

Staff Paper Series

Staff Paper P76-5

February 1976

SOME MAJOR ISSUES AFFECTING MINNESOTA'S COMPETITIVE POSITION IN UNITED STATES AND WORLD DAIRY MARKETS

Boyd M. Buxton

**Department of Agricultural and Applied
Economics**

University of Minnesota
Institute of Agriculture, Forestry, and Home Economics
St. Paul, MN 55108

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Staff papers are published without formal review within the
Department of Agricultural and Applied Economics.

SOME MAJOR ISSUES AFFECTING MINNESOTA'S COMPETITIVE POSITION
IN UNITED STATES AND WORLD DAIRY MARKETS^{1/}

by Boyd M. Buxton *

The future of dairy farming in Minnesota and in the United States appears less certain now than ever before, particularly for farm operators. Fluctuating milk and feed prices, rising production costs, declining per capita consumption of dairy products, an increased importance of world markets and the role of government are a few of the key factors that have contributed to increased uncertainty and will directly affect the future course of the industry. These factors will influence the general profitability and the economic well-being of all segments of the U.S. dairy industry. Minnesota's role in the United States and world dairy markets is being shaped by a very complex set of developments within and outside the industry. I would like to direct my discussion today to some of the most important developments which include: (1) consumption of dairy products, (2) costs of production, (3) the competitive position of Minnesota dairy farming, (4) world trade, and (5) some developments in federal milk marketing programs.

^{1/} Presented at the Minnesota Farm Managers and Rural Appraisers Association Annual Meeting, Minneapolis, Minnesota, February 6, 1976.

* Agricultural Economist with the Economic Research Service stationed at the University of Minnesota.

CONSUMPTION

Although population increase has kept total consumption about constant, per capita consumption of milk equivalents for fluid and manufactured dairy products has declined in the United States from about 706 pounds in 1955 to 543 pounds in 1974. These figures represent an average decrease of about eight pounds per year for every man, woman, and child. Like it or not, over the longer run the quantity of milk produced in this country is greatly influenced by the amount consumers are willing to purchase. The dairy industry cannot avoid the realities and power of the consumer. Those who consider only the supply side of a supply-demand market, believing that the industry should be able to produce all the milk it can at a "fair price," must recognize the realities of the marketplace. Clearly, milk prices in the long run must be high enough to maintain an economically healthy industry. However, continued declines in per capita consumption has resulted in a non-expanding industry. This has contributed to a downward pressure on milk prices which is the force that brings total supply into line with the amount consumers are willing to purchase at those prices. Because of government costs there is no politically acceptable way that supply can greatly exceed demand over a very long period of time.

The above consumption data suggests that there would have to be a major change in long-term trends if an additional 43 pound decline in per capita consumption by 1980 is to be avoided.

How much will this consumption be aggravated by periods of rapidly rising dairy prices? Wholesale butter prices in Chicago increased from

about \$.69 per pound in June 1975 to \$1.04 in December of the same year. Wholesale cheese prices rose from about \$.82 to slightly over one dollar, and the nonfat dry milk price was up \$.10 per pound for the same period. How did the grocery shopper in your household respond to these price increases of 50 percent for butter and 20 percent for cheese? A recent study at the University of Minnesota using cross section data for households between April 1972 and March 1973 revealed household consumption decreased by 7.0 percent for butter and 6.2 percent for American cheese with each 10 percent rise in their price.^{2/} Commercial disappearance declined about 9.5 percent for butter but increased 6 percent for cheese in the second half of 1975. The full impact of the price increases in late 1975 is not yet in but probably if only a fraction of the above household response could be expected, consumption of butter and cheese could be substantially affected by the price increases experienced during the last half of 1975. Given the expected decreases in consumption and the increase in milk production when farmers responded to the record high milk prices in late 1975, butter, cheese, and milk powder prices have dropped substantially. The question asked by the dairy industry was when, rather than if, the prices would fall.

What can be done to increase consumption? Recent studies suggest that promotion of dairy products can significantly increase sales.^{3/}

^{2/} Thraen, C., J. Hammond and B. Buxton, "An Analysis of Household Consumption of Dairy Products", Draft Manuscript, Department of Agricultural and Applied Economics, University of Minnesota, 1976.

