

Animal Care on Dairy Farms

A cow's health is of the utmost importance to dairy farmers, because proper animal care leads to the production of high-quality milk. Nutritious diets, clean living conditions and good medical care are all essential for healthy cows, these are among the many animal welfare practices routinely used by dairy farmers. This is true no matter the size of the farm.



The dairy industry has in place a number of initiatives that demonstrate our commitment to animal well-being. The National Dairy FARM (Farmers Assuring Responsible Management) program (www.nationaldairyfarm.com), is a verifiable animal well-being program that brings consistency and uniformity to on-farm animal care and production practices. Currently, the FARM program represents 98% of the nation's milk supply. The dairy community has a proven track record of responsible management practices. FARM creates a culture of continuous improvement every day. Animal scientists and dairy farmers continually explore ways to improve the comfort of dairy cows. Typical practices on modern farms include:

SHELTER

- Most dairy cows are raised in barns so farmers can control the environment in which they live. The barns provide protection from weather, allow the farmers to ensure the cows are eating a balanced diet and provide protection from possible predators.
- Many dairy farms in Ohio and West Virginia use "free-stall" housing, a type of barn that allows cows the freedom to move about at will and eat and sleep whenever they choose. In this housing configuration, feed for the animals is available which cows can access 24 hours a day. Dairy cows always have access to clean water.
- Cows need to lie down or rest 12-14 hours a day. Cows may sleep in sand stalls or on mattresses filled with rubber, foam, or a combination of materials straw, sawdust, sand or another bedding material covering the mattress.
- Most dairy barns have advanced ventilation systems to assure air quality. On warm days, farmers use fans and some use water misters to keep cows cool and comfortable. On cold days the curtains and doors can be closed to keep the cold wind off the cows.
- Access to pasture is determined mainly by geography, herd size, availability of land suitable for grazing, and weather conditions.
- In all cases, the wellbeing, protection and comfort of their cows are very important concerns for dairy farmers.



FEEDING

- Farmers often employ professional dairy nutritionists to develop scientifically formulated, balanced, and nutritious diets for their cows, known as a Total Mixed Ration (TMR). A typical TMR diet may include hay and hay silage, corn silage, or other available forages, grains, protein sources (such as soy) and other vitamins and minerals.
- A cow has one stomach but four compartments; the first three compartments process feed in a way that people cannot. Because of this unique digestive system,



cows have the ability to convert agricultural by-products, such as distillers grain (a byproduct of brewing), that humans cannot eat into nutritious foods like milk.

HEALTH AND MEDICAL ATTENTION

- Cows receive regular veterinary care, including periodic check-ups, preventative vaccinations and prompt treatment of illness.
- It is important to note that dairy cows are not routinely treated with antibiotics. Antibiotics are only used when a cow is sick. When illness requires that cows be treated, antibiotics are administered according strict FDA guidelines, which include withholding milk from treated cows so that it never leaves the farm and cannot be sold or used for food for people. When a cow's milk is withheld, she is given special care and attention separate from the rest of milking herd until her milk is once again free of antibiotics.
- Farmers keep records to help ensure the responsible use of antibiotics. These efforts help farmers and farm employees keep up-to-date information about each animal, including treatment date, dosage, which workers administers the medicine, treatment duration and withdrawal times for milk.
- All milk is strictly tested for antibiotics. Any milk that tests positive is disposed of immediately and does not get into the food supply. If milk arrives at the processing plant and tests positive for antibiotics, the farmer who sold that milk is required to pay for the full tanker of milk.



TAIL DOCKING

- The dairy industry has phased out the practice of routine tail docking, after hearing concerns from consumers.
- The National Dairy FARM program endorses switch trimming, which is removal of the hair at the end of the cow's tail for hygiene purposes.

DEHORNING/DISBUDDING

- Cows' horns are a safety concern to humans as well as other cows. Dehorning is a practice used for decades to help reduce the risk of injury to cows and animal handlers.
- When possible, dehorning is performed at an early age. This "disbudding" of non-developed horn buds is a fairly simple procedure that doesn't require anesthesia.
- For a cow with developed horns, best industry practices will ensure the comfort and safety of an animal through sedation or anesthesia.

