

**Title: Improving Extension Capacity to Assist Southern Region Small Fruit Growers with Marketing**

**Final Report**

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**Abstract**

Small fruit producers are inundated with requests from buyers, consumers, regulators, auditors, and suppliers. Growers must decipher a myriad of market requirements related to food safety from many different types of programs, including USDA Good Agricultural Practices, Primus, National Organic Program, Certified Naturally Grown, and the regulatory requirements of the Produce Safety Rule. Confused small fruit producers frequently seek assistance from local extension agents when clarification is needed. Extension educators across the southern region have a working knowledge of a multitude of agriculture related topics, and frequently enter their assigned counties or territories with backgrounds in animal science, horticulture, ag business, plant pathology, and others. Historically, very few educators have formal training in regulatory and market requirements. This knowledge is critical as a farm's ability to compete in certain markets hinges on their ability to comply with their buyers' requirements. Addressing

this educational deficiency will enable extension educators to better serve their clientele. The purpose of this project was to develop web-based training for extension educators so that they may better support small fruit producers in Alabama, Arkansas, Georgia, Louisiana, North Carolina, South Carolina, Tennessee, and Virginia.

## **Background**

Foodborne illness outbreaks from produce in the United States has caused significant financial losses in the past decades (Centers for Disease Control and Prevention, 2018). Because of the risks associated with fresh produce and the legal ramifications for entities involved in growing and distributing it, buyers are increasingly requiring fruit and vegetable growers attain food safety certifications through undergoing audits. The Food Safety Modernization Act (FSMA), Produce Safety Rule (PSR) has added another layer of complexity to the food safety landscape. Some growers are required to adhere to the PSR, while others may need to be familiar with additional parts of FSMA, many times while concurrently complying with third-party audit programs. To further convolute the regulatory and market landscape, in many southern states, the state departments of agriculture are responsible for inspections in accordance with these federal rules, as well as audits to meet buyer requirements.

Over the last couple decades, consumers have also begun paying more attention to the environmental impact of their food choices. In 1990, the Organic Foods Production Act was passed which led to the development of a set of uniform standards for the production of organic products to be sold in the United States (USDA, 2020). The resulting National Organic Program (NOP) went into place in 2000. The NOP provided a uniform set of standards around the production of livestock and crops, as well as processed foods that bear the organic label. In 2002, a group of farmers started the Certified Naturally Grown (CNG) program. The CNG program is based on the NOP but is geared toward smaller producers that were overwhelmed by the paperwork and other requirements necessary for NOP compliance (CNG, 2021).

Fruit and vegetable buyers and regulators are increasingly asking growers to comply with a complex and expanding list of food safety certifications and regulatory requirements. For individuals with limited food safety backgrounds, and even those with more advanced knowledge sets, it can be difficult to determine which program or programs are right for their market and how to economically implement these practices on their farm. Historically, few extension agents assisting growers have had formal training in food safety related market requirements, and most express that they are uncomfortable addressing questions related to certification programs brought up by their stakeholders. Furthermore, few resources exist to specifically assist agents as they field questions, especially questions surrounding audit requirements. There is an industrywide need for additional assistance navigating food safety requirements and the training developed through this project aims to help fill that need.

## **Project Description**

The Small Fruit Certifications online course is a web-based extension educator training that is accessible by anyone and is offered at no cost to participants. Completion of the course results in a CEU certificate as a record of course completion. In addition to standard presentations, the modules include short, embedded video clips to engage learners with visual learning modalities. The web-based training is evaluated by participant self-assessment of knowledge and confidence gained; and intent to use the material in their outreach program via quiz questions at the end of each module.

**Objective:** The objective of this project was to develop a web-based training on market requirements and regulations to improve the effectiveness of extension educators in supporting growers marketing small fruits in Alabama, Arkansas, Georgia, Louisiana, North Carolina, South Carolina, Tennessee, and Virginia.

## **Description of Outreach Activities**

**Needs Assessment:** The project team developed a survey to quantify extension agent need and interest to receive audit and regulation-specific training geared towards small fruit growers. The survey was administered under the conditions of the University of Georgia blanket IRB PROJECT00000044. Qualtrics Survey Software was used to administer the online survey and for preliminary data assessment. Food safety specialists and agents validated the survey questions for content and accuracy prior to the distribution. Questions were intended to gauge interest in participating in an online training related to certifications and regulations affecting small fruit producers, how long participants would be willing to commit to a training, and about which third-party audits or regulations participants required the most information. Additionally, respondents were asked what state they work in, their job position, and how many years they have worked in extension. The survey was distributed electronically via the National Association of County Agricultural Agents and Specialists listservs nationwide and distributed through leadership and regional experts associated with Southern Region Small Fruit Consortium in the following states: Alabama, Georgia, South Carolina, and Virginia. Extension agents and specialists in Florida, Tennessee, and North Carolina were also recruited on an individual basis to complete the survey and assist with survey dissemination. A follow-up reminder was sent to each individual two weeks after the first invitation to increase the response rate. Questions could be skipped, and multiple selections were allowed for some questions. Survey participants included primarily extension educators, such as county extension agents, regional extension agents, specialized area agents, county directors, and extension specialists. In total, the survey was distributed to approximately 1,550 individuals with a total of 258 respondents completing the survey from March 24, 2020 to April 20, 2020, with an estimated response rate of 16.6%. Survey results were reported as number of responses and corresponding percentages.