^{3/} Graf, Truman, "The Cooperative and the Market", Agricultural Economics Staff Paper No. 107, University of Wisconsin, Nov. 1975, pg. 6.

The actual gain in consumption is uncertain but it may be difficult to improve consumption without promotion in face of the downward in consumption trend mentioned earlier. The dairy industry spends about \$8.3 million promoting about \$9.4 billion in milk sales annually which is in sharp contrast to the \$76 million Coca-Cola spends on promoting \$2.1 billion sales.

A major question which always lurks in the background concerns dairy substitutes. Clearly, the economic incentive for use of these substitutes increases when the price of dairy products rises relative to the price of substitutes. It is probably only a matter of time until substitutes make inroads that result in further cuts into the per capita consumption of dairy products. Discussion has already taken place on what to call some of these substitute products and whether the package can bear the name of the product it is intended to replace. One example you may have heard about is GOLANA. This is Analog spelled backwards and is the name recently suggested to identify substitute cheese.

It seems then that consumption is a key factor affecting the dairy industry of Minnesota. More attention to the long-term downward trends in per capita consumption seems warranted. In any event, whether a person is optimistic or pessimistic about the future, the profitability of dairy farming depends to a large extent upon his or her expectations about consumption.

COST OF PRODUCTION

In recent years, we have been hearing a great deal more about milk production costs. This is partly because of the increased dis-

enchantment among policymakers and congressmen with the parity price concept used as a measure of a "fair price" and with the target price concept presently built into the current farm program legislation. Another reason is the search for a base price that truly reflects the dramatic changes that have taken place in the prices of inputs used to produce milk. Congress has directed the Economic Research Service (ERS) in the Department of Agriculture, in conjunction with state universities, to determine the costs of producing major agricultural commodities including milk. A survey has been taken by ERS and the results should soon be released. The survey will use a consistent accounting method and thereby provide a consistent comparison of costs across the United States including those costs estimated for Minnesota dairy producers. Without having seen the results, I would expect the estimated production costs to vary across the United States in about the same way that milk prices vary across the United States. U.S. census data for 1969 found this to be true. ^{4/} Farm account records also tend to show that net farm income is about the same on similar size farms across the nation regardless of the milk price they receive. In other words, inputs tend to be relatively highpriced in areas where milk is relatively highpriced. In part, this may reflect the capitalization of milk prices into input values, particularly land.

An evaluation of the competitive position of dairy farming in Minnesota relative to dairy farming elsewhere in the United States and dairy farming abroad may suggest a need to compare "milk production costs"

^{4/} David Cummins and Boyd Buxton, "Dairy Farm Income and Milk Production Costs in the United States, 1969," U.S. Department of Agriculture Dairy Situation - 347, September, 1973.

in Minnesota with these other areas. But such a comparison may not give a useful answer since it does not account for returns from resources in uses other than milk production. That is, an area with lowest milk production costs may not produce milk at all if the resources can be used more profitably to produce something else. Also, there is no one cost of producing milk. A speaker at the November Outlook Conference in Washington, D.C. said, "It is not surprising that men of good will and honest intentions may arrive at different estimates of production costs." ^{5/} The prices used to pay land can be based on rental rates, current market price times the interest rate, purchase price times the interest rate or other values. Which is right? There is no single correct answer. Similar problems emerge in placing a value on operator and family labor, farm produced inputs, overhead expenses for machinery and the entire farm operation. Management also introduces a great deal of variation in cost per 100 pounds of milk between farm operators. Much more meaningful, but somewhat more abstract, is the concept of how much milk will be produced at a prevailing milk price. The answer, based on the concept of supply, does reflect the combined decisions of all producers who are evaluating the alternative uses of their resources and deciding if dairy farming is profitable enough for them. This suggests looking at current prices, the amount of milk supplied, and how that quantity might reflect the change in milk prices.

^{5/} John G. Stovall, "The Cost of Producing Agricultural Commodities", United States Dept. of Agriculture, Economic Research Service. Speech at National Agricultural Outlook Conference, Washington, D.C., Nov. 1975.

