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Dairy: Background

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Feature:

Farm Milk Production

Major trends in milk production in the United States include 1) a fairly steady slow increase in production as gains in milk production per cow outweigh declines in the number of cows, and 2) a consistent decline in the number of dairy operations, matched by a continual rise in the number of cows per operation.

Since 1970, milk production has risen by almost half, even though milk cow numbers have declined by about a fourth (from about 12 million to roughly 9 million in 2007, see [map](#)). Milk production per cow has nearly doubled, from 9,700 pounds per year to nearly 19,000 pounds. Similarly, the number of dairy operations declined from about 650,000 in 1970 to roughly 90,000 in the early 2000s, while over the same period the average herd size increased fivefold from about 20 cows to 100 cows.

Milk is produced in all 50 States. The top 10 producing States in 2008 were:

- California
- Wisconsin
- New York
- Idaho
- Pennsylvania
- Minnesota
- Texas
- New Mexico
- Michigan
- Washington

As this list indicates, the major milk-producing States are in the West and North. The relative importance of the western regions has grown, while other regions have declined or remained steady. Western areas have had lower average costs of milk production for a variety of organizational and climatic reasons.

Most dairy cows in the United States are Holsteins, a breed that tends to produce more milk per cow than other breeds. The composition of Holstein milk in approximate terms is 87.7 percent water, 3.7 percent milkfat, and 8.6 percent skim solids.



In the United States, the decision to produce milk largely rests in the hands of individuals or families. Many of these farmers belong to producer-owned cooperatives. The cooperatives assemble members' milk and move it to processors and manufacturers. Some cooperatives operate their own processing and manufacturing plants. Initially local, many of today's dairy cooperatives are national, with members scattered across the country.

From Raw Milk to Dairy Products

Almost all of the milk produced in the United States meets fluid grade milk standards (Grade A in most States). However, only about one-third of the milk is actually processed into fluid milk and cream products.

Fluid milk processors face a unique supply-demand situation not shared by most other food products. Farm milk production varies by day, week, and season because of weather and feed conditions. Similarly, fluid milk sales vary greatly by day and season because of consumer shopping patterns. Because these patterns cannot be precisely predicted, a system must be maintained to get milk where it is needed when it is needed. Shipping milk among locations and storing it for a day or 2 can solve some of the problem, but a pool of "on call" raw milk is ultimately needed. The portion of this reserve not actually used in fluid milk products is manufactured into other dairy products.

Coordinating supply and demand for the fluid market is called balancing. Individual plants may do the balancing, but it is more efficient for a few entities, or even a single entity, to provide the services for a market. Dairy cooperatives have in most cases taken on this important function.



The remaining milk—almost two-thirds of the milk supply—is used to produce a wide array of manufactured dairy products. Almost half of the milk supply is used to turn out about 9 billion pounds of cheese each year. Mozzarella has recently moved past Cheddar to become the most popular variety. Output of most varieties has grown steadily for many years, as cheese has become a staple in the American diet.

Production of ice cream and other frozen dairy products totals about 1.5 billion gallons, about two-thirds of which is regular ice cream. Frozen dairy products are commonly made by fluid milk processors, although specialized plants are well established.

Butter and nonfat dry milk traditionally were joint products. The cream from milk was churned for butter, and the remaining skim milk was dried for nonfat dry milk. About a tenth of the milk supply is still used this way, although more than half of the butter produced now comes from cream not needed when milk is used for fluid milk products or cheese. Production of these products has been roughly constant for many years, although their relative share of dairy product output has declined.

The plants that process and manufacture milk into fluid and manufactured dairy products may be proprietary (held by private or publicly traded companies) or cooperatively owned. An example of a proprietary company is Leprino, the largest global producer of Mozzarella cheese. Cooperatives generally produce cheese, butter, nonfat dry milk, and similar manufactured products, but some cooperatives, such as Prairie Farms, Inc., process fluid milk. There is a relatively significant presence of foreign-owned companies in parts of the U.S. dairy industry.

Consumption

In recent decades, consumption of total dairy products has risen just barely faster than the growth in population. However, use of individual products has shown great, and apparently unrelated, variation. Consumer decisions about individual products appear to be fairly independent of each other.

Total per capita consumption of fluid milk has declined slowly because of competition from other beverages and a declining share of children in the population. Since the late 1980s, however, changes in per capita sales of individual types of beverage milk have been variable. Per person use of most cream and cultured products has risen steadily for a quarter-century.

Growing cheese demand has been one of the most important forces shaping the U.S. dairy industry. Per capita cheese use is twice the level of 25 years ago and shows no signs of leveling. Increasing cheese consumption has been aided by ready availability of a wider variety of cheeses, increased away-from-home eating, and greater popularity of ethnic cuisines that employ cheese as a major ingredient.

Per person use of butter has been fairly steady since the early 1970s. However, use of most dry and condensed milks have declined as in-home food preparation has diminished and fresh milk has become cheaper and achieved a longer shelf-life. In commercial food preparation, whey products have replaced some of the former uses of dry and condensed milk products. (Whey is the watery part of milk that separates from curds in the process of making cheese.)

For More Information, See...

- ERS, [Livestock, Dairy, and Poultry Outlook: Tables](#)
- ERS, [Monthly Milk Cost of Production](#)
- USDA, National Agricultural Statistics Service, [Milk Production](#)
- USDA, National Agricultural Statistics Service, [Dairy Products](#)
- USDA, Rural Development, [Cooperative Programs](#)

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