

rethinking Dairyland

Background for Decisions about Wisconsin's Dairy Industry

No. 1 — June 2002

WISCONSIN'S DAIRY INDUSTRY TODAY:

Where it is and how it got there

This is the first in a series of brief reports on the current state of the Wisconsin dairy industry and factors that will influence its evolution.

The concerns. Wisconsin milk cow numbers have fallen sharply over the last 15 years and, although milk production per cow has increased, total state milk production has been flat or decreasing since 1988. This comes at a time when U.S. milk utilization, especially cheese consumption, has shown strong growth. Wisconsin cheese makers are having trouble finding enough milk to fill their vats, even though they pay more for it than their competitors in the West, where milk production is escalating.

Some cheese makers have moved or expanded operations to regions where milk is more abundant and less costly. Others have threatened to do so. A significant loss of processing capacity could threaten the entire dairy infrastructure.

Collaboration needed. Enhancing the viability of Wisconsin dairying requires an aggressive collaborative effort between milk producers, processors and state government. The university's role to promote a clear and common understanding of the challenges and opportunities. That's the purpose of this series.

This report outlines the general scope of the Wisconsin dairy industry. A second report in the series documents the industry's contributions to the overall state economy. Subsequent reports, to be issued over the next few months, will focus on specific issues related to competitiveness, including:

- Recent and anticipated trends in regional milk production.
- How changing dairy consumption patterns will affect Wisconsin dairying.

- Relative regional milk price levels.
- Opportunities to tailor milk composition to consumer and industry needs.
- The changing regulatory environment.
- Strategies for Wisconsin dairy development.

How Milk Became Our Top Farm Product

Milk emerged as Wisconsin's number-one agricultural commodity in 1925, but it took about five decades to get there. Before 1875, Wisconsin agriculture was largely subsistence in nature. The exception was commercial wheat production. Between 1856 and 1872 Wisconsin was among the top wheat states, producing 25-30 million bushels annually. But growing wheat without fertilizer quickly depleted soils. Eventually commercial production shifted to Minnesota and the Dakotas, leaving abandoned, worn-out farms in Wisconsin.

Spurred by advocacy and science. About this time an articulate newspaper editor, W.D. Hoard, began preaching the gospel of dairying as the salvation of agriculture in Wisconsin, first in his *Jefferson County Union* and later his nationally distributed *Hoard's Dairyman*. Hoard promoted modern feeding and breeding methods and supported collective marketing efforts of dairy farmers.

Hoard's ideas caught on, but nascent dairy farmers faced numerous constraints, primarily related to milk quality and herd health. These problems were addressed by pioneer University of Wisconsin faculty. Stephen Babcock's butterfat test (1890) allowed cheese and butter plants to price milk according to its yield in products. H.L. Henry brought sound science to the battle against bovine tuberculosis. W.A. Henry's research showed the profitability of balanced dairy rations. F.H. King promoted the use of silos for winter feed

