



Building Interactive Elements into Your Produce Safety Training



Dr. Kristin Woods
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Produce Safety Educator's
Call #62
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Instructions

- All participants are muted.
- There will be time for questions and discussion at the end of the meeting.
- Feel free to use the chat box to ask questions as well!
- This session will be recorded and the presentation will be shared via the listserv and on our website after the call.
- The views and opinions expressed in this presentation are those of the speakers and do not necessarily reflect legal advice, views or positions of the PSA and its members, nor any entities they represent.



Speaker Introduction

- Dr. Kristin Woods
 - Regional Extension Agent, Auburn University
- Mr. Billy Mitchell
 - Master's student at University of Georgia and produce safety enthusiast
- Ms. Gretchen Wall
 - Director, Food Safety & Quality at the International Fresh Produce Association (IFPA)



Building Interactive Elements into Produce Safety Training

Kristin Woods, Ph.D.
and
Billy Mitchell



Why do participants need to be engaged during a course?

Principles of andragogy

- Adults need to be involved in the learning process
- Experience provides a foundation for learning
- Immediate relevance is key to learning
- Adult learning is typically problem centered



How hard is it to learn?

Established neuronal pathways are hard to disrupt

- Writing someone name spelled similarly to yours – Kristin versus Kristen
- Taking a new medication
- Putting the toilet seat down

Learning new skills also takes time and energy

- Cleaning a harvest bin
- Mixing sanitizer
- Identifying contaminated produce while harvesting



When are you engaged?

Think about a recent training

- When were you were most engaged?
- When were you were least engaged
 - What were you doing?
 - What was the instructor doing?



A GUIDE TO

HOSTING AN INTERACTIVE, HANDS-ON PRODUCE SAFETY TRAINING

BY KRISTIN WOODS & BRIDGETTE BRANNON, ALABAMA COOPERATIVE EXTENSION SYSTEM



2020 LFSC Project

The Guide helps educators add interactive elements to produce safety training.

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Inside the Guide



Motivating Adults



Activities that Encourage Engagement



Equipment and Training Resources



Funding for Produce Safety Training

Does hands-on training improve outcomes?

- No statistical differences due to small sample size
- Courses that incorporated hands-on learning tended to have higher self-perceived knowledge gain and higher confidence in implementing practices
- Huge confounding factor – Kristin was lead at all 4 trainings analyzed

	Hands-on Learning Courses	PSA National Average (unpublished data)	Standard Deviation
Self-perceived Knowledge Gain			
General requirements in the PSR	4.44 (n=63)	4.47	.963
Worker health, hygiene, and training	4.6 (n=63)	4.44	.814
Soil amendments	4.56 (n=62)	4.47	.917
Wildlife, domesticated animals, and land use	4.56 (n=63)	4.44	.894
Production water	4.65 (n=63)	4.54	.786
Postharvest water	4.67 (n=63)	4.54	.783
Postharvest handling and sanitation	4.6 (n=63)	4.53	.853
Food safety plan	4.54 (n=63)	4.44	.895
Confidence Implementing Practices			
Committed to implementation of the PSR	4.62 (n=61)	4.6	.897
Worker health, hygiene, and training	4.52 (n=63)	4.52	.913
Soil amendments	4.49 (n=63)	4.47	.948
Wildlife, domesticated animals, and land use	4.46 (n=63)	4.4	.964
Production water	4.6 (n=63)	4.43	.794
Postharvest water	4.57 (n=63)	4.44	.856
Postharvest handling and sanitation	4.57 (n=63)	4.43	.875
Food safety plan	4.63 (n=63)	4.45	.809

Farm Innovation Project

Alabama
Georgia
Mississippi



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United States
Department of
Agriculture

National Institute
of Food and
Agriculture

Farm Innovation Outputs

15 Factsheets and Facilitator Guides:

- On-Farm Handwashing Station
- CoolBot & Cold Storage
- Cleaning and Sanitizing
- Choosing a Sanitizer
- Water Sampling
- Rotational Grazing
- Vegetative Buffers
- Google Maps



Farm Innovation Project Alabama Georgia Mississippi

COLD STORAGE FACTSHEET REVISED 05/2021

CLEANING & SANITIZING FACTSHEET REVISED 05/2021

HANDWASHING FACTSHEET REVISED 05/2021

SANITIZING FACTSHEET REVISED 05/2021

BUILDING ON-FARM COLD STORAGE USING A COOLBOT™ FACTSHEET REVISED 05/2021

A FEW BIG IDEAS TO CONSIDER Research CoolBot options. Their website and local farmers will have great advice.

