

# Raw milk products



## Executive Summary

Raw milk is the direct product collected from animals that has not been pasteurized. The federal government prohibits the sale of raw milk across state lines and requires that all milk sold across state lines must be pasteurized to meet the standards of the U.S. Pasteurized Milk Ordinance (PMO). States are able to regulate their own raw milk sales, and 43 states allow raw milk to be obtained in some capacity. Currently, Missouri farmers can sell raw milk and cream to the final consumer either on the farm or through delivery without being required to have a permit.<sup>1</sup> [HB309](#) & [SB235](#) would allow the sale of grade A retail raw milk or cream produced in Missouri at grocery stores, restaurants, soda fountains, or similar establishments, as long as the milk is clearly labeled with a warning label. When the milk or cream is sold in a manner that does not allow the final consumer to see the label, it must be clearly presented to the consumer with a written notice.

## Highlights

- In the U.S., milk is regulated through a series of state rules and other regulations based on the federal Pasteurized Milk Ordinance (PMO). PMO guides state programs to ensure that no major milk-borne disease outbreaks occur.
- **Currently, raw milk access is available in 43 states in some way.**
- **35 states allow the sale of raw milk for human consumption** at the farm, through delivery, at the farmers' markets, or through a "cow-share" program.
- The rising consumer demand for raw milk products **could be protected under the Consumer Bill of Rights to choose and the right to safety**, as long as the warning label is clear on the packaging.
- **Proposed legislation (e.g., HB357- regulations on selling cottage foods online) could potentially include sale opportunities for raw milk or raw milk products for Missouri producers.**

## Limitations

- There is limited research investigating the link of the health benefits and impacts associated with the acute and chronic consumption of raw milk.

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## Research Background

### Raw milk vs. pasteurized milk vs. Grade "A" raw milk

**Raw milk** is the direct product collected from animals that does not go through pasteurization. **Pasteurized milk** undergoes a heat treatment (around 212 °F) that kills pathogens and extends shelf life. Commercial milk is also typically homogenized, which evenly distributes fat

*This science note was prepared by MOST Policy Initiative, Inc. a nonprofit organization aimed to improve the health, sustainability, and economic growth of Missouri communities by providing objective, non-partisan information to Missouri's decisionmakers. For more information, contact Dr. Eleni Bickell, Agriculture & Economic Development Fellow – [eleni@mostpolicyinitiative.org](mailto:eleni@mostpolicyinitiative.org). This was prepared in February 2021.*

throughout the liquid milk. Aside from the reduction of pathogens, few nutritional differences have been detected between raw and pasteurized milk and associated products.

Drinking raw milk is not illegal, however, depending on where one lives, selling it may be illegal. Currently, federal law prohibits dairies from distributing raw milk across state lines in final package form (packaged so that it can be consumed),<sup>2</sup> except for hard cheeses that have been aged for two months which must carry a clear label that they are unpasteurized. It is also illegal to carry unpasteurized milk products when entering the U.S. borders. Some of the states that allow access to raw milk for human consumption have added **a requirement that dairies selling raw milk and raw milk products to the public be issued a Grade "A" Raw for Retail License**. A raw milk or cream product is issued a Grade "A" Raw for Retail License, as a way to reassure the public that the dairy is inspected at least twice every six months by a registered sanitarian.<sup>3</sup>

### **Food safety**

The U.S. Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) warn of potential pathogens that may be present in raw milk. The CDC, which monitors the raw milk legalization across the states, has reported an increase in the number of illnesses attributed to raw milk – an average of 13 outbreaks per year.<sup>2</sup> Moreover, it is hard to fashion a regulation that will protect the consumer from the pathogens that can be found in milk, since these pathogens can only be eliminated if the milk is pasteurized.<sup>2</sup> Cows that appear healthy may still carry diseases that cause humans to become sick and/or hospitalized, especially people with weakened immune systems, such as pregnant women, small children, or elderly adults.<sup>8</sup> In the United States, the most common outbreaks linked to raw milk have been *E. coli*, *Salmonella*, *Listeria*, and *Campylobacter*. Other diseases, such as *Brucella*, are rare in the United States, but are still a concern linked to consuming raw milk in some foreign countries.<sup>9</sup>

Although there is a link between state legislation, raw milk sales, and *E. coli* outbreaks, the likelihood of milk products causing risks to human health may be through product handling which includes the production, collection, manufacturing, packaging, storing and transportation.<sup>2</sup> Because of that, *E. coli* outbreaks can also occur in **pasteurized milk products, although the chance is much smaller**.

