International Association for Food Protection® WEBINAR

How FSMA *Qualified Exempt* and *Not Covered* Produce Growers are Filling Learning Gaps Using Innovative Education Program Delivery Methods

May 29, 2026

WEBINAR MODERATOR: Christopher Ashwell,
University of Hawaii – Manoa

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How FSMA Qualified Exempt and Not Covered Produce Growers are Filling Learning Gaps Using Innovative Education Program Delivery Methods

University of New Hampshire

West Virginia University

Webinar Moderator

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Featured Speakers

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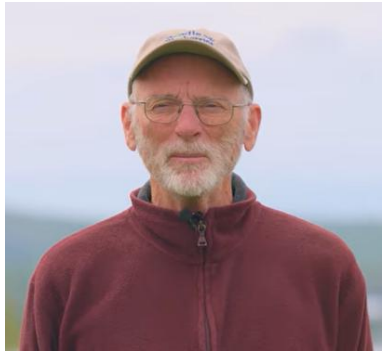
Jesica Temple
Postdoctoral Researcher, West Virginia University

Anton Bekkerman
Associate Dean for Research, College of Life Sciences and Agriculture, Director, New Hampshire Agricultural Experiment Station, Professor of Economics



Ron Howard
Farm Manager, Brodis Wild Blueberries, Hope, Maine

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Objective 1 (WHY – Regulatory Gap)

By the end of the webinar, participants will be able to identify at least two challenges that Qualified Exempt (QE) and Not Covered (NC) growers face related to accessing produce safety information, education, or training that may limit their ability to access and apply the resources they need to incorporate best produce safety practices on their farm.

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The Food Safety Modernization Act (FSMA)

- The Food Safety Modernization Act (FSMA), enacted in 2011, transformed the U.S. food safety system by emphasizing prevention of contamination rather than responding to foodborne illness outbreaks after they occur.

- The FSMA Produce Safety Rule (PSR) established science-based standards for the growing, harvesting, packing, and holding of produce to help prevent contamination and reduce foodborne illness risk.

FDA FOOD SAFETY MODERNIZATION ACT

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The Food Safety Modernization Act (FSMA)

Farms that are fully covered by the FSMA Produce Safety Rule must comply with requirements covering these key areas:

- **Worker Health and Hygiene and Training**
- **Agricultural Water**
- **Ag Chemicals (Sanitizer and Ag Pesticides)**
- **Animals and Pest Control**
- **Soil Amendments**
- **Field Harvesting**
- **Transportation (Field to Packinghouse)**
- **Packinghouse Activities**
- **Final Product Transport**
- **Documentation**

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Understanding FSMA Exemptions

Not Covered (NC) or **Qualified Exempt (QE) Farms**
Do not have to comply with the full Produce Safety Rule requirements, but they may still have limited obligations.

However, all foods in the sold in the US remain subject to the general prohibition against selling adulterated food under the Federal Food, Drug, and Cosmetic Act.

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Understanding FSMA Exemptions

Not Covered (NC) Farms

Farms with less than or equal to $34,324 average produce sales over the previous 3 years (adjusted 2011 thresholds based on 2023-2025 average).

Qualified Exempt (QE) Farms must comply with modified requirements, including:

- Provide farm identification information: disclose the farm name and complete business address on produce labels or display this information at the point of purchase.
- Maintain records demonstrating continued eligibility for the qualified exemption, including documentation of sales and an annual review and verification that exemption criteria are still met.

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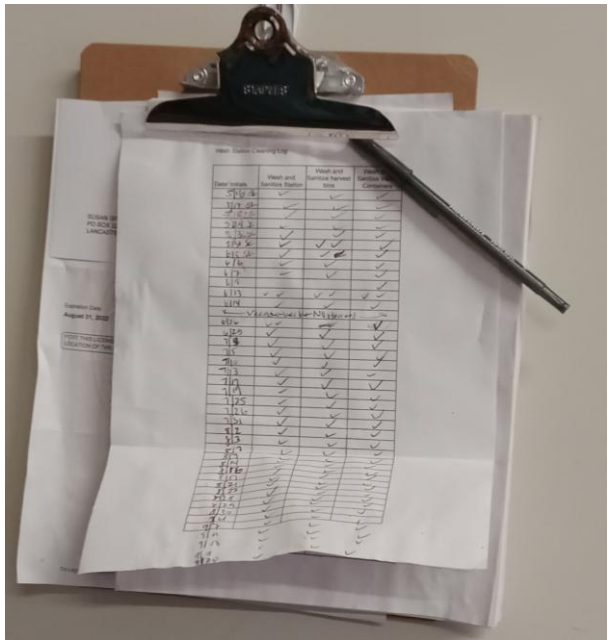
Without Consistent Support, Implementation Varies

Exemptions from **FSMA** rules can sometimes create confusion regarding how critical produce safety practices should be implemented.

- Some growers follow structured systems for washing, sanitization, temperature control, and recordkeeping.
- Others rely on informal approaches shaped by available training, infrastructure, labor and technical support.
- Differences in guidance and implementation resources can lead to variability in:
  - sanitizer use
  - documentation
  - postharvest handling practices



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Common Challenges for QE and NC Growers

- Many QE and NC growers have limited access to produce safety education and technical assistance.
- Limited infrastructure, sanitation equipment, training, and technical support can make produce safety practices difficult to apply consistently.
- Growers may be uncertain about which produce safety practices are recommended or practical for their operation.
- Without clear guidance, growers may implement produce safety practices less effectively across farms.

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Please answer in the chat box (not Q&A):

Please share two common challenges that Qualified Exempt and Not Covered produce growers face.

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Common Challenges for QE and NC Growers

If QE and NC growers differ in their training, support, infrastructure, and ability to consistently implement food safety practices, how do we identify who needs what type of produce safety support?

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Objective 2
(WHY THIS APPROACH – Willing-Ready-Able Framework)

By the end of the webinar, participants will be able to explain how the Willing-Ready-Able (WRA) framework identifies differences in grower readiness and informs targeted outreach strategies, using a scenario-based example.

Source: Historical photograph displayed at the Romney Farm Market, Romney, West Virginia.

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Development of the Willing–Ready–Able Framework

- **Phase 1 — Systematic Literature Review (SLR).**
  - Identified persistent gaps between food safety awareness and produce safety practice adoption among FSMA-exempt growers.
- **Phase 2 — Pilot Study (Proof of Concept).**
  - Developed the Willing–Ready–Able (WRA) framework to classify voluntary produce safety engagement.
- **Phase 3 — Statewide Psychometric Validation Study and Predictive Modeling.**
  - Validated the reliability and behavioral structure of the WRA framework across West Virginia small-scale produce growers.
  - Identified factors associated with readiness and voluntary produce safety practice adoption.

Phase 1 — Systematic Literature Review (SLR)

Identified persistent gaps between food safety awareness and produce safety practice adoption among FSMA-exempt growers.

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Review

Food Safety Practices Among Small-Scale Produce Growers Exempt from Federal Regulations: A Systematic Literature Review

Jesica Temple [1], Tim P. Boltz [2], Jessica M. Blythe [1,3], Christopher M. Ashwell [1,3], Cangliang Shen [1,3,*]

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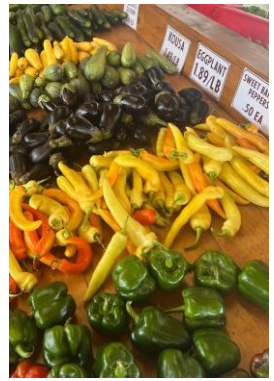
The Problem of Behavioral Readiness in Food Safety



- Small-scale, **FSMA-exempt growers** face **postharvest contamination risks** because produce safety practices may be implemented inconsistently.
- Outreach programs often treat growers the same, despite differences in **readiness** and **implementation needs**, which may reduce the efficiency of technical assistance efforts.
- Without identifying which growers need **foundational versus advanced support**, Extension resources may be used ineffectively, and contamination risks may persist.

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Systematic Literature Review: Why It Was Needed

- Small-scale FSMA-exempt growers face postharvest contamination risks across Agricultural Water (AW), Cleaning and Sanitization (CS), and Storage and Transport (ST) practices.
- **Prior research** showed **inconsistent knowledge** and **low adoption of produce safety practices among growers.**
- Existing outreach approaches did not differentiate growers based on readiness or support needs.
- This review identifies where **breakdowns** occur across **Agricultural Water (AW), Cleaning and Sanitization (CS), and Storage and Transport (ST).**

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Systematic Literature Review Research Question

How do self-reported practices and willingness to adopt them vary among small-scale produce growers in the United States who are exempt from the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR), particularly across the domains of agriculture water (AW), cleaning and sanitation (CS), and storage and transport (ST).

PICOS	Description
Population	Small-scale produce growers or farmers' market vendors in the United States who are exempt from the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR)
Intervention	Willingness to adopt food safety practices, including those related to agriculture water (AW), cleaning and sanitation (CS), and storage and transport (ST).
Comparison	Self-reported contamination risk practices compared to recommended standards (e.g., FDA guidance or Good Agricultural Practices [GAPs]).
Outcome	Implementation of food safety practices within the three high-risk domains: AW, CS, and ST.
Study Design	Cross-sectional survey studies only.

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Knowledge–Attitudes–Behavior Patterns

Knowledge.

Knowledge about **contamination risks** existed but was **inconsistently applied.** Though **36%** of growers recognized rinse water as a contamination risk, **69%** still didn't **test irrigation water annually** (Kilonzo-Nthenge et al., 2018; Sinkel et al., 2018).

Attitude.

Growers **valued food safety** but **rarely acted on it.** Though **90%** were aware of **GAPs, only 47%** adopted **related water practices** (Sinkel et al., 2018).

Behavior.

Adoption lagged behind awareness. Fewer than **39%** of farms used **tested water**, and **only 27%** sanitized **wash water** (Harrison et al., 2013; Stearns et al., 2025).

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Barriers to Implementing Food Safety Behaviors

1. **Cost and Capacity Constraints Limit Food Safety Practice Adoption**

- Upgrades are **unaffordable** (64-67% cited cost as a major barrier) only **24%** could make the investments (Sinkel et al., 2018; Pivarnik et al., 2018).
- Adoption occurs when practices are **low-cost** and **minimally disruptive** (Kalauni et al., 2024).
  Feasibility and **economic capacity** influenced implementation.

2. Gaps in Knowledge Application

- Growers **know** food safety matters, but fewer than **half** identified contamination points (e.g., wash water) (Sinkel et al., 2018).
- **93%** requested additional **training** (Kilonzo-Nthenge et al., 2018).
  Knowing food safety matters did not always mean growers were able to apply the practices consistently.

3. Infrastructure and Regulatory Barriers Reduce Feasibility

- Missing **sinks, refrigeration, permanent facilities; 30%** still packed produce in the **field or home kitchens (5%)** (Pivarnik et al., 2018).
- Rules are perceived as **unclear, burdensome; low trust** in oversight (< 2.5/5) (Pivarnik et al., 2018).
- This explains why ***voluntary adoption lags*** despite good intentions.

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Behavioral Implications of Identified Barriers

- **Economic and time constraints** limited infrastructure investment and training access (Kalauni et al., 2024; Pivarnik et al., 2018; Sinkel et al., 2018).
- **Limited oversight and unclear FSMA guidance** reduced motivation for compliance (Mohammad et al., 2020; Stearns et al., 2025).
- **These findings align with the Theory of Planned Behavior** –intention alone does not drive behavior without sufficient control and capability (Ajzen, 1991).
- Together, the literature suggest that **behavior and capacity are distinct:** many growers were *willing but unable* to act, highlighting the need for **readiness-based framework** (Kalauni et al., 2024; Pivarnik et al., 2018; Sinkel et al., 2018; Mohammad et al., 2020; Stearns et al., 2025).
- This readiness gap provided the rationale for developing the Willing–Ready–Able (WRA) framework.

