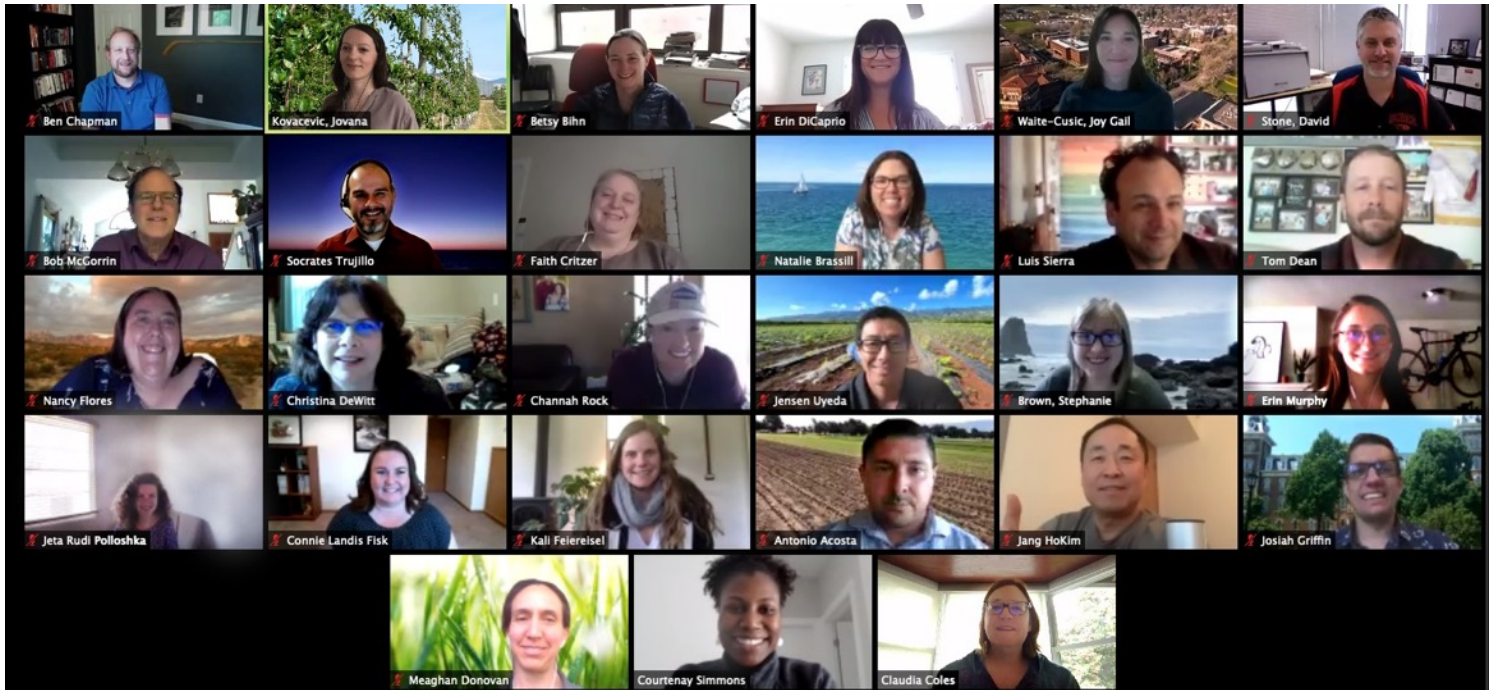


2020 ANNUAL MEETING

VIRTUAL | MAY 12, 2020



Western Regional Center to Enhance Food Safety (WRCEFS) hosted its 4th Annual Meeting online on May 12, 2020. During the one-day virtual meeting, 92 attendees had the opportunity to hear the updates from WRCEFS members and FSOP grant awardees in the Western Region, USDA, FDA, PSA, FSPCA, LFSC, IFAI, sister Regional Centers and Lead Regional Coordination Center. The group discussed regional updates for 2019-2020, walked through a demonstration of the peer-review process for add-on materials, and listened to a panel discussion on food industry challenges during the COVID-19 pandemic.

WRC | 
Western Regional Center
to Enhance Food Safety

Meeting Minutes

Welcome, introductions, and meeting objectives

The online meeting started with instructions on using the virtual webinar platform, introductions to the OSU and PI team, and agenda overview.

The first speaker was **Jovana Kovacevic**, introducing the goals and objectives of the Western Regional Center continuation grant.

Talk highlights:

Review of 2019 Annual Meeting

47 participants met in Portland, OR for the 3rd WRCEFS Annual Meeting in May 2019. This was the first meeting for the WRCEFS 2.0 grant.

Meeting outcomes included:

- Introductions and networking.
- Updates on activities and FSMA.
- Discussions on project and program evaluations, add-on materials review, technical assistance and continuing education opportunities for FSPCA and PSA trainers.

Objectives for 2020 Meeting

1. Provide regional updates from 2019-2020.
2. Hear from our partners.
3. Introduce new FSOP projects in Western region and hear about progress of ongoing projects.
4. Demonstrate peer-review process for add-on materials.
5. Discuss food safety challenges during COVID-19 pandemic.



Source: https://photo.nmsu.edu/news/4800/1409342060_west_mesa_horiz_071202.jpg

WRCEFS 2.0 Overview

Purpose of WRCEFS is to build upon the collaborative infrastructure established in the U.S. western region to support continued food safety education, training, extension, outreach, and technical assistance in compliance with FSMA.

4 sub-regions include the Northwest, Southwest, Pacific, and Mountain.

Leading institution is Oregon State University, with sub-awards to land-grant universities (Washington State University, University of Arizona, University of California – Davis, University of Hawaii, and New Mexico State University) and non-governmental organizations (CAFF, CCOF, and Tilth Alliance).

Objectives for WRCEFS:

1. Support the development of and offer continuing educational opportunities to FSPCA and PSA trainers.

2. Coordinate a regional communication strategy and annual meetings to discuss ongoing efforts and best practices for FSMA-related training, education, and technical assistance.
3. Establish protocols for peer review of add-on and supplemental training materials related to FSMA produce safety and preventive controls rules.
4. Identify FSMA subject matter experts in Western U.S.
5. Evaluate the impact of WRCEFS education, training and technical assistance programs through program assessment.

New for 2020

- Updates to newsletter, social media, and website.
- Produce Safety Professional development workshop – May 27, 2020.
- Peer-review process for add-on materials.
- 2021 – Additional skills building trainings: Advanced PSA, Preharvest Ag Water Treatment.

The day continued with reports from WRC sub-regions.

Southwest

California and Arizona

Erin DiCaprio, Alda Pires, Channah Rock, Natalie Brassill

California

Over 70,000 farms in the state, with most in the small or medium farm size category.

1,000 registered food processing facilities.

Objective 1: Maintain and expand the network of FSMA trainers and subject matter experts in California.

- Contract with California Department of Food and Agriculture (CDFA) to establish technical assistance program to help small and medium sized growers implement PSR. Will be hiring 4 bilingual community educators to support PSR implementation. Anticipate hiring this summer.

Objective 2: Support training and/or continuing education of FSPCA lead instructors and PSA trainers within California.

- 4 individuals submitted PSA lead trainer application.
- 2 individuals attended the PSA TTT course.
- 1 individual has attended CDFA water town hall in Salinas.
- PCQI course held annually.
- Support for PSA trainings, as needed.
- Contract with CDFA to host workshops from March to May 2020 focused on agricultural water and BSAO. Transitioning to online workshop.

Other California activities:

- Built partnerships that foster collaboration, allowed for resource sharing, and helped cross-promote different FSMA-related activities across the state.
- Maintained UC food safety website.
- Collaborated on several USDA and CDFA funded projects to support FSMA compliance for small growers and processors.
- Collaborated with Western Institute for Food Safety and Security (WIFSS) to develop and launch online course for small and mid-sized operations to help implement FSMA (i.e., FSMA 101 course).

Arizona

Channah Rock and Natalie Brassill

University of Arizona Cooperative Extension in collaboration with Arizona Department of Agriculture (AZDA) provide PSR grower trainings, OFRRs, and supplemental internal and external trainings.



University of Arizona Cooperative Extension and Arizona Department of Agriculture. Source: C. Rock, 2019.

Training Overview

- 816 PSA certificates since 2016 – 655 farm attendees; 161 non-farm attendees.
- 68 OFRRs conducted in both English and Spanish.
- Increase in Spanish PSA training participants.
- April mock OFRR training postponed.
- First PSA remote delivery grower training held on May 6-7. This two-day training was capped at 8 participants.

Upcoming activities

- 2 additional PSA remote delivery grower training(s) scheduled for June.

Resources and Workshops

- Two resources published in 2019. These are available on the University of Arizona extension website.
- Four resources are being prepared on minimizing risks related to different water treatment technology available to industry.
- Water treatment for food safety professionals workshop series hosted last year.

Mountain

Colorado, Montana, New Mexico, Nevada, Utah, Wyoming

Tom Dean, Nancy Flores, Karin Allen, Marisa Bunning, Alexa Johnson, Martha Sullins

PSA Grower Trainings:

- Colorado - 5 trainings with 103 participants.
- New Mexico - 4 trainings with 37 participants. Trainings are a collaborative effort with New Mexico Department of Agriculture (NMDA). Training team members include Matthew Gaskins, Emily Russell, and Bob Silver.
- Utah - 3 trainings with 40 participants.
- Nevada was unable to conduct any trainings due to COVID-19.

OFRRs:

- 30 held in Colorado.
- 3 held in New Mexico.

Preventive Controls (Human Food):

- New Mexico offered 3 hybrid FSPCA trainings that had 21 participants.
 - Hybrid courses consist of 16 online lectures and 8 hours of in-person training.
- Colorado has offered a 1-credit hour course and 5 participants have been trained.
- Utah has offered non-FSPCA preventive controls trainings.

Other trainings and resources:

- Colorado – 4 webinars, 4 events, and 12 publications (e.g., forms, how-to's).
- New Mexico – hosted remote two-day PSA grower training; train-the-trainer course postponed; videos produced in collaboration with NMDA (e.g., handwashing).
- Nevada –
 - Produced video series, called Food Safety University, on food safety for farmers and employees. Currently available on YouTube in English and Spanish.
 - Presented at Nevada Small Farms Conference.
 - Launched Grower Calendar – online calendar tool with food safety forms to allow growers to set a custom schedule with reminders to fill out forms throughout the year.

Future plans for the sub-region:

- Transitioning trainings online.
- Website updates.
- Video development and production.
- Development of simplified resources.
e.g., 'How-to' reference cards to distribute to growers in the field, developed in Nevada.



Tom Dean (New Mexico State University) explaining irrigation wells at the Leyendecker Research Center for the Produce Safety Professional Development Workshop.
Source: Emily Russell (New Mexico Department of Agriculture)

Northwest

Alaska, Idaho, Oregon, Washington

Casey Matney, Jang Ho Kim, Jovana Kovacevic, Faith Critzer

Alaska

PSA Courses

- 7 grower training courses with 92 participants.

Preventive Controls Training Courses

- 1 blended course with 3 participants.

Other updates

- Three 45-minute presentations with 33 participants in Kodiak, AK on July 25, 2019.
 1. Considerations for Alaska Farmers – Preventive Control Practices for Human Food.
 2. Handling Produce for Safety.
 3. Bridging the GAP – Understanding Produce Safety FSMA and the Importance of Farm GAP Audits.

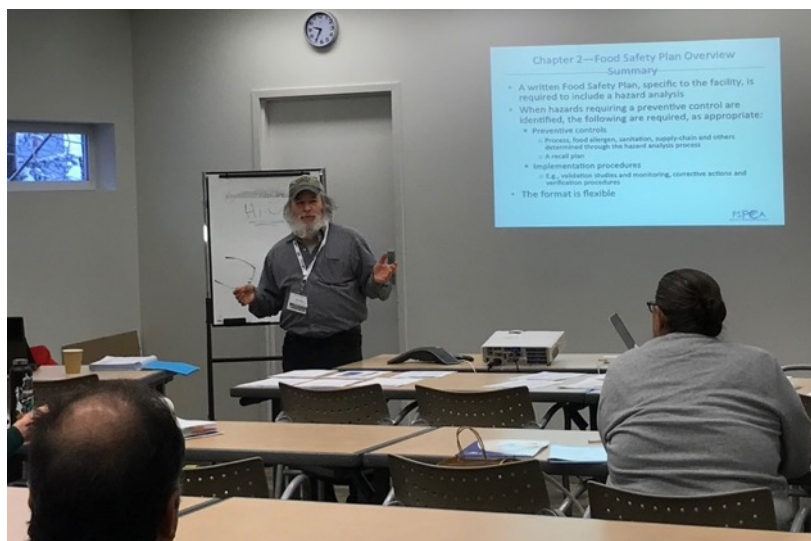


Image from a food safety training in Alaska. Source: Casey Matney.

OSU Farm Food Safety Team. Source: Jovana Kovacevic.



Oregon

PSA Courses

- 9 grower training courses – 187 participants.
- 5 standard PSA trainings in-person, 1 standard PSA training with remote delivery, and 3 modified 1.5-day PSA trainings in-person.

Preventive Controls Training Courses

- 2 courses with 63 participants.

Pathogen Environmental Monitoring workshops

- 4 workshops hosted with 79 participants.

