

ABSTRACT

The one-day standardized PSA Grower Training has received mixed reviews from small-scale growers who would like additional support and technical assistance implementing Produce Safety Rule (PSR) requirements. The 2019 North Central Region Center for FSMA Training, Extension, and Technical Assistance report shows that special populations of growers (minority, plain cloths, and limited English proficiency) generally score lower on the standardized pre-test and show less improvement than growers who do not identify with a special population when confronted with the traditional lecture based PSA Grower Training (Bhullar et al, 2019). Training that incorporates simulation, demonstration, discussion, peer-to-peer, and experiential learning is likely to better meet the cultural needs of the given audience and is consistent with the USDA Guide: Best Practices for Better Serving Socially Disadvantaged and Limited Resource Beginning Farmers and Ranchers.

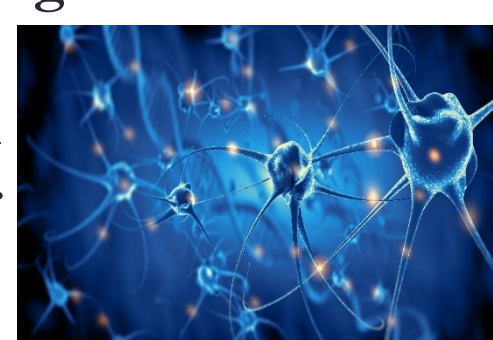
Several two-day PSA Grower Training Courses that incorporated experiential learning and other interactive elements have been conducted across the southern region. Growers who attended these courses report a high level of enjoyment and engagement. Analysis of the PSA evaluations shows that growers attending these courses believe they have improved their knowledge and have greater confidence implementing food safety practices.

Incorporating hands-on activities into PSA Grower Training increases engagement and it is theorized that the increased engagement offered by the interactive course elements will lead to greater long-term learning outcomes and improved on farm food safety practices.

ANDRAGOGY

In 1973, Malcom Knowles published, *The Adult Learner: A Neglected Species*, in which he described how teaching adults is different from teaching children.

Knowles went on to further develop the theory of Adult Education as have many researchers since him, but the general principals of adult education have remained constant. Consider the way your fingers type your name on a keyboard without any effort. This skill was learned long ago and practiced for many years until the neuronal pathways developed so that you no longer consciously tell your fingers how to move. Now consider trying to type your name backward. From this short analogy, it becomes clear that it takes more than being presented with new information to motivate an adult to change practices or beliefs that have been long held. From typing to making it a habit to wash hands when one enters a packinghouse, a considerable amount of effort must go into making that change. As food safety educators, we must remember that asking a grower to change long held practices is literally like asking them to type their name backward. Knowles principals of adult education are summarized as:



- Adults are autonomous and self-directed. As produce safety educators, we can capitalize on this characteristic by involving growers in the development of training and providing them with options throughout the training.
- Adults have a lifetime of experiences to draw from in the creation of new knowledge. As produce safety educators, we can help them connect what they already know by asking them to share experiences and knowledge on a topic
- Adults are goal-oriented and practical. Unlike children, most adults are not seeking out educational opportunities unless they need the new knowledge or the credential to address a real challenge in their lives.
- Adults must be shown respect. Produce safety educators can show growers respect early on in the training by acknowledging the abundance of experiences and knowledge participants bring to the classroom.

OBJECTIVE

Determine if there are differences in self-reported knowledge gain and/or confidence implementing produce safety practices using aggregate data from PSA Grower Training Courses nationwide and for courses including elements of experiential learning.

METHODS

Evaluation data from four PSA Grower Trainings (n=63) that included hands-on learning were compared to unpublished nationwide data from the PSA (n>15,700). The courses including hands-on activities were held from June of 2018 to February of 2020. Specifically, Likert scores from self-perceived knowledge gain and confidence in implementing practices were analyzed using a simple t-test.



Photo from the first two-day PSA Training hosted by the Alabama A&M University Small Farms Research Center, June 13 & 14, 2018

RESULTS

- Analysis revealed no statistical differences when compared to national averages.
- Although the differences were not statistically significant, courses that incorporated hands-on learning tended to have higher self-perceived knowledge gain (6 out of 7 subjects analyzed) and higher confidence in implementing practices (6 out of 7 subjects analyzed). (See Table: Differences between self-perceived knowledge gain and confidence implementing



Photo from a two-day PSA Training hosted by Alcorn State University, March 13 & 14, 2019. Participants demonstrate how to use aseptic procedure to collect a water sample.

RESULTS

Table: Differences between self-perceived knowledge gain and confidence implementing practices

	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

CONCLUSIONS

- Actively involving growers in the learning process, allowing them to share their expertise, and providing opportunities for hands-on learning has the potential to achieve greater learning outcomes for growers attending the standardized PSA Grower Training.
- The small sample size in this study may have impacted the ability to identify to detect differences in self-perceived knowledge and confidence implementing practices. More research is needed to assess the impact to applying the principals of Adult Education to PSA grower Training.
- As a result of this analysis and to support the work of the Local Food Safety Collaborative, Woods and Brannon will develop a How to Guide to support trainers who wish to incorporate interactive elements for the development of effective produce safety training for small-scale growers and processors.

REFERENCES

- Bhullar, M., Enderton, A., and Perry, B. (2019). North Central Region Center for FSMA Training, Extension and Technical Assistance Annual Report.
- Knowles, M. (1973). The adult learner : a neglected species. Houston : Gulf Pub. Co.
- Produce Safety Alliance (personal communication, unpublished data)