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Limitations and Conclusion

Limitations.

- Small number of eligible studies (*n*=*7*).
- Reliance on **self-reported data.**
- **FSMA status inferred** in some cases.

Conclusion.

- FSMA-exempt small-scale produce growers reported **high awareness and willingness**, yet **inconsistent adoption** of food safety practices.
- **Economic, infrastructural, and regulatory barriers** limited their ability to act, showing that **knowledge and intention alone do not ensure behavior change**.
- **Targeted, practical training** and **structural supports** are needed to help willing growers implement safe handling practices.
- Bridging the gap requires moving beyond **awareness** to ensure growers **have both motivation and means** to act.

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Phase 2 — Pilot Study (Proof of Concept)

Developed the Willing–Ready–Able (WRA) framework to classify voluntary produce safety engagement.

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Research Paper

Development and Validation of a Novel Classification Framework for Voluntary Food Safety Adoption Among Small-Scale Produce Growers: A Pilot Study

Jesica Temple [1], Jessica M. Blythe [2], Tim P. Boltz [3], Arron J. Giorgi [2], Christopher M. Ashwell [1], Cangliang Shen [1,*]

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From Prior Research to Claim

Context:
FSMA-exempt growers show **inconsistent adoption** of postharvest **food safety practices** across Agriculture Water, Cleaning and Sanitation, and Storage and Transport.

Gap:
Current research does **not stratify** *growers* by **behavioral engagement** or explain why adoption varies.

Significance:
Without distinguishing readiness levels, **outreach cannot target training**, support voluntary compliance, or **reduce contamination risk** efficiently.

Claim:
This phase **introduces** and pilots the **Willing–Ready–Able (WRA)** framework to **classify behavioral readiness** and **guide** targeted **outreach.**

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Framework Development

- **Problem.**
  No standardized framework existed to classify produce safety readiness among FSMA-exempt growers.
- **Rationale.**
  Readiness better predicts produce safety practice adoption than regulatory status alone.
- **Hypothesis.**
  Growers selling into broader markets will adopt more produce safety practices due to greater buyer expectations for safe produce handling.

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Methods

- **Design:** Cross-sectional, self-administered survey (pilot study).
- **Population:** FSMA-exempt produce growers in West Virginia.
- **Recruitment:** 2025 WV Small Farms Conference; *n = 35* FSMA-exempt growers (100%) completion.
- **Eligibility:** Small-scale fruit/vegetable farms meeting PSR exemption or qualified exemption criteria.

Framework Basis:

- Theory of Planned Behavior (TPB) → attitudes, perceived control.
- Transtheoretical Model (TTM)→ stages of readiness.
- Combined to form the Willing–Ready–Able (**WRA**) classification.
- **Ethics:** WVU IRB approved (Exempt; Protocol #2501094431).

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Why Readiness Matters

- **Food safety training** was used as an indicator of preparedness to apply produce safety practices.
- Adoption of **Good Agricultural Practices (GAPs) aligned produce safety practices** was used as an indicator of produce safety behavior in practice.
- Combining **food safety training** and **GAP-aligned practice adoption** identified different levels of produce safety readiness.
- **Readiness**, rather than **FSMA status alone**, predicts voluntary produce safety practice adoption.

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Behavioral Readiness: Why Knowledge ≠ Adoption

- Behavioral readiness combines motivation, training, and the ability to adopt safe practices.
- Adapted from TPB (Ajzen, 1991) and TTM (Prochaska & Velicer, 1997).
- Explains why similar farms may differ in produce safety practice adoption despite shared knowledge.
- Forms conceptual base for Willing—Ready—Able (WRA) framework.

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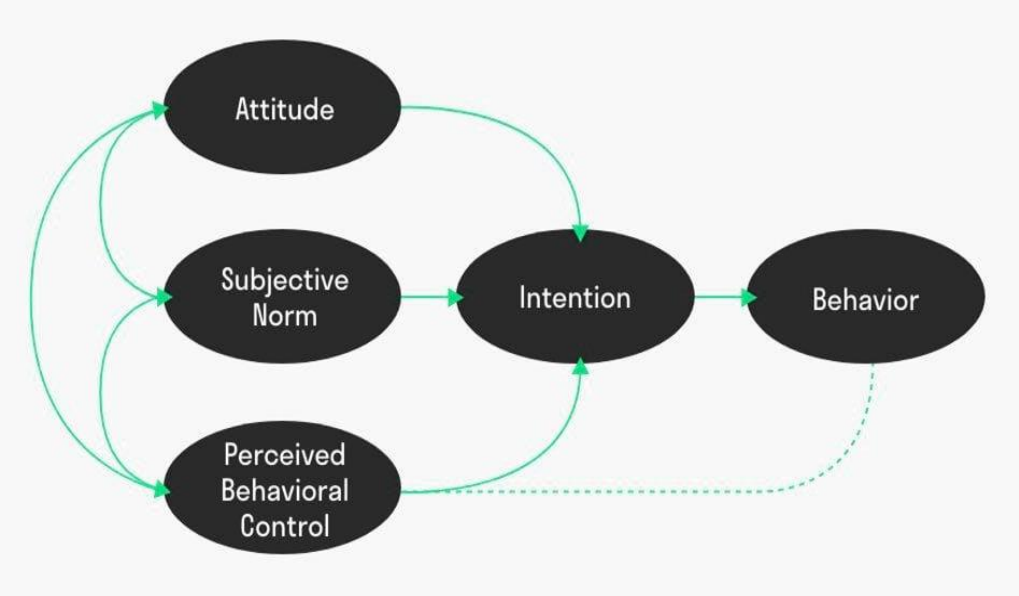
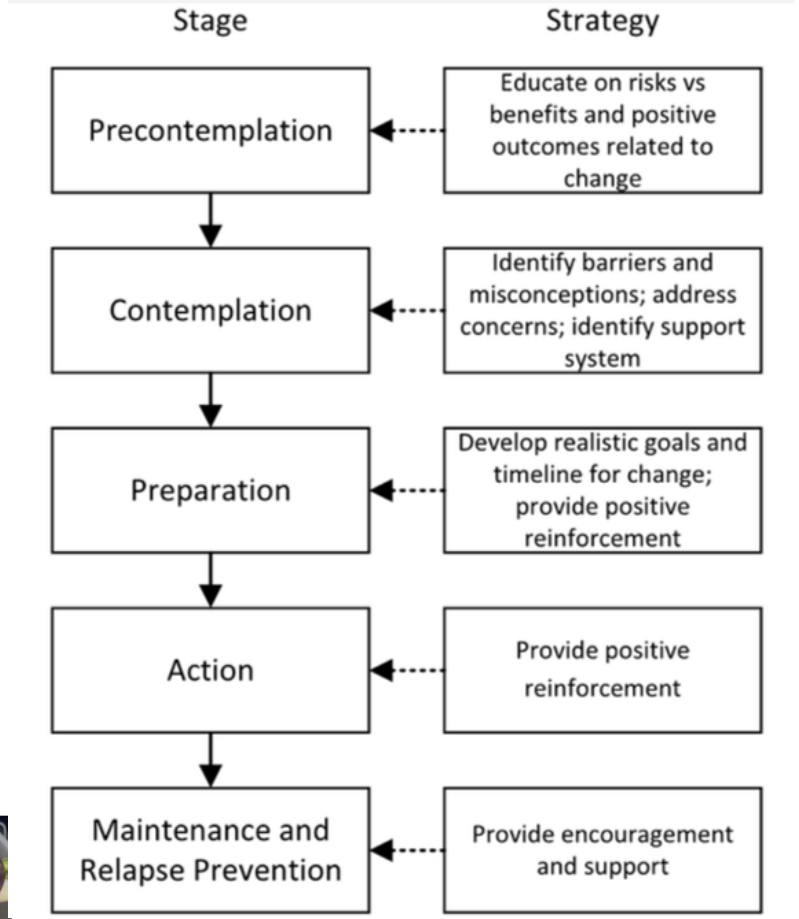
Behavioral Foundations of WRA

Theory of Planned Behavior



Ajzen, 1991.

Transtheoretical Model



Wang et al., 2019.

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Behavioral Readiness Framework for FSMA-Exempt Growers (WRA Model)

The Willing–Ready–Able (WRA) model represents progressive stages of behavioral readiness among FSMA-exempt small-scale produce growers.

Willing

- No formal food safety training.
- Confident in current practices.

Ready

- Completed food safety training.
- Adopted 1–3 GAP-aligned practices.

Able

- Training completed and applied.
- Adopted 4+ GAP-aligned practices.

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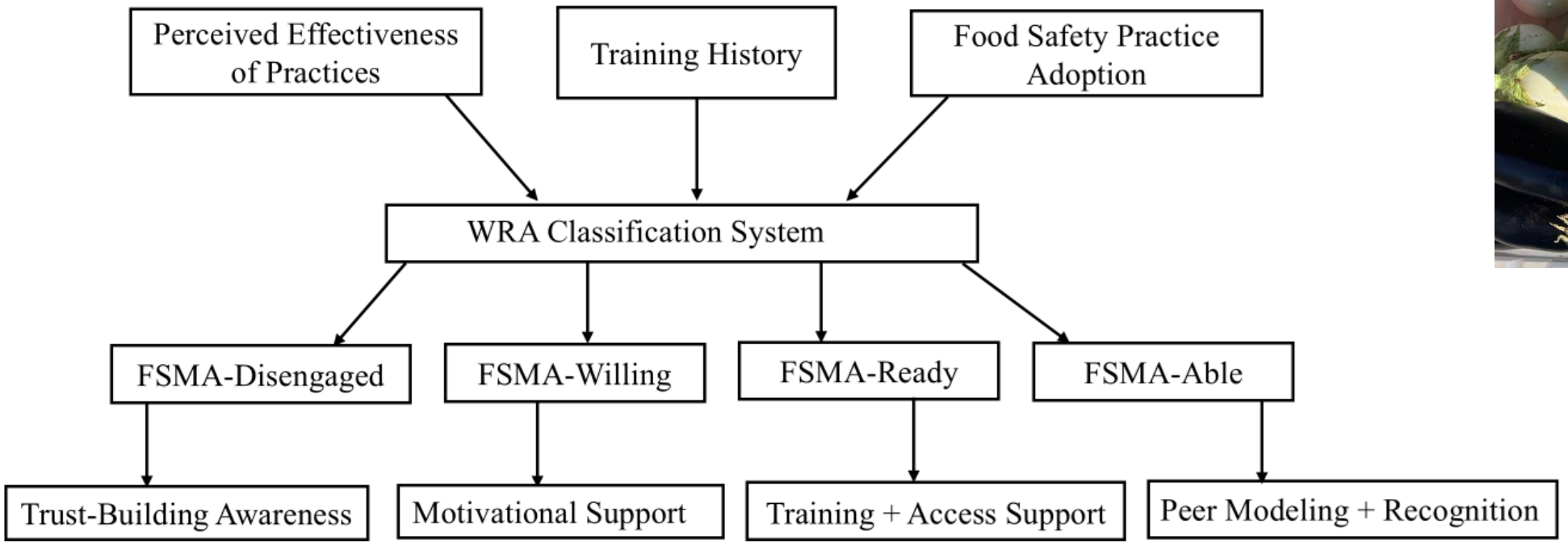
WRA Framework and Classification