Other Updates

- Hosted webinar on “FDA’s surveillance sampling program of viruses in frozen berries” by Dr. Lee-Ann Jaykus (NCSU).
- 4 PowerPoint slides with outbreak examples developed for PSA modules 2, 4, 5 and 6.
- Infiltration activity description for PSA module 5.2 developed. Resource available on FSR Clearinghouse.
- Contributed to national water lab map.

Northwest

continued

Alaska, Idaho, Oregon, Washington

Casey Matney, Jang Ho Kim, Jovana Kovacevic, Faith Critzer

Idaho

PSA Courses

- 5 grower training courses with 155 participants.

Preventive Controls Training Courses

- 3 courses with 75 participants.

Washington

PSA Courses

- 7 grower training courses with 149 participants.
- Partner with Tree Fruit Association to help host another 4 grower training courses.

Other Updates

- Developing Environmental Monitoring Programs for the Fresh Produce Industry.
 - 3 workshops hosted with 65 participants.



Participants at the Bridging the GAPs: Approaches for Treating Preharvest Agricultural Water On-Farm Workshop. Source: Faith Critzer.

A student participating in a breakout exercise during a Developing Environmental Monitoring Programs for the Fresh Produce Industry Workshop at Washington State University. Source: Faith Critzer.



- Food Micro 101 for Fresh Produce
 - 2 workshops hosted with 55 participants.
 - Remote version of this course will be offered on June 2-4, 2020 with an anticipated 25 participants.
- NASDA Educator's Podcast- Indicators, Index Organisms, and Generic *E. coli*.
- Bridging the GAPs: Approaches for Treating Preharvest Ag Water On-Farm.
 - 1 TTT course offered in Savannah, GA with 28 representatives from 12 states and Puerto Rico present.
 - 125 growers trained in 2020
 - Goal to offer TTT in Western region in the coming year.

Sub-region Impacts

- 28 PSA courses with 583 participants
- 6 Preventive Controls courses with 141 attendees

Pacific

Hawaii, American Samoa, Guam

Jensen Uyeda and Sharon Wages

Sub-region Overview

- Most farms are small or medium sized operations; many are exempt from FSMA rules.
- In Hawaii, approximately 10% of farms required to comply with PSR.

Objective: Ensure regional capacity to provide trainings to Pacific growers, technical assistance for FSMA and other food safety practices.

Food Safety Team Members

- Hawaii- Jensen Uyeda and Sharon Wages
- American Samoa – Alfred Peters and Ian Gurr
- Guam- Jian Yang

University of Hawaii Farm Food Safety Team:

- Kiersten Akahoshi (Big Island)
- Jennifer Hawkins (Molokai)
- Emilie Kirk (Kauai)

Hawaii PSA Trainers and PSA Team Members. Source: Jensen Uyeda and Sharon Wages.



UH Farm Food Safety Program 2020- PSA Grower Training. Source: Jensen Uyeda and Sharon Wages.

- Joshua Silva (Oahu)
- Jensen Uyeda (Oahu)
- Sharon Wages (Big Island)
- Kylie Tavares (Maui)

PSA Trainings

Hawaii

- Trainings offered quarterly.
- 6 PSA grower trainings held this year with ~90 participants.
- Total of 345 participants across the state are PSA certified.
- First remote grower training planned for late May (3-day format) – 17 participants expected.
- 53 trainers and 4 lead trainers.

American Samoa and Guam

- American Samoa has 3 PSA trainers and Guam has 1 PSA trainer.
- Since there are no lead trainers in American Samoa and Guam, Hawaii is looking into offering PSA remote grower training to this area during COVID-19 restrictions.

Pacific *continued*

Hawaii, American Samoa, Guam

Jensen Uyeda and Sharon Wages

Other updates

- 7 OFRR performed in HI – 4 in Oahu, 2 on Kauai and 1 on Maui.
- Luisa Castro provided basic PSR training to American Samoa. Work efforts in American Samoa have focused on translating PSR materials to Mandarin.
- Focus on making farmers aware of taro exemption and how to be compliant. Taro is an important crop in the Pacific.
- Translating GAPs and supplemental FSMA training documents to native languages.
- Developing new educational materials, videos, and workshops on PSR compliance.
- Partners have been developing water testing lab capabilities across the state. Physical distance makes water sampling difficult. Most of the islands now have this testing capability.
- Hosted a panel at the Hawaii Agriculture Conference to hear grower concerns regarding meeting the PSR requirements.
- Continue to work with all partners to leverage resources to ensure growers have what they need to address food safety concerns.
- Working to send growers and trainers to advanced training opportunities. 10 Hawaiians trained to conduct OFRRs.
- Applied for FSOP to translate PSA curricula to Ilocano.
- Working with real-time translation technologies; e.g., in-ear buds.



University of Hawaii CTAHR. Source: Jensen Uyeda and Sharon Wages.



*Hawaii PSA Grower Training Participants and Instructors.
Source: Jensen Uyeda and Sharon Wages.*



CAFF

Kali Feiereisel

Community Alliance with Family Farmers (CAFF) and the Farmers Guild is a statewide non-profit organization that has supported small California family farmers for over 40 years.

It provides on-the-ground programs in food safety, marketing, climate-smart farming and also policy advocacy.

2020 Updates

- Provided food safety training to farmers through in-person trainings, webinars, and one-on-one support.
- Provided 1-on-1 technical assistance and answered 117 people's questions during 8/1/18-8/31/20.
- Three factsheets originally created by University of Vermont Extension translated into Spanish.
<https://www.caff.org/farm-cooler-checklist/>
<https://www.caff.org/smooth-and-cleanable-surfaces/>
<https://www.caff.org/best-design-for-food-safety-floors/>
- Four-part online blog series created explaining to farmers what the Food Safety Modernization Act (FSMA) means for their farm.
<https://www.caff.org/small-farm-fsma-series-part-1-of-4/>
<https://www.caff.org/small-farm-fsma-series-part-2-of-4/>
<https://www.caff.org/small-farm-fsma-series-post-3-of-4/>
<https://www.caff.org/small-farm-fsma-series-post-4-of-4/>

NGOs

CAFF, CCOF, Tilth Alliance

CCOF

Meaghan Donovan

California Certified Organic Farmers (CCOF) organization certifies (organic) over 4,000 farms.



It provides support to organic growers through farmer education, hardship grants, technical assistance, and also consumer education.

2020 Updates

- Collaborated with CAFF to provide 3 FSMA PSR webinars – 138 total participants.
- Recorded webinars will serve as resources that growers can refer to in the future.
- Collaborated with California Department of Food and Agriculture (CDFA) Produce Safety program to produce 2 webinars on PSR inspections.

Tilth Alliance

Erin Murphy

2019 Updates

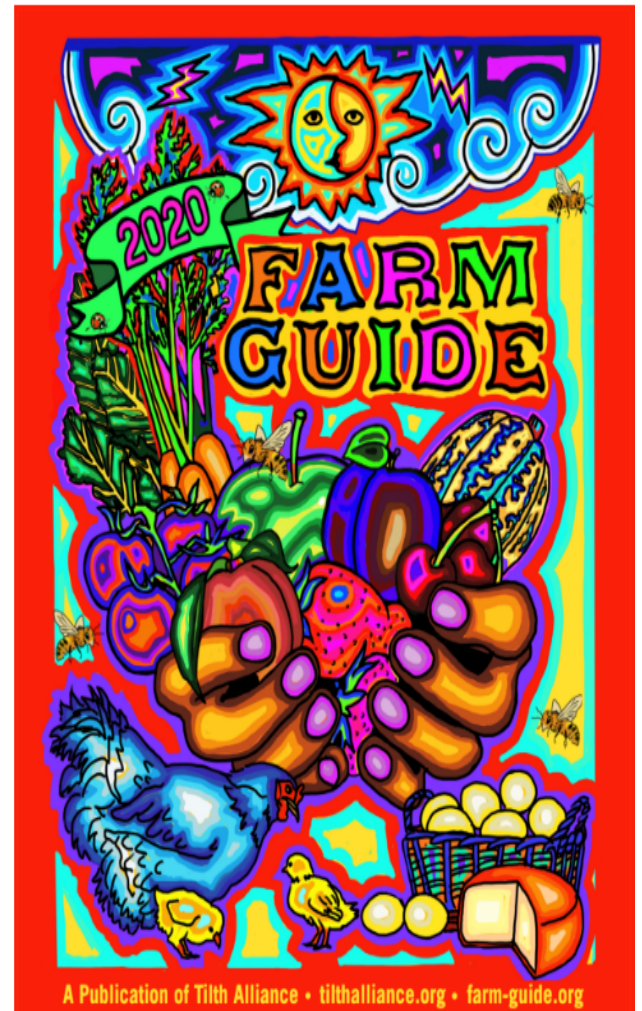
- Local Food Safety Collaborative (LFSC) sub-recipient.
 - 4 food safety farm walks with 3 being in English and 1 bilingual (Spanish-English). This is collaborative project with Washington State University.
- Food safety outreach at the Organicology Conference and Washington State Farmers Market Association Conference.
- 1 microbial water quality testing workshop co-hosted with the Washington State Department of Agriculture's Produce Safety program – 10 participants.
- 1 bilingual food safety focused session at the Tilth Conference – Update on first year of inspections from Washington State Department of Agriculture.
- 1 food safety blog post.

PSA Grower Trainings

- Co-hosted 1 grower training course during Tilth Conference with Washington State Tree Fruit Association.
- Presented at 3 PSA grower training courses.

2020 Updates

- Waiting to hear back on funding to continue LFSC collaboration.
- Proposal for WSDA specialty crop block program grant on continued bilingual food safety education was not funded.
- Changing programs to meet community needs due to COVID-19.
- Expanding food safety subject matter expertise on Tilth Alliance Staff; planning to send a team member to future PSA TTT course.



Farm Guide 2020 publication. Source: Tilth Alliance.
<https://farm-guide.org>

Food Safety Outreach Program (FSOP)

Western Region Projects



United States Department of Agriculture
National Institute of Food and Agriculture



Source: Copyright© 2009 Oregon State University
Photo Credit: Tiffany Woods, OSU EESC

Program Highlights

USDA NIFA – Courtenay Simmons

FSOP projects summary:

- Currently have 81 community and collaborative projects across all 4 regions.
- Audiences targeted include Hispanic, Hmong, women, veteran, organic, Black American, and Korean-speaking farmers.
- 17 of these projects are from the Western Region.
- Decrease in demand for preventive controls qualified individual (PCQI) trainings in all 4 regions.
- FY 2020 request for applications (RFA) closed on April 7, 2020.
- Continue to offer \$150,000 collaborative engagement supplement.
- Less than 60 applications submitted.
- Review will occur in mid-summer and project directors will be notified in late-summer.
- Don't forget to submit your reports!

Note: REEport – use the information that you send to LRCC for what you put into REEport.

Remember, Congress goes to REEport to get information to assess impacts.



United States Department of Agriculture
National Institute of Food and Agriculture

Reminder about FSOP awardees expectations:

- Thorough response to Regional Center and LRCC inquiries on project data and updates; both qualitative and quantitative.
- Attendance at Regional and National Project Directors Meetings for Community Outreach and Multistate Awardees – 2nd, 3rd, and 4th year of the award.
- Submission of annual and final reports to NIFA REEport system.
- Appropriately acknowledging USDA funding support.

“This work is supported by [Program Name] [grant no. XXXX-XXXX-XXXX/project accession no. XXXXXX] from the USDA National Institute of Food and Agriculture.”

In your publications, posters, websites and presentations resulting from your FSOP award, also use official NIFA identifier, available at: <https://nifa.usda.gov/resource/official-nifa-identifier>.

Share your data with WRCEFS and LRCC.

- WRC has put together a guidance document on evaluation tools and where to send your data.
- LRCC has developed a Qualtrics survey – complete it.

Be sure to document the impact in your community!

Examples:
Comparison of costs – returns on investment

Trainings – e.g. if 40 people trained, document the cost of subsidized trainings vs. private costs – what did the farms save? E.g. The tax dollars saved the farms XX...

This can detail: Saving time, saving money, accessing markets, etc.

Community Outreach Projects

CAFF – Kali Feiereisel

Food Safety Outreach and Education for Local Food Systems in California

Deliverables and Current Status

- Develop a resource on FSMA frequently asked questions for small farms.
4-part blog series planned – 2 posted on website and 2 under development.
- Collaborate with CCOF to deliver 3 webinars with 150 participants targeted.
3 webinars delivered with 142 people reached and 26 questions answered.
- Translate factsheets for small farms into Spanish.
Partnering with Chris Callahan (U. of Vermont Extension).
- Work with 5 farms through Partner Farm Program.
Program helps small farms map out their food safety goals and action steps. Help has been completed and capstone field days being restructured due to COVID-19 restrictions.
- Deliver 20 workshops to 400 farmers.
14 completed with 206 people reached and 102 questions answered.
- One-on-one technical assistance to 105 farmers.
117 farmers reached.
- Website has been updated.
Finished and several COVID-19 resources added.

Bonus webinar on On-Farm Food Safety During COVID-19 completed on April 8th. 102 growers were in attendance and 42 questions were answered.

NMSU – Nancy Flores

Online Food Safety Training for New Mexico Food Manufacturers

Use las Redes para Cabello Apropriadamente!



1. Estire el elástico de la red para barba con



2. Coloque el elástico detrás de la cabeza,

Part of a training poster from NM training program. Source: Nancy Flores, WRCEFS 4th Annual Meeting.

