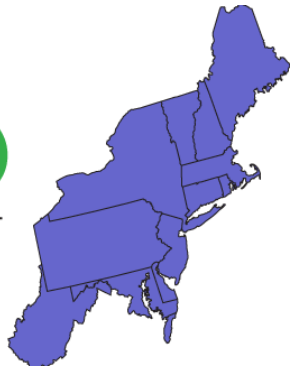


NECAFS

The Northeast Center to
Advance Food Safety



Background

Chris Callahan

This work is supported by the Food Safety Outreach Program grant no. 2018-70020-28878 and 2021-70020-35497 from the USDA National Institute of Food and Agriculture.



National Institute of Food and Agriculture
UNITED STATES DEPARTMENT OF AGRICULTURE

Enhance produce safety and preventive controls

Enhance produce safety and
preventive controls **training,**
education, and outreach

Enhance produce safety and preventive controls training, education, and outreach **among small and medium sized farms and small processors**

Enhance produce safety and preventive controls training, education, and outreach among small and medium sized farms and small processors **in the Northeast.**

Enhance produce safety and preventive controls training, education, and outreach among small and medium sized farms and small processors in the Northeast.

NECAFS

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Who:

- University researchers, educators and extension specialists
- State regulatory and enforcement agency partners
- Local food and farming organizations, NFP's
- Consultants & Industry associations
- Small and medium sized producers, small processors, buyers
- Other regional centers and initiatives, national center, USDA/FDA

Goal:

Enhance produce safety and preventive controls training, education, and outreach among small and medium sized farms and small processors in the Northeast.

Objectives:

1. Establish
Foundational
Network Structure

2. Build Capacity,
Competency, and
Collaboration

3. Develop and
Deliver Educational
Programs

4. Evaluate and
Assess Progress
and Impact

5. Sustain
Good
Work



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National Institute of Food and Agriculture
UNITED STATES DEPARTMENT OF AGRICULTURE

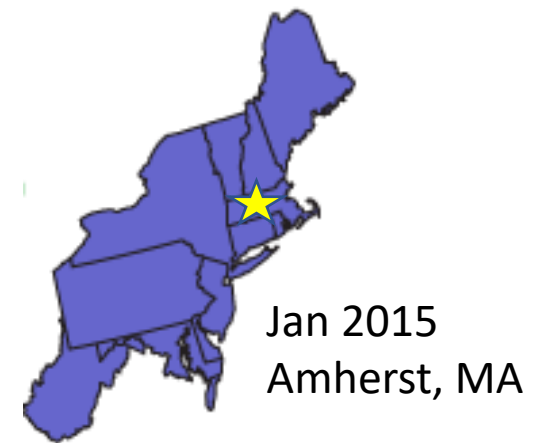
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(Northeast Center to Advance Food Safety)

NECAFS started with NE-PHRESH

(Northeast Postharvest Research and Extension Service Hub)

