

Critical Steps to Quality Milk

U.S. dairy farmers follow industry accepted best management practices to ensure their dairy cows are healthy and well cared for; the environment on and around their farms is protected; and the milk they produce is safe and of high quality. While many factors affect the milk cows produce, here are the most critical steps for producing high-quality, wholesome and safe milk, starting at the source—the cow—and ending at the consumer's table.

High Quality Milk

Dairy farmers depend on healthy cows. By adopting best management practices regarding milking sanitation and regular veterinary care, dairy farmers increase the well-being of their cow herd by reducing the risk of disease and illness.

PREVENTING ILLNESS

There are a number of ways dairy farmers try to minimize illness:

- Cows are housed as groups; new cows are carefully introduced to reduce new pathogens.
- Bedding is part of infection prevention. For example, sand is nonorganic and doesn't support bacterial growth. The beds are cleaned regularly.
- Farmers use personnel trained to notice changes in cow behavior.
- Close monitoring of the herd is key to identifying illness early. Lethargy, reduced feed intake, low fever and changed milk appearance are indicators of illness. If a cow is experiencing symptoms, a trained herdsman does a complete evaluation, including testing for infection before any treatment is initiated.

Many farmers are using technology, including tracking devices for temperature, steps and heart rate to monitor the health of their cows.



STRICT PROTOCOLS

Dairy farmers and their employees follow several steps to assure the sanitary collection of milk from dairy cows. Today, human hands never touch the milk as it travels from cow to consumer.

- On farms, the people who milk the cows wear gloves to reduce transfer of possible pathogens from cow to cow. The material used and the smoothness of the gloves inhibit bacteria growth. The gloves are also exposed to the sanitizing solution.
- A sanitizing solution is put on each cow's teats to reduce the presence of any bacteria, thus reducing the possibility of its transfer to the milk. The cow's teats are then dried and the milking unit attached.
- After milking, the cow's teats are cleaned again with a sanitizer containing skin conditioners. This closes the teats so bacteria cannot enter.
- Following the milking shift, equipment is washed and sanitized.

Milk Safety

QUICK COOLING AND TRANSPORTATION

Scientific studies on food safety were used to develop the U.S. Department of Health and Human Services' Grade 'A' Pasteurized Milk Ordinance. All milk sold commercially for direct consumption or use in processing must adhere to the rules in the Ordinance.

- The milk is quickly cooled in a refrigerated holding tank to 45° F or less in order to reduce the possibility of bacterial growth.
- Milk is transported in insulated stainless steel tanker trucks to keep it cold per food safety standards. These bulk tankers are sealed to prevent unknown tampering or contamination by an outside source.

At the processor, the milk is again checked to ensure it has been kept at or below 45° F during distribution and has been delivered within 48 hours after the cow is milked. Once the milk passes inspection, including testing for antibiotics, it is pumped into large insulated vats. The milk is pasteurized and homogenized and vitamins and any flavoring are added. It is then packaged and shipped, all within 24 hours of delivery.

TESTING FOR ANTIBIOTICS

Dairy farmers follow strict rules regarding the use of antibiotics. Antibiotics are not used routinely for dairy cows or added to their feed or water prophylactically. The cost of using unnecessary antibiotics is high, not only the cost of the drug, but the milk of a cow on antibiotics cannot be sold. If antibiotics are detected in a tanker of milk, the farmer bears that cost of thousands of dollars and could lose the right to sell milk.

- Every tanker load of milk is tested for commonly used antibiotics at the processing facility, and, in the rare event that a tanker tests positive, the milk is discarded and never reaches the consumer.
- This process is very effective and the actual incidence of antibiotic or other drug residues in milk is very rare. During 2017, nearly four million tests (3,817,326) were conducted on milk samples to detect antibiotic or other drug residues. Inspectors found less than 0.02% positive (605) for residues, and any milk testing positive was destroyed—it never reached the consumer market.¹

PASTEURIZATION VS. RAW MILK

- Pasteurization is a very important step in the journey of safe milk. Most large milk processors heat raw milk to 161° F or more for 15 seconds, followed by rapid cooling.
- Some smaller processors use a pasteurization method that heats raw milk to a minimum of 145° F for 30 minutes, followed by rapid cooling.
- One misunderstanding about pasteurized milk is that the process destroys some of the enzymes and nutrients found in raw milk. The truth is that the heating process of pasteurization inactivates some enzymes in milk, and scientists believe these enzymes are not important in human health. While some nutrients are somewhat reduced in pasteurized milk, the U.S. diet has plenty of other sources of these nutrients. For example, vitamin C is reduced by pasteurization, but milk is not a major source of vitamin C for humans.²
- It is a violation of federal law to sell raw milk across state lines even if it has been packaged for consumer use. However, raw milk regulations vary by state and some states allow the sale of raw milk within their borders. The only way to obtain raw milk in Michigan is by owning a cow. Sale to consumers is prohibited.
- The Food and Drug Administration (FDA) and the Centers for Disease Control (CDC) recommend drinking **only** pasteurized milk, because raw milk—even from healthy cows and sanitary conditions—may contain harmful bacteria such as E. coli O157:H7, Listeria and Salmonella. These can cause life-threatening conditions, especially in small children, pregnant women, elderly adults and people with compromised immune systems. This recommendation has been affirmed by the American Medical Association and the American Academy of Pediatrics.³



References

¹ USDHHS/FDA/CFSN. 2017. National milk drug residue data base. Accessed 2018 July.

² USDHHS/PHS/FDA. 2009. Grade 'A' pasteurized milk ordinance, 2015 revision. Accessed 2011 November.

³ Center for Disease Control, <https://www.cdc.gov/foodsafety/rawmilk/raw-milk-questions-and-answers.html#risks>. Accessed 2018 July.