Goal of this program is to develop an online food safety training program for New Mexico food manufacturers.

Training materials were designed for employees with low literacy levels.

3 modules, covering personnel under GMPs, have been created. These include hair restraints, disease control, and hand washing. These modules have been prioritized because stakeholders reported that these 3 concepts are the most troubling in their facilities.

Modules include:

- Embedded videos
- Worksheets and answer keys
- Posters
- Assessments and answer keys

Train-the-trainer component will be created for this program.

Once available online, participants will be able to review course content at their own pace.

WSU – Stephanie Smith

A Primer to the Produce Safety Rule for Small and Very Small Farms in Washington State

Project Objectives:

- 1) Develop training content in English and Spanish.
 - Content will cover third party audit systems and PSR.
 - 2) Develop train-the-trainer content to accompany grower training content.
 - Train-the-trainer content intended for regional and county WSU Extension faculty and staff that work directly with small and very small growers.
 - 3) Deliver workshops.
- Training content will cover introduction to PSR and GAPs.
 - Content includes fundamental microbiology for produce safety, agricultural water, postharvest handling, soil amendments, wildlife and domestic animals, land use, traceability, worker health, hygiene, and training, food safety plans, and resources.

Progress Update

- Both the modules and the train-the-trainer content have been created.
- Course content is being modified for an online workshop format and training contents are being translated into Spanish.
- Next year, both the workshops and train-the-trainer content will be delivered. The program will also be evaluated, and impacts reported.

U. Idaho – Jang Ho Kim

Customized Food Safety Education Strategy for Hard-to-Reach Audiences in the Western Pacific Islands

Participating institutions include: the University of Guam, Northern Marianas College, American Samoa Community College, College of Micronesia, College of the Marshall Islands, and Palau Community College.

- Few food safety professionals in the region have access to current food safety trainings and FSMA resources.

Project Goals:

- 1) Train and educate cooperative extension educators/agents and regional public health regulatory agents with customized food safety curriculum.
- 2) Newly trained professionals will deliver trainings and provide other FSMA and food safety information to socially disadvantaged and isolated farmers, processors, and other stakeholders in the Western Pacific.

Specific Objectives:

- Assess food safety knowledge levels of trainees.
- Modify food safety training and educational materials developed during 2016 USDA NIFA FSOP project.
- Provide FSMA-related and other food safety information to regional food safety professionals and to final target audience.
- Establish a regional food safety professional network in the region that is connected with food safety experts at WRCEFS and LRCC.

Cultivating Success™. Source: Stephanie Smith, WRCEFS 4th Annual Meeting.



Cal Poly and Allan Hancock College – Jeta Polloshka

Supporting Underserved California Leafy-Green Producers' FSMA compliance, through Interdisciplinary Food Safety, Communication, and Marketing Training

- Leafy greens are important crop for California and are often recalled due to pathogen contamination.
- Growers in small and very small operation may lack understanding of food safety regulation.

Project goal: Train farmers in food safety best practices to help reduce incidents of food safety outbreaks.

- This project focuses on disadvantaged small-scale farmers who face language and other barriers.

Project methods include:

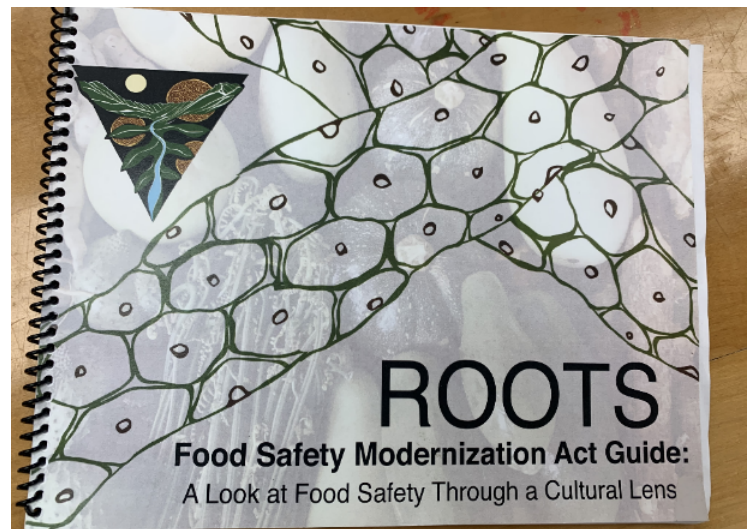
- Training program focus on leafy greens farmers in Santa Maria region of California. Training includes food and plant sciences, agribusiness, and ag. communications.
- PSA training offered to farmers and students.
- On-site farm visits to offer training program including PSR consultation, food safety cost tracking and agribusiness training, and food safety crisis communication training.
- To increase California's future food safety capacities, students at Cal Poly and Allan Hancock College will be included in all trainings and phases of project.
- First PSA training was held on January 26, 2020 and had 17 participants. Spanish translations of content were also provided through headsets.

Hawai'i – Sharon Kaiulani Odom

Hawai'i Roots Community Food Safety Project

Goals and Objectives:

- 1) Develop a minimum of 5 specific, locally-relevant food modules based on commodities or safety issues/practices addressed in the new curriculum.



Roots FSMA Guide: A Look at Food Safety Through a Cultural Lens booklet. Source: Sharon Odom, WRCEFS 4th Annual Meeting.

Goals and Objectives continued:

- 2) Update current community-based curriculum to reflect new FSMA guidelines.
 - 3) Conduct a process evaluation with pilot program workshop participants to determine future workshop series and improvements to delivery methodology to address the needs of Hawai'i's small and beginning farmers, processors, and wholesalers.
 - 4) Disseminate updated curriculum to at least 150 individuals through on-site trainings (3 outer island, 5 O'ahu based), 15 local stakeholder organization and 600 individuals.
- Take food safety and FSMA guidelines and infuse culture throughout each module.
 - Planned to conduct 8 trainings but only 1 completed due to COVID-19 restrictions.
 - Training held on Lāna'i.
 - Roots FSMA Guide: A Look at Food Safety Through a Cultural Lens booklet used during the training.
 - Trainers have found participants are more receptive to content when trainers sit at the table and walk participants through the materials in booklet instead of following a PowerPoint lecture-style instruction.
 - Currently editing booklet based on first training and working to put this resource online.

CCCD – Luis Sierra

Food Safety Education Program for Korean Speaking Farmers

Background: Many beginning farmers in the Lucerne valley have gotten into jujube production over the last 20 years. Now ~800 acres of jujube production in this area. It is urgent for farmers in this area to adapt their current practices to comply with FSMA.

Project Objectives:

- 1) Translate PSA curriculum into Korean.
- 2) Deliver 3 PSA grower trainings.
- 3) Provide 4 supplemental workshops on different aspects of FSMA specific to jujube orchard producers.
 - Exemptions and exclusions.
 - Water – sampling, testing, and sanitizers.
 - Worker health and hygiene.
 - Other – TBD.

Progress:

- End stage of translating PSA curriculum.
- Translated additional evaluation materials.
- Reviewed format (1 vs. 2 day) with farm advisers.
- 1 PSA and 1 supplemental training planned for 2020.

Next Steps:

- Complete Korean PSA curriculum.
- Format and print PSA training curriculum.
- Finalize and translate supplemental training content.
- Set revised calendar.



Jujube farmers. Source: Luis Sierra, WRCEFS 4th Annual Meeting.

OSU – Christina DeWitt

Extending Food Safety, Sanitation and Quality Training to Primary Processor Employees that have Frontline Interactions with Seafood Harvesters

Target audience for this training include fleet managers, dock managers and handlers, and others that have direct contact with fisher people at the dock.

This project expands on the Better Seafood Processing School to reach specialized audiences that will have frontline communication and interactions with seafood harvesters.

Project Goals:

- 1) Increase the knowledge base of food safety, sanitation and quality principles of individuals who have focal interactions with seafood harvesters.
- 2) Improve communication of food safety, sanitation, and quality principles to seafood harvesters.

Project Outcomes

- Deliver Better Seafood Processing School in FY 2020 and 2021 to frontline communicators.
 - FY 2020 training postponed.
- Implement pre-/post-assessment survey.

- Develop robust network of food safety professionals and primary seafood processors.
- December 2019 – met with Seafood Products Association to develop survey and discuss curriculum content.
- Program development meeting held on February 20, 2020 to review survey results and next steps.
- Currently, working with local processors and using input to start curricula development.

Harvested jujubes. Source: Luis Sierra, WRCEFS 4th Annual Meeting.



ALBA – Antonio Acosta and Nathan Harkleroad

Latino Farmers Trained in Organic Farm Food Safety (LIFT OFFS)

ALBA is a 501(c)3 non-profit organization that serves immigrant farmworkers and creates opportunities for these groups through organic agriculture.

Project Objectives:

- 1) Strengthen capacity of 120 beginning, Latino-owned farms on Central Coast.
Includes 60 current and future participants as well as 60 alumni and other regional farmers.
- 2) Assist 180 farmworkers, students, and professionals gain knowledge and skills.
- 3) Increase internal and external capacity.

Project Outcomes:

- Provide PSA, basic GAP, and recordkeeping trainings.
- Provide one-on-one support for food safety plans and audit preparation.
- Assist with compliance with FSMA regulations and buyer expectations.

Methods:

- Bilingual workshops and hands-on training opportunities will be provided.
- Workshop series will be repeated.
- Regular farmer check-ins.



Food Hub Site Visit Fall 2019-Winter 2020. Source: Erin DiCaprio, WRCEFS 4th Annual Meeting.

UC Davis – Erin DiCaprio

Supporting FSMA Compliance for California's Regional Food Hubs through Training and Technical Assistance

- Food hubs support regional food systems by collecting harvest from local, small farms and get these foods into larger markets.
- However, many food hubs do not have resources to implement PCHF rule.

Project Outcomes

- Hosted webinar series from November 2018 – January 2019 which discussed an overview of PC rule, qualified exemptions, and PC rule requirements for fully covered facilities.
- Offered subsidized PCQI training for food hub staff in January 2019.

Training results showed an increase in knowledge from no previous knowledge/somewhat knowledgeable to somewhat/very knowledgeable about FSMA PCHF after attending hybrid course.

- Conducted 5 site visits to better understand food hub operations, assist with hazard analysis, and review food safety plans.

- Created factsheet on implementation and several model food safety plans.
- Hosted Your Food Hub is Subject to FSMA: Now What? workshop at the National Good Food Network Conference in New Orleans on March 13th, 2020.

Training results showed an increase in understanding of developing flow diagrams, evaluating threats from microbial sources, conducting a hazard analysis, implementing PCs, and what food hubs/produce distribution enterprises need to comply with FSMA.

- Developed materials will be available in the FSR Clearinghouse.
- Hope to conduct more site visits after COVID-19 pandemic.

Participants at an ALBA workshop. Source: Antonio Acosta and Nathan Harkleroad, ALBA, WRCEFS 4th Annual Meeting.



UC Cooperative Extension – Aparna Gazula

Food Safety Outreach to Socially Disadvantaged Farmers in Santa Clara, San Benito, and Santa Cruz Counties

- Due to language barriers and access to technical resources, many farmers in Santa Clara region were not aware of food safety requirements and why these are necessary.
- Small-sized family farms have a small workforce and cannot commit time and financial resources to implement food safety practices and FSMA requirements.

Project Objectives:

1. Provide customized technical assistance on food safety and FSMA PSR compliance requirements to socially disadvantaged farmers.
 - Food safety workshops, farm visits, 1-on-1 assistance, PSA grower trainings, and on-farm mock inspections.

- Held one introductory workshop with 20 growers.
 - Conducting farm visits and 1-on-1 assistance has helped participants better understand workshop content.
 - PSA training and mock inspections on hold because of COVID-19 pandemic.
2. Develop culturally relevant food safety educational materials and FSMA required templates to socially disadvantaged farmers.
 - PSA grower training materials (Chinese), FSMA required posting signs, FSMA recordkeeping templates, CDFA letters and questionnaires, COVID-19 social distance signs.

La Montanita Coop – Valerie Smith

Achieving FSMA Compliance through USDA Harmonized GAP: Preparing the Four Corners Region's Diverse Farmers for Food Safety Certification

Project Objectives:

1. Increase capacity for food safety outreach and training throughout the 4 Corners Region by adding 4 food safety trainers to La Montanita's network, delivering 10 Tier I/II training programs to ≥120 participating producers (including Spanish speaking growers), and 30 Tier III consultations.

- Tier 1 done on-farm and is very introductory, looking at people's attitudes toward food safety regulation.
- Tier 2 works through a risk assessment form covering various aspects of farm food safety.

2. Increase USDA Harmonized GAP-certified and FSMA Produce Safety Rule-compliant farmers participating in the program to 60.
3. Increase sales through wholesale channels by ≥\$150,000 for participating growers and increase access to locally-grown produce in both rural and urban areas by accessing ≥ 30 new wholesale accounts.
4. Make cohort of service providers self-sustaining through increased grower participation in the Four Corners Region GroupGAP.

- Training was delivered to 110 people in 2019.
- This training, along with completing a risk assessment, is now an accepted way for farmers to sell produce to public schools.
- COVID-19 pandemic delayed training to ~60 participants.
 - Content is now available as an online training due to COVID-19.
 - About 40 participants have taken the online course.