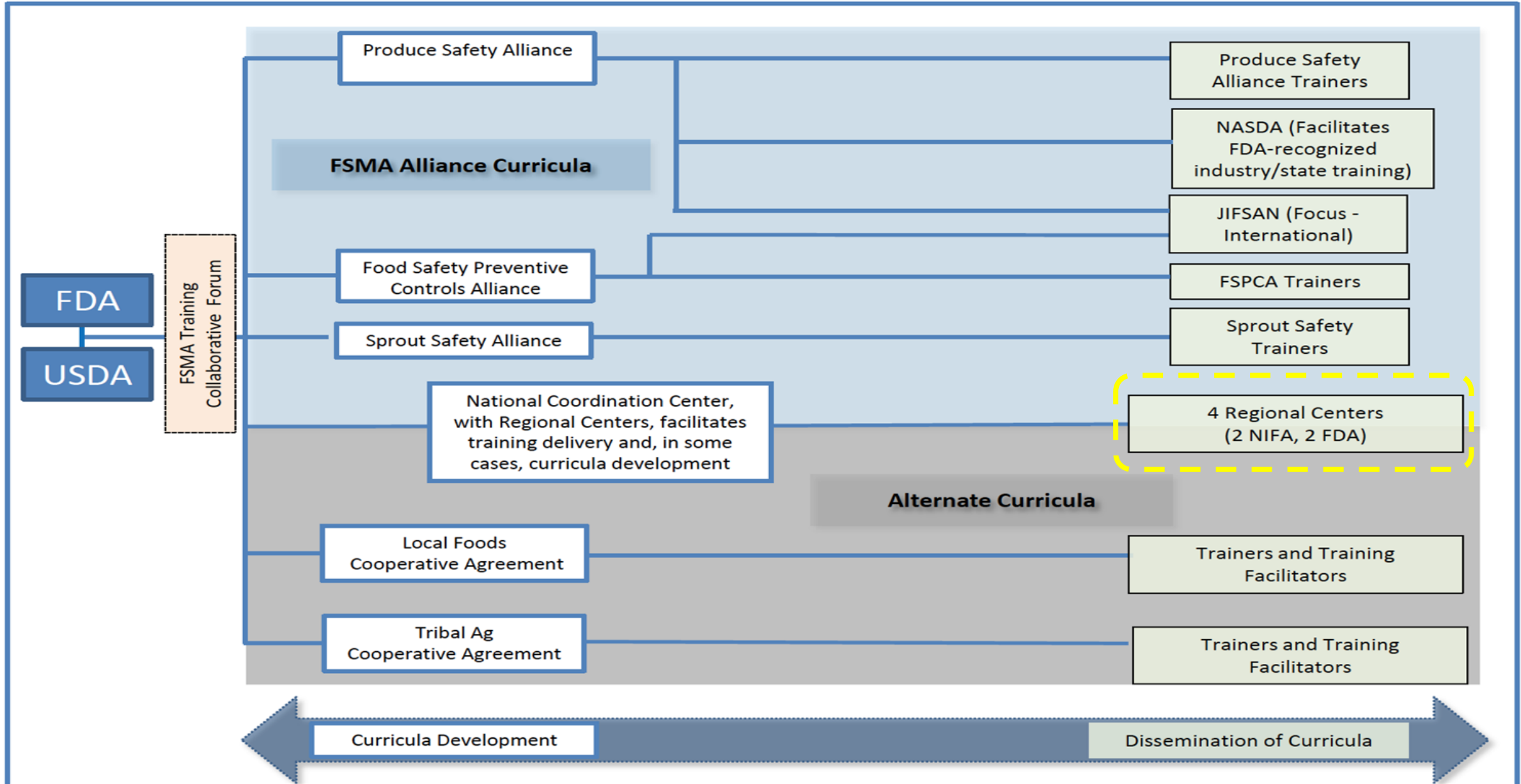


- Disparate opinion, accuracy and location of knowledge. Overlapping and non-coordinated effort in region.
- Based on field experiences. Shared by peers.
- Lacking regional relevance and research base.
- NEED/NERA* Planning Grant (\$4k) to focus on postharvest research and educational needs. Together.

* Northeast Extension Directors / Northeastern Regional Association of State Agricultural Experiment Station Directors

FSMA Framework for Industry Curriculum Development and Dissemination

October 2015



This is not an all-inclusive list of entities that will be developing training curricula and delivery for domestic and foreign food businesses.

Enhance produce safety and preventive controls training, education, and outreach among small and medium sized farms and small processors in the Northeast.

NECAFS Team



Chris Callahan



Elizabeth Newbold



Annie Fitzgerald



Sean Fogarty



Summary of NECAFS 2021 Activities

Elizabeth Newbold

Sean Fogarty

Annie Fitzgerald

Summary List of NECAFS Activities - Preventive Controls

Roadmap to Resources

Regional Preventive
Controls Needs Assessment

Regional Processing Data
Snapshot

Summary List of NECAFS Activities - Produce Safety

National Water Lab Map

Buyer Handbook

Summarizing and Extending Existing Produce Safety Research

Produce Safety Research Consortium

Resources for Hydroponic & Aquaponic Growers

Systematic Produce Safety Needs Assessment

Decision Support Tool

PSA Pre- and Post-Test Evaluation

Summary List of NECAFS Activities – Cross Cutting - Preventive Controls & Produce Safety

Extension Legal Services Initiative project with
the Center for Ag and Food Systems at Vermont
Law School

Food Safety Resource Clearinghouse

Collaborative Framework Literature Review

Google Analytics Data Visualization of Usage
Metrics from the Food Safety Resource
Clearinghouse

Regional Summary of Produce Safety Alliance Pre- and Post-Test Evaluations 2019 - 2021

2019

Summary of Class by Module

Module	Pre Test % Correct	Post Test % Correct	Delta
1	72%	81%	9%
2	92%	97%	5%
3	63%	78%	14%
4	52%	75%	23%
5	52%	76%	24%
6	46%	76%	30%
7	38%	62%	24%

Overall Summary Stats (2019)

	Pre	Post	Delta
N	110	107	-3
Min	3	7	4
Mean Score	14.7	19.2	4.5
Overall %	59%	77%	18%
Max	23	25	2
SD	4.2	4.2	0.0

2020

Summary of Class by Module

Module	Pre Test % Correct	Post Test % Correct	Delta
1	78%	84%	6%
2	93%	97%	4%
3	74%	85%	10%
4	58%	83%	25%
5	68%	84%	17%
6	60%	77%	18%
7	45%	71%	26%

Overall Summary Stats (2020)

	Pre	Post	Delta
N	99	96	-3
Min	9	5	-4
Mean Score	16.9	20.6	3.7
Overall %	67%	82%	15%
Max	24	25	1
SD	3.3	3.7	0.4

