

ARKANSAS PRODUCE SAFETY



Microbial Water Quality Profile (MWQP): How-to Guide

IMPORTANT DEFINITIONS




Geometric Mean (GM): GM is a measure of the central tendency of your water quality distribution.

Statistical Threshold Value (STV): STV is a measure of variability of your water quality distribution, derived as a model-based calculation approximating the 90th percentile using the lognormal distribution.

Colony-Forming Unit (CFU): CFU is a measure in microbiology to estimate the number of viable microbial cells present in a sample.

Most Probable Number (MPN): MPN is a statistical method in microbiology to estimate the viable numbers of bacteria present in a sample.

The table below presents the **number of water samples required to build your initial MWQP depending on your water source** (municipal, surface, or ground water) and **water use** (production water or harvest and postharvest water) for your initial year survey. **Threshold criteria that must be met for your water samples to be considered safe are indicated in red.**

INITIAL YEAR SURVEY	 MUNICIPAL WATER	 SURFACE WATER	 GROUND WATER
Production water^a Water used during the growing season that may come in contact with the produce	Monitored and treated by the water utility. Request a copy of the public water system test results annually.	Years 1-4: At least 20 times^b GM: ≤ 126 CFU (MPN)/100 mL <i>and</i> STV: ≤ 410 CFU (MPN)/100 mL	Year 1: 4 times GM: ≤ 126 CFU (MPN)/100 mL <i>and</i> STV: ≤ 410 CFU (MPN)/100 mL
Harvest and postharvest water^a Water used during or after harvest	Monitored and treated by the water utility. Request a copy of the public water system test results annually.	You CANNOT use untreated surface water for harvest and post-harvest activities under any circumstance.	Year 1: 4 times^c No detectable generic <i>E. coli</i> in 100 mL

^aFor the definitions of production water and harvest and postharvest water, please see [Agricultural Water: Define Your Water Use](#).

^b20 samples need to be collected and analyzed over a period of at least two years and less than four years.

^cIn the case that no generic *E. coli* was detected in any samples. If generic *E. coli* is detected in any sample, treat water and retest. You must start over building your MWQP (4 samples/growing season) until the 4 samples collected on the same year show the absence of generic *E. coli*.

The table below presents the **number of water samples required to maintain your MWQP depending on your water source** (municipal, surface, or ground water) and **water use** (production water or harvest and postharvest water) for your subsequent years surveys. **Threshold criteria that must be met for your water samples to be considered safe are indicated in red.**

SUBSEQUENT YEARS SURVEYS			
	MUNICIPAL WATER	SURFACE WATER	GROUND WATER
Production water^a Water used during the growing season that may come in contact with the produce	Monitored and treated by the water utility. Request a copy of the public water system test results annually.	Subsequent years: 5 times^b/year GM: ≤ 126 CFU (MPN)/100 mL <i>and</i> STV: ≤ 410 CFU (MPN)/100 mL	Subsequent years: 1 time/year GM: ≤ 126 CFU (MPN)/100 mL <i>and</i> STV: ≤ 410 CFU (MPN)/100 mL
Harvest and postharvest water^a Water used during or after harvest	Monitored and treated by the water utility. Request a copy of the public water system test results annually.	You CANNOT use untreated surface water for harvest and post-harvest activities under any circumstance.	Subsequent years: 1 time^c/year No detectable generic <i>E. coli</i> in 100 mL

^aFor the definitions of production water and harvest and postharvest water, please see [Agricultural Water: Define Your Water Use](#).

^b5 times per year could start with the third year if you collected all 20 initial samples in the first two years. Each year you update, you must recalculate the GM and STV using the most recent four years of data. You must also confirm that your water continues to be in compliance with the numerical requirements.

^cIn the case that no generic *E. coli* was detected in any samples. If generic *E. coli* is detected in any sample, treat water and retest. You must start over building your MWQP (4 samples/growing season) until the 4 samples collected on the same year show the absence of generic *E. coli*.

For more information, see [Microbial Water Quality Profile \(MWQP\): How to Interpret Your Lab Results](#).

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