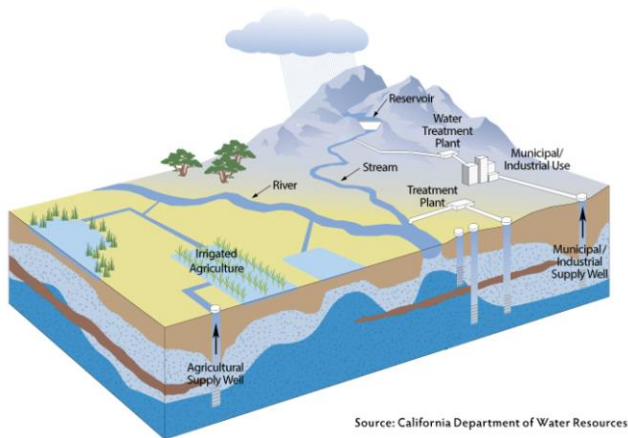


# Produce Safety and Agricultural Water Quality

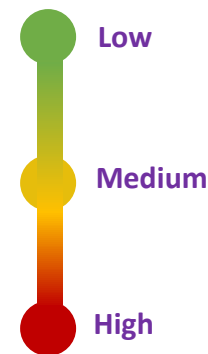
“ The **Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR)** states that all agricultural water **must** be of safe and adequate sanitary quality for its intended use (§112.41) ”

## What is Agricultural Water?

Agricultural water is water that is intended or likely to contact the edible portions of produce or food contact surfaces during growing (pre-harvest) or during/after harvest (post-harvest). The PSR outlines three common sources of agricultural water: **ground water**, **surface water**, and **municipal water**.



### Risk of Contamination



**Municipal Water** is water that is treated and monitored by a local water utility

**Ground Water** is water that is found beneath Earth's surface (ex. wells, aquifers)

**Surface Water** is water that is found or stored on the Earth's surface (ex. rivers, creeks, cistern, ponds, supply tanks)

## What's the difference between Pre-harvest and Post-harvest Water?

**Pre-harvest Water** is any water that is applied directly to produce during growing

- Irrigation
- Crop sprays
- Fertigation
- Frost protection
- Cooling

VS

**Post-harvest Water** is any water that is used during and after field harvest of the produce

- Field Packing
- Washing
- Hydro-cooling
- Ice making
- Hand Washing

*Note: water used for hand washing also counts as postharvest water since it can potentially contact the produce surface.*



## How do we determine water quality?

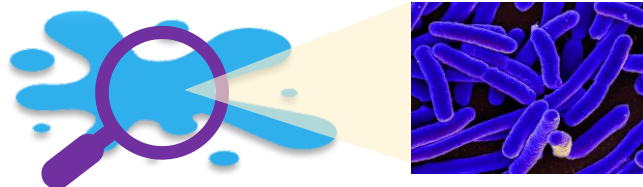
**Agricultural Water Assessment** This is a component of the proposed FSMA PSR water rule, but is a good practice to evaluate pre-harvest water quality regardless. There are four main factors, including agricultural water system(s), agricultural water practices, crop characteristics, and environmental conditions. Based on the assessment, you can discern whether your water is safe to use or not.

**Tip: Agricultural Water Assessment Builder** can help you evaluate your water quickly and easily!



Access from this [link](#) or use this QR-code:

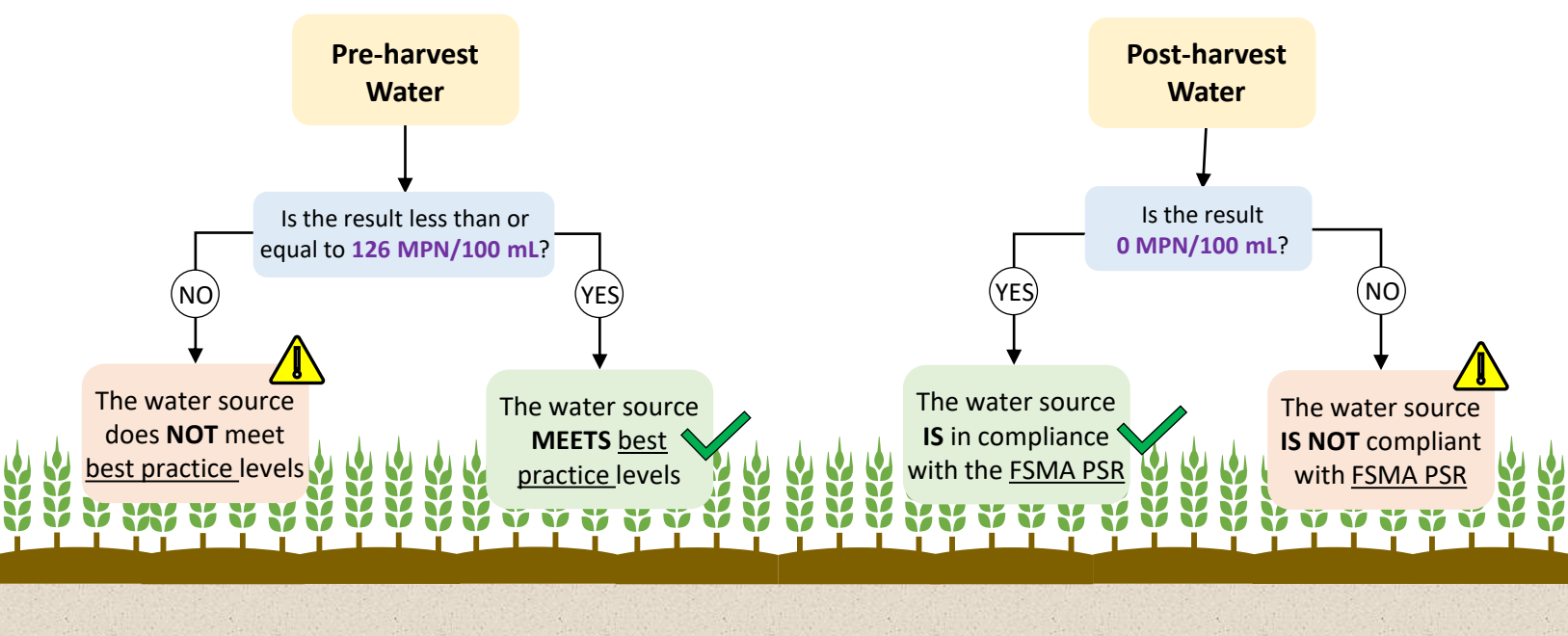
**Water Microbial Quality** The Produce Safety Rule currently uses a bacteria called generic *E. coli* as an indicator of water quality in post-harvest water. *E. coli* is a type of bacteria that is commonly found in animal waste (feces). Based on the number of generic *E. coli* in 100 ml, you can know whether your water is microbially safe to use or not.



# How to Interpret Your Water Quality Test Results

Step 1: Determine if the water source meets best practice/ regulation levels

## Intended Use:



Step 2: Determine the next steps if the water source **IS NOT** best practices/ FSMA PSR compliant

## If the post-harvest water is not compliant:

**DISCONTINUE** use as soon as practical (switch to municipal water or other safe source) unless corrective measures are applied.

## A few things you can do if your pre-harvest water does not meet best practice levels:

- Contact your local extension personnel for assistance:
 

<p><u><a href="#">Kansas State University</a></u></p> <p>Name: Katelynn Stull E-mail: <a href="mailto:kjstull@ksu.edu">kjstull@ksu.edu</a> Phone: 913-307-7394 Address: 22201 W Innovation Dr., Olathe, Kansas 66061</p>	<p><u><a href="#">University of Missouri</a></u></p> <p>Name: Patrick Byers E-mail: <a href="mailto:byerspl@missouri.edu">byerspl@missouri.edu</a> Phone: 417 859 2044 Address: 800 S. Marshall St, Marshfield, MO 65706</p>
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- Apply a **time interval** between the last irrigation and harvest.
- **Re-inspect** the entire affected agricultural water system for any conditions that are likely to contaminate the water (i.e., animal carcasses)
- Apply **validated treatments** to the water source.
  - The treatment must be effective to make the water safe and of adequate sanitary quality for its intended use (i.e., UV, chlorine).

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