Dairy and Non-dairy Milk

Executive Summary

Although dairy milk production has risen over the last several years, dairy milk retail sales are dropping as Americans increasingly consume alternatives to traditional dairy products, such as dairy-free cheese and yogurt, and dairy alternative beverages. Simultaneously, sales of non-dairy milks, such as soy, almond, or oat milk, have been rising in the United States. Several state legislatures have passed legislation that prohibit the use of dairy terminology (e.g., milk, yogurt, or cheese) for non-dairy alternatives. Missouri has special requirements for meat product alternatives that do not come from livestock or poultry. However, it does not have legislation pertaining to the use of milk terminology on non-dairy products.

Highlights

- While the number of U.S. dairy farms has decreased over the last few decades, today's overall volume of dairy milk production has increased due to large herd sizes and high milk output.
- In the last 20 years, the number of Missouri dairy farms and size of cow populations have decreased by 70% and 50%, respectively.
- Missouri's dairy industry generates about $205 million in milk cash receipts annually (as of 2019).
- Non-dairy milk accounts for 15% of total retail milk sales in the U.S. and is purchased by 39% of U.S. households.

Limitations

- Trends in dairy milk production and consumption differ based on the timeframe used for comparison.
    - For example, U.S. per capita consumption of dairy fluid milk products has increased by 22% since 1975, but has decreased since 2000.

Research Background

U.S. Dairy Production

Dairy farming refers to agricultural businesses that are engaged in long-term milk production. The United States is ranked 2nd in the world in milk production, amounting to over 100 million metric tons of milk produced per year. The number of U.S. dairy farms has decreased since 1995 from roughly 112,000 farms to about 40,200 dairy farms, while the cow population has been relatively stable (~93 million cows in the nation). Despite the decrease in the number of farms,

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the overall volume of dairy milk production has increased for the same period. This is partly due to the efficiency of large herd sizes and a high milk output. Over the last two decades, milk production for human consumption has increased from 167.4 billion pounds to 223.1 billion pounds.[1]

Missouri Dairy Industry

Similar to national trends, the number of dairy farms in Missouri has declined in recent years. In 2000, Missouri had 2,291 permitted dairy farms, which dropped to 684 permitted dairy farms in 2020 (a 70% decrease). In terms of cow population, Missouri had approximately 76,000 dairy cows in 2020, almost half of its population in 2000 (154,000). Missouri's dairy industry generated about $205 million in milk cash receipts in 2019.[9]

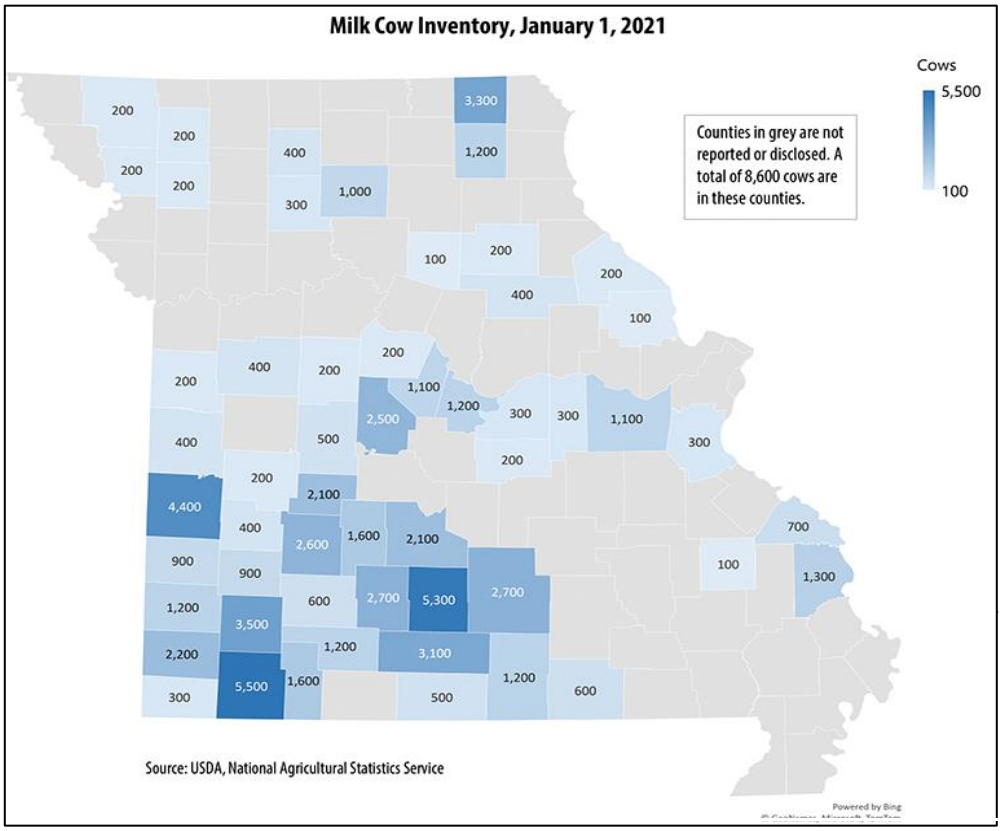

Figure 1. Map of milk cow population in Missouri. By count, most of the state's cow population is concentrated in the southwest and south-central counties.[9] County color and text indicates the number of cows in that county.