Food Hub Panel at the National Good Food Network Conference. Source: Erin DiCaprio, WRCEFS 4th Annual Meeting.



Multistate Projects

Colorado State – Adrian Card

Colorado Produce Safety Collaborative: Regionally Adapted Training and Outreach

- Team consist of Colorado Fruit and Vegetable Growers Association, Colorado State University Extension, Ft. Lewis College, and Rocky Mountain Farmers Union.

Project Objectives

1. Increasing growers' food safety understanding.
2. Increasing and enhancing growers' knowledge of tools and regulations.
3. Increasing growers' ability to implement tools and risk management strategies.
4. Developing peer groups to support and educate growers.

Completed Deliverables:

- Advisory committee has been formed to better understand regional nuances to develop programming for these diverse areas.
- Intro to Food Safety Class.
- 3 PSA grower trainings.
- 2 key conference presentations.
- 1 webinar on risk management when using old equipment.

Farmer during harvest. Source: Aparna Gazula, 4th WRCEFS Annual Meeting.



Add-on Peer Review Process

Stephanie Brown (WRCEFS), Chris Callahan (NECAFS), and Elizabeth Newbold (NECAFS)

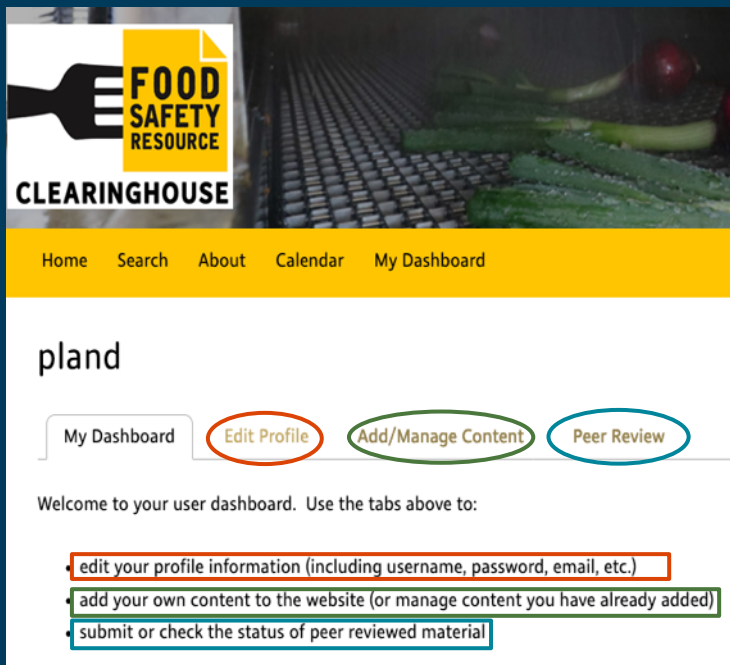
- PSA and FSPCA have standardized curricula intended for stakeholders who must comply with FSMA.
- Additional content developed by any stakeholder(s) to supplement these curricula is considered add-on content.
- To ensure quality and accuracy of add-ons added to the Food Safety Resource Clearinghouse, one of WRCEFS objectives was to develop a peer-review process for add-ons.
 - Protocol was developed in collaboration with NECAFS, other Regional Centers, and LRCC.
- For the peer-review process, add-ons are defined as any material(s) in addition to the standardized curricula that are developed and delivered pre-course, during a course, or post-course as a standalone resource.
- Optional process that is not required if wanting to post content in FSR Clearinghouse.
- Materials will be posted to the FSR Clearinghouse while under review- special designation will be provided.

Peer-Review Process for Add-on Content Overview



Overall goal

To enhance collaboration, ensure high quality publications, provide confidence in the material to the user, while also encouraging use and distribution, and reducing duplication of efforts.



FSR Clearinghouse My Dashboard Options; Photo Credit: Elizabeth Newbold

Tutorial in Clearinghouse

- To submit content to the Clearinghouse, go to your dashboard.
- If interested in submitting add-on content for peer review, click on the “Peer Review” tab.
- Once here, you will be able to click the submit new content button to start the submission process.
- Submitting material for peer-review begins the same way as regular submissions to the Clearinghouse.
 - Title, summary, full description, author name, state-specific, thumbnail image, file attachment, website links, and tags (e.g., topic, language, and type of resource) must be provided by the submitter.
- Material should be linked to or uploaded on this online form.
 - Linking is preferred so that resource is maintained, and analytics are counted on submitter’s host site.

- At the type question, if you select any of the following tags, a prompt will come up stating by selecting this tag, you will have the option to submit your content for peer review.
 - Add-on/supplemental educational material
 - Case study
 - Factsheets
 - Poster
 - Tools & Calculators
 - Videos
- If one of the above types is selected, the option to submit for peer review will appear.
 - Select yes or no and click save.
- If yes, additional information appears. This is the peer review request form.
 - All questions need to be answered completely. This will be used to complete the Quality Check by the editors. If not complete, the content will be returned to the corresponding author to finish prior to review.
- You can save your work and come back to it later to review and revise. Once ready to submit, select “Yes, submit for peer review” and click “Save”.
- Once submitted, an email will be sent with more information about the review process.
- As the resource is being reviewed, you can check its status by looking at the peer review tab.
- Resources that already exist in the Clearinghouse can be modified under the “Add/Manage” tab without having to upload the resource for a second time.



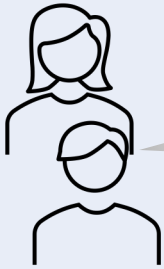
Access at:
foodsafetyclearinghouse.org

Draft Add-on Peer Review Process Framework

PEER REVIEW REQUEST

Submitter

Prepares and uploads all content for review into the FSR Clearinghouse.



Does this content qualify as an add-on?

No

Stop!
Do not fill out Peer Review Request (PRR) section of Submit your Resource form. Continue with normal submission.

Yes

Fill out Peer Review Request (PRR) section of the Submit your Resource form.

Add-ons are material(s) in addition to the standardized curricula that are developed and delivered pre-course, during a course, or post-course as a standalone.

QUALITY CHECK

Send back to submitter with comments.

No

Assign to regional review Facilitator.

Yes

Is PRR section complete?

Editor

Reviews PRR section of add-on submission for completeness.

Did reviewer(s) accept invitation to review?

No

Find an alternate reviewer.

Yes

PEER REVIEW

Reviewer

Subject matter expert on content provided in the add-on.

Completes peer review and fills out Review Form on FSR Clearinghouse within 3 weeks of invitation to review.

Editor

Synthesizes reviewer comments and sends final decision of peer review to submitter.

Once approved, add-on will be uploaded onto FSR Clearinghouse with peer-review designation and date of approval.

Approve

Revisions Required

Reject

Partner Updates

USDA NIFA

Courtenay Simmons

Talk highlights:

- Currently have 81 community and collaborative projects across all 4 regions.
- Audiences targeted include Hispanic, Hmong, women, veteran, organic, Black American, and Korean-speaking farmers.
- 17 of these projects are from the Western Region.
- Decrease in demand for PCQI training in all 4 regions.
- FY 2020 RFA closed on April 7, 2020.
- Continue to offer \$150,000 collaborative engagement supplement.
- Less than 60 applications submitted.
- Review will occur in mid-summer and PDs will be notified in late-summer.
- Don't forget to submit your reports!

FDA Produce Safety Network

Laura Grunenfelder

Talk highlights:

- FSMA Section 305- FDA conducts capacity building in foreign countries to enhance food safety of US imports.
- International OFRRs and OFRR Training-currently targeting Latin American countries.
- Training materials are available in both English and Spanish.

PSA Adv. Training Workshop-
Postharvest water activity measuring chlorine levels in water samples.
Source: Connie Fisk, PSA, Dec 2019.



FDA continued

- Regulatory TAN: connects investigators and inspectors with subject matter experts (SMEs) to get immediate feedback about PSR during inspections.
- Feedback provided on topics including farm definition and enforcement discretion, PSR provisions and guidance, inspection approach, and corrective actions.
- 2019- 146 domestic and 48 foreign produce safety inspections conducted.
 - Domestic inspections include Oregon, North Dakota, South Dakota, Wyoming, Iowa, Illinois, Hawaii, American Samoa, and Puerto Rico.
- Support emergency response by detecting, investigating, preventing, and responding to foodborne outbreaks.
 - *Salmonella* – papayas
 - *Cyclospora* – herbs
 - *Salmonella* and *E. coli* – leafy greens
- Assisted with 13 produce safety investigations and 870 subsamples collected.
- Common knowledge gaps identified in inspection data:
 - Ag water, BSAAOs, cleaning and sanitization, and general provisions.

FDA continued

- Currently developing additional training programs and outreach material and updating guidance.
- Current projects include several workgroups, SWEPPS (multiyear leafy greens study to identify environmental risk factors), and romaine outbreak report.
- New report- European Commission Microbial Contamination Audit.
- Audit conducted September 2019.
- Report focused on food of non-animal origin.
- Looked at fresh and processed commodities including almonds, leafy greens, strawberries, and seeds for sprouting.

Southern Center and LRCC

Katelynn Stull

Talk highlights:

- FSOP Evaluation Summary can be viewed at: https://sc.ifas.ufl.edu/media/scifasufledu/docs/resources/A_EC_Food_Safety_Outreach_Projects_Eval_2019.pdf
- 2nd Southern Region Integrated Produce safety conference (SRIPS) held 2019.
 - Purpose: Bring together Extension, state Dept. of Ag, NGOs and CBOs to discuss produce safety issues in Southern region.

SC and LRCC continued

- Meeting report can be found on SC resource page.
- PSA Advanced Training Workshop
 - 2 workshops held in December 2019 and January 2020 with 51 attendees in total.
 - 3-day event with a focus on hands-on activities.
 - Topics: Micro 101, soil amendments, production water, postharvest water, sanitation, and tips for instructor engagement.
 - Curriculum is currently under revision.
- The FSOP National PD Meeting is scheduled for Aug. 18-19. This will be a 2 half-day virtual event.

North Central Region

Joe Hannan

Talk highlights:

- 2020 Annual Conference was scheduled for Eau Claire, WI on April 1-2. Meeting moved online due to COVID-19.
 - Discussions on inspectional issues, lightning round poster session, discussion on farms that follow multiple FSMA rules, scenario wrap-up from BSAO conference, making and measuring changes on farm, FDA research and extension gaps, and COVID-19.
- Host inspector meetings on a monthly basis to calibrate across state lines.
- Host monthly, topic-specific or open discussion listening sessions.

NCR continued

- PSA pre/post assessments manuscript has been submitted to Food Control.
- Alternate curricula review-charged with developing review process.
- E.g., classes like PSA course that would meet PSR training requirement.
- Intake and review process are in the pilot phase.

More information can be found at:
<https://www.ncrfsma.org>

Northeast Region

Elizabeth Newbold

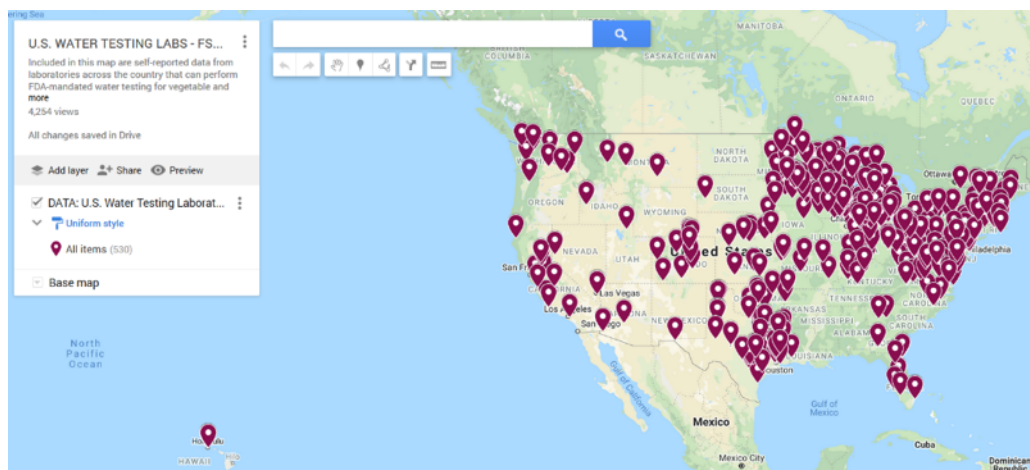
Talk highlights:

- Created a National Water Testing Lab Map.
 - Goal is to help growers have a lab close to them that can provide required test for PSR.
- To view the interactive google map, visit:
go.uvm.edu/waterlabmap
- Form to add maps:
go.uvm.edu/watertestlabform
- National FSR Clearinghouse summary as of May 1, 2020:
 - 459 resources (115 PCHF and 358 PSR) from 96 contributors.

NECAFS continued

- 26,770 page views in 10,124 sessions at 2.50 minutes.
- 422 contact hours by 6,263 unique users.
- WRCEFS FSR Clearinghouse summary as of May 1, 2020:
 - 27 resources from 4 contributors.
 - 23 account holders.
 - 5,100 page views in 2,307 sessions at 2.02 minutes.
 - 78 contact hours by 1,694 unique users.
 - Top 5 resources posted by WRCEFS
 1. Food Safety Flowchart (Spanish) – 110 views
 2. CA Cannery License Program – 104 views
 3. The Farmers Beet Podcast- 75 views
 4. Worker Training and Health and Hygiene – 74 views
 5. Visual Aids on Chemical Safety for Lu Mien farmers – 68 views
- Access the FSR Clearinghouse at:
go.uvm.edu/clearinghouse

National Water Testing Lab Map. Source: Elizabeth Newbold, WRCEFS 4th Annual Meeting.



