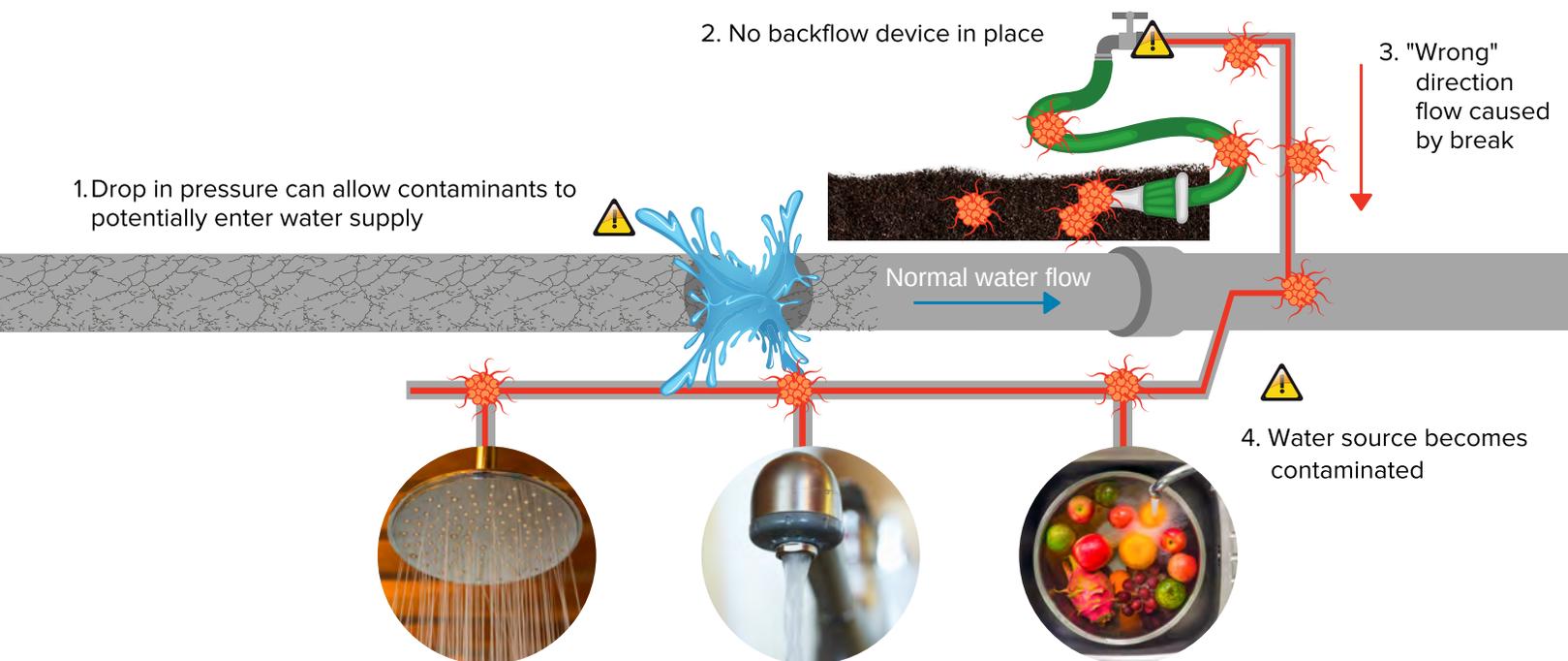




BACKFLOW PREVENTION ON THE FARM

WHAT IS BACKFLOW?

When water (and anything in it) travels in the “wrong” direction or a direction other than the intended one.



RISKS FROM BACKFLOW

- Microbial contamination of a water system from pathogenic viruses (norovirus), bacteria (toxin-producing *E. coli*, *Listeria monocytogenes*, *Salmonella*, and *Shigella*) and protozoans (*Cryptosporidium*, *Cyclospora*, and *Giardia*).
- Chemical contamination from pesticides (insecticides, herbicides, fungicides), metals (copper), nitrates, and nitrites.

These risks can be life-threatening to consumers, causing acute and/or chronic health effects such as vomiting, diarrhea, skin burns and rashes, and damage to the kidneys and liver.

