

Evaluating Good Agricultural Practices Training by University of Maryland Extension

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***Selected Poster prepared for presentation at the 2019 Agricultural & Applied Economics Association
Annual Meeting, Atlanta, GA, July 21-23***

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Summary

Objective: Evaluate the Basic Good Agricultural Practices training offered by University of Maryland Extension. Draw lessons for future trainings and training evaluation.

Tools for evaluation: Pre- and post-training factual tests and questionnaires.

Findings:

- Overall, participants' factual knowledge improved after training.
- 11 of the 20 correspondents from 2015 MDA GAP certified farms were trained in 2014-2015 basic GAP trainings. 13 basic GAP participants proceeded to advanced GAP training in 2015-2016.

Lessons:

- Separate trainings for different audience may help to ease the time constraints of participants. For example, (9) participants who were required to develop food safety plans are less interested in lectures but could attend training repeatedly just for the plan development workshop.
- Include objective measurements such as test scores to facilitate Extension trainings.

Background

University of Maryland Extension (UME):

Extension services are statewide, non-formal education systems based on the research and experience of land grant universities.

Good Agricultural Practices (GAP):

GAP educational material was developed by Cornell University, based on the Food and Drug Administration produce safety guidelines. Land grant university are to adapt and disseminate the information to farmers. Subsequently, some buyers started to require their suppliers to be GAP certified.

Maryland Department of Agriculture (MDA) GAP Program:

The MDA GAP program is a state-wide audit program offered at no cost to the farmer. It is intended for smaller farms or as preparation for more advanced audits such as the USDA Harmonized GAP audit. The MDA GAP requires completion of GAP training, a written food safety plan, implementation of GAP, and proper documentation to pass the inspection.

UME Basic GAP Training:

Basic GAP Training program is a one-day training offered to statewide produce growers, introducing GAP implementation as well as assisting growers to develop a food safety plan. The first half the training fulfills the MDA GAP training requirement and the second half is a hands-on workshop on developing food safety plans. The training is offered at various locations across the state.

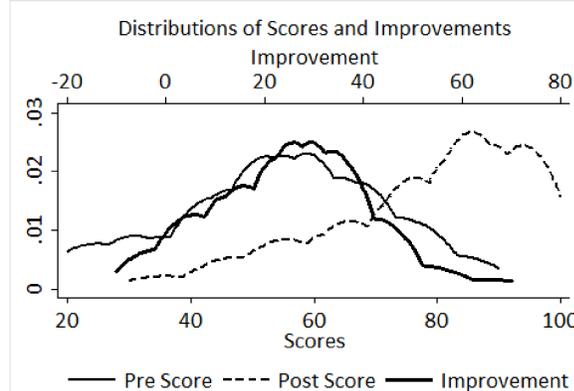
	2014-2016	2014	2015	2016
Pre test	Pre questionnaire	Pre questionnaire + farm size question		-
Post test	Post questionnaire	Post questionnaire	Post questionnaire	Combined questionnaire + farm size question
		Baltimore County: admin error		

Evaluation

Factual Test: The factual test is the same before and after training. Each of them contains 10 multiple choice questions, with "I am not sure of the answer" to encourage truthful answers.

Questionnaires: Questionnaires ask participants four types of questions: 1) individual characteristics (gender, age, and education); 2) farm-related characteristics (whether farmer, experience, farm size); 3) training related characteristics (attend previous training, training motivation, and certification requirement); 4) satisfaction and self-assessment.

Finding 1: There is positive learning outcome.