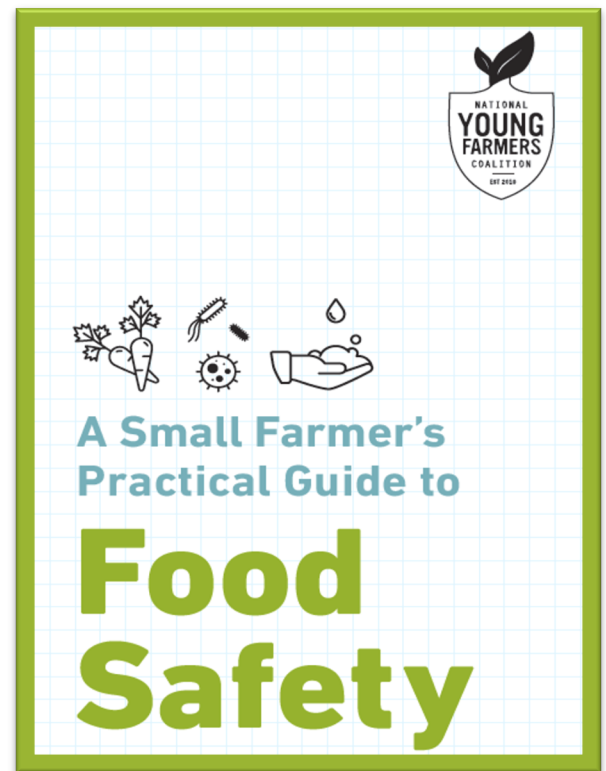
Local Food Safety Collaborative

Billy Mitchell

Talk highlights:

- LFSC is housed at the National Farmers Union and provides outreach, education, and training to local fruit and vegetable growers and processors on food safety best practices and FSMA.
- Awarded ~4.5 million 3 years ago from FDA to accomplish these goals.
- Target audiences sells directly to consumer and serves local/regional markets.
- Also targeted organic, sustainable, value-added, and diversified operations.
- Outreach work included the Produce Safety Podcast with Chris Blanchard and The Farmers Beet Podcast with CAFF.
- Education events included training and handwashing station giveaways on farms, development of PowerPoint slides such as the FSMA: Develop Your Farm Food Safety Plan.
- Assisted with many PSA grower trainings from coast to coast.
- Main deliverables included:
 1. Needs assessment for small and medium sized producers. What do farmers need to be successful and barriers to food safety success. This work was done at Cornell.
 2. Grower liaison model On-farm workshops focused on the overlap between conservation and food safety. This work was done in Mississippi and Alabama.
 3. Produce safety guide created by National Young Farmers Coalition (pictured on right). This guide breaks down PSR into actionable, practical sections.

Excited Recipient of a Handwashing Station at LFSC Event. Source: LFSC, WRCEFS 4th Annual Meeting.



Produce safety guide for small farmers developed by National Young Farmers Coalition. Source: LFSC, WRCEFS 4th Annual Meeting.

Indigenous Food and Agriculture Initiative

Josiah Griffin

Talk highlights:

- Established at the Univ. of Arkansas School of Law in 2013.
- Designated as the Native American Tribal Center for Food Safety Outreach, Education, Training and Technical Assistance by FDA in Sept. 2016.
- Certified PSA Trainers on staff.
 - In-person trainings for Native producers and agribusinesses.
 - Webinars for PSA module introductions and refreshers.
 - Cooperating with wide array of partners such as the Intertribal Ag Council.
- IFAI is modifying PSA curriculum to meet cultural and legal complexities faced in Indian Country.
 - These revised modules are being reviewed by FDA for compliance.
- The goal is to offer trainings using this modified curriculum in 2020.

IFAI continued

- As of 2012, US had 44,671 farms with American Indian or Alaska Native Operators.
- As of the 2017 Census of Ag. update, American Indian and Alaska Native farms make up 3% of all farms in the US. This is a 7% increase in farms counted from 2012.
- A needs assessment survey was conducted by the Native American Tribal Center for Food Safety Outreach, Education, Training, & Tech. Assistance to determine food safety needs and training interest.
 - Over 50% of respondents are interested in learning more about GAPs, good handling practices, and other general food safety information.
 - Majority of people prefer to receive materials via email.
 - 96% of respondents would attend a class on food safety if offered in their region.
 - The preferred length of trainings were one-day in-person or online.
- For more information, visit nativefoodsafety.org

Produce Safety Alliance

Connie Fisk

Talk highlights:

- From Sep. 2016 to Mar. 2020, there have been 2,364 grower trainings with 56,016 participants. ~1/3 of participants were international.
- During this period, there have been 95 TTT courses with 3,029 participants. ~1/3 of participants were international.

PSA continued

- In the Western region, there have been 632 grower trainings with 15,347 participants.
- In-person training suspended in most locations due to COVID-19; however, 2 training options are available.
 1. Online delivery course available in English since April 15, 2020. 20 participants are allowed per session. This course has 6 required discussions and participants have 3 weeks to complete the course. This material is being translated to Spanish.
 2. Remote delivery courses are being offered and the temporary policy can be viewed on the PSA website.
- Support options available during COVID-19 include remote office hours, educator calls on temporary policy and using Zoom, video tutorials for electronic evaluations, & modified bookstore shipping options.

PSA Western Region Training Statistics. Source: Connie Fisk, PSA, WRCEFS 4th Annual Meeting.

States	Trainings	Participants
Alaska	18	237
Arizona	37	688
California	329	9,117
Colorado	25	502
Hawaii	23	413
Idaho	20	451
Montana	17	235
Nevada	9	116
New Mexico	16	229
Oregon	36	992
Utah	10	147
Washington	91	2,213
Wyoming	1	7

PSA continued

- Two publications are in the works regarding evaluation reports. One publication on the TTT course was accepted to FPT on March 12, 2020. The second manuscript on grower training course is in progress.
- Lead trainers can request summarized Remark reports by emailing Michele Humiston (mmc15@cornell.edu). Please include course ID, date and training location in the email.
- If you need to update your information in the PSA trainer directory, complete the [Update my entry form](#).
- Advanced trainer workshops were held in Dec. 2019 and Jan. 2020. They hope to offer this training to other regions this year.
- COVID-19 responses have included:
 - Developing FAQs, which are located at the Institute for Food Safety (IFS) at Cornell University website.

PSA continued

- Participate in industry office hours to support stakeholders in collaboration with IFS.
- Updated sanitation resource link highlight proper use of N-list disinfectants.
- Hosted educators call with Ruth Petran (Ecolab) with focus on sanitation during COVID-19 outbreak.
- PSA is still engaged in international outreach efforts, including participation in PIP committees.
- Developing a Spanish Lead Trainer Review Process. Looking for reviewers who are experienced PSA lead trainers who are fluent in Spanish.
- PSA is hiring a 2nd Spanish Language Extension Associate.
- Tommy Saunders is the new Southeast Regional Extension Associate.

- Visit the PSA website at:

<https://producesafetyalliance.cornell.edu/>

(English) or

<http://es.producesafetyalliance.cornell.edu/>

(Spanish).

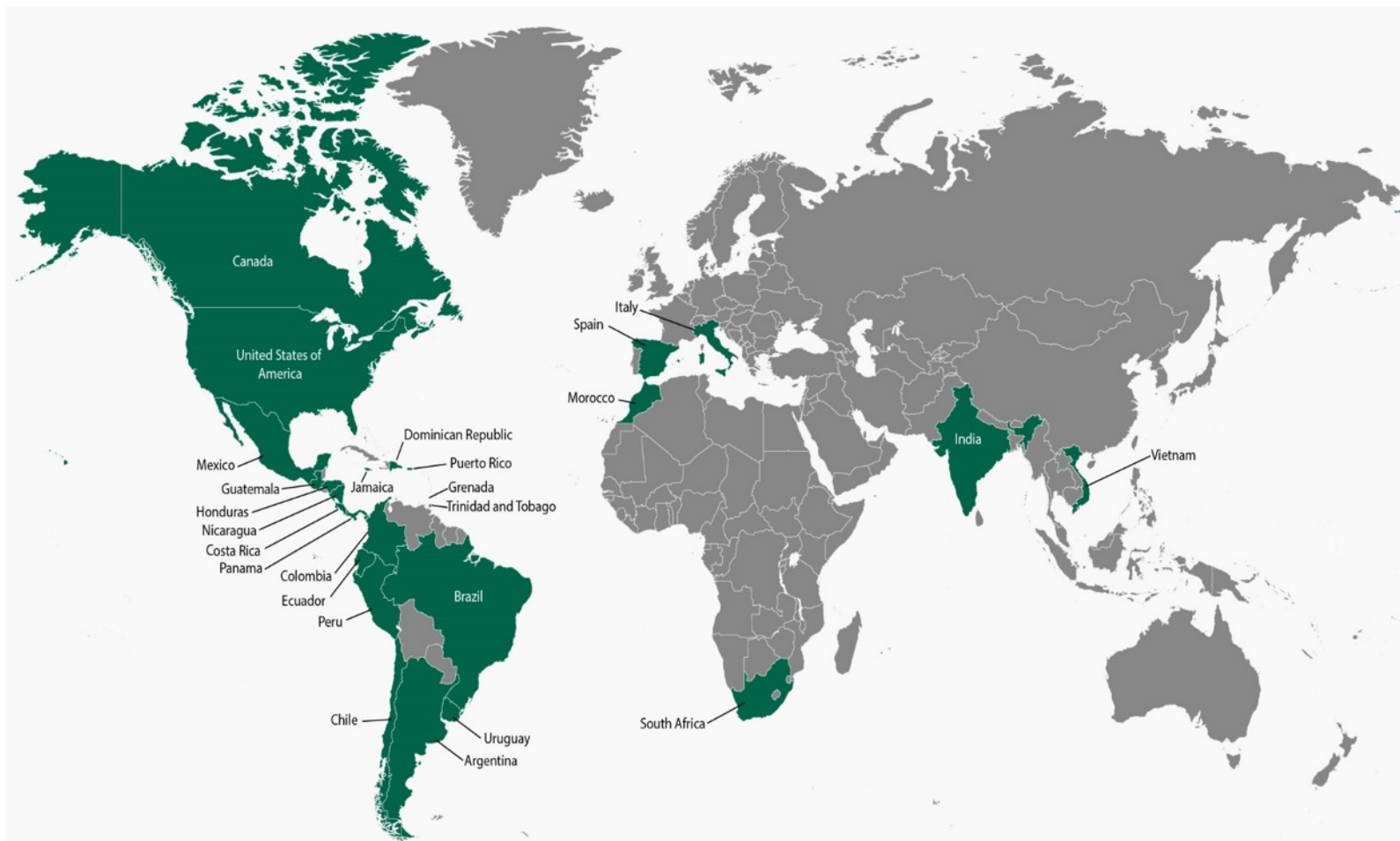
FSPCA

Claudia Coles

Talk highlights:

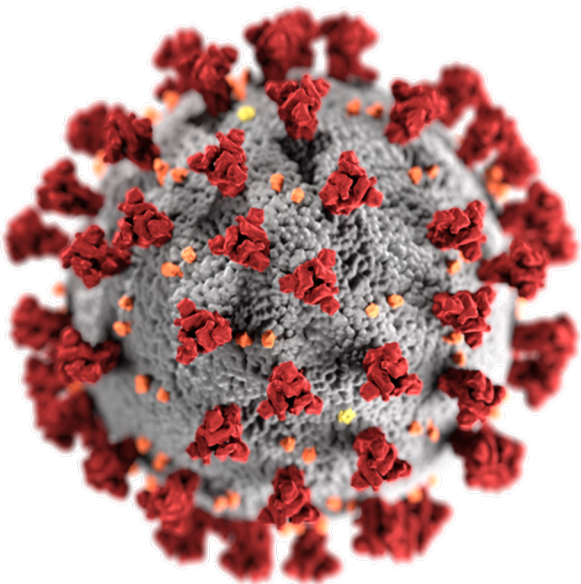
- Reorganized governance structure with new Executive Advisory Board with industry, academic, and government stakeholders.
- With FDA funding complete, FSPCA's focus is on new initiatives and funding to address emerging issues and drive high quality FSMA training.
- FSPCA website: <https://www.ifsh.iit.edu/fspca>

PSA grower trainings worldwide as of Jan. 2020. Source: Connie Fisk, PSA, WRCEFS 4th Annual Meeting.



Following the partner updates, a special session on food safety during COVID-19 was convened.

Food Safety in the Time of COVID-19



Coronavirus illustration. Souce: CDC.

WRCEFS Director **Jovana Kovacevic** opened the session with a session outline. She introduced the session panelists:

- **Dr. Betsy Bihn, PSA**
- **Dr. Joy Waite-Cusic, OSU**
- **Dr. Ben Chapman, NCSU**
- **Dr. Erin DiCaprio, UC Davis**
- **Dr. Dave Stone, OSU**

The session started with a brief introduction to SARS-CoV-2 and COVID-19. Three presentations followed, focused on food safety on farms, in food processing facilities and at retail and food service during COVID-19. The session concluded with a Q&A with all five panelist.