Most of the respondents were extension agents (196, 76.0%) and state specialists (28, 10.8%) located in the southeast U.S. (189, 70%). Time spent working in extension ranged from 1

to 46 years (median: 11 ± 10.6). Early career educators (1 to 10-years' experience) represented 48% (124), mid-term career (11 to 20-years' experience) 23% (59), and long-term career (over 20-years' experience) 27.5% (71).

When participants were asked if they had interest in attending an online course about produce certifications from which small fruit producers might benefit, 221 (85.7%) responded "yes" and 37 (14.3%) responded "no". Respondents were also asked to rank in order of preference topics about which they received the most questions. Regardless of career length, USDA-GAPs and the FSMA ranked first, followed by the NOP and CNG. Overall, respondents reported willingness to dedicate between 1 to 2 hours on an online course about produce certifications.

The results of this needs assessment were published in the Journal of National Association of County Agricultural Agents (Dunn, et al., 2021).

**Course content development:** Online learning module content including short videos and information related to the National Organic Program, Certified Naturally Grown program, Primus audits, USDA GAP audits, and the Food Safety Modernization Act Produce Safety Rule were developed and submitted for peer review in August 2020. After peer review was complete, the Auburn University communications staff began formatting the training on the Canvas online course platform. The course consists of six modules that were piloted early 2021 and launched for the general extension educator population on April 19, 2021 (Figure 1).

**Figure 1. Small Fruit Certification Course Welcome Page**



This course provides Extension agents and specialists with a broad overview of certifications and regulations affecting small fruit producers in the southern region and covers the National Organic Program, Certified Naturally Grown, Primus Global Food Safety Initiative, United States Department of Agriculture, Good Agricultural Practices, and the Food Safety Modernization Act. The program was developed by Auburn University, the University of Georgia, and Clemson University and sponsored by the Southern Region Small Fruit Consortium.

The course begins with an introduction to certifications and regulations affecting small fruit producers and provides background information on the differences. Buyer driven certifications are generally beneficial to participating in a particular market. While regulations are mandatory for some growers to adhere to. The introduction is followed by modules providing more in-depth information on specific topics:

- **Module 1 covers the NOP**, which was established by congress in 2001 as a public-private partnership. It accredits private companies to certify farms and processors that meet the NOP standards. These standards support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity. Participants completing this module learn the purpose of the NOP, the types of certifications allowed under the

NOP, how producers may use the USDA Organic Seal for marketing their products, what is included in an Organic System Plan, and the costs of Organic Certification.

- **Module 2 covers the CNG program** which is a peer-review certification that states a farm adheres to organic principles. It certifies that a farm does not use synthetic herbicides, pesticides, fertilizers, or genetically modified organisms. Livestock are raised mostly on pasture and with space for freedom of movement. Feed must be grown without synthetic inputs or genetically modified seeds. CNG is a private non-profit organization that is not affiliated with the USDA NOP. While CNG is not affiliated with the NOP, the standards are based on standards set by the NOP. Participants completing this module learn how to help small fruit producers become Certified Naturally Grown, the annual requirements of the Certified Naturally Grown program, and about networking resources to help support Certified Naturally Grown producers.
- **Module 3 covers Primus audits.** Primus is a private company that provides auditing services to the produce industry, including farms, to verify the safety of their products. PrimusGFS is a Global Food Safety Initiative recognized audit that has been used extensively for many years by companies and buyers within the fresh produce industry. This is a voluntary food safety certification covering activities ranging from primary production on the farm through the handling of minimally processed products and is recognized worldwide. Participants completing this module learn about the PrimusGFS audit, who needs a PrimusGFS audit, and about the certification process for PrimusGFS.
- **Module 4 covers the basics of GAPs, and Good Handling Practices** which are part of the voluntary audit and certification program established by the USDA that aims to verify that fruits and vegetables are produced, packed, handled, and stored as safely as possible to minimize potential food safety risks. These audits eventually served as the foundation for the PSR. While the USDA GAP audit is voluntary, some buyers and wholesale markets will require their suppliers' farms, packinghouses, and distribution centers to be GAP certified. Small fruit producers may only use the USDA GAP logo after they have received certification and received permission from the USDA Agricultural Marketing Service to use it. Participants completing this module learn about the USDA GAP audit, who should get a USDA GAP audit, and about the certification process for USDA GAP.
- **Module 5 provides an overview and coverage information for FSMA.** The goal of this federal legislation is to help prevent foodborne illness in the United States. The legislation affects all parts of the food system and is the first ever federal regulation that affects produce farms. Participants that complete this module learn which small fruit producers might be subject to the FSMA PSR, which small fruit packers and processors might be subject to the FSMA Preventive Controls for Human Food Rule regulation, and where to find additional information and training for small fruit producers and processors.