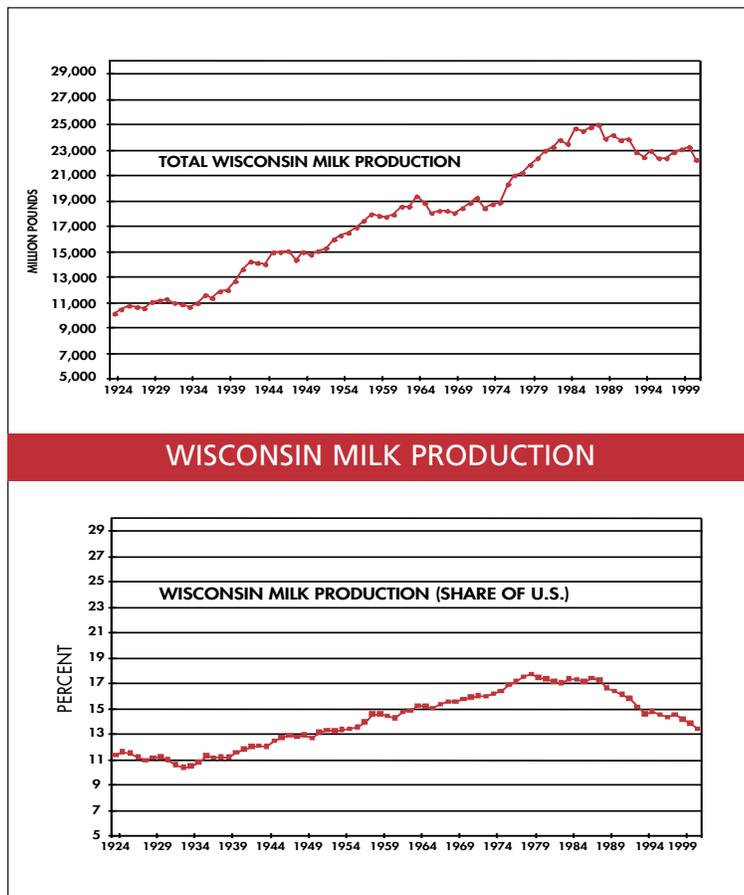
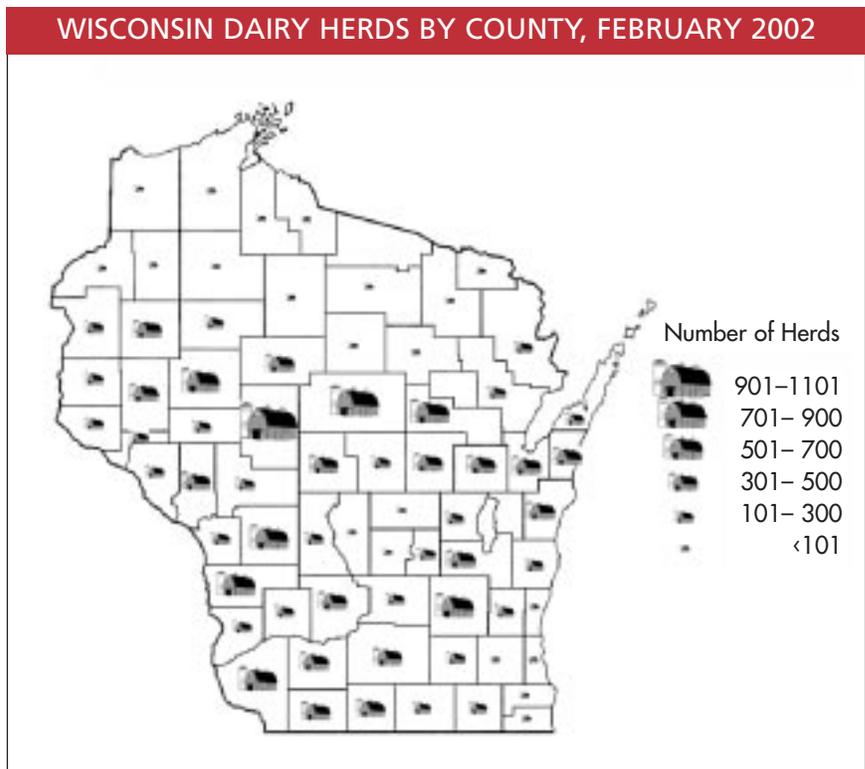
This is part of a series of brief reports on the current state of the Wisconsin dairy industry and factors that will influence its evolution. All reports in the series, along with expanded versions containing additional data and graphics, can be accessed at the following web address: <http://www.aae.wisc.edu/www/pub/>

If you do not have internet access, copies can be obtained from Ms. Linda Davis, Department of Agricultural and Applied Economics, University of Wisconsin-Madison, 427 Lorch St., Madison, WI 53706. Telephone (608) 262-9488 or email davis@aae.wisc.edu

storage. Benjamin Hibbard helped create scores of dairy cooperatives to efficiently process and market milk.

In 1925 nearly 2 million Wisconsin dairy cows produced 10.6 billion pounds of milk. Wisconsin had long surpassed New York as the leading dairy, and accounted for 11.6 percent of U.S. milk production.

Production peaked in the 1980s. Both milk production and market share grew steadily for the next fifty years. In 1979, Wisconsin’s share of U.S. milk production peaked at 17.7 percent, and then declined as milk production in the west mushroomed. Despite the fall-off in market share, milk production in Wisconsin continued to grow rapidly after 1979, peaking at 25 billion pounds in 1988. Since then, production has ranged between 22 and 24 billion pounds.



