases have been about a million cases per week and over 4 million cases per month.

For the last five months F.S.C.C. cheese purchases have been at the rate of about a million pounds per day. Continued purchases at that rate would bring F.S.C.C. cheese purchases up to the present lend-lease quota about two months ahead of schedule. These amounts are forthcoming with existing equipment. Much new cheese equipment is just coming into use and more new plants are being reported. Fuller use of equipment during the flush season of milk production should bring forth even larger amounts of both evaporated milk and cheese.

Storage stocks were not depleted in making the F.S.C.C. purchases. With the exception of skim milk powder, commercial storage stocks of dairy products on March 1, 1942 were considerably above stocks on the same date in 1941 and earlier years.

4. More specifically, how big is our job in producing the desired increase in skim milk powder for human consumption?

The goal for 1942 is set at 619 million pounds of skim milk powder, out of which 525 million is to be available for human consumption. Total production of skim milk powder in 1941 was 474 million pounds. The average annual price of spray process powder for human consumption, total U.S. production, and production in the more important powder producing states for recent years was as follows:

Total Dry Skim Milk Produced, and Average Annual Price for Human Food Powder - Spray Process

Production	Million Pounds		
	1938	1939	1940
Human Food and Animal Feed	5.6¢	6.2¢	7.0¢
United States	449.3	408.4	481.7
Wisconsin	113.5	100.6	118.4
New York	68.4	79.0	99.2
California	59.9	55.8	63.5
Michigan	41.9	34.6	36.9
Minnesota	23.1	17.5	25.5
Pennsylvania	15.2	15.2	16.9
Missouri	18.2	13.6	15.0
Other	109.1	92.1	106.3

Since 100 pounds of skim milk will yield $8\frac{1}{2}$ to 9 pounds of dry skim milk, a quota of 619 million pounds of powder will require about 7.1 billion pounds of skim milk compared with a production of 482 million pounds of powder and a liquid skim milk equivalent of 5.5 billion pounds in 1940. The increase desired is thus approximately 1.6 billion pounds of liquid skim milk, or the equivalent of 1.9 billion pounds of whole milk when the fat is manufactured into butter. The extra whole milk required from which to separate the skim milk and make powder is not a large amount in comparison to an approximate amount of 50 billion pounds of milk sold from farms as milk at wholesale in 1941.

5. What are the avenues through which more skim milk powder will become available?

In the future (immediate and longer time), there are four sources for increased amounts of skim milk powder:

- a. Re-diversion, as cheese and evaporated milk become abundant and as prices for those products become relatively less favorable.

Large diversified dairy plants (especially in Wisconsin) decreased the production of butter and dry skim milk in 1941. Some creameries with roller driers sold their milk to condensaries and allowed their butter and powder equipment to remain idle. This was done in response to a favorable price for evaporated milk and cheese compared to the combination of butter and powder. As price relationships become more normal (recent declines and probable further declines in the price of cheese and evaporated milk), there will be a tendency to return to a fuller use of existing equipment for butter and drying. To some extent this shift is already taking place.

- b. Increased production with fuller use of existing equipment, as we enter the "Flush" season of milk production
- c. Fuller year-round use of existing equipment by arrangements between groups, and expansion of territory
- d. New plants - largely financed from lend-lease funds

6. What is the capacity of equipment now available for manufacturing the desired dairy products?

"Allowing for the usual seasonal variation, the production of cheese and evaporated milk is now about up to the level needed to maintain domestic consumption at the level prevailing in recent years; and to cover lend-lease requirements now in sight." -- from "Dairy Production", Agricultural Marketing Service.

Even though cheese is now forthcoming in sufficient amounts, considerable equipment still is being installed.

Indications are that the existing equipment for producing dry skim milk is not sufficient to meet the 1942 goal. However, a rapid increase in powder production is expected as existing equipment is used to fuller year-round capacity, and especially during the flush season of milk production, and as equipment now approved is brought into use.

