Science Note: Raw Milk Products

Legislative Summary
According to the bill summary, HB 1335 “allows for 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 and 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 through a written notice. This bill also specifies that any consumer who knowingly consumes raw milk or cream assumes all risk and liability for injury, harm, or death arising out of the consumption.” In 1987, the federal government mandated that all milk and milk products sold for human consumption must be pasteurized, so raw milk products are unable to be sold in interstate commerce. States are able to regulate raw milk sales within their states, and according to a 2017 report by the U.S. Center for Disease Control (CDC), 31 states allow raw milk sales in some capacity. Of those states, 13 states allow raw milk and raw milk products to be sold in retail stores1.

Science Highlights
• Raw milk has not undergone the process of heating up milk to kill pathogens known as pasteurization; however, raw milk and pasteurized milk are nutritionally similar.
• Healthy cattle may carry pathogens that cause humans to be sick, especially those with weakened immune systems, that can be transferred to humans when they consume raw milk products.
• Children exposed to raw milk may be less likely to develop allergies, asthma, and other respiratory conditions.
• This science note does not consider any other externalities associated with raw milk consumption compared to commercial milk consumption, such as transportation, energy use, etc.

Science Notes
What is the difference between raw milk and pasteurized milk?
Raw milk is the direct product collected from dairy cows. 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 throughout the liquid milk. Aside from the reduction of pathogens, few nutritional differences have been detected between raw and pasteurized milk and associated products.

Why is there concern about the safety of raw milk?
The U.S. Food and Drug Administration (FDA) and CDC warn of potential pathogens that may be present in raw milk. Cows that appear healthy may still carry diseases that cause humans to become sick and/or hospitalized, especially

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 Rachel Owen, MOST Director – rachel@mostpolicyfellows.org.
people with weakened immune systems, such as pregnant women, small children, or elderly adults. In the United States, the most common outbreaks linked to raw milk have been E. coli, salmonella, listeria, and campylobacter. Other pathogens, such as Brucellosis, are rare in the United States, but are still a concern linked to consuming raw milk in some foreign countries. In the 2017 CDC report, outbreaks most commonly occurred in states with legal sales of raw milk and raw milk products (Figure 1). These outbreaks can be linked to raw milk through DNA fingerprinting.

What are the benefits of raw milk consumption?

Studies from several countries have demonstrated beneficial health effects from drinking raw milk, particularly linked to a reduction in childhood asthma and other respiratory illnesses. 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. Some researchers have linked this to the whey protein content in raw milk. Pasteurization does not necessarily decrease whey protein content of milk, but it may start to break down components of the proteins.

Scientific Limitations

- Structural differences between raw milk and pasteurized milk have not been extensively studied. With new technology, we may be able to detect small differences, such as protein structure.
- Studies that link raw milk consumption to decreased risk of respiratory problems have mostly been conducted in rural communities in Europe, and thus, they may not apply to people in the United States.
- The link between raw milk consumption and disease outbreaks has been clearly studied, whereas the link between raw milk consumption and beneficial health effects has not. It may be important to weigh the pros and cons of exposure to disease relative to health benefits.
- This science note does not consider any other externalities associated with raw milk consumption compared to commercial milk consumption, such as transportation, energy use, etc.

Citations and Other Resources