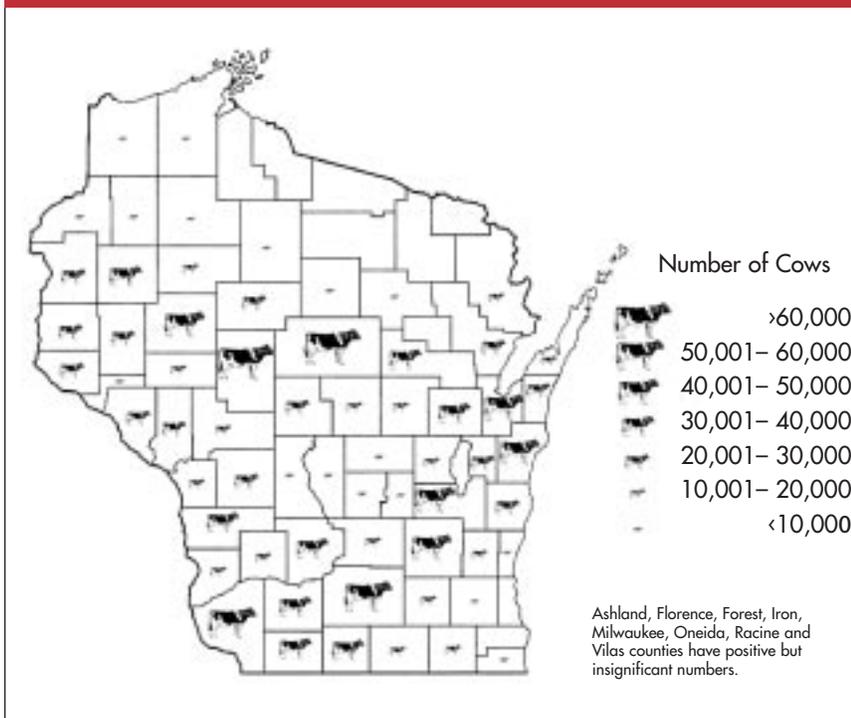
Wisconsin Dairy Production Today

As of February 2002, there were 17,711 dairy farms in Wisconsin milking about 1.3 million cows. Dairying is widespread within the state – all but two counties (Vilas and Menominee) reported dairy farms in 2002. The state’s top five dairy counties (those with the most herds) were Clark, Marathon, Grant, Vernon and Chippewa. Together these five were home to just over one-fifth of the state’s herds.

In February 2002, 85 percent of Wisconsin dairy herds shipped Grade A milk, which meets handling standards for sale as fluid milk. Nearly 3,000 herds produced Grade B milk, which can only be used for manufactured dairy products. The number of Grade B producers has stayed fairly constant in recent years. They are concentrated in western and north central Wisconsin and in Green County. About 20 percent of them cool and deliver milk in cans. These are mostly Amish farmers who eschew the use of electric-powered bulk cooling tanks.

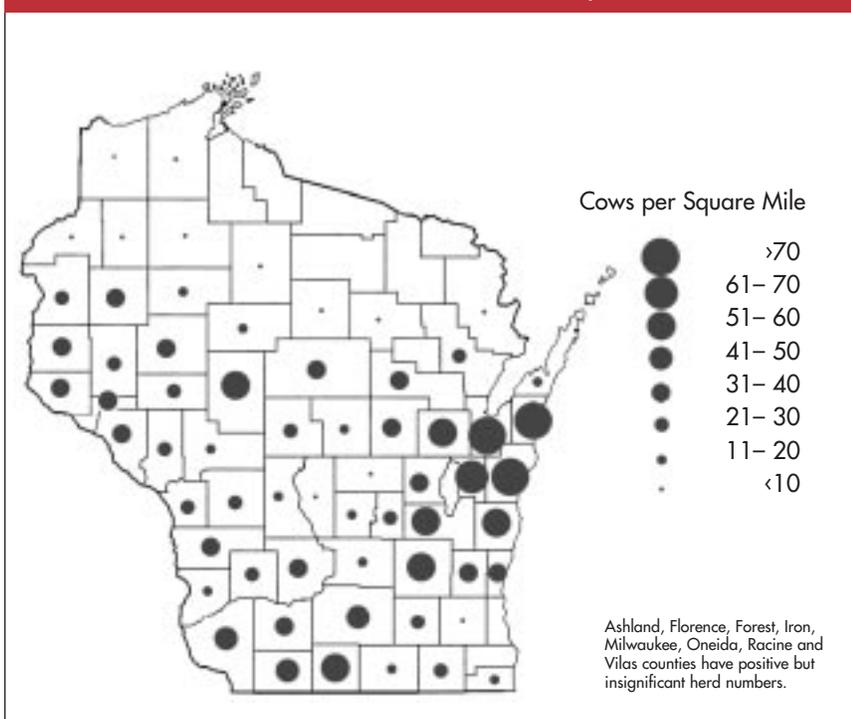
Where dairying is strongest. Milk cow and milk production data by county are only available through 2000. The latest dairy cow count shows a geographical pattern very similar to the 2002 herd data. However, the density of dairy farms or dairy cows (measured as the number of farms or cows per