In recent years Minnesota has produced only about 5% of the total dry skim milk produced in the United States. Wisconsin has produced about five times that amount. Diversion of milk in Wisconsin affects more significantly the national situation. The recent survey (February 1942) made by the Division of Agricultural Economics and the Agricultural Extension Service indicates that Minnesota can more than double its production of dry skim milk for human consumption over 1940 with the plants now op-

erating, and those that have nearly all of the equipment for diversion, if such plants are used more nearly to capacity. The present status of the milk-drying industry in Minnesota is as follows:

- a. A total of 102 plants drying milk
- b. Forty plants drying milk for human consumption; 62 plants drying buttermilk for feed purposes
- c. Fifteen plants now drying milk for animal feed, taking positive steps to convert animal feed driers to human food driers
- d. Ten new and enlarged spray process plants now contemplated.

On the basis of conservative estimates, if all the contemplated projects are executed, there may be considerably more dry skim milk produced in Minnesota than will be required from the state in meeting the national goal.

Probable Need for More Milk Powder Plants

There is a patriotic duty to supply the requested products only up to the amounts needed for various war purposes and for domestic consumption. Any expansion in equipment, and facilities in general, beyond that needed, results in expenditures and the use of equipment greatly needed in other war efforts. Not only is over-expansion far removed from patriotism, but production beyond contemplated needs may seriously depress the price of powder.

Economic considerations give some areas better opportunities and a greater responsibility than others in producing the desired increases of certain manufactured dairy products, including dry skim milk. When the sale of whole milk is involved, the size of the herd is an important factor. The cost per unit of daily milk delivery is less from a large herd than a small one. In addition, the relationship of the size of the milking herd to the number of skim milk consuming animals varies greatly from one area to another. When the war emergency is over, the equipment for processing whole milk can be more easily justified and will be less of a burden in areas with fairly large herds, where the number of skim milk consuming animals per farm is relatively limited.

In analyzing the need for certain manufactured dairy products including dry skim milk, the required increases should be related to the total production or sales of milk. The various manufactured products are interrelated, so that the production, supply and price situation of cheese and evaporated milk will affect the dry skim milk situation. The long-time post-war probabilities, of a smaller demand for present lend-lease products, should not be overlooked, but rather correlated with the present emergency.

Costs to the Creamery and to the Farmer

Central plants for drying skim milk (estimates on costs vary around \$250,000) and equipment in local creameries may be financed out of government (lend-lease) funds. However, the rental of such property is an operating cost against each local creamery's business. It must cover 10% per year on any equipment installed in its own plant and must share the 10% "check off" on the central plant according to the volume of business done with it. In effect the arrangement is no different than any other rental contract, regardless of ownership. The cost of the necessary equipment in a local plant is conservatively between \$7,000 to \$15,000. Many of the small creameries cannot successfully bear the cost of such an increased investment.

The following are necessary plant and procurement adjustments in changing from the purchase of cream to whole milk.

- a. Need for more cans-- one hundred pounds of cream (30%) are equivalent to ~~50~~⁸⁵⁷ pounds of whole milk
- b. Need for a can washer at the creamery
- c. Increased number of trucks, more trips per truck, or heavier loads per haul
- d. Increased weighing facilities at the creamery
- e. Increased holding and separator capacity at the creamery
- f. Increased boiler and refrigerating capacity in some plants

Whether or not whole milk will be sold is dependent on the relationships between prices at the plant and the value of skim milk as feed on the farm. Considerations on the part of the farmer are:

- a. The price of feeds (100 pounds of skim milk will replace 7 pounds of tankage and 11 pounds of corn, if efficiently fed)
- b. Relative local hauling costs of milk and cream (in Carver county the cost of hauling a hundred pounds of whole milk is 6 to 9 cents higher than the cost of hauling the cream therefrom)
- c. Cost of the extra cans for selling milk (must come out of the enterprise whether the cost is assumed by the producer directly or by the creamery)
- d. Cooling facilities on the farm (problem of size and effectiveness when milk is handled instead of cream)
- e. The price for skim milk at the plant (will vary as the price of powder varies). Recent Chicago prices have been from $12\frac{1}{2}$ to $14\frac{1}{2}$ cents. Average annual prices from 1936 to 1940 ranged from 5.6 to 8.6 cents per pound.