- **Module 6 provides an overview of the practices required by the FSMA PSR.** Participants completing this module learn about the FSMA PSR requirements that affect small fruit producers and where to go for more information about the PSR.

**Course promotion:** Upon launch, April 19, 2021, the course was advertised widely throughout the southern region. The Southern region Small Fruit Consortium and Southern Center for FSMA Training networks were leveraged to initially promote the course. Three hundred course promotional cards were distributed at the Southeast Regional Fruit and Vegetable Conference held January 6-9, 2022 (Figure 2). Additionally, as participants began taking the course, the participants were asked to share the course with co-workers.

**Figure 2. Course Promotional Card**



**Course evaluation:** The course evaluation consisted of one pre-module question and three post-module questions asked for each module to assess knowledge gained, confidence in helping producers, and the usefulness of the materials. Participants responded on a 5-point Likert Scale. For each module, participants were asked:

Pre-module:

- Before viewing this module, how would you rate your level of confidence that you could assist a small fruit producer with questions about the (X)?

Post-module:

- I have gained knowledge of (X) by viewing this module.
- After viewing this module, how would you rate your level of confidence that you could assist a small fruit producer with questions about the (X)?
- How likely are you to use this information to help growers?

**Statistical analysis:** Evaluation results were collated and analysis was conducted using IBM SPSS Statistics for Windows (IBM Corp., 2019). Differences in self-reported confidence gain among

modules was assessed using Wilcoxon signed rank test with a P-value <0.05 considered statistically significant.

## Results and Outcomes

Participants in the course were mostly white, non-Hispanic, female, and non-extension educators (Table 1). Comments indicated that a large number of participants were students (25) followed by smaller numbers of growers (8), consultants (4), non-profit service providers (3), academia (3), government employees (2), and auditors (1).

**Table 1. Participant demographic Information**

	% of Respondents (n)
<b>Race (n=113)</b>	
White	54% (61)
Black or African American	30.1% (34)
Asian or Pacific Islander	8% (9)
More than one/other	8% (9)
<b>Ethnicity (n=112)</b>	
Not Hispanic or Latino	92% (103)
Hispanic or Latino	8% (9)
<b>Gender (n=111)</b>	
Female	65.6% (59)
Male	34.4% (31)
Other/Prefer not to Answer	.9% (1)
<b>Work Sector (n=113)</b>	
Extension Educator	29.2% (33)
Non-Extension	70.8% (80)

Participants indicated high levels of knowledge gain, usefulness of the course materials, and confidence in helping growers with the presented topics after completing the modules (Table 2). When pre/post questions related to confidence were compared, statistically significant improvements in confidence were observed for every module ( $p < .05$ ).

**Table 2. Knowledge gain, usefulness, and confidence**

Module	% Participants Indicating Knowledge Gain - strongly or slightly agree (n)	% Participants Indicating Likelihood to use the Information to Help Growers - very or slightly likely (n)	% Participants Indicating Confidence they Could Assist a Grower - very or slightly confident (n)
<b>1: NOP (n=86)</b>	95.3% (82)	87.2% (75)	95% (82)
<b>2: CNG (n=71)</b>	95.8% (68)	84.5% (60)	88.7% (63)
<b>3: PrimusGFS (n=66)</b>	93.9% (62)	80.3 (53)	81.8% (54)
<b>4: USDA GAP (n=64)</b>	100% (64)	89.1% (57)	92.2% (59)
<b>5: FSMA Overview (n=63)</b>	96.8% (61)	85.7% (54)	92.1% (58)
<b>6: FSMA Standards (n=63)</b>	95.3% (60)	87.3% (55)	92.1% (58)

### Significance

Marketing is one of the biggest challenges a farmer can face, especially if they have difficulty navigating the complex environment of certifications available and regulations with which they must comply. A 2014 survey of direct market growers in Alabama revealed assistance with marketing to be the most frequent request for assistance (Woods & Nelson, 2015). As a result of this extension educator training, producers will receive accurate and high-quality information on how certifications can be leveraged to improve marketing decisions and how to successfully navigate the options. One participant commented “I finished the class a while back and thoroughly enjoyed the modules. I really appreciate the folks putting this training together. I look forward to taking additional training through this program”. For the smallest growers, understanding different requirements can better prepare them for buyer requests when they decide to scale up. This online training has potential to reach hundreds of educators, service providers, and growers thereby improving the opportunities of growers throughout the region. The course will continue to be available online at <http://www.aces.edu/go/SmallFruitCertifications>.

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