The estimated cost of milk production has limited value for policy decisions regarding determination of a "fair price", evaluating competitive position of one area in contrast to another area, or making judgments about the economic health of the dairy farming industry. However, it does provide some measures of change in cost over time and provides for comparison across regions if a consistent accounting method is used.

MINNESOTA'S COMPETITIVE POSITION

Despite a shift in relative importance of milk production among regions in the United States, total U.S. milk production has remained about constant for the past thirty years. The real test of the competitive position of Minnesota for United States markets lies in its long-term survival as a major milk supply area.

Looking at the top 20 dairy states (in terms of milk production) for the 1960 to 1973 period, we observe that Wisconsin has increased its share of total U.S. milk production from 14.4 to 16.3 percent and California from 6.6 to 8.7 percent. Minnesota, Pennsylvania, New York, and Michigan produced about the same proportion of total U.S. milk production in 1973 as they did in 1960. States declining in relative importance are Ohio, Iowa, Texas, and Missouri (Appendix).

California, which ranked fourth prior to 1971, now holds second place in milk production -- ahead of both New York and Minnesota. States that have shown the greatest percentage increases in milk production from 1960 to 1972 include Florida (up 43 percent), California (up 29 percent), Texas (up 15 percent), and Washington (up 21 percent).

States that have shown the greatest percentage reduction in milk production tend to be in the Corn Belt and include Illinois (down 33 percent), Indiana (down 24 percent), Iowa (down 24 percent), and Missouri (down 10 percent). Major declines have also occurred in the Plains states of Nebraska, North Dakota, Kansas and Oklahoma. Milk production in Minnesota was down almost seven percent for the 1960 to 1972 period and has continued to decrease at about the same rate in both 1974 and 1975. Why has production increased in Wisconsin and decreased in Minnesota when both states are usually considered quite similar? One possible explanation is that competitive pressure for resources (primarily land) by cash crops in the south central, southwest, and western parts of the state, and by beef in the northern part of the state have taken resources out of milk production. The southern part of Minnesota is more like the Corn Belt states than it is like Wisconsin, and dairying has been declining in this area like in most Corn Belt states. Many farmers in this area have torn down fences and planted cash crops. Increased acreages of soybeans in this area would tend to substantiate this conclusion. Another explanation is that only parts of Minnesota can be considered similar to Wisconsin. Milk production has concentrated in the southeast portion of the state that is adjacent to and much like Wisconsin. This area should continue to be an important dairy area. As a whole, Minnesota should about maintain its relative importance in total U.S. milk production over the next several years.

COMPETITIVE POSITION IN WORLD MARKETS

The basic idea in economic theory that quotas create distortions

in world trade and reduce the total well-being of potential trading partners is receiving attention by government officials and consumers. The United States agriculture, in total, relies heavily on exports of basic food commodities. Domestic prices of feed grains, wheat, and soybeans would be substantially reduced should these export markets disappear. About 23 percent of our feed grains, 67 percent of our wheat, and 36 percent of our soybeans are exported. There will be pressure to put dairy import quotas on the bargaining block to insure these export markets because dairy quotas are a major item the United States has with which to bargain.

The future of dairy import quotas is, of course, unknown. However, a few points might be made. First, the principal justification of dairy import quotas is the dairy price support program. Any imports at a time when the government is purchasing dairy products to support prices would directly add to government purchases. Hence, the government would end up supporting world prices. As long as there is a price support program, there will have to be import quotas of some type.

Second, I doubt the United States will permit itself to become a dumping ground for world surplus dairy products, especially when they would not be available on a continuing basis. To do so would subject the United States to very unstable marketing conditions and greatly increase price fluctuation.

Third, no additional imports were authorized in late 1975 even though the conditions which existed were similar to those when additional authorizations were made in 1973 and 1974. One difference was that the Cost of Living Council, very influential in 1972-73, did

not exist in late 1975.

