FOOD SAFETY TRAINING FOR FARMER SUPPORT ORGANIZATIONS, PART 2
WATER REQUIREMENTS: FSMA AND GAP

April 4, 2017

An NGFN Webinar
Presentation Outline

• Introductions

Jeff Farbman
Wallace Center at Winrock International

Cathy Carlson
Carlson Food Safety Consulting

• Water Requirements: FSMA and GAP
• Questions and Answers
• Upcoming Sessions
Objective: Strengthen capacities of professionals working with small-scale farmer on food safety compliance and counsel them on adoption on appropriate food safety certifications options, including GroupGAP.

Project of the Agriculture and Land-Based Training Center (ALBA) in Salinas, CA supported by Western SARE.
WALLACE CENTER at WINROCK INTERNATIONAL

• Market based solutions to a 21st Century food system
• Work with multiple sectors – business, philanthropy, government
• Healthy, Green, Affordable, Fair Food
• Scaling up Good Food
NATIONAL GOOD FOOD NETWORK: VISION
Supply Meets Demand
• There is abundant good food (healthy, green, fair and affordable) to meet demands at the regional level.

Information Hub
• The National Good Food Network (NGFN) is the go to place for regional food systems stories, methods and outcomes.

Policy Change
• Policy makers are informed by the results and outcomes of the NGFN and have enacted laws or regulation which further the Network goals.

http://ngfn.org | contact@ngfn.org
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- Introductions
- Water Requirements: FSMA and GAP
- Cathy Carlson
- Questions and Answers
- Upcoming Sessions
Water Requirements: FSMA and GAP

WSARE Webinar
April 4, 2017
Agricultural Water Quality: overview for both FSMA and GAP

a. All Ag water must be safe and of adequate sanitary quality for its intended use

b. Identify risks that impact the microbial safety of the water sources
   • Actions that can be taken if Ag water risks are identified (sanitation survey)

c. Water application methods (e.g. drip or over-head sprinklers)

d. Practices that limit impacts to the environment, soil quality and wildlife habitat (e.g. runoff)

e. Water testing importance (numerical values vs presence/absence)

f. FDA Ag water quality criteria (see FDA website link for details)
   • Records necessary to document Ag water quality and use (application / harvest date, GM, STV)
FSMA: Two sections on Water

- Production Water
- Postharvest Water
FSMA: Production Water includes

• Irrigation
• Fertigation
• Crop sprays
• Cooling
• Frost Protection
• Dust abatement
• Other uses where water directly contacts produce
FSMA: Production Water

- Water source
  - Open: pond, lake, river, catchment, reclaimed
    - Test results and process (if applicable)
  - Closed: Well
- Public Water Supply
FSMA: Production Water

- Application method(s)
  - Water that does not contact the harvestable portion (e.g. drip, trickle, subsurface, micro, under canopy)
  - Water that contacts the harvestable portion of the crop (e.g. sprinkler)
  - Water that may avoid direct contact, but may have a risk of touching harvestable portion (e.g. Flood, surface or furrow)
FSMA: Production Water, con’t.

• Timing of application
  • At planting
  • Close to harvest
FSMA: Preventing Contamination to Ground Water source/s (aka Sanitary survey)

• Inspect well to ensure it is in good condition (e.g. pipes, tanks, etc.)
• Inspect wellhead: properly capped and elevated (any cracks?)
• Land slope: away from wellhead to prevent runoff contamination
• Backflow devices (or shut off valves)
FSMA: Preventing Contamination to Surface Water source/s (aka Sanitary survey), con’t.

- Wastewater, septic tank spills, flooding, etc.
- Assess risks from nearby or adjacent land use activities
- Assess and address runoff risks (with diversion ditches, berms, etc.)
- Monitor and control animal access to irrigation water sources where practical (e.g. irrigation reservoirs)
FSMA: Water Contact

- The less contact with water = lower risk
- Pathogens on Produce may die of over time
GAP: Water contact also includes uses for:

- Hand-washing
- Surfaces:
  - Bins,
  - Totes,
  - Tools,
  - Equipment,
  - Aprons,
  - etc.
FSMA: Inspect Ag water sources and water distribution systems

- Water can become contaminated at the source or anywhere in the distribution system (lines)
- Mapping all water distribution systems is recommended
- Inspection source and distribution system at least annually
- Keep water source (and main connections) free from debris, trash, domestic animals and other hazards.
Evaluating Water Quality: Use of Microbial Water Quality Profiles

• Testing is the only way to quantitatively evaluate the microbial quality of the water.
  • FSMA: Test for Generic E.coli – indicator species and considered most likely species within the fecal and total coliforms to indicate that the water may contain fecal contamination
  • GAP (and buyers): Total Coliform and Generic E.coli testing as potable water test (ask your buyer)

• Water quality profile can help you:
  • Understand the long-term quality of the water source
  • Understand appropriate uses of each source
  • Determine if corrective measures are needed: e.g. if numerical values exceeds GM and STV criteria in the FSMA Produce Safety Rule.
Water Quality Criteria for Water Used During Growing Activities:

• Apply to water used with a direct water application method to covered produce

• Each source of production water must be tested to evaluate quality profile: to evaluate the microbial water quality profile (MWQP):
  • 126 or less colony forming units (CFU) generic E. coli per 100 mL water geometric mean (GM) ...AND.....
  • 410 or less CFU generic E. coli per 100 mL water statistical threshold value (STV)

• There will be tools provided to make calculating the GM and STV easier. More on this later from FDA
Test requirements for:

- Public Water source: No requirement to test if copy of results or current certification of compliance is available.
- Ground Water source: 4 or more times during the growing season of the period of one year; 1 or more samples rolled into profile every year after initial year.
- Surface Water source: 20 or more time over a period of 2 to 4 years; 5 or more samples rolled into profile every year after initial survey.
- The FSMA Produce Safety Rule requirements stated these are minimum requirements; more samples may be helpful throughout the season.
Where do I collect samples?