CALF CARE

- Cows produce milk once they deliver a calf. They typically give birth to a calf every 12 months. For two to three months before giving birth, the cow rests and does not give milk.
- Prior to giving birth, the pregnant cow is placed in a clean, dry, well-lit, and well-ventilated separate calving area to ensure comfortable, safe and hygienic conditions for both mother and calf.
- Newborn calves are born with a suppressed immune system. Shortly after birth they are taken to a clean, individual pen where they are monitored and provided milk to help them grow.
- After giving birth the cow rejoins the milking herd. She is watched carefully for the first few weeks to ensure she is healthy.
- Another way farmers ensure the health of their calves is by feeding newborns two to four quarts of colostrum—the first milk the mother produces after giving birth. This special milk is usually delivered by bottle. Colostrum is high in fat and protein and contains antibodies that help build the calf's immune system.

Dairy Farms, Sustainability and the Environment



Most dairy farmers live and work on their farms and care about protecting the land, water and air for their families, surrounding communities and future generations. Environmental practices on dairy farms are regulated by both federal and state agencies. While requirements vary from state to state, most dairy farmers consistently meet or exceed these regulations.

Beyond following current environmental regulations, today's dairy farmers are focused on sustainable agricultural practices to ensure their farms continue to meet consumer demand for quality products with ever shrinking environmental resources. **Due to innovative practices in cow comfort, improved feed and genetics, and modern barn design, Producing one gallon of milk creates a 19% smaller carbon footprint (and involves 30% less water and 21% less land) than it did 10 years ago.³**

What is Sustainability?

According to the United States Department of Agriculture (USDA), sustainable agriculture is an integrated system of plant and animal production practices that, in the long term, will:

- Satisfy human food needs
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends
- Sustain the economic viability of farm operations
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls
- Enhance the quality of life for farmers and society as a whole

Today's Sustainable and Environmental Farming Practices

As one of the largest milk producers in the world, the U.S. dairy industry continues to demonstrate significant efficiencies - doing more with less - through the use of best practices and innovations at all stages of the supply chain. These improvements have not only reduced environmental impacts, but also have enhanced the economic and social responsibility of dairy farms, businesses and communities. Examples include the following:

WATER CONSERVATION

Water recycling is a standard practice on today's dairy farms, and farmers reuse water in many ways through advancements in technology and innovation.

- Modern dairy farms use a plate cooler, or heat exchanger, to partially cool the milk. As cold well water flows past the milk in a separate stainless steel pipe, some of the heat transfers from the milk to the water. This water is collected and used as drinking water for cows. This approach reduces energy use.
- Dairy farmers use water responsibly in their milking parlors and in manure management and storage. For example, wastewater is recycled to flush barns and irrigate fields.
- Most water used to produce dairy goes to growing crops to feed the cows. When water is less available in one area, farmers can:
 - Grow crops that need less water
 - Import feeds such as alfalfa hay from areas where water is not an issue
 - Use agriculture byproducts such as cotton seeds as cow feed. This requires no extra water because the crop has already been harvested
- One benefit of fertilizing the soil with cow manure is to help conserve water. When manure is used as a soil treatment, the water-holding capacity of soil is increased by 20 percent, resulting in reduced ground water needed to grow crops.³

Dairy Farms, Sustainability and the Environment

MANURE MANAGEMENT

- Manure contains many nutrients, including nitrogen, phosphorus and potassium, which make it an ideal natural fertilizer. Farmers often spread it on their cropland to improve soil quality and crop yield, and reduce use of commercial fertilizers.
- Using cow manure in place of commercial varieties can reduce both fertilizer costs, and nitrate leaching – the downward movement of nitrogen in the soil – which can contaminate ground water.
 - Farmers use a variety of techniques to determine the right amount of fertilizer to reduce nutrient runoff and provide the correct amount of nutrients each field needs. Agronomists, or soil consultants, can help make that determination.
 - No-till farming, planting cover crops and buffer strips and using modern precision agriculture techniques help preserve soil nutrients and water quality.
- Many farms store their manure in state-approved lagoons so they can recycle the organic matter on fields to grow crops for the following year. Practices such as lagoon covers, cap and flare and separation technologies help control, avoid or prevent the release of methane and odor.
- New methane digester technology on some dairies converts manure into methane-rich biogas, a renewable fuel that can be used to generate electricity.
 - After the manure is collected a methane digester heats the manure, and bacteria break it down. This releases a biogas called methane, which is pumped into a generator and can then be used as renewable energy.
 - Larger farms with this technology may generate more than enough electricity to run their operations, and they can sell the excess energy back to the local utility company who use it within local communities.

