

FSMA Produce Safety Rule Water Requirements: Insights to Get You Organized! Focus on Harvest and Postharvest Uses

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This article is intended to enhance understanding of what is written in the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR) about agricultural water used during harvest and postharvest activities. More information is coming from FDA on the topic of agricultural water, including regulatory guidance for agricultural water use and final requirements for pre-harvest agricultural water. This article summarizes agricultural water requirements including key terms and phrases marked in bold; some may be new to you so now is a good time to learn them.

The main points of this article are:

- Understand when water meets the definition of **agricultural water**.
- Understand compliance dates and quality requirements for agricultural water used during harvest and postharvest activities.
- Describe the quantitative water quality requirement. What it is, how many samples you need, and what resources are out there to help you implement practices.
- Know your options when agricultural water quality does not meet standards for harvest/postharvest use.

The Definition of Agricultural Water

Here is the exact definition from the FSMA PSR.

“Agricultural water means water used in covered activities on covered produce where water is intended to, or is likely to, contact covered produce or food contact surfaces, including water used in growing activities (including irrigation water applied using direct water application methods, water used for preparing crop sprays, and water used for growing sprouts) and in harvesting, packing, and holding activities (including water used for washing or cooling harvested produce and water used for preventing dehydration of covered produce).”

Notice a couple of things in that definition.

- **Agricultural water** is used during **covered activities** on **covered produce**. Covered activities refer to activities that are described in the rule (i.e., growing, harvesting, packing, holding covered produce). Covered produce has a specific definition in the PSR; generally, fresh produce that is not otherwise exempt or excluded (e.g., subject to a kill step, on a list of “rarely consumed raw” produce) and is a raw agricultural commodity (e.g., uncut strawberries, apples, carrots, celery, leafy greens).

- In order to fit the definition of agricultural water, the water must be used in **direct contact** with the **harvestable portion** of covered produce or **food-contact surfaces** (including hands). Water used in other ways on the farm does not fall under the regulatory definition of agricultural water. For example, water that contacts potatoes would not be agricultural water since potatoes are not a covered crop, but wash water for a conveyor that contacts leafy greens during harvest would be agricultural water.

The water quality requirements in the FSMA PSR apply to farms that 1) are covered by the rule and 2) use water in direct contact with the harvestable portion of the covered crop or food contact surfaces. The PSR requires that *“all agricultural water must be safe and of adequate sanitary quality for its intended use”* (§ 112.41). Remember that water used for handwashing and water in contact with food contact surfaces is included in the agricultural water definition, so agricultural water quality requirements will have to be met when establishing cleaning and sanitation programs as well as when harvesting and handling crops.

Compliance Dates and Quality Requirements for Agricultural Water Used During Growing Activities, or During and After Harvest

First, it is important to understand when the requirements of the PSR go into effect and who is required to follow the PSR. Legally, some farms are not covered, or they qualify for exemptions or modified requirements. Even without a legal requirement to follow the PSR, a grower may need to follow buyer requirements that are based on provisions in the PSR in order to maintain market access. Some farms may not be legally covered or face market pressure; however, every grower should be actively engaged in implementing food safety practices to minimize microbial risks in the fresh produce they grow.

For farms subject to the PSR, compliance dates for most provisions began January 26, 2018, depending on the farm’s **business size**. A series of extensions resulted in delayed enforcement of regulations for agricultural water used during harvest and postharvest until January 2023, with covered farms of all business sizes subject to enforcement by January 2025.

Compliance for agricultural water used pre-harvest (other than sprouts) has been delayed until after publication of [proposed revisions to Subpart E: Agricultural Water](#).

The water quality criteria are different for water used during growing activities (currently under revision) and for water used during and after harvest (considered final at the date of this publication). The quantitative (numerical) standard is based on a test for **generic *Escherichia coli***, which is an indicator of fecal contamination. Controlling fecal contamination is one key to minimizing produce safety issues, but keep in mind that the test for generic *E. coli* only indicates fecal contamination not all human pathogens. The requirement for agricultural water used during harvest and postharvest is no detectable generic *E. coli* in 100 mL of water.