There is a lack of studies looking at how raw milk consumption impacts human health over the long-term. Current CDC data does not distinguish between disease outbreaks that are related to direct raw milk consumption and the conclusions on the relationship between outbreaks and milk consumption combines raw milk & pasteurized milk. For that reason, the relationship between raw milk consumption in certain states & the increase of associated outbreaks is currently correlational.<sup>2</sup>

### **Benefits for human health**

Advocates of raw milk dispute the dangers by claiming that benefits outweigh risks. **Although studies are conducted regularly to trace diseases associated with the human consumption of raw milk, there is limited research investigating the potential health benefits to the**

**consumption of raw milk.** For example, studies from countries in Europe have demonstrated beneficial health effects from drinking raw milk, particularly linked to a reduction in childhood asthma and other respiratory illnesses.<sup>5</sup> You can think of this like being exposed to allergens at a young age on a farm – you tend to build up an immunity which makes it less likely that you’ll be allergic to certain allergens in the future. Since these studies are largely conducted outside the U.S., it is hard to weigh the pros and cons relative to the health benefits of drinking raw milk and how these results apply to the U.S. population.

The two major proteins in milk are casein and whey. Some researchers have found that the whey protein content in raw milk,<sup>6</sup> is higher, since the process of pasteurization breaks down, but does not necessarily reduce whey protein content of milk.<sup>7</sup> However, the structural differences between raw milk and pasteurized milk have not been studied enough. Detecting differences in protein structure could be possible with new technology.

### **Legislation on raw milk across the states**

**In the U.S., milk is regulated through a series of state rules and other regulations based on the federal Pasteurized Milk Ordinance (PMO). The PMO guides the state programs to ensure that no major milk-borne disease outbreaks occur.** Forty-six states have either adopted all or many of the PMO provisions on the standards regarding the production, processing, packaging and sale of Grade “A” raw milk and milk products, while California, Maryland, New York and Pennsylvania have their own milk safety laws.

**Currently, raw milk is accessible in some capacity across 43 states. Specifically, 35 states allow the sale of raw milk to consumers** in varying ways including purchases at the farm, through delivery, at the farmers’ markets, or through a "cow-share" program. **Fourteen states allow raw milk to be sold in any retail.** Some of the states where raw milk sales are allowed in retail stores have specific provisions on the requirements that the milk must meet. In two states you can only purchase raw goat milk given that you have a doctor’s notice. In five states, purchasing raw milk is permitted only for pet & animal consumption. In the remaining seven states, the sale of raw milk to consumers is prohibited (See Figure 1).

Although raw milk sales are legal in Nevada, in practice, there are no milk sales in the state. This is because in order for a farmer to obtain a permit from the state dairy commission to produce and distribute raw milk, the county milk commission must first certify the farm for the production of raw milk or a raw milk product. Under state statute, the board of county commissioners must establish the county milk commission and the county must issue regulations governing the production and distribution of raw milk and raw milk products. These regulations are not valid unless the State Board of Health and the State Dairy Commission first approve them. There has never been a county milk commission in existence at any time, **so to this point, there has been a de facto prohibition of raw milk sales.**

Missouri laws allow anyone to sell raw milk directly to a consumer, as long as the transaction happens on the farm or is delivered into the customer’s hands. Farmers who want to sell raw milk and cream other than on-farm or through delivery must obtain a retail raw milk permit from the state and must have state approved bottling equipment on the premises. In addition, farmers

with a retail raw milk permit must comply with state labeling regulations for raw milk and raw milk products. These farmers become certified/licensed raw milk providers and can sell Grade A retail raw milk and are allowed to sell milk in establishments such as the farmers markets.