Dairy products are among the most highly protected commodities in world trade. Current quotas restrict dairy imports to about 1.5 percent of annual United States milk production on a milk equivalent fat solids basis. Additional import authorization in 1973 increased imports to slightly over three percent of U.S. production in that year. These quotas have largely insulated the United States from imports that would otherwise enter, either subsidized from foreign countries (primarily Europe) or as profitable sales from lower cost supply areas (primarily New Zealand and Australia). What would happen if quotas were increased or eliminated? How competitive is the United States? Answers to these questions require information on the competitive position of different countries. The competitive differences between countries is largely determined by the quantity and quality of farm resources and their suitability for alternative uses outside dairy. The processing and manufacturing sectors and transportation costs also affect competitive ability. Some information on farm and processing efficiency in the major supply regions are contrasted in the following sections.

Farm efficiency. Herd size varies widely throughout the world. In the potential exporting areas, the average herd size in about 1973 varied from 105 cows in New Zealand to 4.4 cows in Italy. Government policy has had much to do with the size of dairy farms in many countries. For example, the German government has intentionally located industry in rural areas to make dairying a part-time possibility. Recent policy changes in Australia have eliminated a bounty subsidy program and

initiated programs to help marginal dairymen either discontinue milk production or attain larger sized dairy herds. Most of the major supply regions of the world have placed emphasis on increasing herd size and efficiency.

Yields per cow are closely related to concentrates fed per cow. In New Zealand, for example, production per cow is low, but dairying is a pasture-based industry. A typical New Zealand dairy farm has no buildings except an open-shed milking parlor and the farm residence. The cows are pastured year round so there are no hay or concentrate storage structures or handling equipment. Most of the machinery inventory is represented by a small tractor and trailer.

The physical efficiency of labor and land in producing milk was estimated from farm account data of New Zealand and the United States.^{6/} Results indicate that New Zealand farms can produce 100 pounds of milk with less labor, land, and capital than can U.S. farms. This gives New Zealand an apparent absolute advantage in milk production compared with the United States and Europe.

These results are explained, to a large extent, by differences in dairy farming in the three countries. In the United States, more land and labor are required to dry-lot feed forage and relatively large quantities of concentrate. Most of the feed is carried to rather than foraged by the cow. The opposite is true in New Zealand as cows are pastured year-round; practically no feed is fed by the farmer.

^{6/} Boyd M. Buxton and George E. Frick, "Can the United States Compete with Dairy Exporting Nations," to be published in the Journal of Dairy Science, 1975.

What does the milk needed to manufacture dairy products cost? How much do farmers in various parts of the world receive for their milk? At any given time, these prices substantially affect competitive ability of various countries. The target price for 100 pounds of milk in the nine countries comprising the European Economic Community ranged from \$10.92 (U.S.) in Germany to \$8.72 (U.S.) in the United Kingdom for the period ending January 31, 1976. The U.S. manufacturing milk price was \$9.26 per 100 pounds in December 1975.

The final milk price received by Oceania farmers for the 1975-76 year will not be known until all sales of their products are made and the returns are allocated back to their farmers. However, the announced or expected price per 100 pounds of milk is \$4.80 (U.S.) in New Zealand and \$5.40 (U.S.) in Australia.

Processing efficiency. The cost of manufacturing milk into butter, nonfat dry milk, and cheese is lower in the United States than in either Europe or Oceania. Although processing technology is similar, the United States experiences lesser seasonal fluctuation in milk production. New Zealand and Australian factories are essentially closed in the winter months of June and July. Because of the more marked seasonal fluctuation in milk production, New Zealand and Australian dairy plants operate annually at a lower percent of capacity than U.S. plants.

The main conclusion, from the above information, is that Oceania can and Europe cannot, on a competitive basis, ship dairy products to the United States more cheaply than we can produce them here.

Europe could not pay their farmers the going target price, cover the slightly higher processing cost, pay transportation to the United States

and still make any money at current U.S. dairy product prices without an export subsidy. A few exceptions involve specialized dairy products with limited U.S. markets (for example, Danish blue cheese). On the other hand, New Zealand and Australia could both put manufactured dairy products on the American household's table cheaper than our own industry . If New Zealand had unlimited supplies, a free trade policy would be disastrous to U.S. dairy industry. However, it is important to keep in mind that New Zealand's total production is only about eight percent as much as is produced in the United States. Australia produces slightly more than New Zealand. Given world markets, there is no way that New Zealand and Australia could replace our dairy industry, even under free trade conditions.

