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Definition: **dairy farm** from *The Macquarie Dictionary*

1.

a farm devoted chiefly to the production of milk and milk products.

Plural: dairy farms

dairy farmer *noun* dairy farming *noun*

dairy farmers



Image from: [Among other issues, animal welfare reformers... in Green Food: An A-to-Z Guide](#)

Summary Article: **Dairy Farming**

From *Encyclopedia of 20th Century Technology*

Throughout the world, especially in the Northern Hemisphere, milk, cheese, butter, ice cream, and other dairy products, have been central elements of food production. Over the centuries improvements in cattle breeding and nutrition, as well as new dairy techniques, led to the increased production of dairy goods. Hand-operated churns and separators were used to make butter and cream, and those close to a barnyard had access to fresh milk.

By the late nineteenth century, new science and technology had begun to transform dairy production, particularly in the U.S. and Europe. Rail transportation and iced and refrigerated boxcars made it easier to transport milk to more distant markets. Successful machinery for separating milk from cream came from the DeLaval Corporation in 1879, and the Babcock butterfat tester appeared in 1890. The first practical automated milking machines and commercial pasteurization machines were in use in the decades before 1900. Louis Pasteur's contribution to the dairy industry—discovering the sterilization process for milk—was substantial. By heating milk, pasteurization destroys bacteria that may be harmful to humans. The pasteurization process also increases the shelf life of the product by eliminating enzymes and bacteria that cause milk to spoil. Milk is pasteurized via the “batch” method, in which a jacketed vat is surrounded by heated coils. The vat is agitated while heated, which adds qualities to the product that also make it useful for making ice cream. With the “continuous” method of pasteurization, time and energy are conserved by continuously processing milk as a high temperature using a steel-plated heat exchanger, heated by steam or hot water. Ultra-high temperature pasteurization was first used in 1948.

Key to the mechanization of the dairy industry were improvements in the mechanical milking machine. The first vacuum pump machines were patented in the 1860s, and the Mehring hand- and foot-powered model was popular in the 1890s. This machine was powered by a person sitting down, pushing pedals with their feet, and milking two cows at one time. Widespread adoption of the milking machine did not come until the introduction of the DeLaval milker in 1918. Using these early machines, one person could milk 30 cows twice per day; with improvements in milking machines by the end of the twentieth century, over 200 cows could be milked by one person. What had been seen as “women's work,” the tending of dairy herds, had become a business process in which farm factories produced raw milk for shipment into central dairies for processing. Elaborate dairy barns gave way to high-tech milking

parlors where cows could be milked by machine three times per day rather than once or twice, and a premium was placed on sanitary conditions. By the late twentieth century, it was not uncommon in California to see dairy operations numbering up to 50,000 animals. Numerous devices were developed to improve mechanical milking, and the intermittent “pulsator”-type milker was one of the more important innovations. Finding a device that could be kept sanitary, that would maximize production per cow and that would not harm the animal’s teats, were all obstacles in developing a practical milking machine. The “thistle”-type machine, so called because of the appearance of the equipment that fit on the cow’s udders, was developed in the 1910s and was the basis for the design of all subsequent milking machines. In the late twentieth century machines, the cow’s teats are inserted into rubber suction cups, which are surrounded by stainless steel cups. The vacuum of the automatic machine inflates and deflates the rubber cup, with the milk flowing onto a central collection unit. Modern dairy operations are designed to be easily cleaned, and the emphasis on health and safety with the homogenization and pasteurization processes helped to increase consumer confidence in the nutritional value of dairy products.

In addition to the mass production of flavor-controlled, vitamin-fortified homogenized milk by 1919, new delivery technologies made dairy products more accessible to the public. By 1938 bulk tank trucks with coolers transported milk from dairies as dairy operations grew larger and on-farm storage demands increased. Milk bottle fillers in the 1940s could fill 4500 liters per hour, compared with earlier models that bottled 1100 to 1500 liters per hour. Plastic-coated paper containers were introduced in the 1930s, and the first all-plastic milk containers appeared in stores in 1964. By then machines could fill 23,000 liters per hour.

Increased production of high quality dairy products and better distribution of them resulted in greater consumption of dairy products in the twentieth century. The United States Department of Agriculture (USDA) created the Department of Agrostology in 1895 to study how different grasses and feedstuffs affected milk production and milk quality. The USDA’s Bureau of Dairy Industry fostered better herd management and breeding techniques, more efficient and sanitary production, and new and better types of dairy products for the consumer. Agricultural researchers contributed to the dairy industry with herd improvements through artificial insemination of cattle (1938) and embryo transfer (1980). Scientists also provided a variety of antibiotics including penicillin to control mastitis and other frequent dairy diseases. Genetic modification to enhance production also came into play with the introduction of recombinant bovine somatotrophin (rBST) in 1994. That same year the U.S. Nutrition Labeling and Education Act became law, requiring producers to list rBST on the label if it is in their milk.

At the end of the twentieth century northern Europe and North America produced three-fourths of the world’s raw milk, with India and South America the major secondary producers. While low-fat dairy products became increasingly popular by the 1990s, per capita ice cream consumption in the U.S. increased to 7.5 kilograms per year. In the state of California, not traditionally associated with dairy production, 20 percent of U.S. milk production came from 2,200 dairies that produced some 16 billion kilograms of raw milk.

See also

Farming, Agricultural Methods; Farming, Growth Promotion; Farming, Mechanization

Further Reading

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