- Surface and ground water: representative sample appropriate for the water source.
- Surface: close to the point of intake, or at output used to draw production water.
- Ground: water source or well head
- Municipal drinking water or other public water supplies: water testing not critical as the public water authority treats this water.
How do I collect samples?

- Laboratory sample submission instructions (SOP)
- Use a sterile bottle – supplied by laboratory
- Do **not** rinse bottle before sampling
- In a distribution system, allow the water to run before sampling in order to collect a representative sample (typically run water for 1-5 minutes before sample is taken).
Where do I go for testing?

- Find a lab that is certified by state and local environmental agencies or 3rd party accreditors (e.g. AOAC or ISO 17025)
- Be sure the lab can provided the type of test needed (FSMA: 1603 mTEC)
- If shipping is required: laboratory will provided detailed instructions
Corrective Measures: FSMA allows three types

- Apply a time interval for microbial die off (using rate of 0.5 log per day)
  - Between last application and harvest
  - Between harvest and the end of storage and/or removal during activities such as commercial washing
- Re-inspect the water system, identify problems and make necessary changes and confirm effectiveness
- Treat the water:
  - EPA approved chemicals: registered and labeled for intended use
  - Non-chemical treatments: filter units, UV light units, ozonator units.
  - Avoid treatments that may have negative environmental and soil quality impacts.
- Keep records of all treatments: when, where, what, how much, etc.
Corrective Actions: actions based on good agricultural practices and should trigger an assessment of risk

- Produce can be contacted by water due to may unforeseen events:
  - Broken emitters – unintended water contact with the edible portion of the crop. Inspecting water system for functionality.
  - Human Mistakes – Things happen....!! Training, training, training.
Postharvest water uses:

- Rinsing/washing
- Commodity movement (e.g. Dump tanks, flumes)
- Cooling
- Ice making
- Postharvest fungicide
- Hand washing
- Cleaning and sanitizing
Postharvest Water Management

• Water quality at the start of use
• Water management strategies such as water treatments used to reduce cross-contamination risks by the water.
  • Antimicrobial products, including sanitizers
    • Adding a sanitizer to water is NOT intended to ‘wash’ the product, but instead to prevent cross-contamination
    • Must be labeled for intended use, such as in water or for contact with fruits and vegetables
    • Many sanitizers available, including organic options (PAA)
Single Pass Water or Recirculated and Batch Water

- No detectable generic E. coli in 100 mL sample
- Treatment is not required but can be used to maintain quality and reduce cross-contamination risks
- Any antimicrobial product, including sanitizers, used in the water must be labeled for use with fruits and vegetables
- Batch Water: a schedule must be established for changing batch water or a process in place for minimizing the build-up of organic material (and/or turbidity) in the water.
- Disposal of used water: check state, local and EPA regulations re discharge (away from production and packing areas).
Choosing an Antimicrobial Product, including Sanitizers

- Must be labeled for use on produce
- Always follow the label: The label is the law
- Understand factors that affect efficacy (temp., pH, sunlight, etc.)
- Monitoring antimicrobial treatments including sanitizer levels: logs and records.
Examples of SOP (Standard Operating Procedures)

- Say what you do, do what you say
- Describe the activities being done on the farm
- Share these SOPs during worker training programs
- Corrective Actions: e.g. if sanitation treatment falls below effective levels, how is this determined, what to do, who to call / report to, how to fix – record all actions.
Recordkeeping

• Helps document all water management activities
• Verification that operation is working properly
• Identifies patterns and trends to determine best practices.
Storage of documents

- Easily accessed
- Stored safely for 2 years or according to prevailing regulations
- Annual review and updates of policies and practices
Resources:

https://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm
• http://bit.ly/FSMAproduce

https://producesafetyalliance.cornell.edu/training

https://producesafetyalliance.cornell.edu/resources/educational-materials/fsma-produce-safety-rule-water-requirements-insights-get-you-organized
• http://bit.ly/FSMAproducewatertips

• http://bit.ly/FSMAproductimeline

http://www.csuchico.edu/easygap/
Questions:

Please contact me with any questions including:
– 1-on-1 FS Plan development
– GAP implementation
– Training
– Internal Audit
  • Mock Audit
  • Self Audit
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Questions and Answers

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Please email Kaley to schedule appointments:

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Food Safety Training for Farmer Support Organizations
All Sessions Start at 12:30 ET, 9:30 PT

- √ Tue 3/21
  Successful Farm Food Safety Audits

- √ Tue 4/4
  Water Requirements for FSMA and GAP

- Tue 4/25
  Food Safety Certification Options

- Tue 5/16
  Developing a Quality Management System

- Tue 6/6
  Equipment Sanitation: SSOPs and Practices
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