Introduction cont.

- First outbreak from novel coronavirus, SARS-CoV-2, reported in December 2019.
- Public Health Emergency of International Concern declared on January 30, 2020.
- Spread from person-to-person by respiratory droplets.
- Disease caused by SARS-CoV-2 called COVID-19.
- As of May 2020, >4 million cases reported globally.
- Outbreaks from other coronaviruses show that transmission through food consumption did not occur.
- Although likelihood of transmission of SARS-CoV-2 virus through food remains low, it has caused disruptions in the food supply chain.
- Priority #1 is social distancing as SARS-CoV-2 is predominantly spread person-to-person.
 - Think about whole farm and how to maintain 6 ft of distance between workers.
 - Review planting, harvesting, and packing practices.
 - May need to rethink work schedules and slow down belt speeds.
- Sometimes social distancing is not always possible.
 - Use barriers and practices to reduce risks (e.g., require cloth face coverings, plexiglass, provide hand sanitizer/handwashing options).
 - Divide crews by family or housing to minimize risk of losing all labor groups.

The first speaker was **Betsy Bihn** who presented on: “Food Safety on Farms in Time of COVID-19”

- SARS-CoV-2 is not foodborne virus but has caused food system disruption.
- There are on-farm risks that need to be managed, some are different than foodborne risks, but some are the same.
- Prioritize most impactful actions.
- Be aware of changes to markets and labor may require growers to make changes to their operations.
- We are all learning something new everyday. We will continue to adjust as new information is available.
- Update training to include social distancing and cloth face coverings at work and in the community, handwashing and hand sanitizer use, and no face touching.
- Important to explain the science behind new practices, including wearing face masks and social distancing, so that safe practices are also followed outside of the farm setting.
- Handwashing and hand sanitizer use will reduce risks from fomites and is good for food safety.
- It is difficult for most people to not touch their face; therefore, handwashing and hand sanitizer use is critically important.



Workers wearing protective gear during crop harvest. Source: Betsy Bihn, PSA, WRCEFS 4th Annual Meeting.

- Lot of questions surrounding recruiting and keeping employees as well as training with social distancing.
 - Clear communication is important!
- Different risk management considerations for farm provided housing risk and other types of housing.
- Important to educate employees about reducing risks in community and at their homes.
- Must consider how to manage on-farm transportation and employee transportation to the farm.
 - Example: Possible ways to reduce transportation risks in a bus include only filling every other seat, stagger across a row, or taking multiple bus trips if distance cannot be maintained.
 - Other considerations include minimizing bus driver contact with riders as they enter/exit the bus.

- Other considerations – Do employees share rides to/from work? Can group these individuals as teams when considering division of workforce.
- Prior to COVID-19 still a need to help growers understand cleaning and sanitation (C/S) differences.
- COVID-19 created many questions about when and how to disinfect. Also a lot of questions about the EPA N-list of disinfectants to use against SARS-CoV-2.
- Many states have their own lists available to help identify which disinfectants are allowed for use.
 - Recommend to stick to current C/S SOPs unless COVID-19 suspected on farm.
- A lot of C/S plans do not include high touch surfaces.
 - Recommend increased C/S of commonly touched surfaces and consider using disinfectant in these areas. **Important to remember disinfecting is not the same as sanitizing.**
- Many new C/S resources but still lots of questions. Resources on this topic include:
 - Always be Cleaning and Sanitizing + Understanding Disinfection Webinar <https://ncfreshproducesafety.ces.ncsu.edu/2020/04/always-be-cleaning-sanitizing-understanding-disinfection-webinar/>
 - A Guide to Cleaning, Sanitizing, and Disinfecting for Produce Farms <https://blog.uvm.edu/cwcallah/2020/03/30/clean-sanitize-disinfect/>
- Setting the Record Straight on Cleaning, Sanitizing and Disinfecting in the COVID-19 Era and Beyond <https://producesafetyalliance.cornell.edu/resources/educators-group/>
- Both disruptions and modifications to commodity movement has been impacted.
- Distribution and market channel issues, over shopping and restrictions of items, improper container size (institutional vs. individual), and need for crop destruction have all disrupted the food supply chain.
- Modifications have included moving from wholesale to direct market, exploring new collaborations or joint CSAs, or giving food away.
- Changes may mean modification of prevention practices.
- **Important to remember foodborne pathogens still exist and pose risks. Need to keep food safety practices in place.**
- Introduce managing COVID-19 in the perspective of whole farm management.
 - **Capitalize on areas of overlap and add additional things in a way that is manageable for growers.**
- Need to keep/expand market access. If trying to get into new markets, may need to meet buyer requirements for food safety practices. Also helps growers develop new markets.
- One example is audit extensions. USDA has extended expiration dates 60 days from 5/31/20. Getting audits to keep markets open is another concern along with foodborne pathogens during these times.
- Actions for growers to focus on include communication, updating farm food safety plan, and training.
 1. Communication has always been important and is critical now! Conveying risks (What are they? How do we reduce them?), policies, and plans to employees, customers, and consumers in a clear concise way is needed.
 2. Updating farm food safety plan. Food safety plan already has relevant policies and SOPs (e.g., cleaning and sanitation, worker training), making it the easiest to change.
 3. Training! New policies and plans and any time information changes, training is required. This may mean moving to daily/weekly trainings or daily updates as more is known about COVID-19. However, the investment in training can help keep the risks off the farm.

Additional Resources

- Best Management Practices for U-Pick Farms During the COVID-19 Pandemic <https://smallfarms.cornell.edu/resources/farm-resilience/best-management-practices-for-u-pick-farms-during-the-covid-19-pandemic/>

Resources cont.

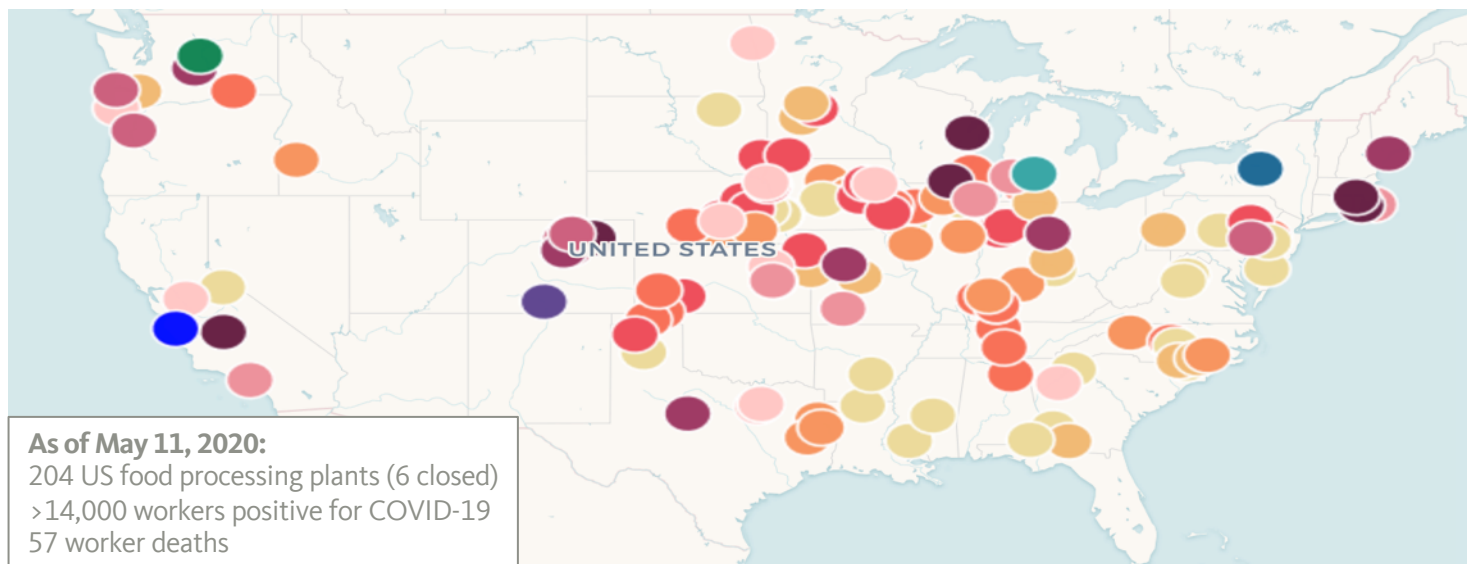
- NCSU COVID-19 Food Safety Resources
<https://foodsafety.ces.ncsu.edu/covid-19-resources/>
- Institute for Food Safety at Cornell University
<https://instituteforfoodsafety.cornell.edu/corona-virus-covid-19/food-industry-resources/>
- PSA Website
<https://producesafetyalliance.cornell.edu/>

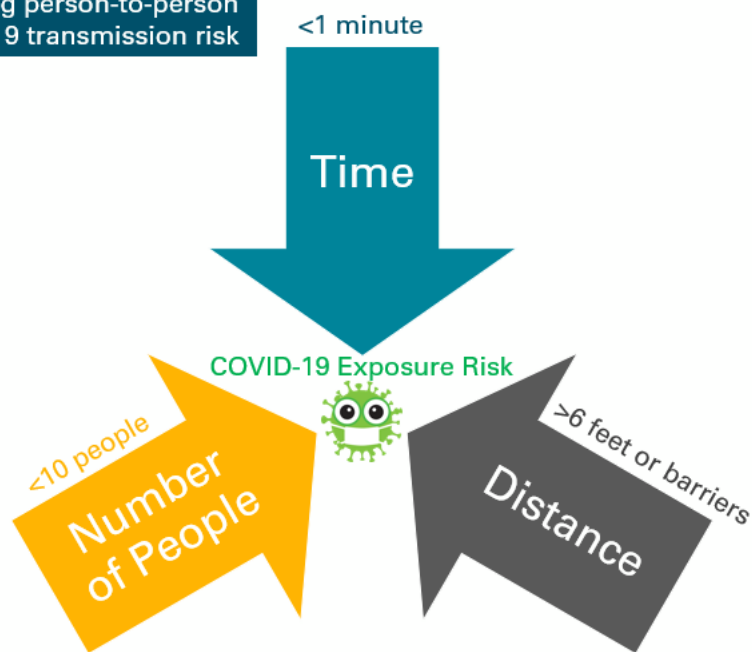
The second speaker was **Joy Waite-Cusic** who presented on: “Considerations for Health and Hygiene and Cleaning and Sanitation Practices: Food Processing Facilities”

- Disclaimer: Information is in constant flux. Therefore, facilities should be checking with local public health officials and/or regulators as they look to make any changes.
- Is the food supply safe if food workers are exposed to or sick from COVID-19?
 - No evidence of food or food packaging being associated with transmission of COVID-19.
 - Food recalls due to COVID-19 are not expected, even if workers are positive for COVID-19.
- Although not a food safety risk, why are there empty shelves at the store, but milk is being dumped and crops plowed under?
 - Initially the problem was consumers hoarding items.

- As we transitioned into stay-at-home orders, the demand on food service disappeared while demand at the grocery store increased.
- These difference in distribution channels have led to shortages in some parts of the food system and abundances in others.
- As of May 11, 2020 there have been 204 U.S. food processing plants with at least 1 positive COVID-19 worker. Of these, 6 are currently closed. There are over 14,000 workers that have tested positive for COVID-19 and 57 worker deaths.
- Why is this a big deal? Some facilities are very large. The impact on these communities containing these facilities can be drastic.
 - **Example: One large meat processing facility can have thousands of employees speaking multiple languages and will process >10,000 animals a day from hundreds of farms. If one facility closes, this causes massive disruption both upstream (farms) and downstream (grocery).**
- Meat processing facilities have gotten the most attention with respect to COVID-19 transmission. The higher transmission rate may be caused by workers being in close quarters with one another for extended periods of time.
- In addition to workers, there may be inspectors on site. >145 USDA inspectors have tested positive for COVID-19 and 3 have died. Inspectors may/may not be notified about COVID-19 transmission in a facility because they are not facility employees.

Interactive U.S. map detailing positive COVID-19 cases in food processing facilities and meat processing facilities as of May 11, 2020. Source: Joy Waite-Cusic, OSU, WRCEFS 4th Annual Meeting.





Ways to reduce person-to-person COVID-19 transmission risk. Source: Joy Waite-Cusic, OSU, WRCEFS 4th Annual Meeting.

