Treat Your Water Well

If you rely on a private well for your household water and haven't tested it in the last two years, you may be at risk for harmful nitrate exposure.

Are you at risk?

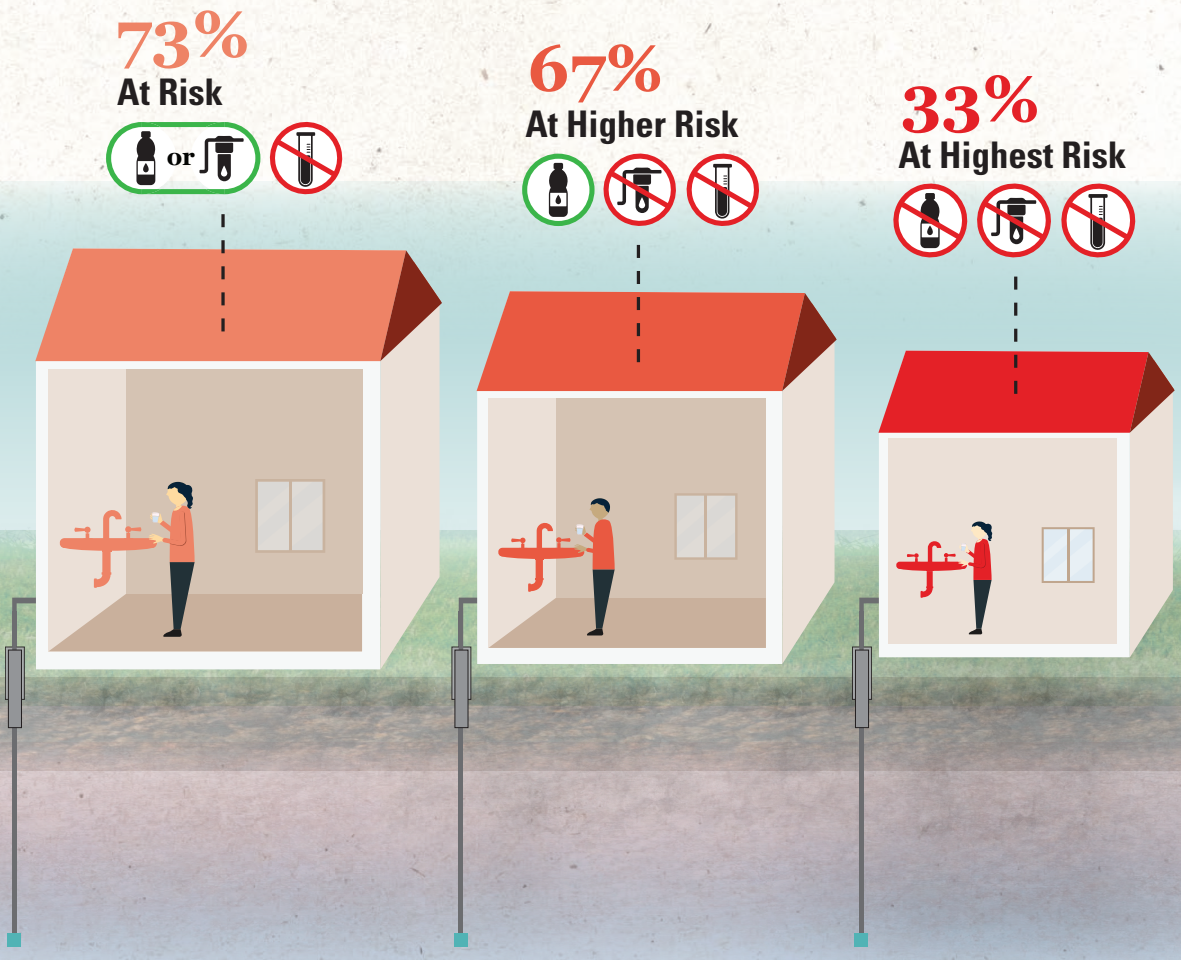
The Iowa Rural Household Drinking Water Survey found that of 7,100 rural Iowans surveyed who rely on private wells for their drinking water:

73% are at risk for nitrate exposure through their well water because they haven't tested the water in the last two years.

67% are at higher risk because they haven't also installed reverse osmosis (RO) filters, which remove nitrate, in their homes.

33% are at highest risk, because they haven't tested the water, don't use RO filters, and don't seek alternative sources of drinking water.

Reported behaviors and risk of nitrate exposure
n=7,100



Supplemented drinking water

Used an RO filter

Tested water in the last two years

Why worry about nitrate in the water?

One of the challenges of Iowa being a leader in agricultural production is its **significant impact on water quality** locally, throughout the state, and downstream all the way to the Gulf of Mexico.

Though many Iowa farmers are adopting on-farm practices that help to improve water quality in the state and downstream, most of Iowa's cropland still leaches high levels of nitrate. **This nitrate makes its way into ground and surface water that Iowans rely on** not only for beauty and recreation, but also as public and private sources of water.

Excess nitrate in drinking water can cause methemoglobinemia, or blue baby syndrome, in infants, when nitrate inhibits the body's ability to carry oxygen.

Other health risks are still under study, but high levels of nitrate in drinking water have been linked to **higher incidence of colorectal cancer and thyroid disease** in adults and neural tube defects in newborns, among other concerns.

How can you **protect** your household?

Test the Waters

Testing your well water regularly is one of the most important things you can do to protect your household from harmful pollutants. Private well owners are responsible for testing their drinking water and treating contaminants in it. The Iowa Department of Natural Resources recommends—

Testing for bacteria and nitrate at least once a year.

Testing for other pollutants like arsenic at least once in your well's lifetime.