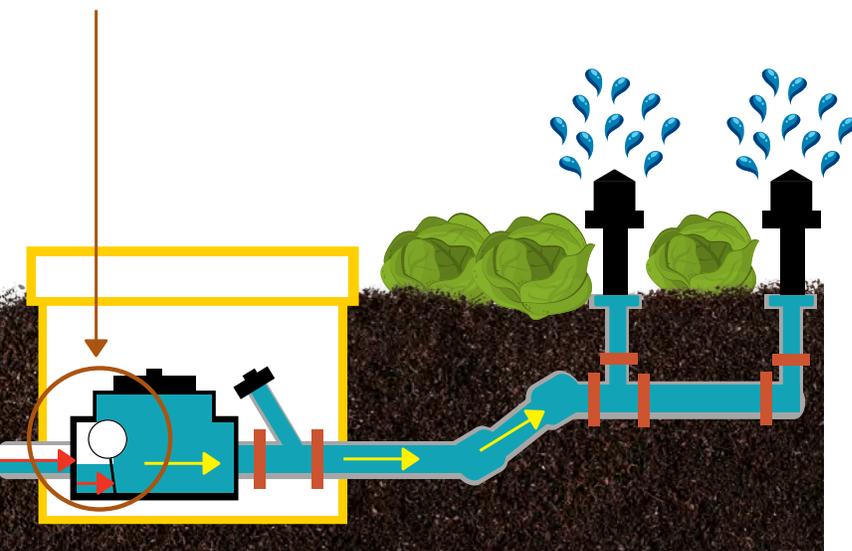
HOW DOES BACKFLOW OCCUR?

- Water backflow usually results from either backpressure or backsiphonage.
- **Backpressure** is water backflow resulting from an imbalance in water pressures. The downstream pressure is greater than upstream or supply pressure, pushing wastewater from your plumbing system back into the clean water supply.
- **Backsiphonage** results from negative pressure on the supply side, creating a partial vacuum effect. When the supply pressure goes lower, like when another hydrant in the system draws out all of the water, flow can reverse. As a result, a siphoning effect moves potentially contaminated water in the wrong direction.

PREVENTING BACKFLOW

- Know your water system and assess backflow risks regularly. Draw out your water system, and use Google Maps or other imagery to assess its proximity to potential sources of contamination.
- Prevent water flow in the wrong direction using a check valve, foot valve, or other device.
- Provide an easier flow path in a different direction that results in lower risk (using air gaps, floor sinks, etc.).
- Install a backflow preventer and test it annually.
Note: some local governments require installation and regular inspection of backflow prevention devices in irrigation systems and other commercial uses.

A backflow device prevents water from traveling back into clean water sources.



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3. ATS Irrigation, Inc. Do Your Irrigated Fields Need Backflow Preventers?. ATS Irrigation, Inc. <https://www.atsirrigation.com/do-your-irrigated-fields-need-backflow-preventers/>. Published 2017. Accessed July 24, 2019.

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WHAT IS A BACKFLOW PREVENTER?

- A check valve, or a system of valves, installed into the feed line of an irrigation system to prevent water from moving back through the line towards an uncontaminated water source rather than toward the sprinkler at the end of the system in the field.
- Install backflow preventers on the line that leads to the cross-connection or potential cross-connection.
- Types of backflow preventers include control valves, atmospheric vacuum breaker (AVB) valves, pressure vacuum breakers, anti-siphon valves, and double check valve assemblies.

DO YOU NEED A BACKFLOW PREVENTER?

If you are covered by the Food Safety Modernization Act Produce Safety Rule:

- §112.41 states that "All agricultural water must be safe and of adequate sanitary quality for its intended use."
- §112.133(d) states that your plumbing must "Not allow backflow from, or cross connection between, piping systems that discharge waste water or sewage and piping systems that carry water used for a covered activity, for sanitary operations, or for use in hand-washing facilities."
- In addition, under §112.42(c) you are required to "Adequately maintain all agricultural water sources to the extent they are under your control (such as wells). Such maintenance includes:
 - Regularly inspecting each source to identify any conditions that are reasonably likely to introduce known or reasonably foreseeable hazards into or onto covered produce or food contact surfaces;
 - Correcting any significant deficiencies (e.g. repairs to well cap, well casing, sanitary seals, piping tanks and treatment equipment, and control of cross-connections); and
 - Keeping the source free of debris, trash, domesticated animals, and other possible sources of contamination of covered produce to the extent practicable and appropriate under the circumstances."