



ON FARM FOOD SAFETY - REDUCING THE RISK

Quality of Water Starts at the Source – Ensuring your Water is Safe

The quality of water used on farm is essential for ensuring the safety of your food product to consumers. Water can be a source of biological and chemical contamination and farmers must take steps to ensure that their water source does not contaminate their product. This fact sheet focuses on water quality issues associated with agricultural water used for irrigation, fertilizing, and potable water used for fluming, washing, cooling, cleaning equipment and hand washing.

AGRICULTURAL WATER

- Includes water that is used for irrigation and applying chemicals and fertilizers.
- The source of agricultural water varies from farm to farm and may include:
 - municipal sources or wells (low risk source)
 - ponds fed by groundwater or rainwater (moderate risk source)
 - ponds fed by stream or run off, rivers, creeks (high risk source)
- Water sources must be assessed annually for potential sources of contamination, such as access by livestock, recreational use, runoff from chemicals or manure, contamination of irrigation pipes, etc.
- If sources of contamination are identified, an alternate water source must be used or corrective actions taken. Corrective actions may include constructing barriers to limit access to the water, levelling ground to prevent runoff, and increasing the time from irrigation to harvest.
- If agricultural water is stored on farm, storage tanks or containers must be free of rust and closed when not in use. They must also be cleaned and sanitized at the start of the season or the water must be tested.
- If the water is tested, it must meet the levels specified by the Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. Annual testing of agricultural water is recommended, though not required.
- There are two exceptions: agricultural water used for overhead spraying of chemicals and misting for all products in greenhouses must be potable and all agricultural water

used on leafy greens and herbs must be potable (see next section for potability requirements).

POTABLE WATER USED FOR FLUMING, COOLING, WASHING, CLEANING EQUIPMENT AND HAND WASHING

- Water for these uses must meet stricter guidelines than agricultural water.
- Sources of water for these uses must be identified and assessed annually for sources of hazards/contamination.
- Water for these uses must be considered potable, which means it meets the parameters of the Canadian Water Quality Guidelines for Drinking Water.
- Water for these uses must be tested twice per year. The testing should be conducted at the start of the season prior to use and once during the season. If potable water cannot be supplied for cooling, fluming or washing, a final rinse may be done with potable water.
- There are a few exceptions on the potability requirement for certain commodities (apples, tomatoes, broccoli, cauliflower, cabbage, brussel sprouts and processing potatoes). Consult your commodity specific on-farm food safety manual for details if you produce these products.
- If water treatment is done on farm to make the water potable (such as chlorination or UV treatment), the treatment needs to be monitored daily and documented. Treated water must also be tested twice per year.
- If water is stored on farm it must be tested at least twice annually. If the results show the water is not potable, the tank must be cleaned and the water re-tested. It is recommended that tanks be cleaned annually, even if the water test results are good. As with agricultural water, storage tanks must be free of rust and kept closed when not in use.
- The safety of any ice used on farm must also be considered as it is a source of potential biological, chemical and physical contamination. If ice is purchased, request a letter of assurance from the supplier that it was prepared in a manner to prevent contamination and is potable. If ice is made on farm, potable water must be used and the ice must be tested once per year prior to the season. The ice sample should be taken at the point closest to the product to ensure it is not being contaminated by handling or storage practices on farm.

COLLECTING WATER SAMPLES

Important steps to remember when collecting water samples:

- Water samples must be collected in sterile sample bottles provided by an accredited lab
- Remove any screens or attachments from the faucet
- Take the sample from an inside tap not an outside faucet or garden hose

- Disinfect the faucet with an alcohol swab or bleach solution (1:10 bleach to water mixture) to remove debris and bacteria
- Let water run for several minutes to remove standing water in the pipes
- Remove the sample bottle lid, taking care not to contaminate the lid or sample bottle (do not touch the inside of the lid, do not sit the lid down, and do not rinse out the bottle)
- Fill bottle to the level indicated and close the lid tightly
- Keep the sample cold by placing in a refrigerator or on ice. Sample must remain cold during transport to the lab.
- Ensure the sample is delivered to the lab within 24 hours

Ice samples may be collected in sterile sample bags instead of bottles. Several containers may be required to ensure the ice provides enough water for testing. Consult with the lab to determine the amount of ice you need to provide.

INTERPRETING WATER TEST RESULTS

- Water samples must be tested for E. coli and Total Coliforms.
- For water to be considered potable, it must meet the requirements of Health Canada's Guidelines for Canadian Drinking Water Quality which is "0" E. coli per 100 mL and "0" Total Coliforms per 100 mL.
- Agricultural water must meet the levels specified by the Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses which is "up to 100" E. coli per 100 mL and "up to 1000" Total Coliforms per 100 mL.
- If your test results exceed these limits, retest your water immediately. Discontinue use of this water source until it has tested within the limits. If the results of the second test exceed these limits, corrective action, such as shock chlorination of wells or the installation of a permanent treatment system, must be taken.

For more information on water guidelines please reference:

- Canadian Horticultural Council. 2010. Combined Vegetable On Farm Food Safety Manual Version 5.0.
- Canadian Horticultural Council. July, 2010. Main Differences Between the Six Commodity Specific OFFS Manuals Version 2.5.
- Health Canada's Guidelines for Canadian Drinking Water Quality. 2011 [retrieved March 7, 2011].
<http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index-eng.php>
- Health Canada. What's In Your Well? - A Guide To Well Water Treatment And Maintenance. 2007 [retrieved March 7, 2011].

<http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/well-puits-eng.php>

- Ontario Ministry of Food and Rural Affairs. Improving On-Farm Food Safety Through Good Irrigation Practices. April 2010 [retrieved March 7, 2011].

<http://www.omafra.gov.on.ca/english/crops/facts/10-037.htm>