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WRA Operationalization

- **WRA Purpose**: Classify **voluntary food safety engagement** among FSMA-exempt growers.
- **Indicators:**
  - Formal food safety training participation.
  - Confident in current practices.
  - Adoption of 7 GAP-aligned postharvest practices:
    - Glove use
    - Sanitize surfaces
    - Clean/sanitize containers for transport
    - Monitor and record temperature (storage)
    - Monitor and record temperature (transport)
    - Refrigerate produce as needed
    - Separate raw and ready-to-eat products
    - Handwashing (removed due to ceiling effect)

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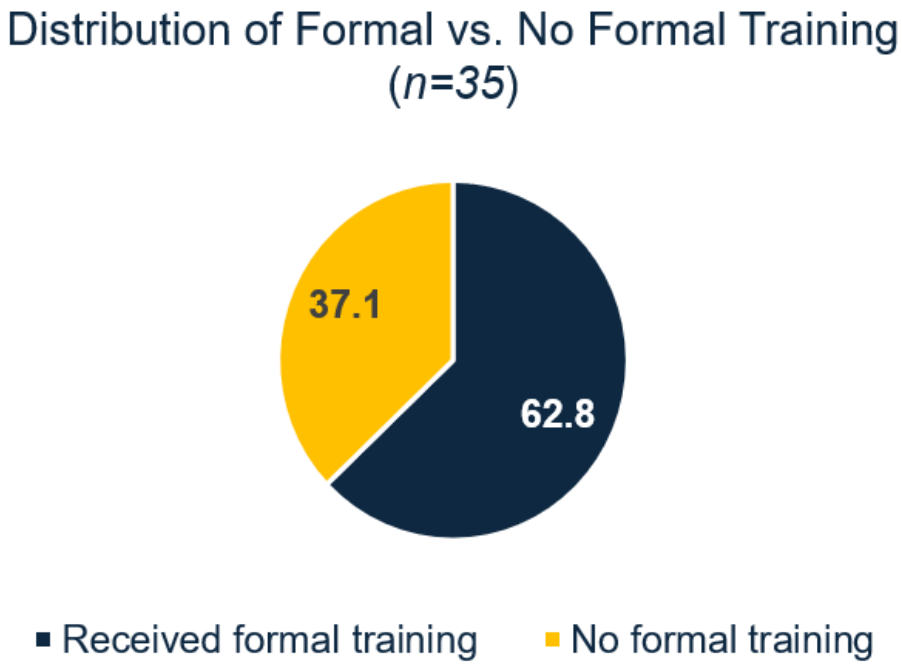
Rationale for Inclusion of WRA Indicator Practices

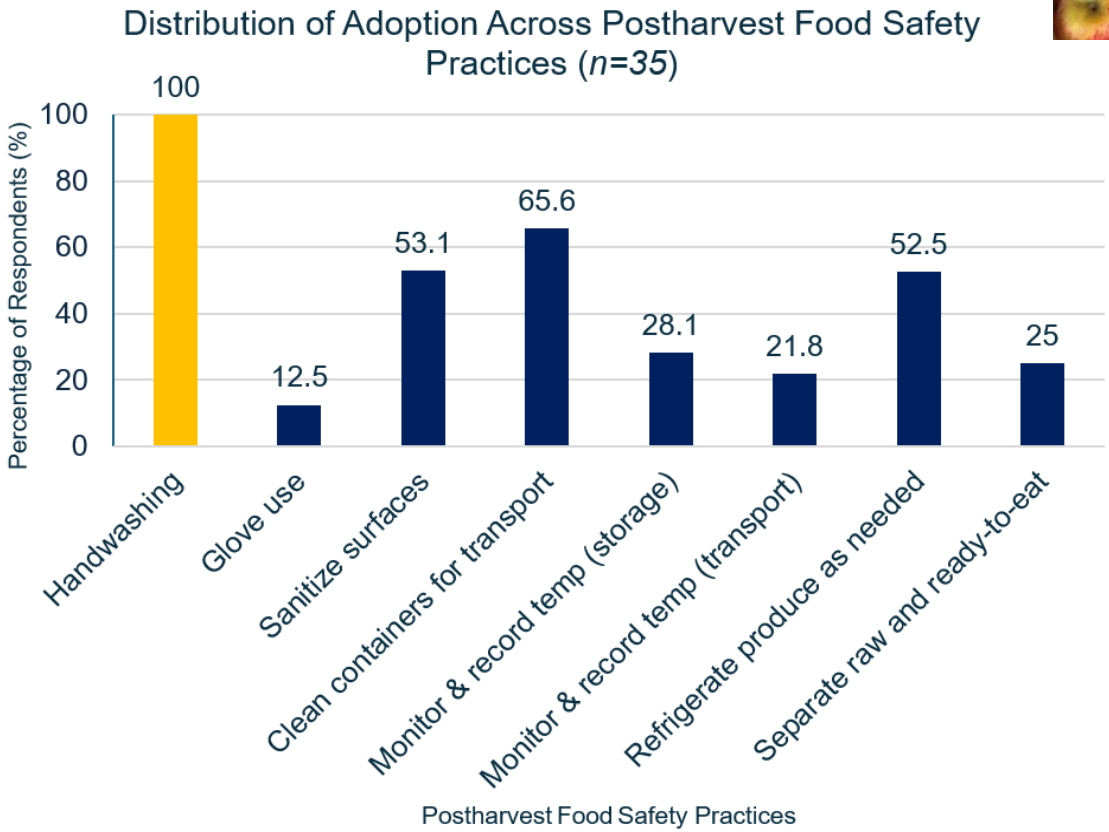
Practices	Description
Wear gloves when handling produce.	Reflects enhanced hygiene beyond basic handwashing. Adoption varies across growers, allowing discrimination across WRA levels.
Clean and sanitize surfaces frequently.	A foundational Clean and Sanitize behavior in post-harvest environments, especially in packing and contact areas.
Use clean containers for transport.	Captures sanitation efforts linked to cross-contamination risk during distribution, a commonly under-implemented area among small-scale growers.
Monitor and record temperature during storage.	Indicates adherence to cold -chain protocols for perishable items.
Monitor and record temperature during transport.	Builds on storage monitoring, reflecting vigilance in maintaining safety during delivery or vending.
Refrigerate produce as needed.	A critical microbial control practice, especially for leafy greens and cut produce; also serves as a proxy for infrastructure access
Separate raw and ready-to-eat produce.	Addresses cross-contamination risk during storage, transport, and display. Aligns with PSR recommendations in the absence of a kill step.

WRA Operationalization and Analysis

- **Threshold Justification:**
  - Adoption of ≥4 practices indicated engagement across multiple contamination-risk domains (“hurdle effect”).
  - The “hurdle effect” refers to using multiple preventive steps together to reduce contamination risk.
  - This layered approach is consistent with Good Agricultural Practices (GAPs) and multi-step produce safety prevention.
- **Analysis:** Descriptive statistics, Chi square (acreage x adoption), Wilcoxon (market channel x total practices).

Training Is Common, but Postharvest Food Safety Practices Remain Uneven





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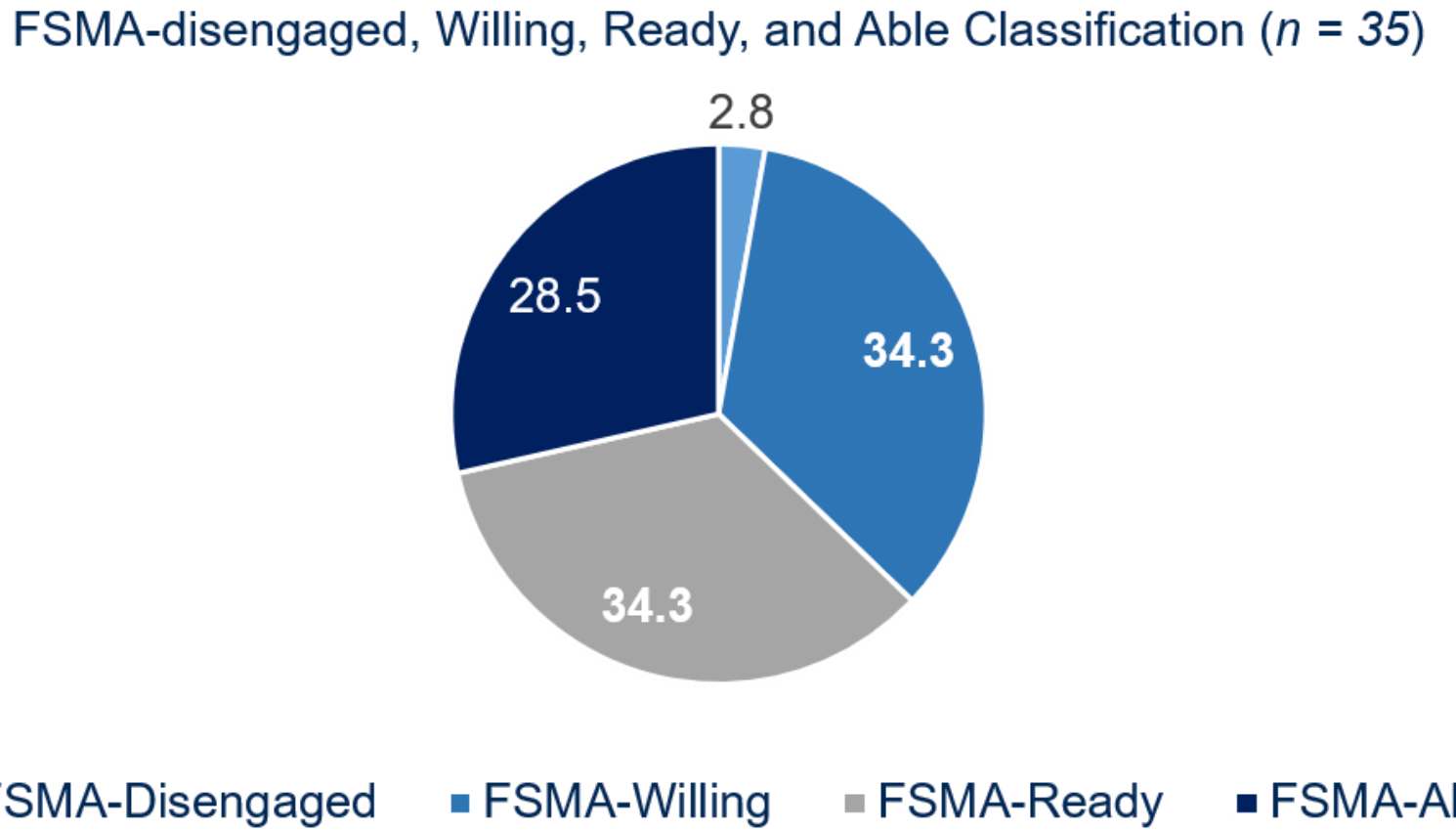
Behavioral Engagement Across FSMA-Exempt Small–Scale Growers



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What the Pilot Revealed

- Adoption declined when practices required additional resources or infrastructure.
- WRA successfully segments growers by readiness, not just regulation.
- Market type and acreage showed minimal effect compared to readiness level.
- Informs targeted Extension strategies:
  - Willing→ awareness and trust building
  - Ready→ resource and infrastructure support
  - Able→peer mentorship and demonstration

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Conclusion and Implications

- WRA framework was feasible and behaviorally meaningful.
- Regulatory exemption doesn’t equal disengagement.
- Readiness varies by confidence, motivation, feasibility.
- WRA guides risk-based outreach beyond regulation.