WISCONSIN COW NUMBERS BY COUNTY, 2000 AVERAGE



square mile) shows a somewhat different picture. The highest concentration of cows is in the east central part of the state near Lake Winnebago and, to a lesser extent, in southwestern Wisconsin. The east central region's high cow density and larger herd sizes (see below), suggests that potential for growth in that part of the state may be more restricted than in other parts of the state.

WISCONSIN COW DENSITY BY COUNTY, 2000 AVERAGE



Herds are growing faster.

Over time, the number of dairy farms in Wisconsin has fallen steadily while the number of cows per farm has steadily increased as technological changes allowed family-sized farms to handle more cows. Average herd size increased by less than one cow per year between 1965 and 1994, from 24.1 to 51.7. The average annual rate of change in herd size has accelerated to 2.4 cows per year since 1985. This reflects a rapidly-increasing proportion of the state's dairy cows in herds larger than 200 cows.

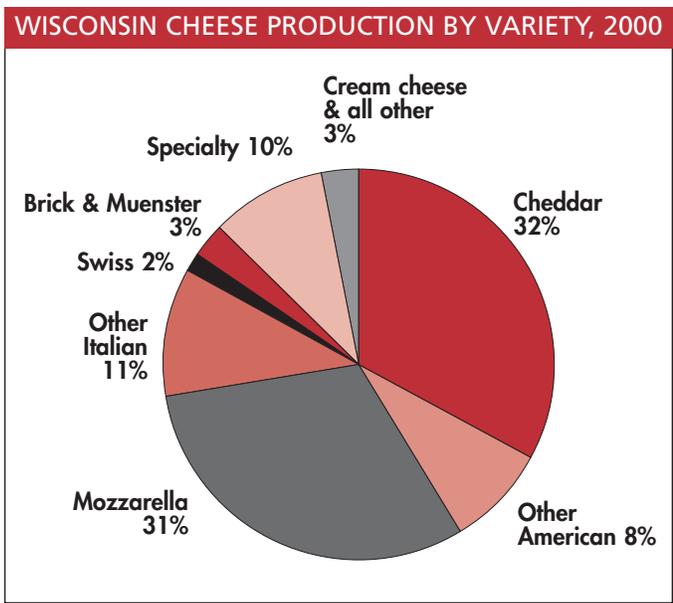
Who lost the most cows? Total cow numbers fell by about one-half million, or 26 percent, between 1980 and 2000. The largest percentage losses were in the northwest, southeast, and southwest regions, where cow numbers were down about a third. The east central region was down only 16 percent.

State milk production showed a 4 percent gain between 1980 and 2000.

The Northwest and Southeast regions were down 7.4 percent and 6.1 percent, respectively, while the East Central region showed an increase of 19 percent. Changes in other regions were within 5 percentage points of the state average percentage change in milk production

Milk production per cow in Wisconsin increased 5,000 pounds, or 40 percent, between 1980 and 2000—an average annual gain of 250 pounds per year. The percent change in milk yield between 1980 and 2000 ranged from 24 percent (Green County) to 53 percent (Marinette and Marquette). In 2000, Wisconsin milk cows produced an average 17,306 pounds. Yields were highest in the East Central region and lowest in the Northwest. Among counties, 2000 milk per cow ranged from 14,500 pounds to 18,700 pounds.