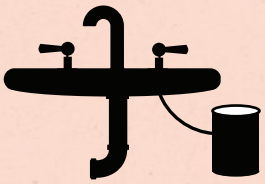
Many state public health agencies provide free or subsidized water quality testing. Take advantage of it!

Filter or Find Alternatives

The U.S. Environmental Protection Agency standard for nitrate in drinking water is a maximum contaminant level (MCL) of 10 mg of nitrate (measured as nitrate-nitrogen) per liter of water.

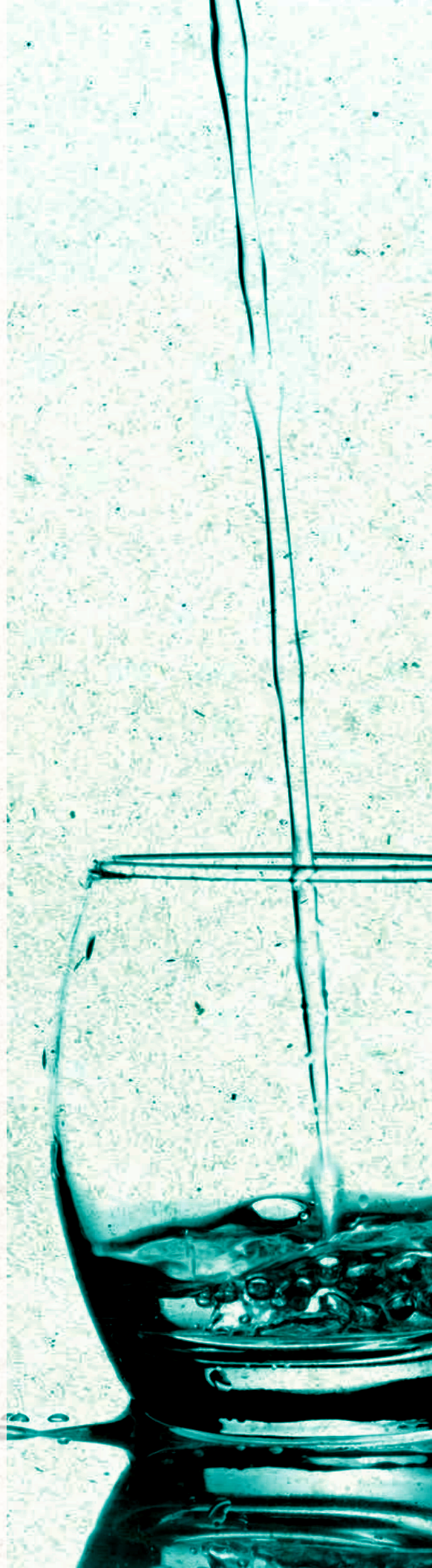
If your water tests higher than 10 mg/L:

Purchase bottled water or a bulk water cooler (short-term option)



Install point-of-entry or point-of-use reverse osmosis filters that remove nitrate (more long-term option)

If your water consistently tests higher than 5 mg/L, consider taking one of the above actions.

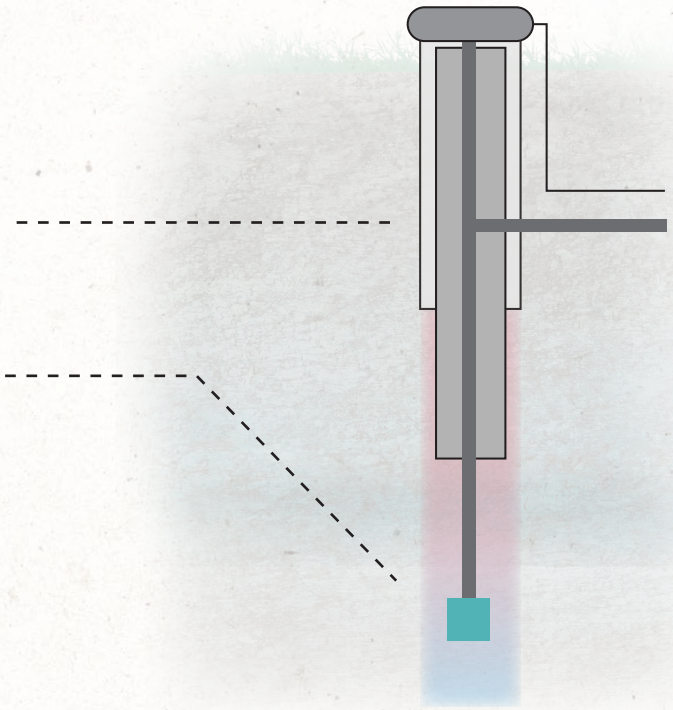


Be Well Informed

Know your well's age and depth.

Older wells are more susceptible to cracking, making them more vulnerable to nitrate and other contaminants.

Shallower wells draw from water sources that might be more susceptible to nitrate contamination from the surface. Replacing or reconstructing your well is a longer-term, though more expensive, solution to nitrate pollution in your water.



T **Test** your well water annually. Take advantage of free testing programs!

A **Avoid** water with nitrate concentration above 10 mg/L. Use bulk or bottled water.

P **Protect** your drinking water with a reverse osmosis filter.

Did you know?

Boiling water does not remove nitrate. In fact, the Centers for Disease Control and Prevention warn that boiling water may increase nitrate concentrations as water evaporates.

Most on-tap, pitcher, and in-refrigerator filters do not remove nitrate. **Home filters or filtration systems must be specifically designed to remove nitrate, such as reverse osmosis systems.**

CARD Center for Agricultural and Rural Development

CONSERVATION LEARNING GROUP

This publication was produced by the Conservation Learning Group at Iowa State University in collaboration with the Center for Agricultural and Rural Development, with support from the Leopold Center for Sustainable Agriculture and the U.S. Department of Agriculture National Institute of Food and Agriculture Project No. IOW05570.