Countervailing duties are a different issue and, if imposed, would put other countries interested in subsidizing their exports to us back on a straight competitive basis. Under threat that the United States would impose countervailing duties, Europe chose to eliminate export subsidies on many dairy products to the United States thereby effectively pricing them out of our market.

FEDERAL MILK MARKETING ORDERS

Serious questions are being raised about the impact of federal regulations throughout our economic system. Some of these questions have focused on regulations in milk marketing. One particular concern is the impact of classified milk pricing according to use, a basic part of the current federal milk marketing order program. Recent studies have attempted to measure the social cost of these regulations

and to identify how much consumer prices are affected. Whether or not accurately measured, recent studies have concluded that consumers pay substantially higher prices for fluid milk than they would without regulation. In any event, there is much interest in the subject and the issue is not quickly going to disappear. Eventually, the policymakers will decide whether the current federal milk marketing order program will be continued as is, be modified, or done away with completely. The decision can have major implications for the Minnesota dairy industry.

The ERS of the United States Department of Agriculture is beginning a study to evaluate the impact of the federal milk marketing order program.

Two points seem warranted with respect to the classified pricing under federal and state orders. First, the United States price for manufacturing milk is lower than it would be without orders. That is, the higher fluid prices under classified pricing restrict consumption of fluid milk and increase total milk production thereby increasing the amount of milk diverted into manufactured products, depressing the U.S. manufacturing milk price. This alone makes the United States relatively more competitive in the world for manufactured dairy products than it would be without orders. Measures of how much more competitive will be part of the results of the study being done by the Economic Research Service.

Second, the dairy farmers in Minnesota and Wisconsin (both Grade A and certainly Grade B producers) are placed at a competitive

disadvantage relative to most other areas within the United States. Higher Class I milk prices restrict fluid consumption throughout the United States causing more milk to be diverted into manufacturing which in turn lowers the manufacturing milk price. Because a large proportion of the milk in Minnesota and Wisconsin is used as manufacturing milk, producer prices probably are lower than they would be without classified pricing. The extent of this possible disadvantage facing Minnesota and Wisconsin producers will also be studied in greater detail in the study being done by the Economic Research Service. In summary, it is not likely, but possible, that some rather far reaching changes in milk marketing are on the horizon. These changes can substantially alter the dairy industry. All those interested in dairy should follow these developments and participate to the extent possible in the policy decisions being made.

CONCLUSIONS

The risks and uncertainties for short and long run decision making within the U.S. dairy industry has greatly increased. These conditions, likely to persist, mark the beginning of an era of relatively unstable prices and marketing conditions. Changes in consumption, trade policy, government programs and production costs will all affect dairy farming. Even though there will be many adjustments over the years to come, dairy farming in the United States is not going to disappear. The opportunities and prospects for well managed dairy farms that achieve high levels of efficiency should be good.

APPENDIX

Percent of total U.S. milk production for the top 30 states, 1960 and 1973.

	Percent of Total U.S. Production	
	1960	1973
Top 10 States		
Wisconsin	14.4	16.3
California	6.6	8.7
New York	8.4	8.5
Minnesota	8.3	8.0
Pennsylvania	5.6	5.8
Michigan	4.2	4.1
Ohio	4.2	3.8
Iowa	4.8	3.5
Texas	2.4	2.8
Missouri	3.0	2.6
TOTAL 10 STATES	61.9	64.0
Second 10 States		
Illinois	3.4	2.4
Kentucky	2.6	2.1
Indiana	1.7	2.0
Washington	1.7	2.0
Tennessee	1.8	1.7
Vermont	1.6	1.7
Florida	1.1	1.6
Virginia	1.6	1.5
Idaho	1.3	1.4
Kansas	1.5	1.3
TOTAL 10 STATES	18.3	17.7

Source: Ray Hoglund, The U.S. Dairy Industry Today and Tomorrow. Agricultural Experiment Station Res. Report 275, Michigan State University, May 1975.