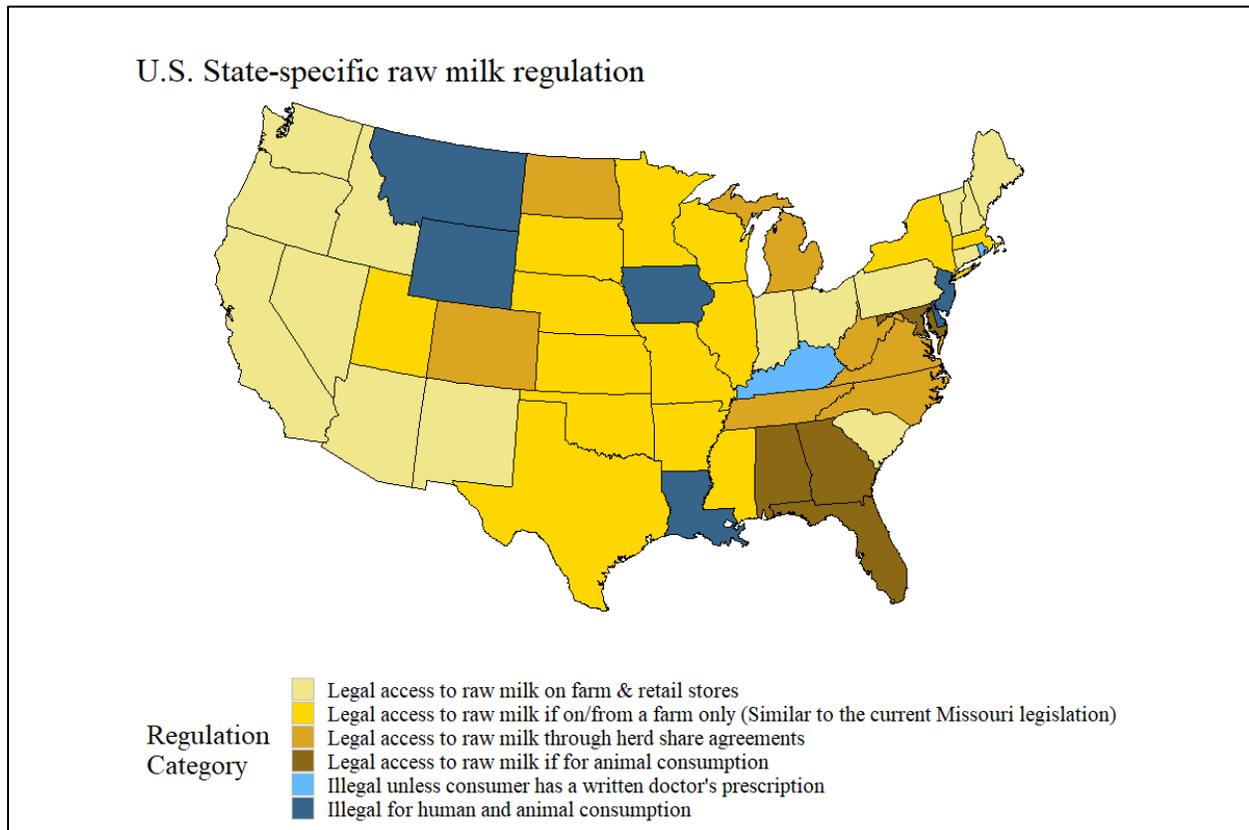


Figure 1. Raw Milk Regulation for all states, MOST analysis, last updated February 2021.

**A link to the comprehensive list and explanation of regulations among all 50 states is available [here](#).**

### Consumer Bill of Rights

Consumers' demand for raw milk products can be designated under the umbrella of the Consumer bill of rights, which includes the right to choose - to have available a variety of products and services at competitive prices. Under the HB309 & SB235, farmers could sell their Grade A retail raw milk in grocery stores, restaurants and other similar retail locations, provided that the milk clearly contains a *warning label*. When it's sold without a label, customers would be given a written notice. Therefore, two basic Consumer bills of right— the right to safety and right to choose would be satisfied.<sup>11</sup>

Although there are regulations in place for the sale of raw milk within the state, even if in some states the sale is illegal, it is not difficult for the consumer to find and purchase raw milk and raw milk products - a quick google search can yield over 10 different options to purchase raw milk, including out of state options (which is prohibited by PMO laws). Allowing the regulated sale of

raw milk could be safer than the unregulated alternative to the consumer buying raw milk over the Internet.

Increased raw milk accessibility could potentially incentivize farmers to make long-term investments in equipment that keeps the milk safer, making sure that unpasteurized milk does not pose a health risk. Finally, the 2021 [HB357](#), which unanimously passed out of two-House committees, could impact raw milk sales for Missouri producers. The bill, which regulates selling cottage food over the Internet, could open up new markets across the state to those who operate a cottage food production operation and provide more opportunities to sell their products online.<sup>14</sup> Such legislation could loosen regulations related to selling homemade food, and potentially include sale opportunities for raw milk or raw milk products for Missouri producers.

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