A WINDOW A/C IS HIGHLY RECOMMENDED

- Durable, affordable and efficient
- Will work in a small, temporary or mobile cooler
- Easy to find

ADD ENERGY SAVINGS

- Have your door open to the outside
- Ball up your cooler above ground level so the door opens freely
- Install a door sweep to keep drafts from sneaking in

CHOOSE THE RIGHT COOLING OPTION

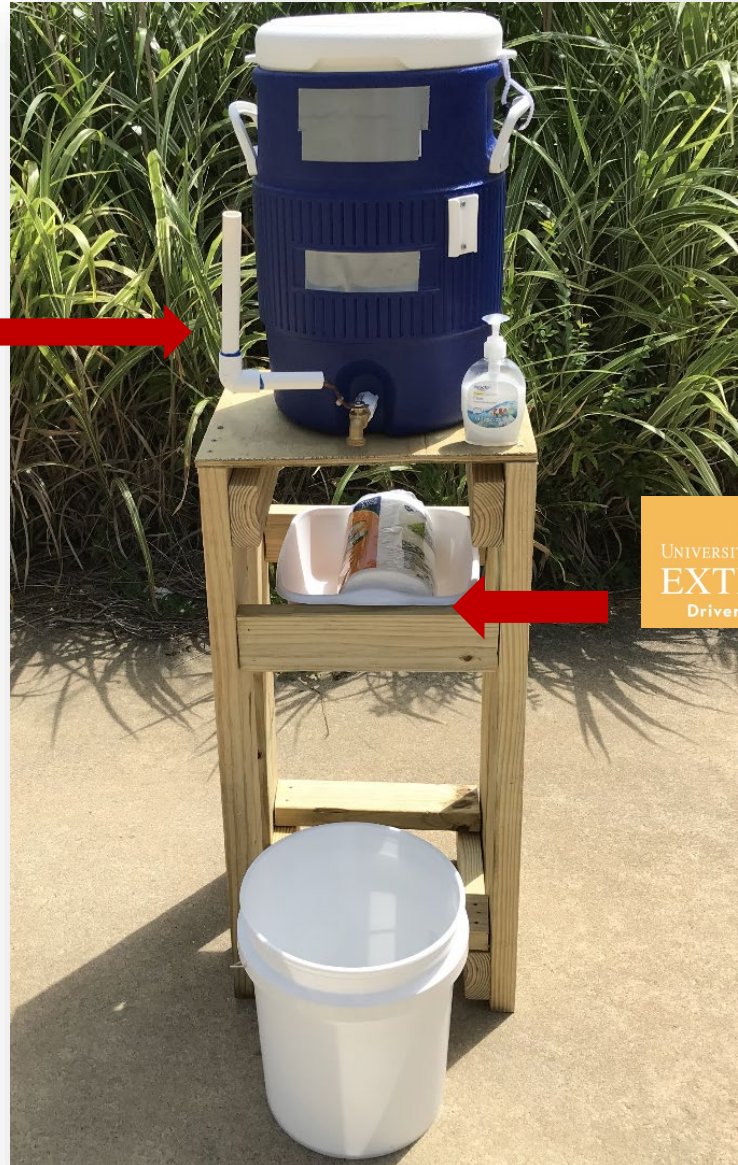
Think about:

- Room's suitability (upfront & long-term costs)
- Construction (energy savings)
- Total safety (proper cold storage)

PLACE THE COOLER IN A PROTECTED AREA

- Inside an existing building
- Under a tree
- On the north side of a barn
- Under an overhang on an existing structure

Building a Handwashing Station



BUILDING A HANDWASHING STATION

🕒 PURPOSE/OVERVIEW

WHY WE NEED HAND WASHING
Handwashing is essential to preventing the spread of germs.

This activity will guide a facilitator through the steps of constructing an on-farm handwashing station.