Growers subject to the PSR are required to inspect their agricultural water systems at least once a year, and to maintain their water sources and water distribution systems. The **agricultural water system inspection** must be documented. It is important to remember the qualitative standard *“all agricultural water must be safe and of adequate sanitary quality for its intended use”* (§ 112.41) is always in effect, so during the inspection growers should pay attention to other water quality issues while also testing harvest and postharvest water for generic *E. coli*. Related to the qualitative standard, observations that could indicate microbial hazards include the presence of animals, trash, or debris around a well.



Water Quality Testing for Harvest and Postharvest Water

For untreated ground water used as agricultural water during harvest and postharvest, water samples must be collected and analyzed for generic *E. coli*. For water from a public water supply or water treated using a validated process, no testing is required. It is important to note that untreated surface water must not be used for any harvest or postharvest activities.

In the initial year of compliance or when water use begins, 4 samples from an untreated ground water source must be collected for analysis. One sample is collected every year thereafter. All water samples must have no detectable generic *E. coli* in 100 mL; if *E. coli* is detected, stop use of the water immediately and do not go back to using that source as agricultural water until a **corrective measure** is implemented to address the issue. You will need to sample 4 times after you resume use, not just once.

Options for Corrective Measures if Your Water Quality Does Not Meet Standards

If a test result on untreated ground water shows presence of generic *E. coli*, or if you have other reason to believe that the water is not safe or of adequate sanitary quality for use during harvest or postharvest, the PSR includes flexibility in the form of management options called corrective measures. The corrective measures are:

- Re-inspect the agricultural water system and take corrective action to address contamination sources or other issues.
- Treat the water, being sure that any antimicrobial pesticides (e.g., sanitizers, disinfectants) or devices (e.g., filtration, ultraviolet units) are used according to the EPA label or manufacturer instructions.

Once you have implemented a corrective measure, you may need to confirm that the changes were effective to achieve no detectable generic *E. coli* in 100 mL.

Supporting Resources:

[Contact the PSA](#) if you have questions about this fact sheet or what the water rules mean for your farm.

For authoritative answers about PSR water quality requirements and regulatory compliance, you can submit questions to [FDA's Technical Assistance Network](#).

Many sources of additional information are available from FDA and the PSA web site:

1. U.S. Food and Drug Administration 2015. [Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption](#). (Final Rule). Federal Register November 27, 2015. 80(228):747354-74568.
2. Produce Safety Alliance 2019. [The Water Analysis Method Requirement in the FSMA Produce Safety Rule](#). Fact Sheet.
3. Produce Safety Alliance 2020. Water System Inspection Record Template. Page 2 in [Records Required by the FSMA Produce Safety Rule](#). Fact Sheet.
4. U.S. Food and Drug Administration 2021. [Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption Relating to Agricultural Water](#). (Proposed Revisions to Subpart E). Federal Register December 06, 2021 86(231): 69120-69155.
5. Produce Safety Alliance 2022. [Introduction to Selecting an EPA-Labeled Sanitizer](#). Fact Sheet with link to Excel Tool.
6. Produce Safety Alliance 2023. [FSMA Produce Safety Rule: Agricultural Water System Inspection is Different from the Proposed Agricultural Water Assessment](#). Fact Sheet.
7. Produce Safety Alliance 2023. [FSMA Produce Safety Rule: Documentation Requirements for Water Laboratory Analysis Results](#). Fact Sheet.
8. U.S. Food and Drug Administration 2023. [End of Intended Enforcement Discretion for Subpart E Requirements for Harvest and Post-Harvest Agricultural Water for Covered Produce Other than Sprouts - Beginning January 26, 2023](#). Fact Sheet.
9. U.S. Food and Drug Administration undated. ["Rarely Consumed Raw" Produce](#). Fact Sheet.