Missouri ranks 24th in cow population, 26th in total milk production, and 46th in the production of milk per cow nationally. Historically, milk production per cow in Missouri tends to be low when compared to other U.S. states. In 2020, an average U.S. dairy cow produced 23,777 pounds as compared to Missouri's average of 14,276 pounds. This may be due to the state's deviation from other states in the choice to rely upon pasture-based dairy systems rather than confinement systems. The majority of Missouri dairy cows are located in the state's southwest and south-

central regions (**Figure 1**). In 2021, Barry, Wright, Vernon, Lawrence and Scotland counties had the largest dairy cow inventories.[9, 10]

U.S. Dairy Retail Sales

Dairy farming is a large contributor to the overall economy in many states, with California and Wisconsin being the two largest producers of dairy milk production in 2019 and 2020. In 1975, the average American consumed 539 pounds of dairy foods per year, compared to today's 655 pounds of dairy consumption in milk, cheese, yogurt, ice cream, and butter per year. This is a 22% increase in the consumption of all dairy products, with an increase of three pounds per person over the previous year.[1,10]

Although the produced volume of dairy milk has been increasing steadily over time both in the U.S. and worldwide, dairy milk retail sales are declining in recent years.[1] This decline is likely driven by a number of different factors, such as the emergence of non-dairy alternatives (including non-dairy milk products, but also other packaged smoothies and shakes, soft drinks, bottled tea, coffee, and water), and market disruptions that are influenced by consumer patterns (including declining sales of cereal, lack of innovations, etc.).[6] The retail price of milk peaked in 2014 at $3.82/gallon and has since decreased to about $2.85/gallon in 2018.[1]

U.S. Non-dairy Milk and Non-dairy Milk Products

Plant-based beverages have been consumed since the 13th century. Non-dairy milk is a plant-based beverage that is consumed as an alternative to regular dairy milk.[8] These beverages are frequently referred to as plant-based milk, alternative milk, or mylk. Almond, oat, soy, and coconut are the highest-selling plant milks worldwide among 17 different plants that can be used to manufacture plant milk.

In the U.S., non-dairy milk is the largest plant-based product within the non-dairy, plant-based products and sales have reached $2.5 billion.[2] Non-dairy milk accounts for 15% of total retail milk sales in the U.S. and is purchased by 39% of U.S. households.[4] Other plant-based substitutes have also seen rapid growth, with plant-based butter making up 7% of the butter category and plant-based creamer making up 6% of the creamer category.[4] Similarly, based on a 2020 report, over a single year plant-based yogurt grew 20%, almost seven times the rate of conventional yogurt; plant-based cheese grew 42%, almost twice the rate of conventional cheese; and plant-based eggs grew 168%, almost 10 times the rate of conventional eggs. The plant-based egg category grew more than 700% since 2018, 100 times the rate of conventional eggs.[4]

The popularity and sales growth of plant-based milks are driven by a number of different factors, such as lactose-intolerance and allergic reactions to dairy milk, consumer concerns around the dairy industry's handling of animals, and other dietary or nutritional considerations.[6] Non-dairy milk drinkers tend to be younger and are more likely to live in urban areas than rural ones.[2]

The nutritional value of non-dairy milks can vary. For example, when compared to cow's milk, almond milk has less saturated fat and more unsaturated fats per serving. Although some

manufacturers add calcium to almond milk to better resemble the nutritional content in dairy milk, not everyone may be able to absorb as much of this calcium as they would from regular dairy. Oat milk has the highest number of calories and carbohydrates out of the non-dairy milk varieties.[11]

Dairy Milk vs. Non-dairy Milk Labeling Legislation

While the U.S. non-dairy milk market is estimated to keep growing,[5] U.S. dairy milk sales have been declining for decades. Non-dairy milk is typically packaged in containers similar to those used for dairy milk. In response, the National Milk Producers Federation (NMPF) and other stakeholder groups oppose the use of dairy terminology (e.g., milk, cheese, yogurt) by non-dairy alternatives.[6] According to NMPF, by using dairy terminology, non-dairy milks benefit from the value some consumers place on products in the broadly defined dairy category.

In 2017, the Defending Against Imitations and Replacements of Yogurt, Milk, and Cheese to Promote Regular Intake of Dairy Everyday (DAIRY PRIDE) Act was introduced in Congress as one of the first policy efforts to promote the adoption of a stricter legal definition of milk in the U.S. The Plant Based Foods Association (PBFA)—the trade association representing the nation's leading plant-based food companies—has suggested voluntary labeling recommendations in place with labels that clearly identify the main ingredient as part of the word "milk" (e.g., "plant-based milk").

Although there are currently no labeling laws on dairy and non-dairy milk products in our state, the Missouri Meat Advertising Law requires that products that do not come from animal meat to display a prominent statement of what they are made of (e.g., made in a laboratory from non-animal ingredients). Also, Missouri and 14 other states[6] (including Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, North Dakota, North Carolina, Ohio, South Dakota, Tennessee, Virginia and West Virginia) lead an initiative to enact state prohibitions on labels regarding non-dairy or non-animal products by June 30, 2031. From this group of states, Wisconsin passed a law in 2021 that bans the labeling of a beverage as milk unless it comes from cows, goats and other hoofed mammals. Maryland and North Carolina have passed similar labeling laws, but they will not take effect until the 10 out of the 15 states of the coalition follow the same policy.

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