Interpreting and Understanding Your Results

Contamination of Fecal Coliform is expected in open irrigation systems and surface waters. The Escherichia coli (E. coli) group is a subset of the larger family of Fecal Coliform bacteria, and can be *potentially* harmful. E. coli is a naturally occurring bacteria that comes in sub species ranging from harmless to harmful. Analyzing for the E. coli bacteria is a good indicator for fecal contamination and satisfies the rigorous criteria of various GAP programs such as USDA GAP, Global GAP, SQF and the proposed standards for FSMA.

Depending on the test requested, results can be reported in one of two forms:

Test Requested	**Results & Units**
E. coli MPN Quanti-Tray NP	4 MPN/100 mL
E. coli MF	4 CFU/100 mL

MPN stands for the 'Most Probable Number' and refers to a method that uses specific media and dilutions to statistically calculate the approximate number of viable cells in a given volume of sample. Quanti-Tray is an instrument used to aid the MPN process and NP designates that it is 'Non-Potable' water.

The test result above shows that **4** is the Most Probable Number (MPN) of viable cells in 100 milliliters of water.

The second result shows that **4** Colony Forming Units (CFU) were counted after the water was filtered, enriched and incubated. MF stands for 'Membrane Filtration'.

Listed here are some helpful 'benchmarks' for: Fecal & E. coli levels in various water matrices for your reference:

Water Type	Maximum Tolerance Level
• Drinking Water	0 for Total Coliforms or E. coli
• Surface Water for Public Swimming	100 CFU/100 mL of Fecal Coliform
• Irrigation Water for Leafy Greens	126 MPN/100 mL of E. coli
• Treated Sewage Discharge to Surface Water	200 MPN/100 mL of Fecal Coliform
• FSMA Proposed Standards for Agricultural Water	126 MPN/100 mL of E. coli with no sample exceeding 235 MPN/100 mL

Remember, the goal of the testing at this time is simply to understand what level is typical of your irrigation water. **As of now these are general guidelines and there is no 'authoritative' (critical or absolute) level that has to be met for most types of produce production at this time. Each grower or packer is responsible for analyzing the levels of contamination to determine the risk level for food pathogens that may be present in their irrigation water. This allows for site specific or audit specific interpretation.**

Feel free to call us with your questions at 1-800-545-4206!

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GAP Water Sampling & Global GAP

CASCADE ANALYTICAL, INC.

Proudly serving Central Washington's Tree Fruit Industry since 1978

Wenatchee (800) 545-4206 Yakima

***PLEASE NOTE: Irrigation water samples for GAP compliance are only accepted MONDAY – THURSDAY.
WE DO NOT ACCEPT SAMPLES ON FRIDAY! Thanks for your attention to this.

Sampling Instructions for Irrigation water

1. Gather and organize all sampling supplies: sampling containers, order form, waterproof pen or marker, clean cooler and frozen ice pack (if not immediately delivering to lab).

3. If sampling from a pipe, valve, spigot, etc. run the water for 3-5 min to flush standing water from the system.

4. Do not open the sample collection container until immediately prior to sampling. When ready to sample, remove the seal from the container and carefully remove the cap, do not to allow finger-tips to contact the rim or inside of the sampling container or cap at any time.

7. Fill the container slowly to minimize splashing, reducing the water pressure when sampling from a valve or pipe will help.

8. Fill the container to the designated 100 ml mark. A little more is ok, but the water must NOT be below the 100ml mark.

9. Carefully re-cap the container and label the sample container with date, time, sample ID and client name. Place on ice or in cooler until delivered to laboratory.

10. Make sure order form is filled out completely with sample ID, date, time, and test to be performed. Make sure all billing address information and signature areas are filled out as well.

11. Deliver the sample to the lab as soon as possible. Samples must be received within 24 hrs or sampling.

GLOBAL GAP Program (Version 4)

Site/Parameter	Frequency	Lab Test Recommended	Approx. Cost
1) AF 3.6.3 (access to potable water)	annually	Total Coliforms/E. Coli (#10043 Colilert Test)	$26
2) CB 6.3.2,3,4 (irrigation/fertigation water risk assessment, analysis performed by suitable laboratory)	annually	Generic E. Coli (#10038 MPN Quanti-tray NP)	$35
3) FV 4.2.8 (v4 = 4.1.12) (ice/water used at harvest is potable)	annually	Total Coliforms/E. Coli (#10043 Colilert Test)	$26

Note: Since 1 & 3 would likely be the same water source, only (1) test would be needed.

GAP Metals Scan: Heavy metals scan that looks for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver. This option is not yet on our order form so simply write in "GAP Metals" if you need this analysis and it will be performed. $175

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