2021

Summary of Class by Module

Module	Pre Test % Correct	Post Test % Correct	Delta
1	80%	89%	8%
2	94%	98%	4%
3	86%	91%	5%
4	67%	85%	17%
5	68%	83%	15%
6	66%	84%	18%
7	56%	75%	19%

Overall Summary Stats (2021)

	Pre	Post	Delta
N	90	93	3
Min	8	11	3
Mean Score	18.4	21.5	3.1
Overall %	74%	86%	12%
Max	25	25	0
SD	3.7	2.9	-0.8



Pre-test knowledge has increased.
 Post-test knowledge has increased.
 The change from pre to post has narrowed.

Resources for Hydroponic & Aquaponic Growers

Sean Fogarty, sean.z.fogarty@uvm.edu

Problem Statement / Issue Definition:

Increasing nationwide prevalence of hydroponic and aquaponic (HP/AP) operations + Lack of educational resources

Lack of shared understanding among growers about produce safety and among regulators, educators, and other stakeholders around the diversity of system designs and operational principles and how they relate to produce safety risk assessment and FSMA compliance.

Approach / Methods:

1. Organize and facilitate advisory board meetings → Educational resource need and project scope
2. Informal grower interviews → On-farm experiences and educational delivery mode and approach preferences
3. Review existing resources and literature
4. Draft factsheet content
5. Factsheet graphic design
6. Advisory group and grower focus group feedback, revision of factsheets
7. Multimedia (web and video) content development

Results / Outcomes:

Print (PDF), web, and video produce safety educational resources for HP/AP growers, regulators, educators, and other stakeholders. Resources will be disseminated through NECAFS Clearinghouse and the other regional center networks to improve produce safety knowledge among growers and knowledge of HP/AP operations among others, ultimately leading to increased produce safety practice adoption, FSMA enforcement and compliance, and ultimately reduced produce safety risk.

Resources for Hydroponic & Aquaponic Growers

Sean Fogarty, sean.z.fogarty@uvm.edu

Factsheet topics

- Hydroponics and Aquaponics 101
- Cleaning and Sanitizing
- Fish Health and Handling
- Harvest and Postharvest Handling
- Personal Health and Hygiene
- Waste Management
- Water Quality
- Wildlife and Domesticated Animals

First release expected in summer 2022.



Harvest practices depend on the unique system, such as in this deep water culture (DWC) bed of lettuce. TOP PHOTO: NICHOLAS VAN DER WAL



This is an example of automated robotic tomato harvest in a hydroponic system.

Introduction

Harvest and postharvest handling practices in hydroponic and aquaponic operations are generally similar to those used in field agriculture, though the presence of production water introduces special considerations. In general, workers should always be aware of anything that comes in contact with production water, which can contaminate food and food contact surfaces with pathogens. This factsheet covers recommended practices for harvest and postharvest handling of crops in a hydroponic or aquaponic operation, with the risk factor of water contact as a central consideration.

Harvest

WHAT DOES HARVEST LOOK LIKE IN A HYDROPONIC OR AQUAPONIC OPERATION?

Aquaponic and hydroponic operations, which grow crops ranging from leafy greens, to vine crops and root crops, operate in numerous ways. Tools used to harvest crops will vary, with harvest in small operations being predominantly done by humans, and in large operations more likely done through a mechanized

process. Human harvesters may use a handheld knife to cut the harvestable portion of the crop away from the growing substrate and put the produce into retail packaging or a reusable tote. Larger, highly mechanized operations may use machinery, such as a robotic arm, to harvest the produce and transport it on a conveyor belt to a pack room.



This series of factsheets discusses considerations to help hydroponic and aquaponic operations when adopting practices to reduce produce safety risk.



The Food Safety Modernization Act's Produce Safety Rule (FSMA PSR) sets mandatory standards for growing, harvesting, packing, and holding produce for human consumption.

Introduction

Wildlife and domesticated animals can carry pathogens to food and food contact surfaces, and growers should understand how to limit or exclude their access to production and packing areas. When it comes to excluding wildlife and domesticated animals, determining whether or not your operation is located in a fully or partially-enclosed building will inform your decision-making and practices. In outdoor and partially-enclosed hydroponic or aquaponic operations, wildlife and domesticated animals may enter the production area and potentially contaminate produce, so it is important to deter their presence. This factsheet outlines the food safety concerns associated with animal intrusion, as well as recommendations for preventing and dealing with these trespassers.

Wildlife In and Around Hydroponic or Aquaponic Operations



The discussion in this section applies to both large wildlife, such as deer, raccoons, and wild pigs, and small pest animals such as mice, rats, and birds.



This series of factsheets discusses considerations to help hydroponic and aquaponic operations when adopting practices to reduce produce safety risk.

