

# Per- and Polyfluoroalkyl Substances (PFAS) and Home-raised Farm Animals



## Key information

Offering PFAS-contaminated water to farm animals could lead to the build-up of certain PFAS in animal tissues. The federal government has not set safe limits for PFAS in meat or other animal products. More information is needed to understand this exposure pathway 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.

## PFAS and health

PFAS are a group of human-made chemicals that resist grease, oil, stains, water, and heat. PFAS can enter the environment in many ways, including through commercial, industrial, and fire-fighting applications, and the use of consumer products such as food packaging and stain-resistant clothing. PFAS can also enter the environment from spills, waste disposal, wastewater or stormwater discharges, and land applied materials such as industrial materials, pesticides, and biosolids. Many PFAS do not break down and are widespread in the environment. Therefore, low levels are found in the blood and tissues of humans and animals.

PFAS can be measured in the blood of most people around the world, including Minnesotans. Over time, PFAS can build up in a person's body and can be passed to infants from their mothers. The most consistently observed and strongest evidence for harmful impacts on human health is for effects on the immune system such as decreased

vaccination effectiveness, changes in liver function such as higher cholesterol and elevated liver enzymes, and lower birth weight. Recent evidence suggests that the immediate health risks for most people exposed to PFAS are low. However, fetuses and infants are more vulnerable than older children or adults to the effects of PFAS. For more information related to PFAS health risks, refer to the Minnesota Department of Health (MDH) website PFAS and Health

([www.health.state.mn.us/communities/environment/hazardous/topics/pfashealth.html](http://www.health.state.mn.us/communities/environment/hazardous/topics/pfashealth.html)).

## PFAS in home-raised animals

Studies demonstrate that some PFAS can accumulate in animals that drink PFAS-contaminated water, consume PFAS-contaminated feed, or are exposed to PFAS through other environmental sources (e.g., pasture grass and soil ingestion). Generally, the longer an animal is exposed to PFAS-contaminated water or feed, the higher the levels of certain PFAS will be in the animal's tissues. However, not enough information exists to accurately predict how much PFAS will accumulate in the animals.

## Human exposure through consumption of animal products

PFAS can accumulate in the organs and tissues of animals when they consume water or feed 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 and eggs, as these are major routes for lactating cows and laying hens to remove PFAS from their bodies.

Consuming milk, meat, or eggs from animals exposed to PFAS may pose health risks. The actual risks depend upon many factors, 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 products, and other sources of PFAS exposure all contribute to an individual's risk. Consuming higher amounts of animal products (meat, milk, organs, eggs) 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, milk, and eggs should be minimized if animals are known to have been exposed to PFAS-contaminated water or feed.

## Research on PFAS in livestock is ongoing

Research is underway to determine safe levels of PFAS in livestock and animal products. The U.S. Food and Drug Administration (FDA) 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 Per- and Polyfluoroalkyl Substances ([www.fda.gov/food/environmental-contaminants-food-and-polyfluoroalkyl-substances-pfas](http://www.fda.gov/food/environmental-contaminants-food-and-polyfluoroalkyl-substances-pfas)).

## Actions you can take

### Check for contamination in your area

You can check what is known about water contamination in your area by visiting MDH's Dashboard for PFAS

## Questions

Contact Minnesota Department of Agriculture: call 651-201-6300 or email [MDA.MeatPoultryEgg@state.mn.us](mailto:MDA.MeatPoultryEgg@state.mn.us)

For questions about your health contact Minnesota Department of Health: call 651-201-4897 or email [Health.hazard@state.mn.us](mailto:Health.hazard@state.mn.us)

Testing in Drinking Water ([www.health.state.mn.us/communities/environment/water/pfasmap.html](http://www.health.state.mn.us/communities/environment/water/pfasmap.html)) and the Minnesota Pollution Control Agency's (MPCA) Minnesota Groundwater Contamination Atlas ([www.pca.state.mn.us/about-mpca/minnesota-groundwater-contamination-atlas](http://www.pca.state.mn.us/about-mpca/minnesota-groundwater-contamination-atlas)).

## Reduce your exposure to PFAS

- ▶ If you know or suspect that your animal's water source may be contaminated with PFAS, it is recommended to provide filtered or PFAS-free water to animals intended for food consumption.
- ▶ If you live in an area with known PFAS contamination, you may want to limit consuming meat, milk, or eggs from animals exposed to PFAS and avoid eating internal organs of these animals.
- ▶ Additional information about PFAS is available on MDH's website Per- and Polyfluoroalkyl Substances (PFAS) ([www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html](http://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html)).

## Test for PFAS contamination

- ▶ Information about private drinking water well sampling is available on the MDH PFAS and Private Wells website ([www.health.state.mn.us/communities/environment/water/wells/waterquality/pfas.html](http://www.health.state.mn.us/communities/environment/water/wells/waterquality/pfas.html)) and the MPCA Well Sampling in the East Metro Area website ([www.pca.state.mn.us/air-water-land-climate/well-sampling-in-the-east-metro-area](http://www.pca.state.mn.us/air-water-land-climate/well-sampling-in-the-east-metro-area)).
- ▶ While testing animal products for PFAS is possible, very few laboratories currently perform this analysis, and it is very costly. Even if PFAS were detected during testing, the results may be difficult to interpret without standards for PFAS in food.