- Tyson took out a full-page ad in the newspaper describing how they thought the food supply chain is breaking. As meat processing facilities close, this would lead to U.S. meat shortages.
- What has the food industry implemented in response to COVID-19? Barriers have been installed when 6 feet of distance cannot be achieved.
- After Tyson ad, an Executive Order was issued (April 28th) to keep meat and poultry processing facilities operational.
 - Supply chain has tried to adjust by producers altering rations to slow livestock growth.
 - Meat production was down by 25% by the end of April due to closures.
 - Some would argue we are entering into a meat shortage.
 - As wholesale prices to grocery continue to rise, this means a significant price increase for consumers.
- The food system has a challenge of keeping workers as healthy as possible and recognizing that food still must be produced for the consumer. We have many essential workers, and they are not always the best paid. How do we manage keeping them safe and healthy and not vulnerable to paycheck loss?
- Food facilities need a strategy to deal with COVID-19. This is a matter of when, not if.
- 3 critical factors/best practices for reducing person-to-person transmission risk:
 1. Number of people you are in contact with (< 10 people).
 2. The amount of time you spend with people (< 1 minute).
 3. Distance you are from people (> 6 feet or barriers).
- Other critical personnel practices to reduce risk:
 - Frequent sanitation of frequently touched surfaces (EPA list). A list of frequently touched surfaces can be seen on the next page.
 - Signs to reinforce hygienic practices and other new policies.
 - Face coverings (mandatory with known exposure).
 - Frequent hand washing (20 seconds).
 - Are you doing training and signage in an appropriate language for your workers and at the right literacy level?
- One of the biggest changes for industry is how to deal with face coverings.
- Some of the factors to consider include if your facility will provide these face coverings and how will mask cleanliness be managed?
- Some companies have worked with their uniform providers to get bandanas for employees. These get cleaned with uniforms. Other companies let their workers manage their face coverings.
- Cloth face coverings should:
 - Fit snugly but comfortably against the face.
 - Secured with ties or ear loops.
 - Have multiple layers of fabric.
 - Allow for breathing without restriction.
 - Safe removal and management during breaks.
 - Able to launder and dry.

Frequently Touched Surfaces



Below are examples of frequently touched surfaces that should be sanitized often.



Items in Processing Area

- Pull cords
- Tool box drawers
- Padlocks
- Equipment switches
- Chart recorder handles
- Gear shifter of equipment
- Steering wheel
- Ladders
- Cart handles
- Hose handles



Items in Office Area

- Markers on dry erase boards
- Personal phones
- Mouse and keyboards
- Phone charger cords



Items within Food Facility

- Light switches
- Handicap accessible push buttons
- Door handles
- Clip boards and pens
- Tape guns
- Chair arms
- Keys
- Outside of hand sanitizer bottles
- Garbage lids/holders
- Table tops

- Other strategies to reduce COVID-19 transmission risk include:
 - Supporting work from home, if possible.
 - Minimize outside visitors.
 - Proactive communication strategy with regular frequency to communicate updates with workers.
 - Review and enhance sick leave policy.
- Several scenarios for employers to consider for essential workers are provided below. This is based on CDC and FDA information.

1. Worker symptomatic or tests positive (or awaiting test results – symptomatic).

- Go home and stay home. If symptomatic, 14-day quarantine. Asymptomatic workers should stay home for 10-days from first positive.
- Were they at work in the 48 hours before symptoms?
- If yes, close off areas where they worked. Clean and disinfect and wait 24 hours to reopen this part of the facility, if possible. Contact tracing (confidentially).
- Return to work after >72 hours symptom free without medication and 10 days since first symptoms. OR Resolution of fever (no medications), improvement in respiratory symptoms, and 2 negative test (>24 hours apart).

2. Worker exposed, but asymptomatic.

- Continue to work with additional precautions (for 14 days after last exposure).


- Screen and monitor for symptoms (fever of 100.4°F) on arrival and throughout shift.
- Wear a face covering.
- Distancing (>6 ft).
- Clean and disinfect workspaces.
- Contact Tracing at Work: If you have a positive case, who did they have prolonged contact (<6 ft for ≥ 15 min) with in the 48 hours prior to symptoms? This includes contact on the line, during breaks, and transportation.
- Why are some facilities closing?
 - Multiple positive workers with clear community transmission associated with work.
 - Influenced by communication with local and state health departments.
 - Final decision will be based on public health risk of person-to-person transmission, not based on food safety.
- Do I need to recall products?
 - Highly unlikely.
 - Facilities are required to control risks of workers who are ill regardless.
 - Maintain clean and sanitized facilities and food contact surfaces.
- The big question is, is this our new normal? Specifically, is physical distancing here to stay? This comes with many new challenges and there is a hope this doesn't have long lasting impacts on the industry.

The third speaker was Ben Chapman who presented on: "COVID-19 and food safety management at retail and food service"

- At the start of the pandemic, one of the most common questions from an extension side was "Why isn't COVID-19 a food safety concern?" From a journalists and retail/food service industries side, the concern was "What should they do?"
- We are facing a problem that many of us have not faced in our careers. We are faced with a new pathogen and there is not a lot of science on this pathogen. Many of us have not experienced what it is like to be in the middle of this and trying to stay informed on the best available science.
- Resource for following the evolving nature of this science is <https://www.medrxiv.org/>, which is a pre-print service. Over 3,000 scientific articles posted on this website since the beginning of 2020.
- In response to evolving information and to best serve the Safe Plates' stakeholders in the food service and retail sector, the first step was to understand what was known about SARS (in general).
 - E.g., viral inactivation and how long virus is infective in the environment.
- Once we understood this information, we could distill this down for restaurant operators and others in the food service and grocery sectors.

- Information to share with these groups included: differences between bacteria and viruses, growth vs. infectivity, stability in the environment.
- Result was to create a clearinghouse of best practices and information on COVID-19 food safety resources.
 - go.ncsu.edu/covid-19
 - These 70+ resources are based on CDC (including MMWR), FDA and USDA guidance and best available/evolving science.
 - Peer reviewed by food safety and virology experts across the country (including Michelle Danyluk, Renee Boyer, Linda Harris, Don Schaffner, and LeeAnn Jaykus).
 - Topical resources in flyer and social media formats.
 - Spanish, Haitian Creole, Vietnamese, and Hmong, translations are available for many of these resources.
 - These resources can be co-branded with your logo(s) with permission from the Safe Plates team.

COVID-19 resource developed by NC State Extension Team. Source: Ben Chapman, NCSU, WRCEFS 4th Annual Meeting.



COVID-19 FAQ FOR FOOD BANKS

RECEIVING FOOD AND CLEANING

CAN COVID-19 BE SPREAD THROUGH FOOD?

- Transmission of COVID-19 through food, food packages or even food handlers has not been identified as a risk factor for this illness
- Evidence suggests it may remain viable for hours to days on surfaces. CDC recommends cleaning followed by disinfection as a best practice for prevention of COVID-19

IS IT SAFE TO ACCEPT FOOD FROM COUNTRIES OR STATES IMPACTED BY COVID-19?

- With decades of data related to influenza, another similar respiratory virus, there is no data to indicate that food distribution channels like grocery stores or distribution warehouses are transmission nodes.
- Currently, there is no data to suggest that accepting food from an area impacted by COVID-19 is a risk factor for disease spread.

SHOULD FOOD PACKAGES BE CLEANED BEFORE THEY ARE USED?


- Continue routine operating procedures in evaluating the integrity of packaging as well as for any soil already in place.
- Follow risk management practices including hand hygiene regimens of handwashing followed by hand sanitizer according to CDC guidelines.

HOW SHOULD CLEANING AND DISINFECTION BE HANDLED?

- Volunteers and staff should wash hands and use hand sanitizer regularly.
- Disinfect surfaces like railings, doorknobs, tables, baskets, etc on a regular basis.
- Use non-porous plastic tables that can be easily disinfected whenever possible.
- CDC is advising use of disinfectants on the EPA list, which can be found at: go.ncsu.edu/epacovid-19. (Note: this list is based on current data, but compounds have not been validated for inactivation of the virus causing COVID-19)
- Bleach may be used to disinfect surfaces, but the concentration is higher for COVID-19 than for everyday sanitation:
 - 5 tablespoons bleach per gallon of water

NC STATE
EXTENSION

Stay informed: go.ncsu.edu/covid-19
www.cdc.gov/coronavirus/2019-ncov
Updated March 26, 2020



NC STATE
UNIVERSITY

- If you are developing materials, would like them peer reviewed, and distributed to many land grant institutions (33), let them know.
- The two biggest sources of questions for retail early on were related to grocery shopping and takeout food.
- Different from the other sectors previously discussed because they remained open at reduced capacity and interacted with the public.
- This also led to differences in thinking about cleaning and sanitation/disinfection. This is due to more interactions with asymptomatic carriers and not a lot of control on who comes in/out of a facility.
- Focus of the messaging was about if this is a concern, associated risks, and best practices for operators and consumers in these locations.
- One of the biggest issues early on was non-science-based reactions to food situations.
- This included food banks turning away food from “affected areas or because of concerns”, not based on suspected food contamination.
- In response, several resources were developed for food banks on receiving food, cleaning and sanitation, and best practices and communication related to volunteers.
- Another interface between retail and world of produce would be through farmers markets, farm stands and other fresh produce operations.
- There were many different responses due to lack of information including closing markets and then reopening with distancing. However, they were not viewed as comparable to a grocery store or other retail location.
- **Pandemic has stressed the importance of the role of food safety extension!**
- For example, 15 jurisdictions in NC closed all farmers markets at start of the pandemic. We worked with state policy makers and provided them with scientific information, so markets could reopen. Topics included face coverings, hand sanitizer, social/physical distancing, touchless payment transactions, and limiting time at markets.

- If you want to stay up to date, follow the Safe Plates team on Twitter and Facebook (@SafePlatesFSIC) and check out their website. All resources are date stamped as information is changing.

Planning for Reopening

- Related to restaurant dining rooms and relaxing restrictions.
- One of the interesting points learned by serving on several national groups/task forces is that industry representatives are wanting specific guidance. They want to know the right numbers, such as how often to disinfect doorknobs. Unfortunately, as with most things in food safety, there is not a magic number and very little data to go on.
- The biggest challenge is the patchwork approach to this. Each local health department is making decisions that may/may not be based on science. These are the gatekeepers to public health decision making for restaurants and other food manufacturing operations.
- Highly suggest connecting with industry trade groups, food safety and public health educators, and regulators and work to create partnerships. This is how restrictions will relax.
- This is the time to plan for what this might look like.
- Suggest creating a task force team with state partners for coordination of training operators and food employees as things open back up.

- Task force should also consider what needs to be conveyed to consumers about food safety and COVID-19 disease prevention in restaurant settings?
- In NC, this has led to the development of 3 online courses. Expected that 200,000 food handlers will take as part of reopening.

Topic Areas to Consider

- Managing dining rooms and patrons. One of the concerns that has come up is maintaining fire code while also trying to keep 6 feet of distance in a reduced capacity retail setting. How will people be managed outside?
- Standard Operating Procedures. Topics to consider include putting on/taking off personal protective equipment (PPE) and how do employees take breaks.
- Employee health and screening employees.
- Cleaning, sanitizing, and disinfection of front and back of the house. This would include condiments, menus, and other high touch surfaces.
- The National Restaurant Association has put together a COVID-19 reopening guidance document that can be viewed at <https://go.restaurant.org/covid19-reopening-guide>.

Following the third speaker, a Q & A session was held with the panel.

1. Erin, from your experience working with foodborne viruses, and SARS-CoV-2 being a respiratory virus, what is it about this virus that has made it a big concern for the food industry? What are the biggest gaps we have in terms of understanding survivability? There have been studies showing coronavirus survival on lettuce and different food products. What is it from your point of view that makes this virus so interesting and concerning for the food industry?

Erin DiCaprio: The big issue in the food industry is protecting the workforce. We are learning a lot every day about the virus and epidemiology. Minimizing person-to-person contact and droplet transmission is what's critical to minimize risks to worker health. There is now information coming out about aerosol transmission, but this is not conclusive as to whether widespread aerosol transmission in a facility is possible. Implementing the 6 feet radius where possible is one of the best ways to reduce risks. Things that you are already doing, including handwashing, employee training, cleaning and sanitizing are important. This virus is very different from foodborne viruses and from what we know, this is not a stable virus in the environment. SARS-CoV-2 is an enveloped virus (contains a lipid bilayer on the exterior of the virus particle), which can easily be inactivated by different treatment methods, surfactants, and chemicals. Some of the studies that have come out indicate that the virus can remain infectious outside of the body for several hours to a few days. When compared to norovirus, which can remain infectious in food/environment for weeks to months, I don't consider this virus stable in the environment and foods.

Question 1 continued

What is common between SARS-CoV-2 and norovirus is the role of the asymptomatic infection in transmitting disease in close settings. New studies are coming out on asymptomatic infection rates in different populations. Reports show levels similar to those in norovirus outbreak settings (15-30%). Asymptomatic cases are a challenge for mitigating disease transmission in close settings. A lot more information is needed to understand stability of SARS-CoV-2 in the environment and transmission in the population. Unfortunately, it will probably take time to get this information. However, with the large amount of information being quickly generated, we may have better insights within a few months.

2. What are the key current food safety practices in the food service industry and retail that are important in reducing the risk of COVID-19 among the workers and consumers?

Ben Chapman: The rise of socially acceptable handwashing and hand sanitizing is a good thing. Anecdotally, providing hand sanitizer to consumers as they enter has been helpful. As we look at what is likely to occur in dining rooms as we move into phases of opening hot bars/buffets, having hand sanitizer and handwashing stations available and having the social pressure to do these activities are good food safety practices and will have an impact on foodborne pathogens as well. Similarly, in the food service setting, we are moving from timing being the most important thing to demonstrating that I am doing everything I can to not spread...

Question 2 continued

virus through good hand hygiene in a back of house situation. More cleaning and disinfection on high touch surfaces and cleaning and sanitation on food contact surfaces is also important.

3. Do you think COVID-19 will force us to rethink how we incorporate sanitary design and cleaning and sanitizing into produce processing facilities and packinghouses? What can we do better?