Sean Fogarty, sean.z.fogarty@uvm.edu

Problem Statement / Issue Definition:

Wide-ranging approaches and inconsistent FSMA implementation and inspection decisions across states, due to the diversity of producer features, food safety needs, educational approaches, research project development, and individualized regulatory programs in the Northeast. There are unique aspects of the growing systems in the Northeast which are worth investigating using quantitative methods to improve both *knowledge*, but more importantly *practice*, to reduce the risk of human pathogens in the fresh produce industry.

Approach / Methods:

1. **Provide a framework** for on-going region-wide on-farm sampling and analysis targeting pathogens of concern at regional university and FDA labs.
2. Provide a framework for identified data gap research for the Office of Analytics and Outreach (OAO) and for the Office of Food Safety (OFS).
3. Provide a unique framework to evaluate specific FSMA-related guidance and implementation.

Results / Outcomes:

Samples and interview data are collected across various cropping systems most common to the Northeast region and analyzed by regional university labs and FDA leading to an understanding of human pathogen prevalence and survivability.

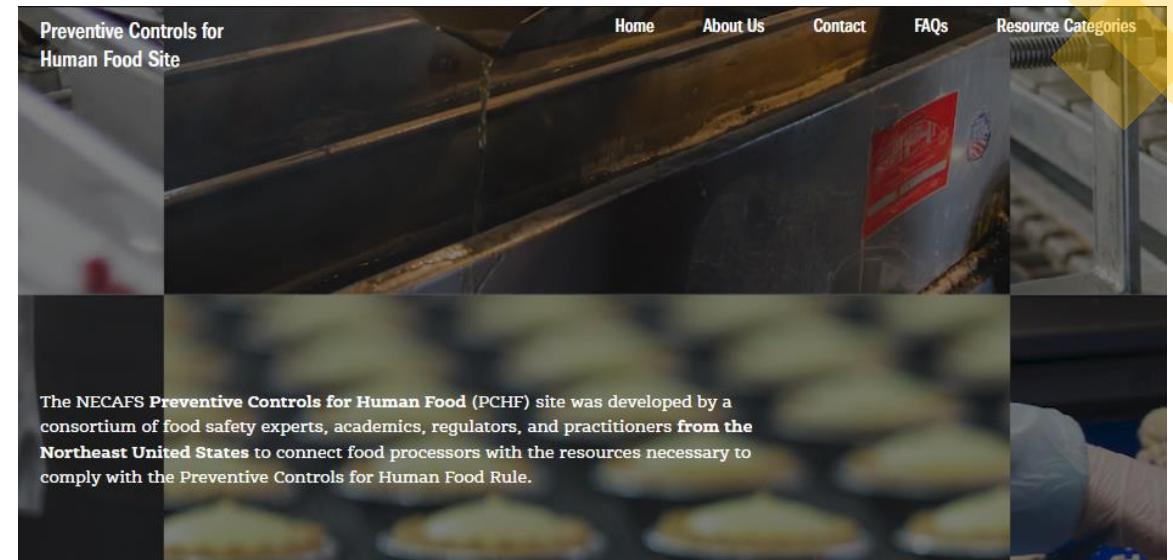
Producers gain increased knowledge about human pathogen prevalence and survivability across cropping systems and adopted practices as informed by research activities.

Producers demonstrate improved fundamental understanding and prioritized adoption of practice when seeking compliance with FSMA PSR.

Curating Resources for Processors

Annie Fitzgerald

- Food safety communicators needed a single, user-friendly resource for small and very small processors
- Surveyed local, state, and federal food safety resources
- Developed a site that supports processors
- Currently in user experience testing
- Peer review is next
- Anticipated launch, late spring 2022



Connect to Resources



Roadmap to Resources

Learn more about the Preventive Controls for Human Food Rule and where to find answers to your questions.



Templates, Examples & Forms

Here you can find sample and real working documents that food processors can use to follow



Connect to a Professional

Find preventive controls educators, experts, and specialists in your area.



NECAFS

The Northeast Center to
Advance Food Safety



Framing the 2022 Annual Meeting

Elizabeth Newbold

Agenda Review

Wednesday, January 19th



10:00 Break



10:10 Concurrent Workgroup Meetings



11:30 Virtual Poster Session



12:00 Lunch



1:00 Concurrent Workgroup Meetings



3:00 Networking

Thursday, January 20th



8:30 Morning Coffee Networking



9:30 Federal Updates



10:20 Break



10:30 Concurrent Workgroup Meetings



12:30 Lunch



1:30 Report Out and Closing Remarks

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Expectations

- Connect with partners
- Meet new collaborators and peers
- Ask questions
- Share resources and experiences
- Engage in discussion
- Workgroup approach is intended to provide time together to move topics along through dialog
 - ... and to promote co-discovery
 - ... and to hatch new plans and projects