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Phase 3 — Statewide Psychometric Validation Study

Validated the reliability and behavioral structure of the WRA framework across West Virginia small-scale produce growers.

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Research Paper

Validating the Willing–Ready–Able (WRA) Framework to Measure Food Safety Engagement Among FSMA-Exempt Produce Growers in West Virginia

Jesica Temple [1], Jessica M. Blythe [1,2], Tim Boltz [3], John N. Twist [4], Ryan Hansen [4], Aaron J. Giorgi [1,2], Christopher M. Ashwell [1,5], Cangliang Shen [1,6,*]

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In Press, Journal Pre-proof What's this?

Modeling Stage-Specific Predictors of Food Safety Engagement Along the Willing–Ready–Able (WRA) Continuum Among FSMA-Exempt Produce Growers in West Virginia, USA

Dr. Jesica Temple [a], Dr. Ana Cláudia Sant'Anna [b], Dr. Tim P. Boltz [c], Dr. Aaron J. Giorgi [d], Dr. Jessica M. Blythe [d], Dr. John N. Twist [e], Dr. Ryan Hansen [e], Dr. Cangliang Shen [f], Christopher M. Ashwell [b]

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Methods: Statewide Study Overview

- Conducted July-August 2025 **across 6 WVDA regions.**
- **n = 125 FSMA-exempt growers** recruited statewide (from farmers' markets, and roadside stands).
- **44%** located in **North Central** WVDA region (red).
- **Expanded survey:** confidence, importance, willingness (Likert-scales).
- **Goal: Confirm** that **Confidence**, **Importance** and **Willingness** reliably **differentiate Willing < Ready < Able growers.**
- **Ethics:** WVU IRB approved (Exempt; Protocol #2501094431).

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Behavioral Constructs Leading to Readiness

Confidence	Importance	Willingness	Readiness to Act
"Can I do it?"	"Do I care enough?"	"Am I ready to act?"	(WRA Continuum)
Belief in ability to perform safe practices	Value placed on food safety practices.	Intention to adopt or improve practices.	Progression: Willing→ Ready→Able

(Adapted from the Theory of Planned Behavior, Health Belief Model, and Transtheoretical Model)

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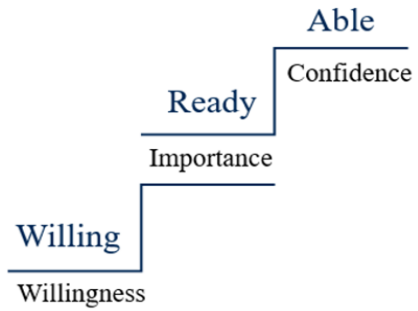
WRA Framework: Behavioral Validation

THE BEHAVIORAL CONTINUUM

Willing: Motivation Priority
High intent; Infrastructure/Resource constrained.
Validated via MANOVA Contrast 1

Ready: Importance Priority
High value recognition; Confidence/Skill constrained.
Validated via MANOVA Contrast 2

Able: Behavioral Maturity
High confidence; Proven competence & infrastructure.
Validated via Descriptive Analysis



STATISTICAL METHODOLOGY

Scale Reliability: Internal consistency confirmed via **Cronbach's Alpha** ($\alpha = 0.81 – 0.88$).

Construct Validation: Group differences tested using **One-way MANOVA** ($p < .001$) to ensure distinct behavioral stages.

Predictive Modeling: Group membership predictors identified through **Multinomial Logistic Regression**.

Planned Contrasts: Used to distinguish "Willing vs. Ready" and "Ready vs. Able" based on specific resource/competence indicators.

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Implications of Key Findings–Behavioral Readiness

- The first claim **confirms** that the **measurement system works**—confidence, importance, and willingness are **valid**, stable, **indicators** of behavioral readiness.
- The second claim **shows** that **WRA behaves as behavioral theory predicts**—scores **increase stepwise** (Willing < Ready < Able).
- Together, these findings imply that **readiness can be *measured and distinguished*** in real-world farm contexts.
- WRA **bridges theory and practice**—turning behavioral constructs into a diagnostic tool for targeted outreach.

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From Statistical Significance to Practical Application

- **Validated differences represent** measurable behavioral shifts (**Able-Willing gap** = movement from awareness to implementation).
- **WRA** provides a practical way to **identify who is aware**, who is **implementing**, and who is **sustaining** Good Agricultural Practices (**GAPs**).
- **Framework enables targeted interventions:**
  - Willing→confidence building
  - Ready→skill and infrastructure support
  - Able→peer mentorship and leadership
- **WRA helps Extension partners** allocate training efficiently and monitor compliance progress.

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Conclusion

- WRA framework validated for FSMA-exempt growers
- Confidence, importance, willingness increase: Willing→Ready→Able
- Aligns with behavior change theory (TPB and TTM)
- Moved from concept→application for targeted outreach

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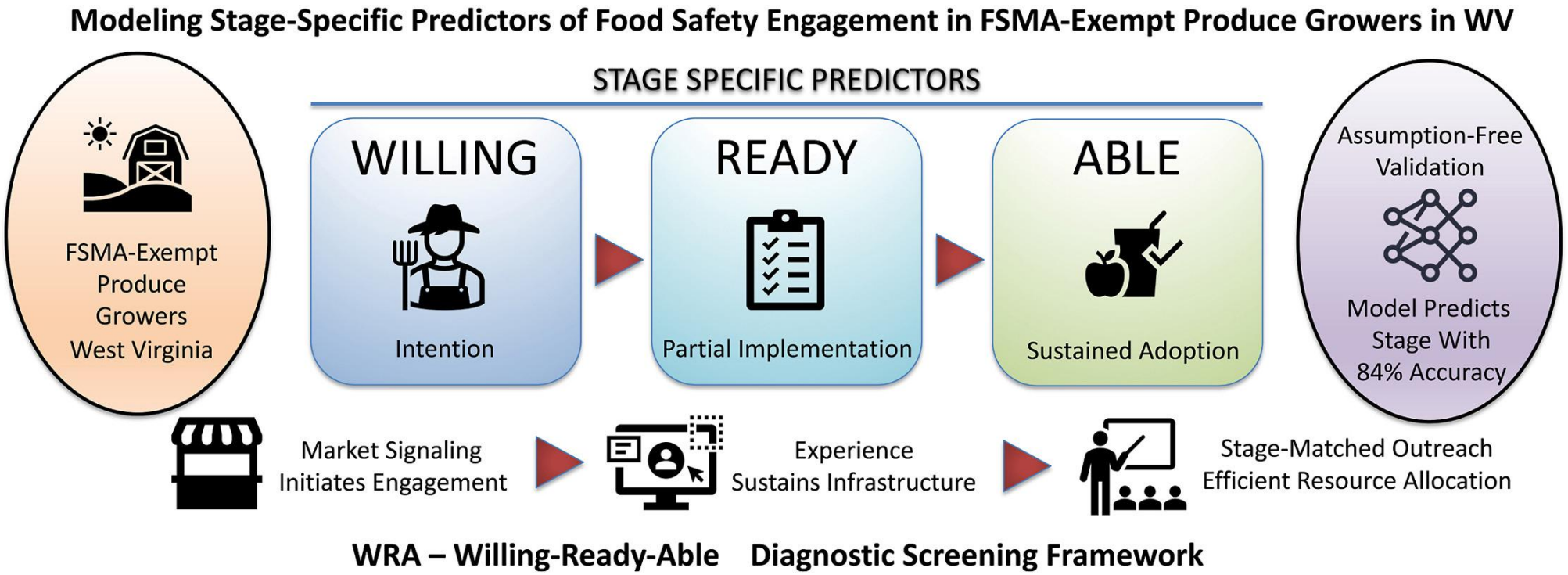
Companion Study Predictor Analysis

Identified factors associated with readiness and voluntary produce safety practice adoption.



Temple, et al, JAFR, 2026.

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What Moves Growers Along the Readiness Continuum?

- The statewide validation study showed that WRA reliably differentiated readiness levels.
- The next question became: what factors influence movement from Willing → Ready → Able?
- Companion predictor modeling examined **stage-specific** factors associated with progression along the WRA continuum and voluntary produce safety practice adoption.

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Different Factors Influenced Different Stages of Readiness

Early-Stage Progression

Willing → Ready

- Associated with buyer expectations and market pressure

Later-Stage Progression

Ready → Able

- Associated with years of farming experience

Bottom line

- Readiness progression was stage-specific rather than one-size-fits-all.
- A secondary machine-learning analysis identified the same key predictor patterns, increasing confidence in the findings.

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Operational Implications of Predictor Modeling

- Early-stage growers may respond more to market incentives and buyer expectations
- Later-stage growers may require implementation refinement and operational experience
- Targeted outreach may be more effective than uniform training approaches

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Please answer in the chat box (not Q&A):

If a grower has no formal training but feels confident, which designation in WRA categories is this grower:

Willing, Ready, or Able?

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Objective 3 (HOW – Jumpstart Program)

By the end of the webinar, participants will be able to state two ways they can use Jumpstart microlearning videos to educate QE and NC growers on low-barrier strategies to improve produce safety on their farms.

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Jumpstart Program

Overview

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Jumpstart to Produce Safety

This work is supported by Food Safety Outreach Program grant no. 2021-70020-35647 from the USDA National Institute of Food and Agriculture.

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Overcoming technical and economic barriers to adopting food safety practices

- Small and mid-sized produce operations in New Hampshire and Maine
- Many small farms in New Hampshire and Maine are not fully covered by FSMA, so are not required to meet most FSMA requirements
- Often lack the resources to navigate Food Safety Modernization Act (FSMA) Produce Safety Rule requirements
- Adopting safe handling and efficient practices is desired by growers for protecting customers, maintaining quality, meeting buyer standards, and strengthening their business

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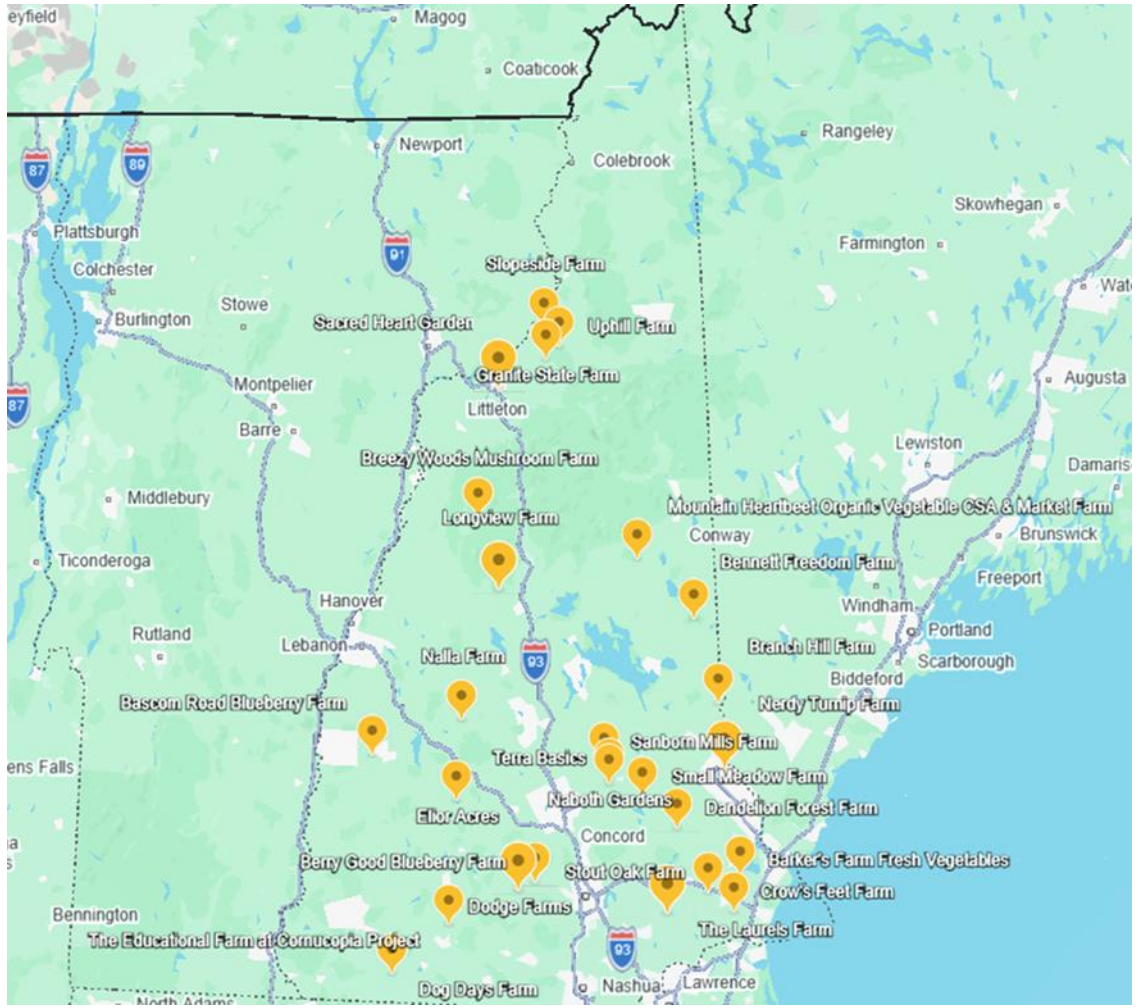
Jumpstart to Produce Safety

