

## PFAS and Homegrown Garden Produce

### Information for gardeners using water containing PFAS

There are health benefits from growing and eating garden produce. However, watering gardens with PFAS-contaminated water can increase levels of PFAS in the soil and plants. Unless a person is consuming high amounts of homegrown produce throughout the year, the produce is not likely to be a major contributor of PFAS exposure for adults or children. There are things you can do to lower the level of PFAS in garden produce.

### Background

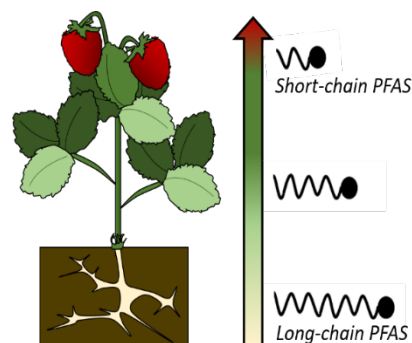
Per- and polyfluoroalkyl substances (PFAS) are a large group of chemicals used in a variety of products to resist heat, oil, stains, grease, and water. These chemicals are widely detected in the environment from use, spills and disposal. In some cases, PFAS may end up contaminating groundwater and the drinking water wells used by cities, townships, and private homes.

When PFAS are found in private wells at levels above the Minnesota Department of Health's (MDH's) established health risk limits, granulated activated carbon (GAC) filters may be installed as a solution. While GAC filters remove PFAS from the drinking water, the treatment units typically do not treat water used outside. As a result, PFAS in the water used to irrigate lawns and gardens can contaminate soil and plants.

### PFAS can be taken up into edible parts of plants

Studies demonstrate that PFAS can be taken up by plants from contaminated soil and irrigation water. However, there is still not enough information to be able to predict how much PFAS will end up in a particular garden plant. Factors that influence how much PFAS may be in plants include:

- Levels of PFAS in the water and soil
- Frequency of watering
- Type of PFAS (PFAS have different carbon chain lengths)
- Soil properties (organic carbon, nutrients, added soil amendments, etc.)
- Plant part (root vegetable, leafy green, etc.)
- Produce type (bell pepper, tomato, etc.)



Courtesy of the Wisconsin Department of Health Services

Generally, research has shown that PFAS with shorter carbon chain lengths - like PFBA and PFPeA - are more likely to build up in the edible parts of plants compared to longer-chain compounds - like PFOS and PFOA. Longer-chain compounds tend to stay in the roots. Short-chain compounds are thought to pose less risk to human health than long chain compounds.

## Research on PFAS in produce is ongoing

Research is underway to help determine levels of PFAS in produce that would be safe for people to eat. At this time, no government or other authoritative body has identified “safe” levels of PFAS in either commercially grown or homegrown produce, nor are PFAS concentrations regulated in food.

## Ways to lower levels of PFAS in homegrown produce

While levels of PFAS in garden soil or irrigation water that are “safe” to use for growing fruits and vegetables are not known, there are some actions you can take that can lower PFAS levels in garden plants:

- Switch to filtered water, or water from another safe source for your garden, if feasible. This will be the most effective option.
- Maximize use of rainwater (e.g., rain barrels) for garden watering – avoid contact with edible parts of plants when using water from a rain barrel; irrigate with well water only when necessary.
- Bring in clean soil and create raised beds, ensuring the roots of your plants do not extend past the clean soil. Note that the soil will become contaminated if irrigated with PFAS-containing water.
- Add high organic carbon sources like compost, peat and manure that do not contain PFAS to garden soil. This has been reported to reduce PFAS uptake into plants.
- Wash all produce in clean water and peel or scrub root vegetables before eating.

## Exposure to PFAS and health

Potential health risks from consuming PFAS in homegrown produce not only depend on the levels of PFAS in the plants, but how much, and how frequently, a person eats the produce. Unless a person is consuming high amounts of homegrown produce throughout the year, eating garden produce will be a minor source of exposure compared to drinking PFAS-contaminated water. If you live in an area with known PFAS contamination, it is important to make sure your home drinking water is treated to remove PFAS.

Ingestion of PFAS in household dust can also be a significant route of PFAS exposure for infants and young children. To lower dust exposure, regularly use a wet mop or wet cloth on solid surfaces, vacuum carpets, and ensure children wash their hands before eating.

For more information about health risks, visit [PFAS and health \(www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html#healtheffects\)](http://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html#healtheffects)

## Contact with questions

Call 651-201-4897 or email to [health.hazard@state.mn.us](mailto:health.hazard@state.mn.us).

Minnesota Department of Health  
Environmental Surveillance and Assessment  
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To obtain this information in a different format, call: 651-201-4897.

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