PEST MANAGEMENT

Dairy farmers comply with state and federal requirements in the interest of a healthy, safe workplace and environment for their animals, workers, families and communities.

- The U.S. Environmental Protection Agency (EPA) has strict regulations about farm practices involving the use of pest and weed control products. Applicators are required to receive training on the safe use of these products. The government monitors foods for potential health problems related to the use of these products.
- States are authorized to regulate pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and state pesticide laws. States may place more restrictive requirements on pesticides than the EPA. Pesticides must be registered by the EPA and the state before distribution.
- Many dairy farmers reduce the use of conventional pesticides through integrated pest management (IPM) programs which combine various techniques to keep flies and other pests at bay.

WATER QUALITY

Clean water is important to consumers and farmers. Farmers protect the water on and near their farms through methods to minimize potential runoff of manure from their operations. Federal, state and local laws are in place to regulate manure application and protect ground water from contamination.



- The federal government offers incentives to help dairy farmers protect the water supply. For example, many farmers receive technical assistance when they upgrade their irrigation systems and manure storage facilities.
- Dairy farmers use runoff control practices to prevent clean water from becoming contaminated, and to capture runoff before it reaches a waterway, such as:
 - Methods to divert clean water away from manure include rain gutters and downspouts.
 - Thick grasses can act as buffer strips that absorb runoff, keeping it out of clean waterways.
 - Drainage systems are monitored during manure application to ensure clean water is not contaminated.
 - Common practices used to collect runoff include settling basins and vegetative filter strips, both of which slow the rate of runoff and trap the manure.

Dairy in the U.S. contributes only 2 percent of greenhouse gas (GHG); total agriculture contributes 9 percent of GHG in the U.S.² The dairy community is working to achieve greenhouse gas neutrality, optimize water usage and improve water quality by 2050.

DAIRY FARM EXPANSION

- Protecting the environment has more to do with proper management practices than the number of cows on the farm. Of the 34,000 dairy farms in America today, most have less than 300 cows. Whether big or small, 95 percent of U.S. dairy farms are family owned and operated.
- Dairy farms, regardless of size, consistently meet state and federal standards and work to minimize any impact their farms may have on the environment.

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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



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Myth and Fact: Organic

Conventional and Organic Dairy Foods are Nutritious Choices

Consumers are curious about organic foods. Are organic dairy foods more nutritious? Is organic milk safer for my family to consume? The difference between organic milk and regular milk is in the farm practices used, rather than the quality or nutritional value of the food.¹

NUTRITIONAL VALUE

Both conventional and organic milk offer a powerful package of calcium and eight other essential nutrients. When evaluating possible health claims, research does not support a health advantage of organic over conventional milk for any segment of the population.³

Many consumers assume that cows fed on pasture produce milk with a higher level of omega-3 fatty acids, but there are actually minimal differences between organic and conventionally produced dairy.⁴

Ultimately, a well-balanced diet that includes low-fat dairy can positively impact human health regardless of whether milk is produced via organic or conventional farming methods.⁵

MILK SAFETY

Strict government standards, including pasteurization, ensure that milk sold at retail is pure, safe, and nutritious. Michigan's dairy farmers are dedicated to providing wholesome, high-quality milk and dairy products.



PROCESSES

Under the standards, organic dairy farmers must demonstrate, among other things, the following processes⁶:



- Using organic fertilizers and pesticides on their crops.
- Providing cows access to pasture during the grazing season – at least 120 days per year. In addition to grass, dairy cows receive a supplemental organic feed so they can get enough protein. During the winter, when grass may be hard to come by, cows on organic farms eat the same type of feed as cows on conventional farms, except all the ingredients are certified organic.
- Not using antibiotics. If a cow becomes sick, an organic dairy farmer can try approved organic health treatments. If those don't work, the sick cow will then receive antibiotics and is permanently moved to a non-organic producing herd. Milk from a cow being treated with antibiotics is always separated to ensure it does not go into the milk supply.