- Jumpstart provides a model for overcoming hurdles to safe practices
- Individualized
- On-farm technical assistance
- Focus on incremental risk reduction
- Peer-to-peer micro-learning videos



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Note on Maine Data

- Staffing difficulties in Maine prevented robust follow-up of participating farmers
- Their data is incomplete but tracks with the results we found in NH
- Some of the micro-learning videos are from Maine
- The data presented today is from NH farmers only

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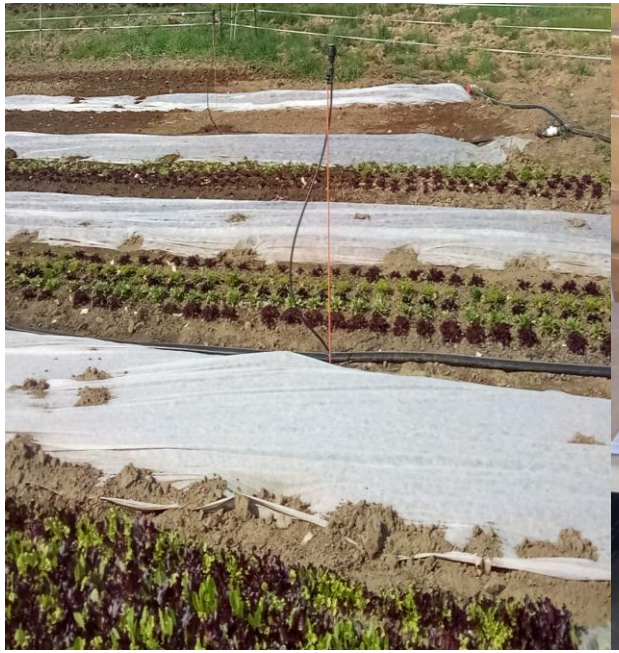
Methods

Enrolled farms received technical assistance

From field → wash/pack → storage → transport → market

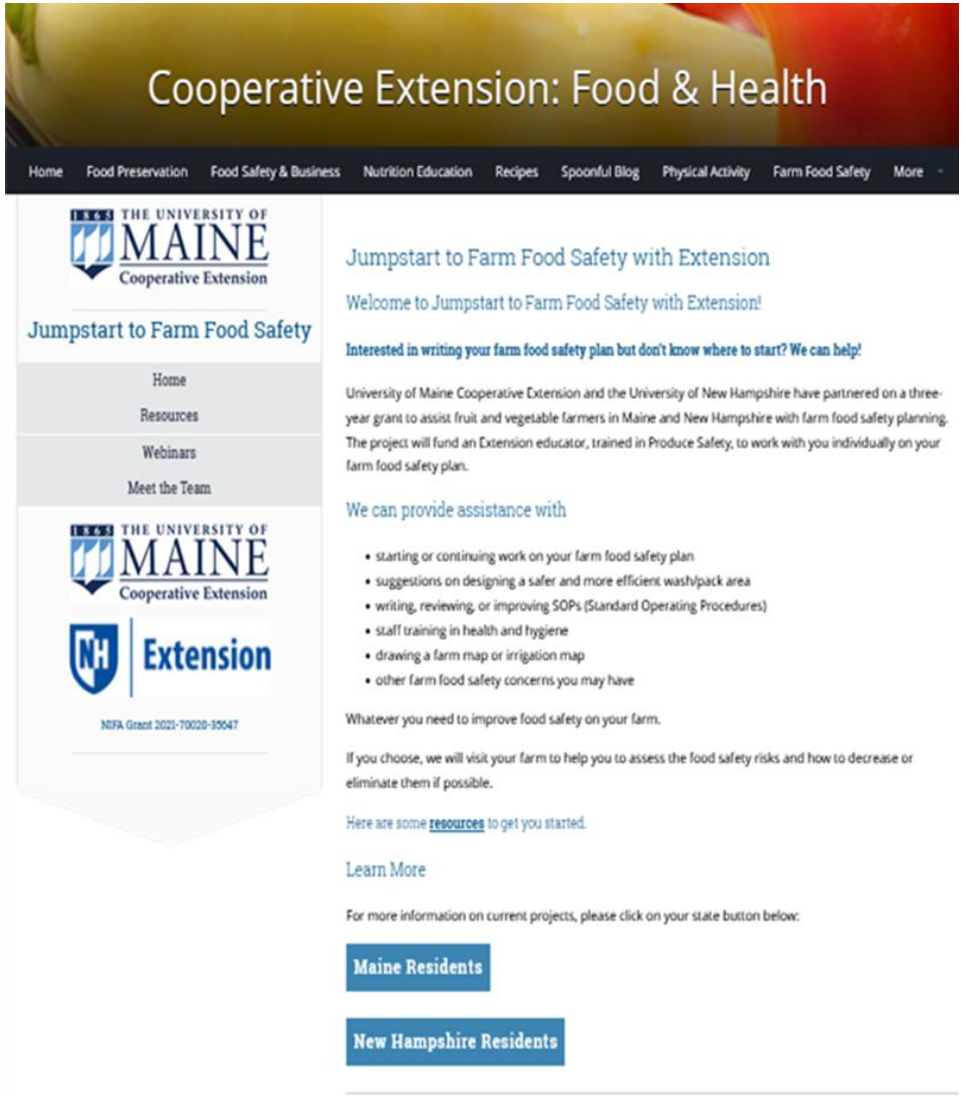


Methods

1. Recruiting farmer participants:

Farmers learned about and enrolled in the program via the Jumpstart website through partner announcements, food co-ops, agencies, newsletters, social media, local media, and direct outreach.

Our goal was to enroll 10 farms per state annually throughout the three-year grant period.



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Methods

2. Individualized On-Farm Assessment:

Extension specialists conducted one-on-one visits. These visits included a comprehensive food safety risk assessment of the field-to-market flow.

The confidential written assessment included a review of procedures that were already best practices and those that would benefit from a food safety-focused “tweak”.

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Methods

3. Tailored Technical Assistance:

Following assessments, specialists provided one-on-one guidance based on farmer requests such as:

- Installing DIY hand wash station
- Discussing sanitizer choices and use
- Reviewing wash pack flow
- Discussing best practices regarding preventing animal contamination

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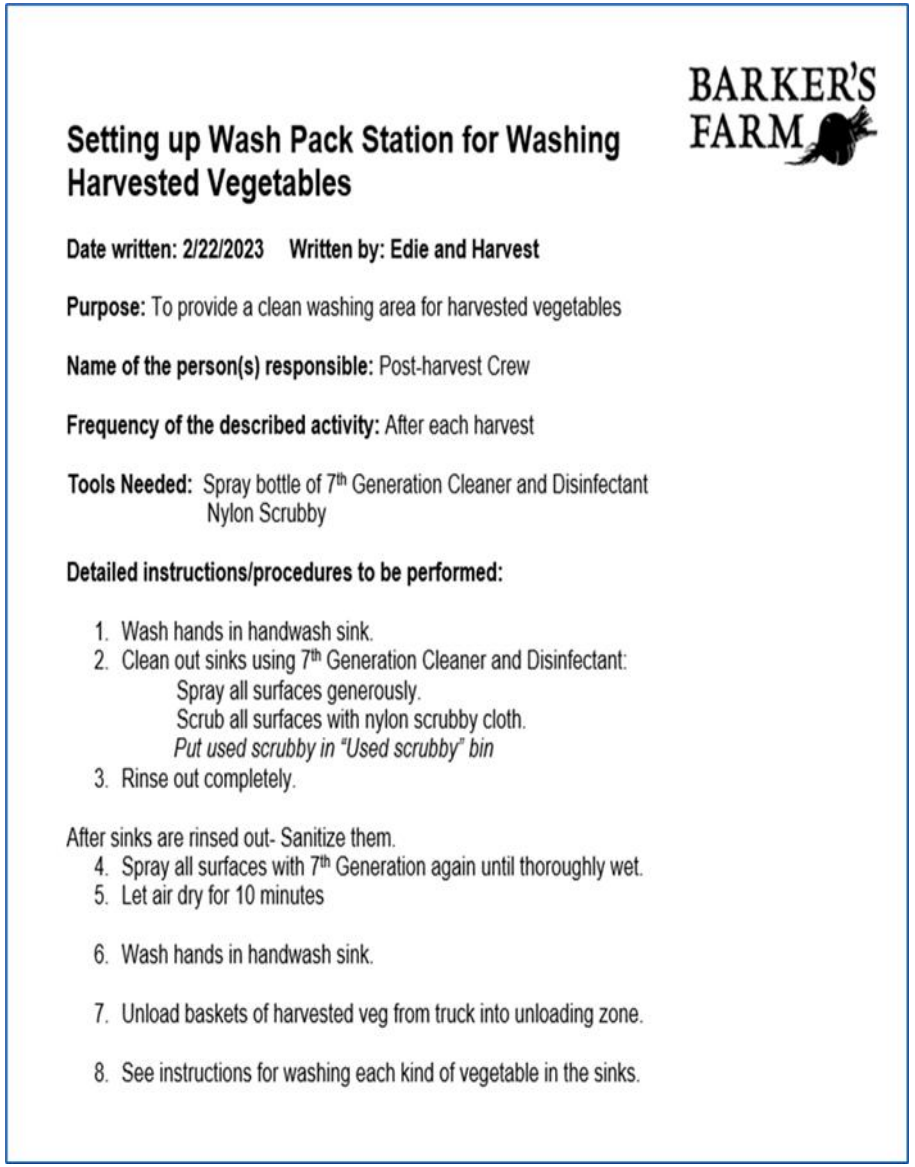
Methods

3. Tailored Technical Assistance (continued):

Farmers were provided with tools including:

- Cleaning checklists
- Worker training logs
- Templates and Assistance with writing customized Standard Operating Procedures (SOPs) and Farm Food Safety Plans.