WHAT ARE THE IMPORTANT FACTORS TO CONSIDER?

- Frequent handwashing is one of the most important procedures used to prevent foodborne illnesses.
- Sources of illness-causing germs include animals, soil, and humans.
- Hands should be washed in a place that has clean water, soap, paper towels and a trash can.

🕒 LEARNING OUTCOMES

- Participants will be able to build a handwashing station for their farm.
- Participants will be able to build a hands-free faucet for their handwashing station.



GROUP SIZE

- No more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation Handwashing Factsheet

SUPPLIES

- Safety glasses
- Measuring tape
- Chalk or pencil
- Saw
- Drill
- Bits to match your screws
- PVC pipe cutter
- Measuring tape
- 3/4" wrench

*Guide is divided into two sections:

- Part 1: Building the Base
 - Part 2: Building the Hands-free Faucet
- See each section for list of materials.

SPACE REQUIREMENTS

- Outdoor space or room big enough to accommodate tools and lumber.
- Electricity for power tools
- Water for testing the sink when you have finished construction



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COOLBOT™ FACILITATOR GUIDE
REVISED 10/2021

BUILDING ON-FARM COLD STORAGE USING A COOLBOT™

CONNECTING YOUR COOLBOT™ TO YOUR AC

➔ PURPOSE/OVERVIEW

WHY WE NEED COLD STORAGE

- Reduces post-harvest loss
- Increases quality of produce
- May reduce food safety risks if germs are present

WHAT ARE THE IMPORTANT FACTORS TO CONSIDER?

- The cold chain - cold storage is a link in the chain that starts with harvest (harvest early or in the shade), post-harvest (conduct post-harvest activities in the shade or a cool room), cold storage (move produce into cold storage as efficiently as possible, which might mean that if the produce does not need to be washed, don't wash it), and transport (keep it cold as it moves to the final sale).
- Focus on the questions farmers should ask themselves when designing cold storage (questions are in the activity timeline).

- The CoolBot transforms any well-insulated room into a walk-in cooler using the cooling power of a standard air conditioner.

It may not work for you if:

- You need to rapidly reduce field heat or quickly cool a room
- You need a freezer
- Your cold storage is often opened more than 6 times an hour.

It might be a good choice if:

- You want to save costs on materials and energy
- You don't mind a little DIY construction.

- When using a CoolBot or any cold storage unit, it is

GROUP SIZE

No more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation CoolBot Factsheet
- Alabama Extension Cold Chain Factsheet
- CoolBot Quick Guide Installation - <https://storeitcold.com/wp-content/uploads/2020/02/2020-PBO-Quick-Start-Guide-Rev-2020-1A-LI.pdf>

SUPPLIES

- AC Unit
- CoolBot
- Tin foil
- Pen or pencil

Building On-farm Cold Storage Using a CoolBot



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CLEANING & SANITIZING FACILITATOR GUIDE REVISED 10/2021

CLEANING & SANITIZING

CLEANING, SANITIZING & COMMON TOOLS



PURPOSE/OVERVIEW

WHY WE NEED CLEANING AND SANITATION
Cleaning practices are important in keeping food safe.

WHAT ARE THE IMPORTANT FACTORS TO CONSIDER?
If produce touches a surface (such as field packing equipment, sorting tables, and harvest bins), that surface must be cleaned

GROUP SIZE

- No more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation Cleaning & Sanitizing Factsheet

SUPPLIES

- Yellow Scrub Brush
- Red Scrub Brush
- Wood Brush
- Non-Food Grade Cleaning Tools
- Gallon Hand Pump Sprayer
- Harvest Bin
- Yellow Sponges
- Clean Water Source
- Silicone Sponges & Finger Scrub Pad
- Detergent
- 5 gallon buckets for storage of tools
- 1 Green Broom Head

Cleaning and Sanitizing



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SANITIZING
FACILITATOR GUIDE
REVISED 10/2021

SANITIZING

MIXING, USING & DISPOSING OF SANITIZER

→ PURPOSE/OVERVIEW

WHY WE NEED SANITIZING

Correct sanitization of tools and equipment is a very important part of farm operations. Through the sanitizer activity, farmers will gain both the skills and self-efficacy required to sanitize on-farm tools and equipment.