ANIMAL CARE

No matter if a cow lives on an organic or conventional dairy farm, dairy farmers take good care of their cows. Animal care is one of the most important aspects of dairy farmers' jobs, because good cow care leads to high-quality, wholesome milk.⁴

TAKE AWAY MESSAGE

There's no conclusive evidence that organic cow's milk is healthier than conventionally produced milk. Regardless of which variety you choose, cow's milk delivers a powerhouse of essential nutrients in a delicious, affordable and readily available form.⁶

Learn more about the great taste and health benefits of dairy foods at www.Drink-Milk.com

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Myth and Fact: Antibiotics

Dairy Delivers the Real Facts on Antibiotics

Dairy farmers follow strict rules regarding the use of antibiotics. Antibiotics **are not used routinely** for dairy cows and **never** added to their feed or water prophylactically. The cost of using unnecessary antibiotics is high, not only from the cost of the drug, but because the milk of a cow on antibiotics cannot be sold. If antibiotics are detected in a tanker of milk, the farmer must incur significant cost for the entire tanker and may lose the right to sell milk in the future.

Each and every load of milk is tested for antibiotics multiple times and at multiple stages of the supply chain. 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 were conducted on milk samples to detect antibiotic or other drug residues. Inspectors found less than 0.02% positive results for residues, and any milk testing positive was destroyed—it never reached the consumer market.¹

Cow care is crucial to preventing infection and maintaining healthy dairy cows. There are a number of ways dairy farmers try to minimize infection:

- Cows receive regular veterinary care, including periodic check-ups, preventative vaccinations and prompt treatment of illness.
- Cows are housed as groups; new cows are carefully introduced to reduce new pathogens.
- Bedding is part of infection prevention. Beds are cleaned regularly and non-organic materials, like sand, that don't support bacterial growth, are often used for cow comfort and infection risk reduction.
- Farmers use personnel trained to notice changes in cow behavior to closely monitor the herd for early signs and symptoms of illness such as lethargy, reduced feed intake, low fever and changed milk appearance. 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.



Antibiotics are only used when a cow is sick. When illness requires that cows be treated, antibiotics are administered according to strict FDA guidelines, which includes withholding milk from treated cows so that it never leaves the farm and cannot be sold or used for food for people. When a cow's milk is withheld, she is given special care and attention separate from the rest of the milking herd until her milk is once again free of antibiotics. Farmers keep detailed records to help ensure the responsible use of antibiotics.



TAKE AWAY MESSAGE

Milk does not contain antibiotics. Dairy cows are not routinely or prophylactically treated with antibiotics. Cow care includes maintaining clean environments to reduce risk for infection. Dairy cows are monitored for signs and symptoms of illness by trained personnel. When antibiotic use is necessary, the dairy cow is closely tracked to ensure that her milk is not used. Each and every load of milk is tested multiple times and in multiple stages of the supply chain to ensure a wholesome antibiotic free dairy product. Cow's milk is safe.

Learn more about the great taste and health benefits of dairy foods at www.Drink-Milk.com

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Myth and Fact: Hormones

Dairy Delivers the Real Facts on Hormones in Milk

Hormones have **NEVER** been added to milk. Hormones are naturally present in many foods of either plant or animal origin, including all milk. Bovine somatotropin — also referred to as bST or bovine growth hormone — is a naturally-occurring protein hormone in cows. A trace amount of this hormone is present in all milk, including organic products. Many hormones are proteins and, like all proteins, are broken down into amino acids during digestion.

Some dairy farmers have treated cows with rbST, a synthetic version of Bovine somatotropin hormone, to stimulate milk production. Studies show that milk from cows treated with the supplemental hormone rbST is compositionally similar as milk from non-treated cows¹. However Ohio and West Virginia dairy farmers no longer use it due to consumer preference.



Certain countries don't allow the sale of rbST to farmers because of economics, social customs and general opposition to technological advances used to promote efficient food production — *not* human health considerations. Canada and these European countries allow imported milk and other dairy products from cows supplemented with rbST without any special labeling, and the U.S. exports dairy products to such countries.

Some people believe there is a connection between milk drinking and early puberty. There is no evidence that the trace amounts of hormones found in milk — whether organic or conventional — play a role in early puberty in girls.¹

All pasteurized cow's milk is wholesome, safe and nutritious.

TAKE AWAY MESSAGE

In response to consumer preference, Ohio dairy farmers do not use supplemental hormones (rbST). Naturally occurring bST is found in trace amounts in dairy milk but these hormones, like all hormones, are broken down during digestion. All cow's milk is safe, wholesome and nutritious. There has been no research identifying milk or dairy products as a causative factor in the increased incidence of early puberty.



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