BARKER'S FARM

Setting up Wash Pack Station for Washing Harvested Vegetables

Date written: 2/22/2023 **Written by: Edie and Harvest**

Purpose: To provide a clean washing area for harvested vegetables

Name of the person(s) responsible: Post-harvest Crew

Frequency of the described activity: After each harvest

Tools Needed: Spray bottle of 7th Generation Cleaner and Disinfectant
Nylon Scrubby

Detailed instructions/procedures to be performed:

1. Wash hands in handwash sink.
2. Clean out sinks using 7th Generation Cleaner and Disinfectant:
   Spray all surfaces generously.
   Scrub all surfaces with nylon scrubby cloth.
   Put used scrubby in "Used scrubby" bin
3. Rinse out completely.

After sinks are rinsed out- Sanitize them.

4. Spray all surfaces with 7th Generation again until thoroughly wet.
5. Let air dry for 10 minutes
6. Wash hands in handwash sink.
7. Unload baskets of harvested veg from truck into unloading zone.
8. See instructions for washing each kind of vegetable in the sinks.

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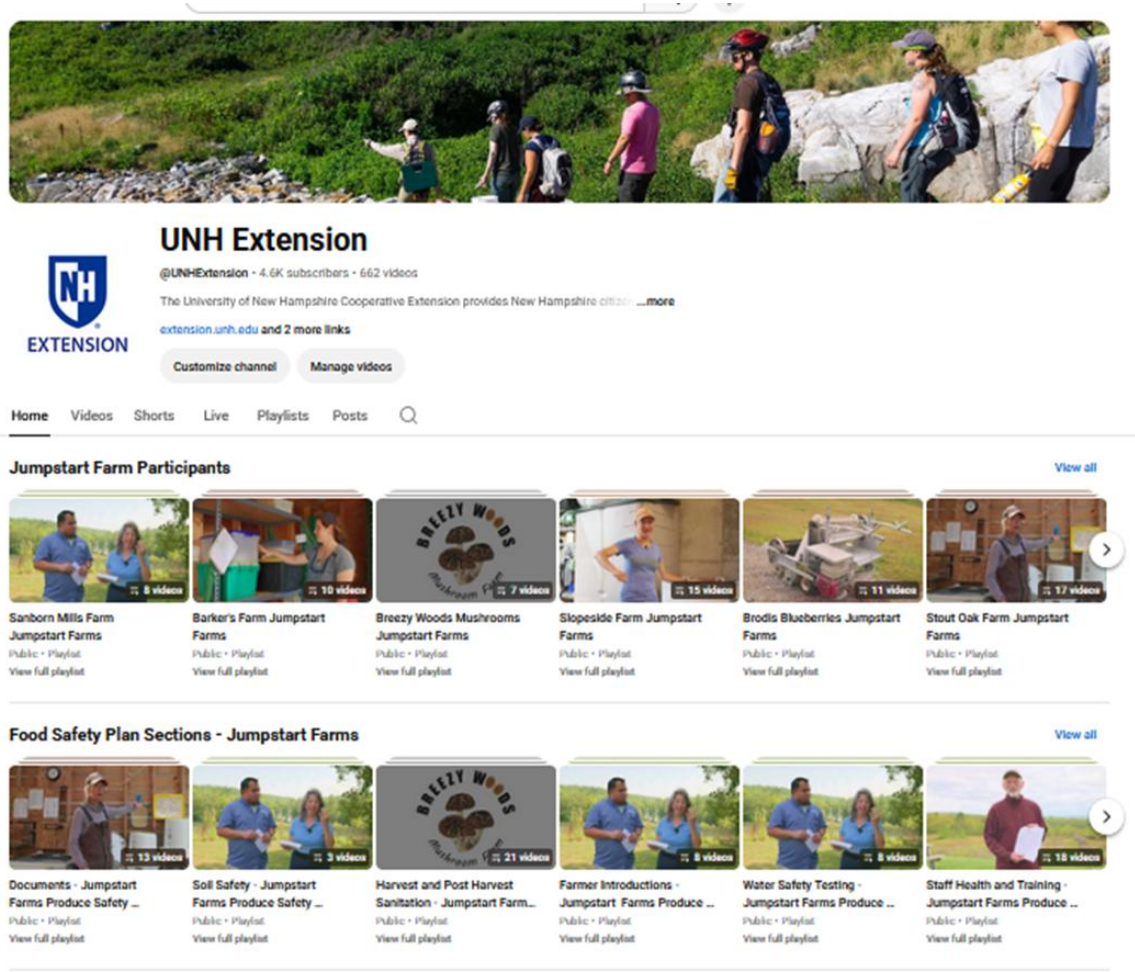
Methods

4. Peer-to-Peer Micro-learning Videos:

Select farmers collaborated with Extension specialists to record a series of over 70 micro-learning videos (each under three minutes).



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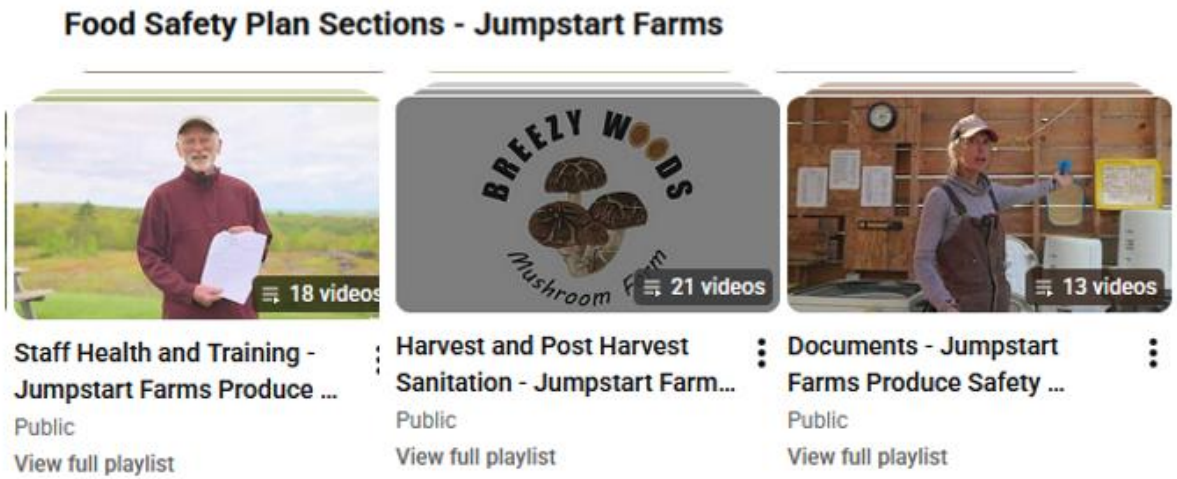
Methods

4. Peer-to-Peer Micro-learning Videos (continued):

These videos showcase real-world, low-cost solutions, such as

- Improving staff training practices
- Wash-pack flow redesign
- Standardizing tote cleaning and storage procedures

to make safety and efficiency practices easier to establish and follow.



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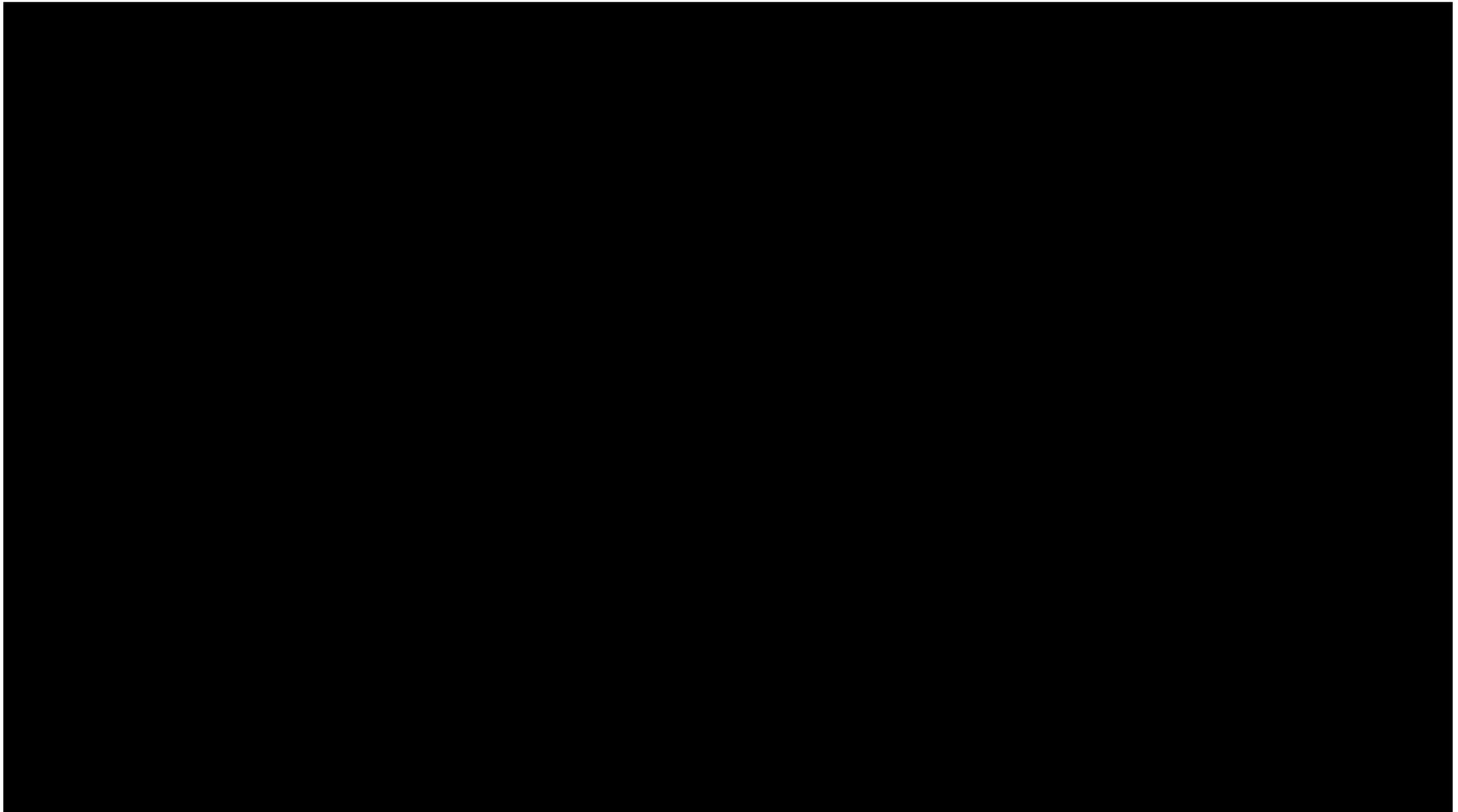
Farmer-to-Farmer Micro-Learning Videos