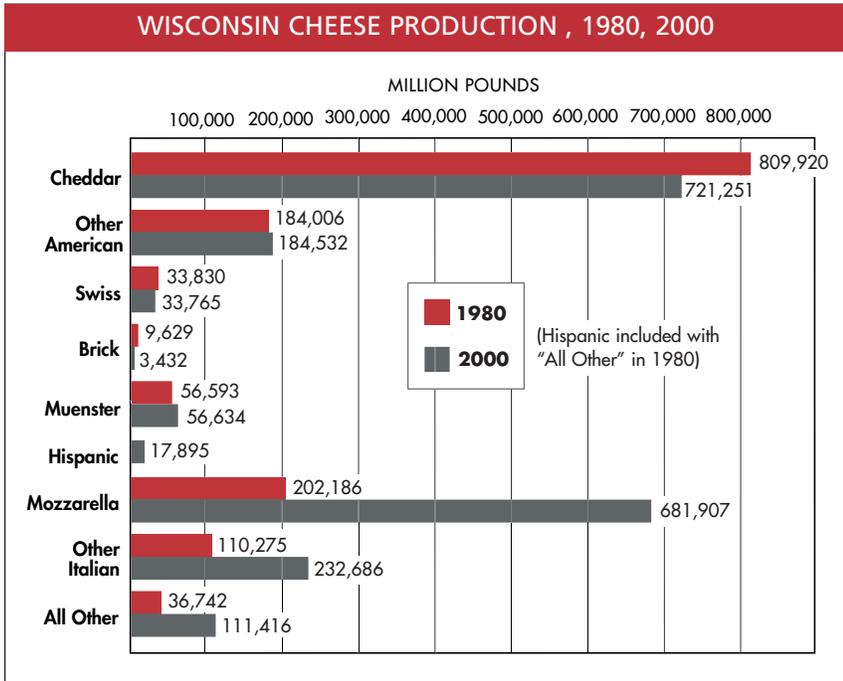
Regions differ in scale of production. In 2000, dairy farms ranged in size from 41.5 cows in Crawford County to 109.2 cows in Brown County. Regional differences in milk produced per farm were even greater, from 640,000 pounds in Crawford County to 2 million pounds in Brown County. Of the 10 counties with the largest average herd size in 2000, five were in the east central region. The smallest herds were in the northern parts of the state.



Wisconsin produced over 50 cheese varieties, but two — Mozzarella and cheddar — accounted for two thirds of all volume.

Wisconsin Dairy Manufacturing Today

While the dairy farming sector is the most visible element of the Wisconsin dairy industry, the dairy manufacturing sector is responsible for the largest value added. The Wisconsin Department of Agriculture, Trade and Consumer Protection dairy plant list for 2001 counted 364 dairy plants in the state making a wide variety of products. Dairy plants are widely-scattered throughout Wisconsin.



Wisconsin plants have altered production to meet shifting tastes. In 20 years, cheddar volume dropped 11 percent, while Mozzarella production increased by 240 percent.

Cheese remains king. It is impossible to derive a precise estimate of the fraction of the total state’s milk supply going to cheese, but the percentage can be reasonably bracketed at 80-90 percent. Other major manufactured dairy products include butter, cottage cheese and whey products. Only about 6 to 8 percent of Wisconsin milk is used for fluid milk products.

In 2000, Wisconsin produced 2.2 billion pounds of natural cheese, about 27 percent of total U.S. cheese production. Cheddar and Mozzarella accounted for about two-thirds of that, but the state produces at least 50 identifiable cheese varieties. Specialty cheese production (defined generally as “value-added” varieties with annual production less than 40 million pounds) is growing rapidly. In 2000, more than 220 million pounds of specialty cheese varieties were manufactured in the state, 10 percent of total cheese production. This is up from 4 percent in 1993. Half of Wisconsin’s cheese factories produce at least one specialty variety. Wisconsin also produced just over 1 billion pounds of processed cheese products in 2000, about half of U.S. production.

Fewer and bigger cheese plants. The number of cheese plants in Wisconsin fell by more than 60 percent between 1980 and 2000. By variety, the largest decline was in cheddar plants. The number of plants making Mozzarella and other Italian cheeses remained relatively constant. Plants making other varieties (mainly specialty cheeses) increased in number.

The consolidation in cheese making was accompanied by a substantial increase in average plant scale. Average volume per plant nearly tripled in cheddar factories and grew by more than 4 times in Mozzarella factories.

A Mozzarella boom. Wisconsin Mozzarella production in 2000 was 682 million pounds, second to Cheddar production of 721 million pounds. Cheddar production was down 11 percent from 1980, while Mozzarella was up 240 percent. Italian varieties as a group exceeded American cheese varieties in 2000. Demand for Mozzarella and other Italian cheeses has outpaced demand for cheddar cheese. Wisconsin cheese plants have altered production in response to these market signals.

This factsheet is based on Market and Policy Briefing Paper No. 78A. To obtain a copy, see page 1 of this factsheet.

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