WHAT ARE THE IMPORTANT FACTORS TO CONSIDER?

- The products available for sanitizing food-contact surfaces come in different forms and concentrations.
- Make sure the label includes an Environmental Protection Agency (EPA) registration number and it is approved for

GROUP SIZE

- No more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation Cleaning & Sanitizing Factsheet

SUPPLIES

- Audiovisual: Instructor
- Internet Access
- Clorox Bleach™
- Test Strips

Using the PPLS, Mixing, and Monitoring Sanitizers



WATER SAMPLING

WATER SAMPLING

➔ PURPOSE/OVERVIEW

Irrigation water is commonly used in produce production to reduce the economic impact of drought and conserve water. It is important for growers to consider that if contaminated irrigation water comes in contact with the harvestable portion of the crop, there is a possibility of contaminating produce. Knowing the microbial quality of water can help us make decisions that will reduce risk. Water that comes in direct contact with the harvestable portion of the crop should be tested for generic *E. coli* using a routine water sampling schedule.

➔ LEARNING OUTCOMES

GROUP SIZE

- Ideally, no more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation Water Sampling Factsheet

SUPPLIES

- Water testing kit
- Small cooler with ice or cooling packs
- Disposable gloves

Water Sampling



Fencing



ROTATIONAL GRAZING

SOLAR-POWERED ELECTRIC FENCE INSTALLATION FOR ROTATIONAL GRAZING

➤ PURPOSE/OVERVIEW

The purpose of this activity is to provide a hands-on opportunity for participants to construct an electric fence and engage them in discussion around the risks associated with having animals and produce on the same farm.

➤ LEARNING OUTCOMES

- Participants will understand the benefits of rotational grazing as part of a whole farm plan.
- Participants will understand how to reduce risk from having animals on a produce farm by following grazing and harvest intervals.
- Participants will gain confidence in installing an electric fence.

➤ PREPARE AHEAD OF TIME

Layout all the tools and parts for easy access.



GROUP SIZE

- Ideally, no more than 5 to ensure that everyone gets a hands-on experience

HANDOUTS

- Farm Innovation Rotational Grazing Factsheet

SUPPLIES

- Measuring tape
- Sledgehammer if the soil is compacted
- Compass
- Solar IntelliShock® 60 Energizer (comes with a 12 volt marine battery, solar panel, ground rods and an energizer)
- Section of netting or polywire
- Fault Finder to identify faults in fence

SPACE REQUIREMENTS

- Outdoor space or room big enough to accommodate a section of fence
- Ground soft enough to sink posts, energizer spikes, and ground rods



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SOIL EROSION
FACILITATOR GUIDE
REVISED 02/2022

COVER CROPS & VEGETATIVE BUFFERS

REDUCING SOIL EROSION BY USING COVER CROPS & VEGETATIVE BUFFERS

➔ PURPOSE/OVERVIEW

The retention of topsoil is important to all farming operations. This simulation provides a visual that helps explain how implementing practices such as rotational grazing, planting cover crops, and maintaining buffer strips can help slow the loss of topsoil, help promote other elements of soil health, and protect water quality.

The Expo Rainfall Simulator is an effective demonstration tool for describing the different effects of soil erosion in bare ground and vegetation-covered areas. The simulator kit contains 4 soil pans. However, for a short simulation using two