Water Testing on Sanborn Mills Farm

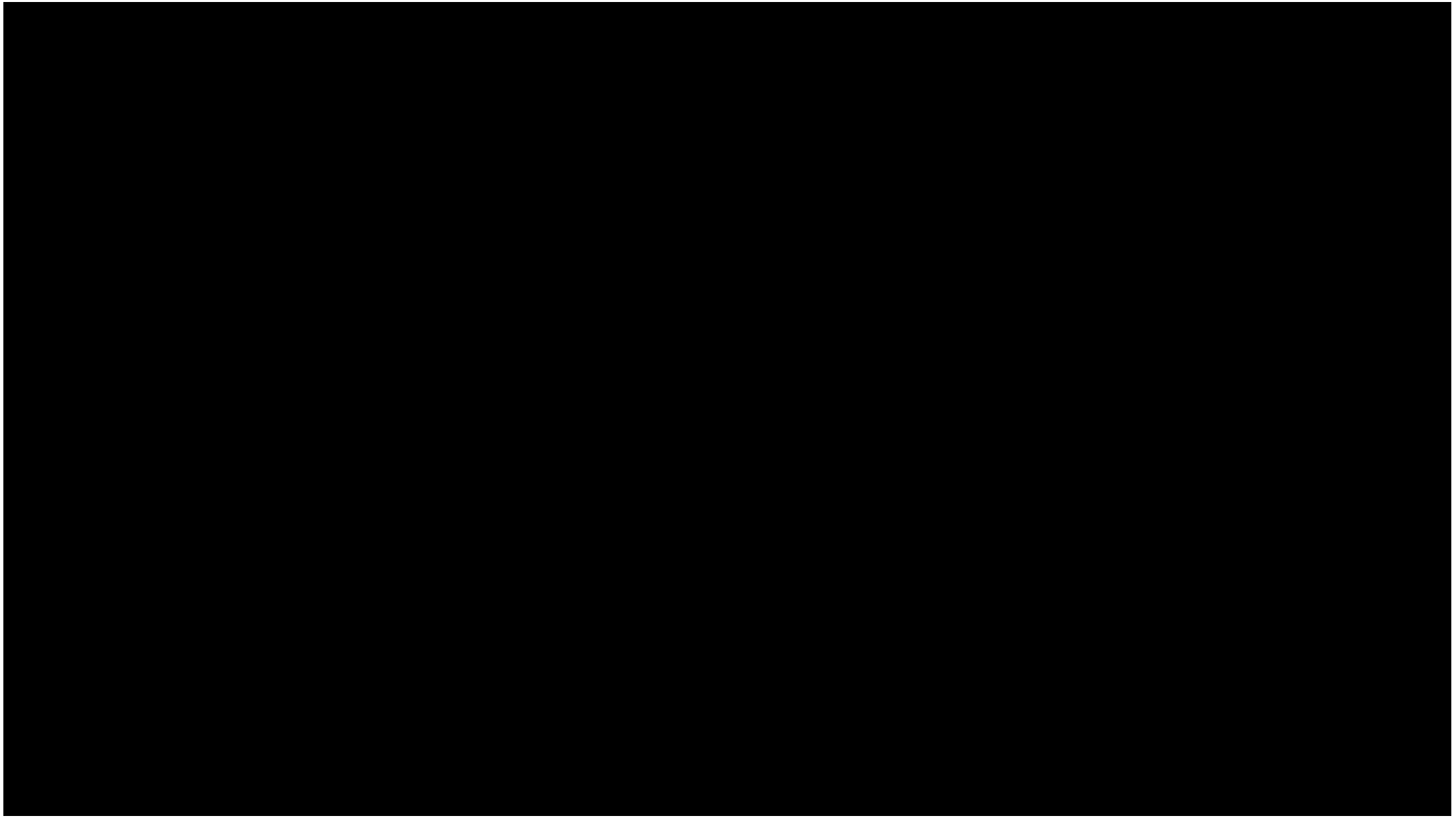


Farmer-to-Farmer Micro-Learning Videos

Cleaning and Sanitizing Easy to Clean Containers at Breezy Woods Mushroom Farm

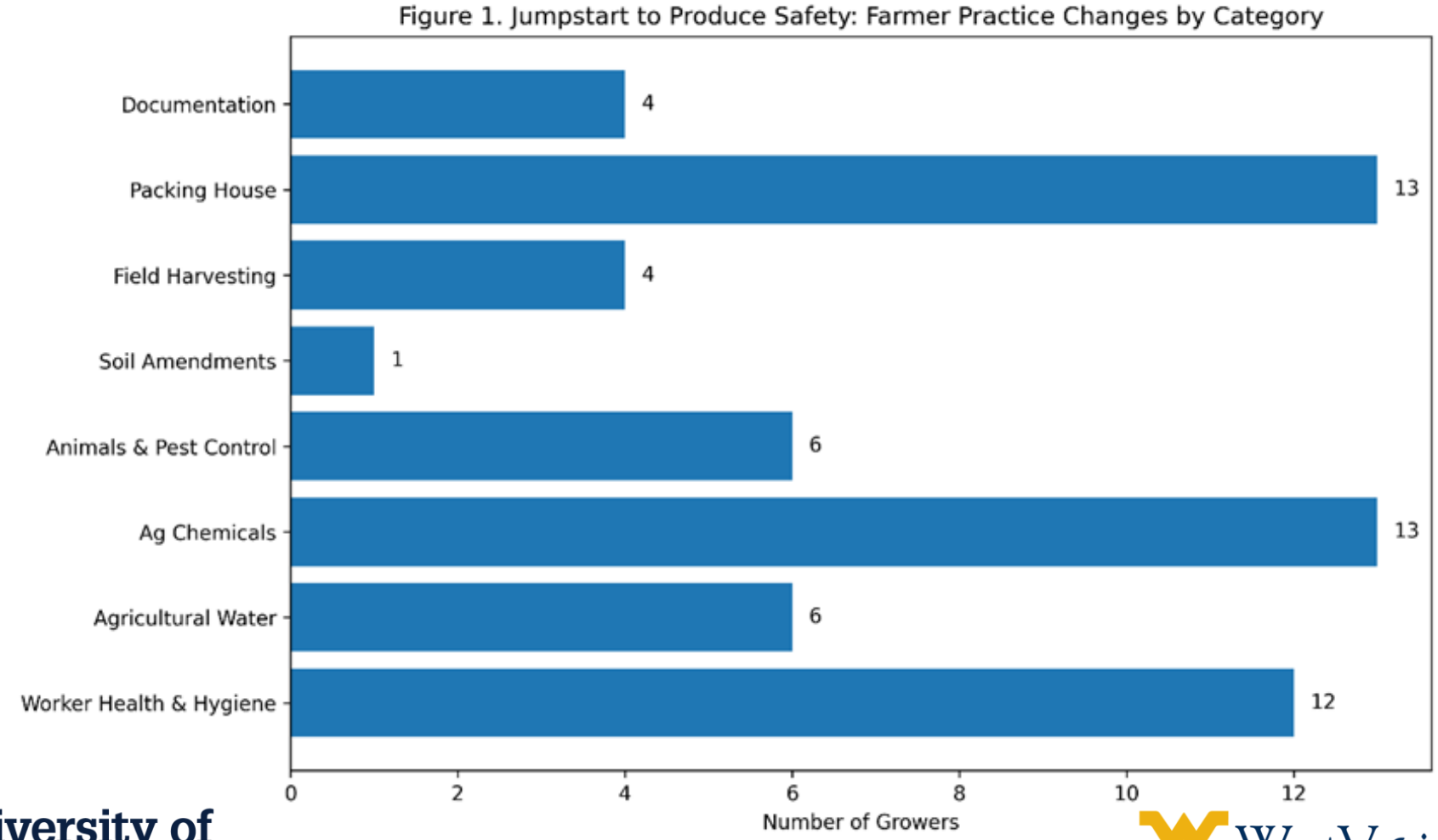
Farmer-to-Farmer Micro-Learning Videos

Food Safety Plan at Slopeside Farm



Jumpstart to Produce Safety

Results: 21 New Hampshire farms implemented measurable practice changes



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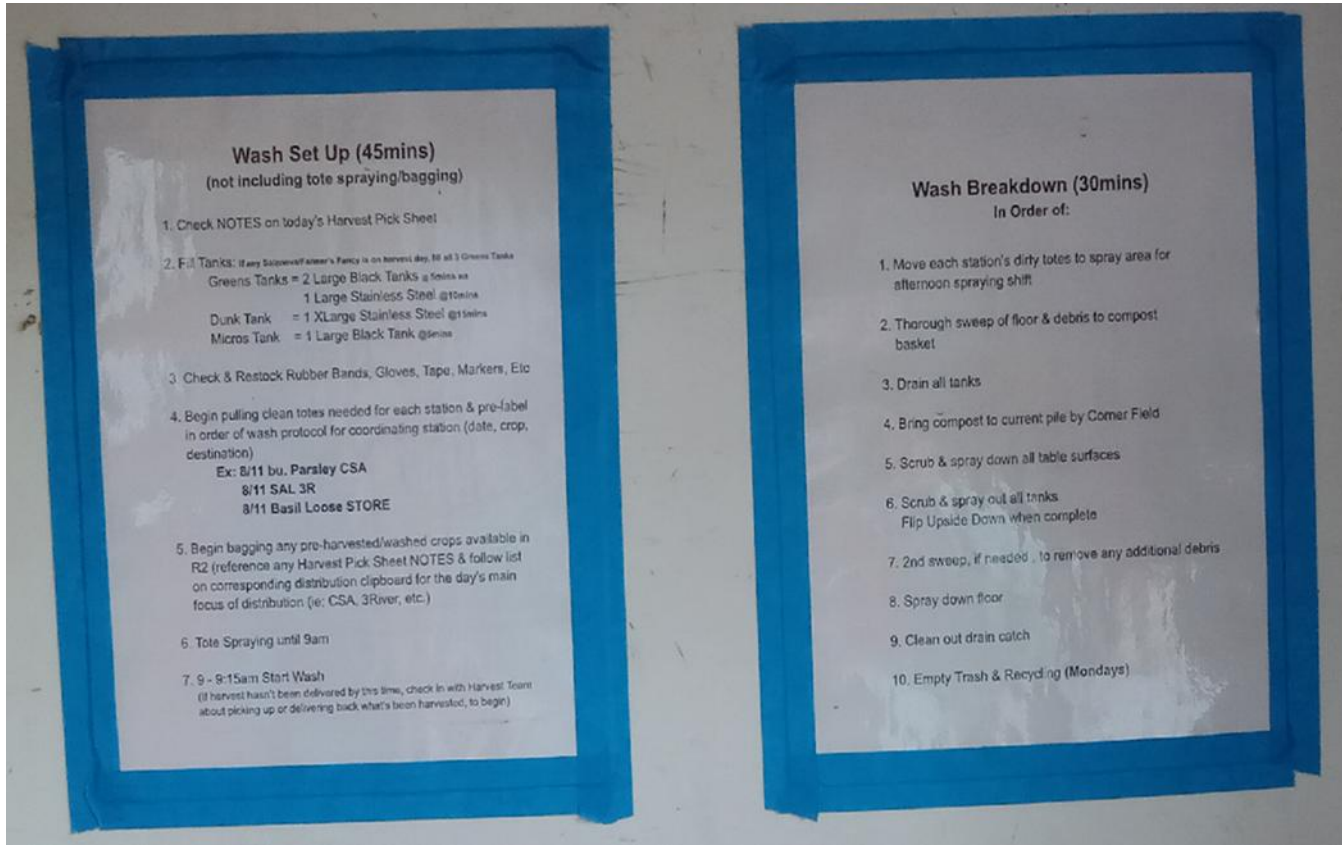
Broad Adoption Across Production System
Real Changes on Farms

- Wash/pack improvements
- Improved sanitizer management
- Worker hygiene SOPs
- Handwashing stations added
- Water testing initiated
- Wash/pack flow improved
- Cleaning SOPs written and utilized
- Dunk water temp monitored
- Compost management
- Wildlife control



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Food Safety Professionals

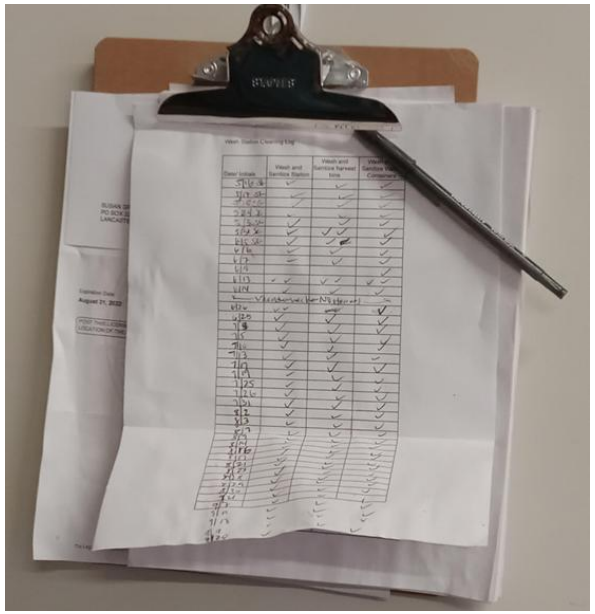
Extension Specialists Food Safety Educators State and Federal Regulators

Moves beyond training → implementation

Prioritizes feasibility

Personalized approach

Uses peer-based models



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Food Safety Professionals

Jumpstart program overview
unh.how/jump

Micro-learning video series
unh.how/YouTube

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Please answer in the chat box (not Q&A):

State two ways that you could use Jumpstart microlearning videos to educate Qualified Exempt and Not Covered growers on low-barrier strategies to improve produce safety on their farms

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Objective 4 (HOW – Integration)

By the end of the webinar, participants will be able to match a grower scenario to an appropriate support strategy by applying WRA classification and identifying a corresponding Jumpstart resource, as evaluated through an interactive example.

