



# Testing Drinking Water in Agricultural Areas

## We All Live Downstream

If you get water from your own well or spring, **you're** responsible for ensuring its quality. Unlike public water supplies, government agencies are not required to monitor private water systems for contamination. Periodic water testing is an important step towards providing a supply that's both safe and appealing to use.

Although many substances can degrade drinking water quality, testing for the presence of every possible contaminant would be very expensive. It is best to run tests that are broad in scope for those contaminants that are likely to be present. Such testing can provide a great deal of information.

Testing for the five water concerns listed below will give you a good indication of your drinking water quality. Remember that this list applies to agricultural areas in general. It may be necessary for you to have additional tests run for other contaminants that you suspect may be present in your particular area.

### TOTAL COLIFORM BACTERIA

**Contamination sources:** Sewage; manure.

**Reason for test:** Although most coliform bacteria don't cause illness, they're easy to test for and may be used to indicate the possibility of pathogenic (disease-causing) microorganisms in a water supply.

**Acceptable level:** No coliform bacteria present. A test report for an uncontaminated sample may read coliform negative, less than one (< 1) per 100 ml, or less than 2.2 (< 2.2) depending on the measurement technique the laboratory uses.

**Frequency of testing\*:** Annually

**Cost\*\*:** \$12 to \$15

\* For each contaminant, individual circumstances may require more frequent testing.

\*\* All test costs are approximations and will vary by laboratory.

### NITRATE

**Contamination sources:** Sewage; manure; nitrogen fertilizer; landfill leachate.

**Reason for test:** Excessive levels of nitrate in drinking water may cause a potentially fatal disease -- methemoglobinemia (blue-baby syndrome) -- in infants less than six months old.

**Acceptable level:** Not more than 10 mg/l (milligrams per liter) nitrate-nitrogen (NO<sub>3</sub>-N). Some labs may report the test results as nitrate (NO<sub>3</sub>), in which case the acceptable level is 45 mg/l or less.

**Frequency of testing:** Annually

**Cost:** \$10 to \$15

### PESTICIDES

**Contamination sources:** Improper storage, application or disposal of pesticides.

**Reason for test:** A pesticide scan will tell you if any of a number of pesticides are in your water. Birth defects, an increased risk of cancer, and damage to body organs are possible chronic health effects associated with exposure to pesticides above recommended levels.

**Acceptable level:** Drinking water standards have been set for only a few pesticides. Guidelines, which may change as more is learned about the potential health hazards of particular pesticides, are available for others. To find out the recommended safe level for a specific pesticide, contact the Cooperative Extension Office or the local Department of Environmental Protection (DEP) office.

**Frequency of testing:** As needed but at least every three years. Check with your neighbors to see which pesticides they are using. Test your water for traces of those pesticides.

**Cost:** \$100-\$2,500 depending on the extent of the test(s) performed

## pH

**Contamination sources:** Mining and gas drilling; unacceptable levels may also occur naturally.

**Reason for test:** The pH test measures how acidic or basic water is. The scale for pH ranges from 0 to 14; a pH of less than 7 is acidic, pH 7 is neutral, and a pH of greater than 7 is basic. Water that is too acidic or too basic may corrode household plumbing. In addition to damaging pipes, metals (such as copper, lead, cadmium) that dissolve from the plumbing system may contaminate your water and pose health problems.

**Acceptable level:** pH 6.5 - pH 8.5

**Frequency of testing:** At least every three years

**Cost:** \$4 to \$5

## TOTAL DISSOLVED SOLIDS

**Contamination sources:** Landfill leachate; mining and gas drilling; high levels may also occur naturally.

**Reason for test:** This test tells you the concentration of dissolved materials in your water. Water with a TDS concentration above the recommended limit may have an objectionable taste and deposit scale in pipes. People unaccustomed to water with a high TDS concentration may temporarily suffer gastrointestinal upsets (such as diarrhea) when they drink the water. Also, if total dissolved solids are at high levels, it would be wise to have further tests to determine specific contaminants.

**Acceptable levels:** 500 mg/l

**Frequency of testing:** At least every three years

**Cost:** \$7.50 to \$10

Many commercial water testing laboratories can run all five of these tests. In addition, DEP will test water for bacteria. (There is a fee. Contact the local office for details.) For the names of DEP certified, commercial water testing labs in your area, consult the web by clicking on <http://www.dep.state.pa.us/> or call the local [DEP](#) or [Penn State Cooperative Extension](#) office. The Extension Service and DEP can also help you interpret the results of your water tests, determine if additional tests are required, and assist you in eliminating any water quality problems that are discovered.

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