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.

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).

Risk of Contamination

Low

Medium

High

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
- Fertigation
- Cooling

VS

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

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

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.

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.

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

Access from this link or use this QR-code:

Questions, comments or concerns?
Contact your Kansas State Produce Safety Extension Associate Katelynn Stull kjstull@ksu.edu or Patrick Byers byerspl@missouri.edu of MU Extension today!
**How to Interpret Your Water Quality Test Results**

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

**Intended Use:**

<table>
<thead>
<tr>
<th>Pre-harvest Water</th>
<th>Post-harvest Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the result less than or equal to 126 MPN/100 mL?</td>
<td>Is the result 0 MPN/100 mL?</td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>The water source does NOT meet best practice levels</td>
<td>The water source IS in compliance with the FSMA PSR</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>The water source MEETS best practice levels</td>
<td>The water source IS NOT compliant with FSMA PSR</td>
</tr>
</tbody>
</table>

**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:
  
  **Kansas State University**
  
  Name: Katelynn Stull  
  E-mail: kjstull@ksu.edu  
  Phone: 913-307-7394  
  Address: 22201 W Innovation Dr., Olathe, Kansas 66061

  **University of Missouri**
  
  Name: Patrick Byers  
  E-mail: byerspl@missouri.edu  
  Phone: 417 859 2044  
  Address: 800 S. Marshall St, Marshfield, MO 65706

- 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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