Betsy Bihn: I don't think COVID-19 will make us rethink equipment design unless this is something we will continue to live with for the rest of our lives. Sanitary design of equipment is very important for food safety overall. The biggest challenge with COVID-19 that most growers face is how to implement what needs to be done – social distancing and additional cleaning and sanitizing. Cleaning and sanitizing has been a struggle on a lot of farm operations, particularly small and medium-sized farms. COVID-19 just adds to this challenge.

4. Many growers are concerned about COVID-19 transmission by worker carpools or other transportation workers take to arrive at the farm. In addition to keeping a carpool group as a worker cohort, are there additional recommendations for transportation when the farm isn't in control of it?

Betsy: Make sure people understand risks and the risks that they are putting themselves into. It is about how many particles you inhale and being with someone who is sick and exhaling particles you can inhale. Everyone wearing cloth...



Example of face covering. Source: Joy Waite-Cusic, OSU, WRCEFS 4th Annual Meeting.

Question 4 continued

face coverings reduces the number of particles that are available for inhaling. It won't stop all particles from leaving. From what we know so far, this is a heavy particle. A face covering will keep some particles in and stop them from getting out. If you are with someone in close proximity, like a car, wearing a cloth face covering will reduce risks. The less time spent together, the lower the risk. On farm, think about how to keep people separate. How do people get on and off a bus? How do you keep people separate once on the bus? Sometimes this will be possible by taking more than one trip. Can people be broken into shifts to make this work? The focus should be on keeping people separate as much as possible, doing practices such as mask wearing, hand washing, and keeping multitouch surfaces clean. The key thing is thinking about doing these things on your own farm and what makes sense. What you can and cannot tolerate.

5. In lieu of what has been happening, in the shortage for PPE and sanitizers and disinfectants, should food facilities and retail be required to maintain a stockpile of PPE and sanitizers for future issues like this or pandemics?

Question 5 continued

Dave Stone: In my opinion, it is beyond the food facilities. What we have learned from this is pandemics are inevitable, humans are not always in control, and we should be stockpiling at a higher level of government than what we have been. We should be replenishing those stockpiles. It is just like our first aid kits, when someone buys one and doesn't replace items as they expire. When someone needs to use an eyewash or another item, it is expired. We are seeing similar things with the masks. The rubber band backings have failed because of age. Companies, particularly larger companies, that can afford it should stockpile in a way that does not happen during a crisis. This way the situation is not made worse. This way it is a preventive approach that replaces supplies when needed and is ongoing. This will need to be part of our new normal.

Going back to Betsy's question about sanitary design, I also think about how we think about facility layouts. I don't think about equipment redesign but about how we think about layouts and facility size (new facilities). How do we retrofit older facilities to accommodate workers to not be shoulder-to-shoulder, when possible. We can expect something like this to occur again in some form, be it COVID-19 in the fall or something else. We have the knowledge of having a better/newer supply of PPE and being thoughtful of how we have workers enter, how they work in a space, and how they leave a facility is important.

6. What are your thoughts on COVID-19 and the impact that this may have on food safety...

plans, particularly when discussing hazards/hazard analyses or known or reasonably foreseeable hazards. While they may not be foodborne hazards, they may have impact on food industry. How do we approach those hazards?

Joy Waite-Cusic: We don't consider non-foodborne hazards when making food safety plans for PCQI or anything else. This is a worker issue, so can a lot of these practices in GMPs already support this? Yes, and these can be used as an enhancement. Right now, we need to elevate this to crisis management in the facility. However, not sure how long we stick with it. Do we want to continue to use this much of disposable PPE from a sustainability perspective? Similar reasoning can be used when encouraging people not to carpool and use public transportation. We have a lot of conflicting issues with this pandemic and how do we manage long term the environmental consequences if we implemented all these things permanently. I can see us being more thoughtful but not implementing a complete change. We went from banning plastic straws to banning carpools. I don't see this sticking with the consumer and what the industry wants to do after we survive this.

7. To all panelists, in your personal experience, what are the biggest lessons for the food industry and some of the issues with our supply chain that have been highlighted throughout the COVID-19 pandemic?

Betsy: We have learned a lot about what a pandemic can look like. In produce, we have talked about and concentrate on foodborne illnesses.

Question 7 continued

This has highlighted the issue of other types of illnesses that can impact your operation. Thinking broadly, how would you do things if you had to change? Highlights the need for thinking outside of the box. What's been fascinating is how many small farms have quickly responded to market changes. It is amazing what people have done in such a short amount of time. There are lessons to be learned here from thinking about your markets to thinking about what can be put into place to allow you flexibility in a cost-effective manner.

Ben: Patchwork of approaches – This is the biggest problem with the stakeholders that I work with. When considering bigger companies that deal with thousands of health departments who are getting thousands of different responses to this outbreak, that is difficult for food safety and risk management folks to deal with. Personally, I didn't have a good sense of this prior to this outbreak. When you must step out of a document that sets a regulatory tone, like the Food Code, and individuals are making decisions on best practices, they are not equipped with the science to do so. This is a massive challenge and burden on food service and retail sector.

To build on Betsy's comments, we typically deal with foodborne illness outbreaks. Impacts of contamination and risks are when people are handling food. If you look back at some of the questions mentioned earlier, these focus on what employees do away from the food facility. What people are bringing into the restaurant or facility is not something we have talked about at being a priority.

Question 7 continued

Our system has not been designed for this. Another great point that was brought up in other discussions was what if workers stop at the same diner on the way home and workers from other facilities/farms congregate together? We have not thought about these scenarios before and now we are trying to help industry deal with those issues.

Dave: Two quick lessons the food industry has learned. The first is diversify your supply chain if not done already. Bottlenecks have hampered companies on getting the needed raw ingredients. The second point is to revisit crisis management and communication plans often. None of us do our best thinking during a crisis. If you must re-strategize while the crisis is happening, the outcome will not be as good as if the plan is revisited when things are calm.

Retraining workers on the crisis management and communication plans often is also important.

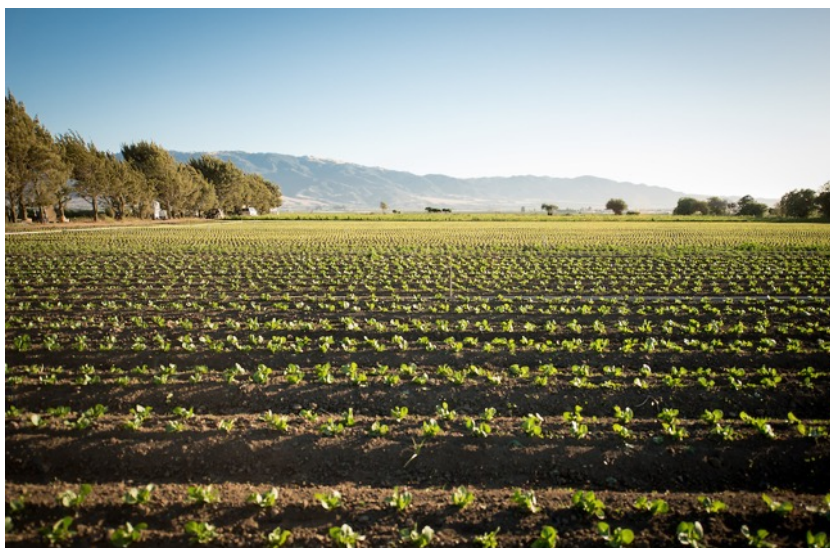
Erin: There has been a big impact on food security due to the pandemic. We seem to have breaks in the supply chain and inaccessibility to food in some areas. Trying to build up food security support programs is important. A lot of food bank/pantry workers are volunteers that fall into the high-risk category. We are seeing issues where pantries are closing because of inadequate staffing. Preparing for this before it happens would be ideal. If we don't learn the lesson of building up these systems and having more flexibilities and redundancies, that would be unfortunate.

After the special COVID-19 session, a presentation on current produce safety research at FDA was provided.

FDA Produce Safety Research

Socrates Trujillo, Office of Applied Research and Safety Assessment (OARSA), CFSAN/FDA

- The Produce Safety Rule (PSR) was based on a risk assessment conducted by FDA which found that use of poor agricultural practices with agricultural water, BSAAOs, worker health and hygiene, equipment/tools, buildings and sanitation, domesticated and wild animals, and the growing, harvesting, packing, and holding activities at the pre- and post-harvest levels could lead to contamination and illness.
- OARSA created a produce safety research consortium (PSRC) that consists of collaborative partners from academia and government (UGA, USDA-ARS in California, NCSU, Ohio State University, and FDA/CFSAN/OARSA).
- Goals include:
 - Leveraging on-going projects within and outside of the agency.
 - Facilitate collaborations and fill data gaps through observational and experimental studies.



Source: Antonio Acosta and Nathan Harkleroad, ALBA.

- Provide produce-related and on-farm environmental collections for prioritized and identified research areas.
- Support PSR and FSMA.
- Expand OARSA contributions to complement other produce safety research programs and GenomeTrakr.



- **Specific objectives include:**

1. Comparing prevalence of bacterial pathogens, viruses, and parasites.
2. Compare regional and farming practice differences for soil microbiome and presence of pathogens. Focus is on raw, treated, and untreated manure.
3. Investigate pathogen presence and survival in different water sources. Compare regional and seasonal differences as well as different irrigation practices.
4. Investigate the physical and chemical properties and moisture content of soils from produce farms from different regions in North America.
5. Investigate the relationships between foodborne pathogen survival and persistence, and the different soil compositions and soil microbiome diversity.
6. Microbiome analysis (community members and indicators). Soil (amended and non-amended), water, and produce samples collected. Presence of antimicrobial resistance genes also being assessed.
7. Determine potential transfer from water, soil to plant to produce for bacteria, parasites, and viruses.

8. Collect metadata on amendments and animal husbandry. Specific amendment questions include is the soil amended; what is the amendment; when is it applied; how much and how often is the amendment applied?

Animal husbandry questions include what animals are on the farm and distance of animal feeding to plant fields.

- **Contributions of the consortium to this work include:**

1. Providing water and soil samples from the natural environment.
 2. Providing isolates; DNA.
 3. Provides a conduit to gain information about field management and topography that may explain observed patterns. Can impact of watershed or farmer practices on resident pathogens and microflora be discerned?
 4. Metadata
- All samples received by FDA are blinded. This way the collaborators can continue to have an excellent relationship with the farmers. Information learned is passed back to collaborators to share with the farmers. This way the FDA does not know specifics on where samples were collected.

- The goal is to better understand what is happening in the environment. FDA is elaborating on protocols to collect air samples, identifying soil properties (must identify if the type of soil impacts the microbiome and persistence of pathogens), and investigating BSAAO applications.
- Examples of types of soil amendments being analyzed from Ohio and Georgia fields include dairy manure, composted dairy manure, poultry manure, composted poultry manure, no biological soil amendment, fallow fields, and green compost.
- Results: In samples collected application of an amendment is more important than seasonality.
- In another project with CA collaborators (USDA_ARS) *E. coli* O157:H7 is inoculated on lettuce after the cut and wash preparation steps to assess pathogen survival on bagged lettuce.
- Project results: The microbial diversity on the lettuce shifts when O157:H7 is added. The variety of the lettuce also has an impact on lettuce microbiome. Two romaine lettuce varieties were examined. One variety had an extended shelf life, and one had a short shelf life.
- Information is still being processed. Samples are waiting to be processed in a lab once in-person activities resume.
- Soils between GA and OH are very different in texture, moisture. There is a difference in the microbiomes and how that is affecting the presence of pathogens.
- Currently developing new/modified methods for detection of pathogens (viruses, *Cyclospora cayetanensis*, and bacterial pathogens) in soil and water. The BAM does not currently have environmental methodologies.
- Identifying the role of metagenomics and how important it is to understand what is happening in those samples.

Future Directions:

- Analyze 3-year data to determine where to focus.
- **Expand the PSRC**
If interested in collaboration, please contact Socrates.
- Creating seven laboratories to grow produce to observe these soil/water interactions with pathogens (not surrogates) & growth chambers.
- FDA is also developing growth chambers.
- Simulate real life environmental conditions (humidity, temperature, irrigation type, & air flow)
- Soil type and pathogen survival/persistence
- Transfer efficiency
- Oocyst sporulation

Summary:

- This is the third year of this project and COVID-19 has had significant impact on this research. Trying to determine how to best work with collaborators this year. Considering extending this project because many collaborators are not presently able to work with the farmers.

Lettuce field. Source: Socrates Trujillo, FDA, WRCEFS 4th Annual Meeting.



The meeting concluded with Jovana Kovacevic thanking our presenters, FSOPs, and meeting attendees for their work and their contribution to WRCEFS. Dave Stone thanked Jovana and Stephanie for their efforts in transitioning this meeting from in-person to remote delivery as well as their other WRCEFS ventures.

Communication

- Communication will continue through newsletters, emails, and occasional Qualtrics surveys.

Evaluation Data

- Continue to send pre/post-tests data from your PSA/PCQI trainings.
- Send follow-up surveys 4-6 months (and not longer than 12 months) after the training to your trainees.
- Data we have collected so far are being organized, analyzed, and summarized for the annual report. We will be sharing that information with the WRCEFS community when completed.

More information about our next WRC annual meeting will be shared in early 2021!

WRC



**Western Regional Center
to Enhance Food Safety**

Report prepared by Stephanie Brown and Jovana Kovacevic.
For questions, contact us at wrcefs@oregonstate.edu.