GROUP SIZE

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HANDOUTS

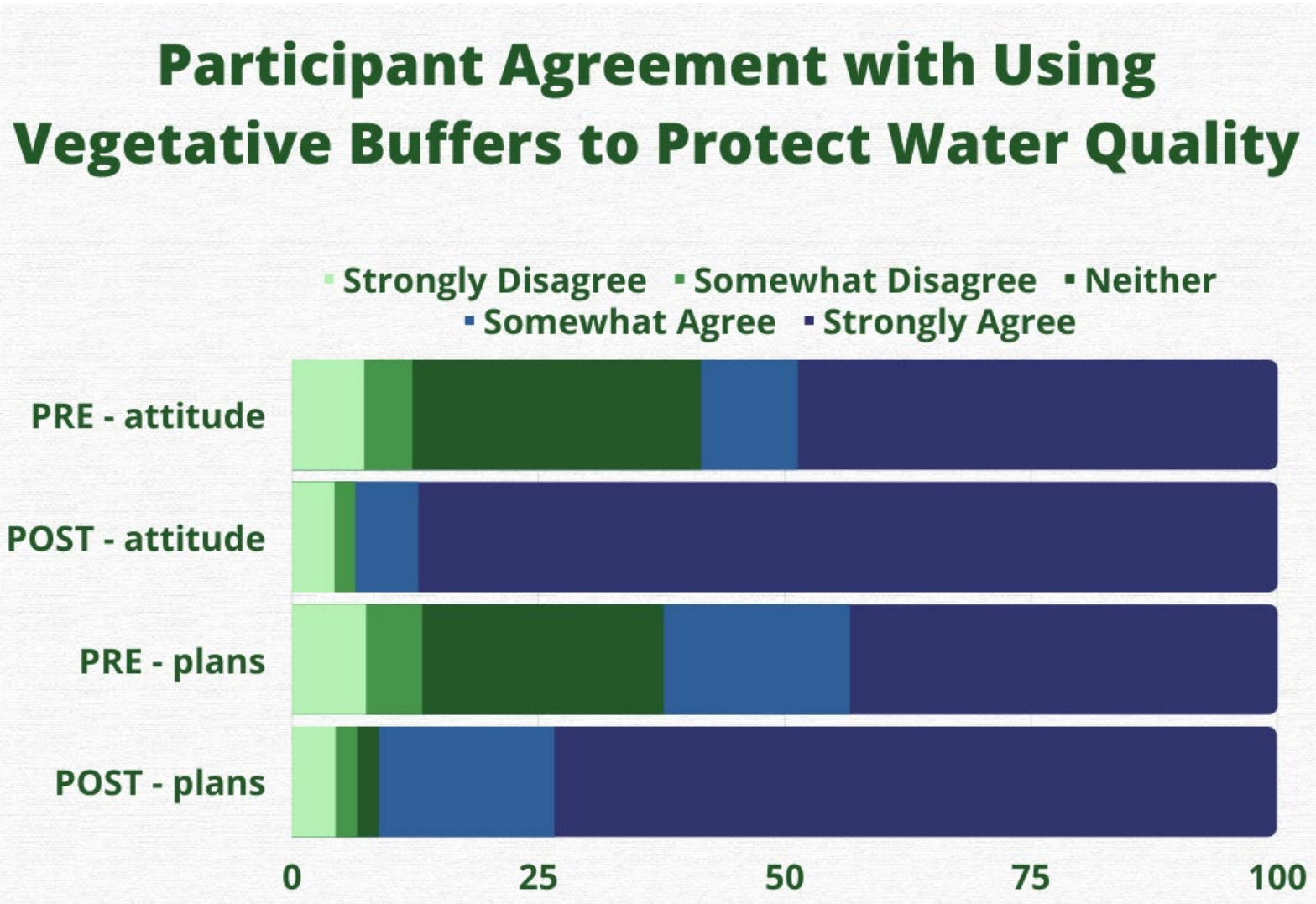
- Farm Innovation Reducing Soil Erosion by Using Cover Crops & Vegetative Buffers Factsheet

SUPPLIES

- Rubber Mallet
- Short 2x4 board
- Expo Rainfall Simulator Kit

Vegetative Buffers and Cover Crops

Preliminary Outcomes: Vegetative Buffers



n=41, p=.042

n=53, p=.044



How to Make a Map of Your Farm



Time Management in Produce Safety Training





Know Your Audience

- Are they typically on time?
- Are they talkers/socialites?
- Do you anticipate lots of questions or are they more advanced?
- Conduct a pre-survey to anticipate learner's questions/needs





Be the Early Bird

- Set yourself up for success
- Easiest way to address some of the most common preventable time management issues
 - Technology working?
 - Resources available and set up?
 - Activities prepped and ready to go?
 - Food and beverages





Know the Team & the Gameplan

- Know how much time is on the agenda vs. how much time it takes for you to cover the material
- What are the other instructor's presentation styles?
- What is everyone's expertise?
- Is the team clear on their roles and expectations?





