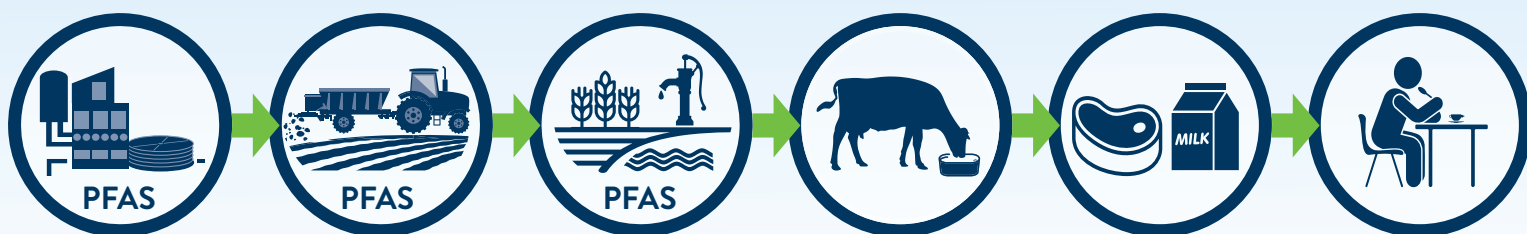
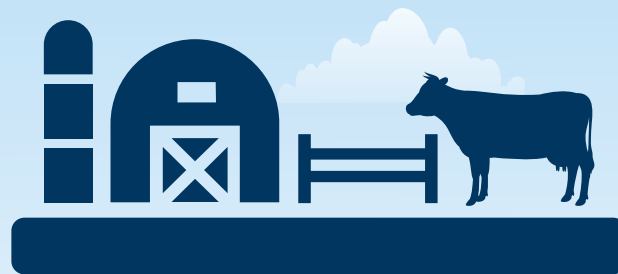


PFAS and Livestock



Key information

PFAS stay in the environment and can accumulate over time. When farm animals consume PFAS-contaminated water or feed, PFAS can build-up in animal tissues or products, such as meat or milk. The federal government has not set safe limits for PFAS in these products. More information is needed to understand this process because the risks posed to humans depend upon several factors. These may include the frequency of consumption, level of PFAS in the products, and other PFAS sources in the diet or environment.

Per- and Polyfluoroalkyl Substances (PFAS) and Livestock

PFAS are a group of synthetic chemicals that resist grease, oil, stains, water, and heat. PFAS can enter the environment from use of consumer products, spills, waste disposal, wastewater or stormwater discharges, and land applied materials (industrial materials, pesticides, and biosolids). PFAS are found in a wide range of consumer products that people use daily, including:

- Food containers, processing equipment, or food grown in contaminated soil/water
- Household and other products like stain or water repellent fabrics, non-stick products, polishes, waxes, paints, cleaning products, or firefighting foams
- Workplace production facilities or industries that use PFAS in their processes
- Drinking water near a specific facility such as a manufacturer, landfill, wastewater treatment plant, or firefighter training area

Many PFAS do not break down and can build up in the environment. Humans and animals may have low

levels of PFAS in their body because of exposure to the environment or other PFAS containing products.

Some evidence supports that exposure to PFAS can lead to adverse human health effects of the liver, kidneys, thyroid, immune system, and developing fetuses, among others. Each of the many PFAS may impact health differently. For more information related to PFAS health risks, refer to the Minnesota Department of Health (MDH) [website](#).

PFAS in livestock

Studies demonstrate that PFAS can accumulate in livestock that drink PFAS-contaminated water, consume PFAS-contaminated feed, consume PFAS-contaminated pasture grasses or soil from areas top dressed with sewage-derived fertilizer (such as biosolids), or have contact with PFAS-containing pesticides. However, more information is needed to accurately predict how much PFAS will accumulate in the animals and animal products. Many factors influence how PFAS builds up in animal products. Generally, the longer the animal is exposed to PFAS-contaminated water or food sources, the higher the levels of certain PFAS will be in the animal's tissues.

Human exposure through consumption of animal products

PFAS can accumulate in the organs and tissues of animals when they consume feed or water that contains PFAS. PFAS tend to accumulate more in the internal organs of animals, especially the liver, than in meat and fat. Certain PFAS can also be found in other animal products such as milk, as this is a major route for lactating cows to remove PFAS from their body.

Consuming milk or meat from animals exposed to PFAS may pose health risks. The actual risks depend upon many things, and additional information is needed to better understand the different ways people are exposed to PFAS. The levels of PFAS in the animal, how frequently a person eats the contaminated animal product, and other sources of PFAS exposure all impact the risk to any individual. Occasionally consuming these products will likely be a small source of exposure when compared to other potential environmental exposures. Consuming higher amounts of animal products (meat, milk, organs) from a PFAS exposed animal would likely be a more significant exposure. To minimize risk, consumption of internal organs should be avoided, and consumption of meat and milk should be minimized if animals are known to have been exposed to PFAS-contaminated water or feed.

Research on PFAS in livestock

Research is underway to determine safe levels of PFAS in livestock and animal products. The U.S. Food and Drug Administration (FDA) has conducted national food sampling studies for PFAS but has not set limits for PFAS in food. More information can be found on the [FDA website](#).

Actions you can take

Check for contamination in your area

You can check what is known about contamination in your area by visiting the [MDH Dashboard for PFAS Testing in Drinking Water](#) and the [Minnesota Groundwater Contamination Atlas](#).

Reduce your exposure to PFAS

- If you know or suspect that your livestock's water source may be contaminated with PFAS, use a PFAS-specific filter or PFAS-free water for animals intended for food consumption.
- If you live in an area with known PFAS contamination, you may want to limit eating meat or milk from livestock exposed to PFAS and avoid eating internal organs of these animals.
- Additional information about reducing exposure is available through MDH ([PFAS and health](#)).

Test for PFAS contamination

While it is possible to test animal products for PFAS, currently there are very few laboratories that can do this analysis, and laboratory testing is very costly. Even if PFAS were detected during testing, the results may be difficult to interpret given that there are no federal standards for PFAS in food and levels of risk depend upon several factors.

Questions

- Contact MDA: call 651-201-6300 or MDA.MeatPoultryEgg@state.mn.us
- For questions about your health call MDH at 651-201-4897 or email: health.hazard@state.mn.us

Additional resources

MDH PFAS and health:

www.health.state.mn.us/communities/environment/hazardous/topics/pfashealth.html

MDH PFAS and private wells:

www.health.state.mn.us/communities/environment/water/wells/waterquality/pfas.html#:~:text=The%20Minnesota%20Environmental%20Laboratory%20Accreditation,sample%20collection%20information%20and%20costs.

MDH Interactive Dashboard for PFAS Testing in Drinking Water:

www.health.state.mn.us/communities/environment/water/pfasmapp.html

MDH PFAS and homegrown produce factsheet:

www.health.state.mn.us/communities/environment/hazardous/docs/pfas/pfagardproduce.pdf

FDA PFAS information:

www.fda.gov/food/environmental-contaminants-food/and-polyfluoroalkyl-substances-pfas

MPCA well sampling in the east metro area:

www.pca.state.mn.us/air-water-land-climate/well-sampling-in-the-east-metro-area

Minnesota Groundwater Contamination Atlas:

www.pca.state.mn.us/about-mpca/minnesota-groundwater-contamination-atlas