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Different Growers Need Different Levels of Support

WRA + Jumpstart Integration

The goal is not simply to classify growers. The goal is to help Extension professionals identify:

- where support may be most useful,
- what type of assistance may be needed next,
- and how to avoid one-size-fits-all outreach.

Jumpstart as the Support Tool

Jumpstart provides targeted produce safety education, technical assistance, and implementation support based on grower readiness.

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Willing Scenario –WRA in Action

Grower Intake Scenario

- No formal produce safety training
- Feels confident handling produce safely

WRA Screening Tool

Screening Indicator	Response
Formal Training	No
Confidence	Yes

WRA Output **Willing**

Predicted Support Pathway Jumpstart

Formal produce safety training
Introductory microlearning
Basic risk assessment

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Ready Scenario – WRA in Action

Grower Intake Scenario

- Completed formal produce safety training
- Feels confident handling produce safely
- Practices 1-3 food safety practices

WRA Screening Tool

Screening Indicator	Response
Formal Training	Yes
Confidence	Yes
Practice Adoption	Partial (1-3 practices)

WRA Output **Ready**

Predicted Support Pathway Jumpstart

SOP Templates
Technical Assistance

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Able Scenario – WRA in Action

Grower Intake Scenario

- Formal produce safety training
- Feels confident handling produce safely
- Practices > 4 food safety practices

WRA Screening Tool

Screening Indicator	Response
Formal Training	Yes
Confidence	Yes
Practice Adoption	High (>4 practices)

WRA Output **Able**

Predicted Jumpstart Support Pathway

On-farm food safety planning

Market readiness support

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From Readiness to Operational Impact

The WRA framework helps Extension professionals identify which growers may benefit most from specific types of support. When paired with the University of New Hampshire Extension's Jumpstart, growers can be matched to targeted education, technical assistance, and implementation support based on readiness.

Targeted produce safety support may help:

- Reduce time burden for growers and Extension staff
- Improve efficiency of training and technical assistance
- Better prepare growers for buyer expectations, structured markets, and expanded market opportunities

Right support. Right grower. Right time.

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Objective 5 (VALUE – Economic Impact)

By the end of the webinar, participants will be able to list at least two economic or operational benefits of targeted produce safety support, including reduced time burden, improved efficiency, or increased market readiness.

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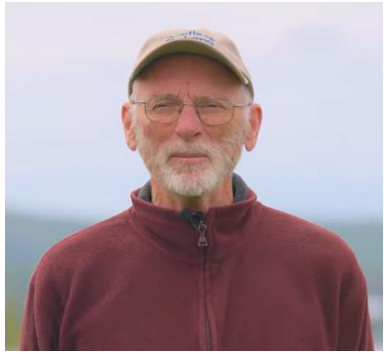
Objective 5 (Value-Economic Impact)

Anton Bekkerman
Associate Dean for Research, College of Life Sciences and Agriculture,
Director, New Hampshire Agricultural Experiment Station,
Professor of Economics



Ron Howard
Farm Manager,
Brodis Wild Blueberries,
Hope, Maine

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Potential value proposition for: Income growth

(1) Reducing cost-burden from food safety risks

- Smaller farms may have longer and relatively more impactful negative reputation effects

(2) Realizing benefits from growing brand differentiation, market reputation and customers.

For small farms (2020):

- Expanded sales by 39%
- Average net benefit of $1,865
- Cost-benefit ratio of 8.25

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Potential value proposition for: Optimizing Return on Investment (ROI) on time and effort investment

- Can reduce time cost of searching for highest ROI change — targeted, easily accessible interventions that could maximize cost-benefit of the investment
- Can reduce time/effort cost of developing and implementing an execution plan
- Could reduce future time/effort costs of dealing with operation, legal, and market risks

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Brodis Wild Blueberries

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New Hampshire
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Brodis Blueberries

Hand Washing Procedures

1. Wet hands with clean warm water
2. Apply soap and work up a lather.
3. Rub hands together for at least 30 seconds.
4. Clean under the fingernails and between the fingers.
5. Rub fingertips of each hand in suds on the palm of the opposite hand.
6. Dry hands with a single-use towel.
7. Discard used single-use towel in the appropriate trash receptacle.

Belt/Packing Room Worker Training Record

Brodis Blueberries 28 Jones Hill Road Hope, ME 04847 207-593-2946

Topics covered (mark with an "X" on the gray left column):

	Principles of food hygiene and food safety		Proper Storage of Personal Food/Consumable Items
	Foodborne Illness & Pathogens		Cell Phone Usage & Sanitation
	Proper handwashing technique		How to Clean & Sanitize Food Contact Surfaces
	Recognizing produce that cannot be packages/sold		Personal Illness Policy
	Recognizing signs of field animal intrusion - fecal etc.		Appropriate Clothing & Footwear
	Animal Waste Handling		Personal Hygiene
	Domestic Animal Policy - Field & Packing Facility		Pest management in produce handling areas
	Break Area Policy		Grading Belt Cleaning & Sanitation Procedure
	Restroom/Toilet Facility, Use & Maintenance		Start of Shift Set-Up
	Chemical Storage (Including Insecticide if applicable)		End of Shift Shut-Down
	Food Safe Surface Sanitizer - What For & How to Use		Other:
	Inspecting harvest containers and equipment for cross-contamination risk		
	Correcting or reporting problems with harvest containers or equipment		

Training tools, materials, or techniques (mark with an "X" on the gray left column):

	Oral communication		Handwashing Demonstration
	Text Material - Harvest Technician Pamphlets		Grading Belt Washing/Sanitizing Demonstration
	SOP GAP Belt Guidelines - Handout & Review		Sanitizer Formulation - 200 ppm Bleach/Water Demo
	Cull Bin (Waste Berry Bin) Emptying/Cleaning Demo		Animal Intrusion/Waste Material Demonstration
	Bin handling in packing floor/room demo		Other:
	Pack Zone/Belt (direct food contact surface) cleaning and sanitizing demonstration (e.g., conveyors)		
	Packing Room/Barn Facility Tour and Blueberry Field/Barren Demo		

Trainer: _____ **Training Date:** ___ / ___ / ___

Trainer: _____ **Training Time Frame:** ____:____ - ____:____

Trainer: _____ **Training Location:** _____

Employee name (please print)	**Employee signature**
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
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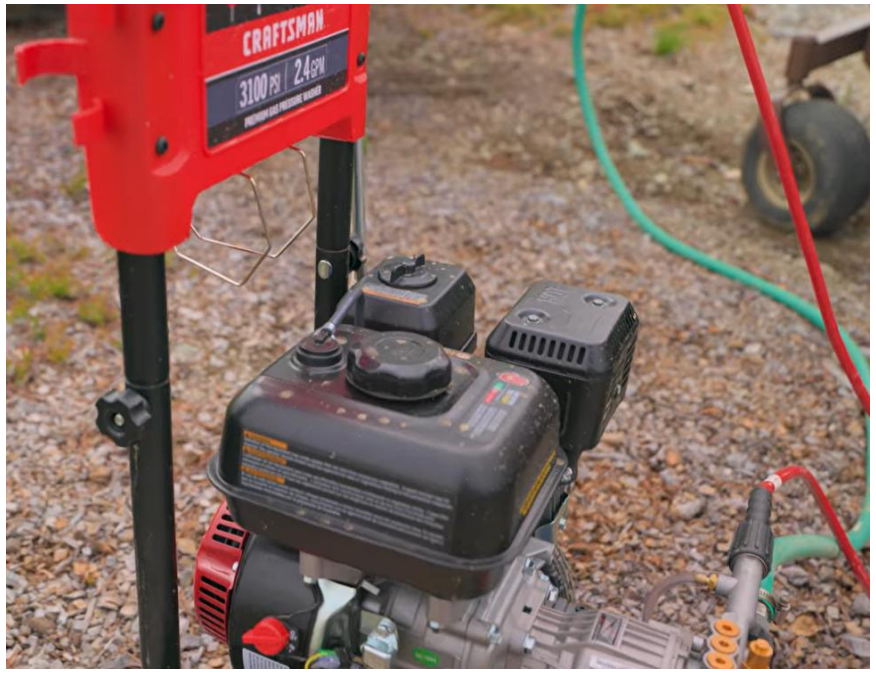

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Extension Perspective

From the Extension side, what operational or implementation improvements have you observed when growers receive more targeted support?

- Well testing
- Cleaning and Sanitizing
- Sanitizer measurement and use
- Hand hygiene infrastructure
- Staff training
- Animal intrusion prevention
- SOPs written for sanitation, produce flow from harvest to transport

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Why Readiness Matters

How does this connect back to the Willing–Ready–Able framework and the importance of readiness-based support?

- Different growers need different levels of support. The Willing–Ready–Able framework helps Extension programs focus training, technical assistance, and staff time where it may be most useful.
- Instead of one-size-fits-all outreach, WRA helps guide targeted support based on grower readiness, while Jumpstart provides practical tools and implementation support.
- Together, these approaches may help reduce trial-and-error, improve efficiency, and strengthen produce safety implementation.

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Please answer in the chat box (not Q&A):

In the chat (not Q&A section), please list one or two economic or operational benefits you heard today.

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Time for Q & A

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Summary

FSMA-exempt growers need individualized support

- WRA = stage specific guidance
- Jumpstart = practical strategies

WRA + Jumpstart = improved efficiencies

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Upcoming Webinars

June 10 **The State of Food Safety Professionals in a High-Risk Food Safety Culture at the Source: Leading Strong Practices in Primary Seafood Processing**

June 16 **Hygienic Design in Legacy Food Manufacturing Facilities: Risk Evaluation, Prioritization, and Practical Compromises**

June 17 **From Detection to Design: Managing Foreign Body Incidents and Physical hazards in Human and Pet Food**

June 26 **Food Safety Culture at the Source: Leading Strong Practices in Primary Seafood Processing**

This webinar is being recorded and will be available for access by **IAFP members** at www.foodprotection.org within one week.

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