Know Your Content

- Be able to explain concepts simply
- Know your own hang ups
- Avoid digressions
- Anticipate rabbit holes
- Have supporting resources prepared

If you can't explain it **simply**, you don't understand it well enough.

– Albert Einstein



Produce Safety
ALLIANCE



Practice Makes Perfect

- Time yourself speaking and/or conducting the activity with a practice audience
- Know the key points you'd like your audience to take away and focus on those
- Shoot for being under time, every time





How to Keep Tabs on Time

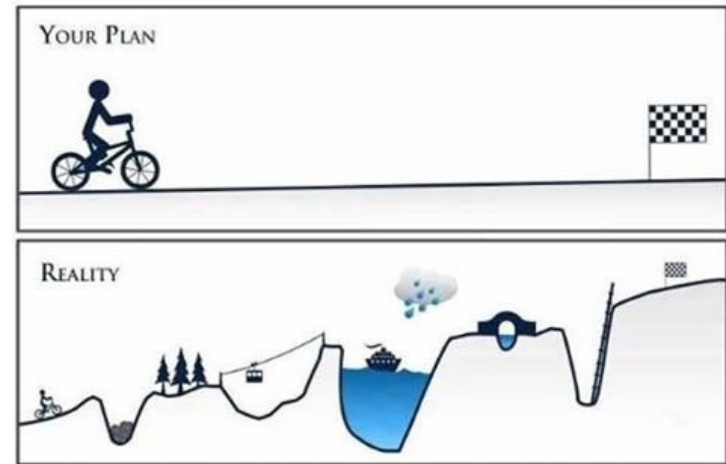
- Wear a watch
- Use a smart phone timer
- Enlist other instructors or support team to give you time warnings
- Use automatic slide transitions

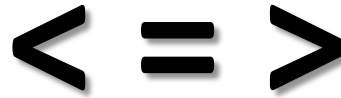




Course Corrections

- Time changes
- Running over/under
- Double down
- Be professional
- Always respect the audience's time





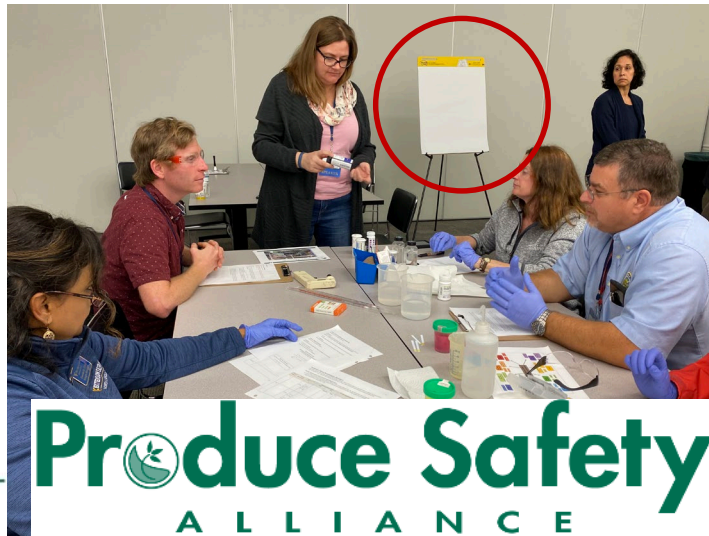
Sometimes less is more.

- Focus on your audience's needs
- Prioritize your message
- Allow extra time for questions, instructions, and evaluations
- Cover the content thoroughly
- Avoid rushing



Parking Lots, Post-script, & After Hours

- Put a bow on it
- Great option for operation-specific questions
- Deeper delves into rabbit holes and nuances
- E-mail/post-training follow up with participants





2022 PSA Update Webinar

- Available in English and Spanish
- English webinar: October 25, 2022, 2-3:30pm Eastern
- Spanish webinar: November 30, 2022, 2-4pm Eastern

- Registration is available on the PSA website → PSA Trainer Updates
 - <https://cals.cornell.edu/produce-safety-alliance/training/psa-trainer-updates>



Next Educator's Call

- December 2022 (exact date TBD)
- Topic: FDA Traceability Rule



The PSA Website

English: producesafetyalliance.cornell.edu

Spanish: es.producesafetyalliance.cornell.edu