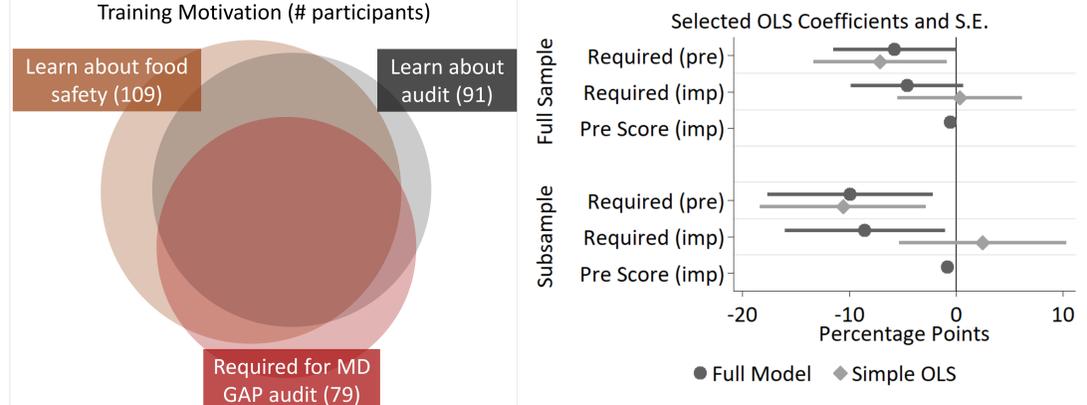


Scores are calculated as the percentage of correct answers and score improvement is the difference between post score and pre score.

	Mean	(s.d.)
Pre Score	54	(17.4)
Post Score	79	(17.0)
Improvement	25	(15.9)
t		Pr(T > t)
Pair-wised t-test	-17.8351	1.0000

The scores and score improvement show positive learning outcomes. In addition, the test scores finding is consistent with those from other measurements such as satisfaction, self-assessment, and written feedback.

Lesson 1: Accommodate participants with different training motivations

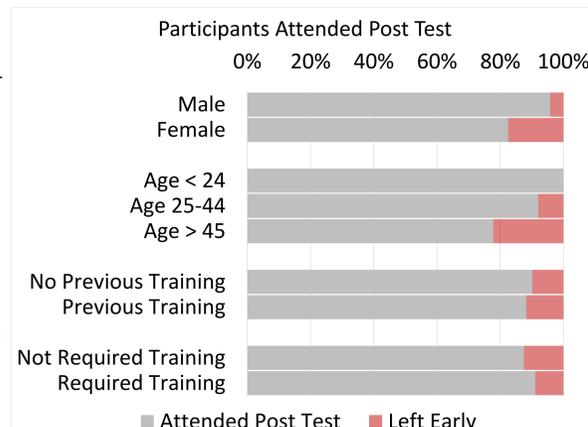


Participants' training motivation is captured by a "reason to train" question, where they could choose multiple reasons. The answers are into three categories. The binary variable of "Required" = 1 if the participant chose "to fulfill training requirement for MDA GAP audit".

OLS regressions with robust standard error show "Required" having a negative effect on scores and improvements. The simple OLS includes only "Required". The full model includes other participant, farm, and training-related characteristics and year dummies. Simple OLS coefficient shows positive effect on improvement because the "Required" participants had low pre scores, which affected improvement negatively.

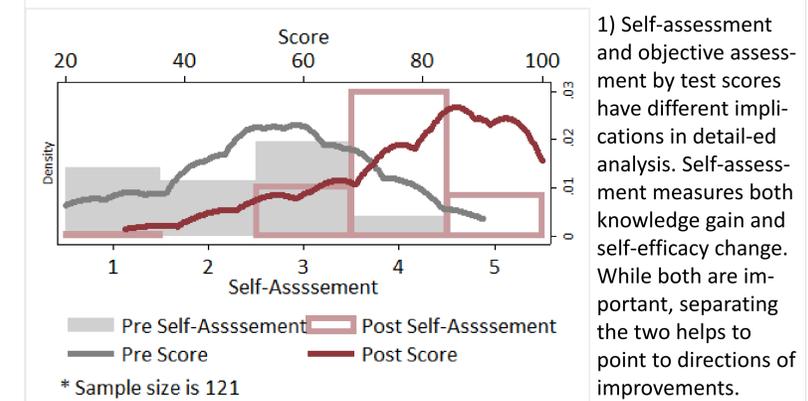
Since there are two tests in each training session, participants who did not complete training can be identified by missing post score. Participants' decision to leave early is better predicted by demographic variables and is not related to training-related characteristics.

For example, male participants and younger participants are more likely to stay and attend post test. However, whether participant attended previous food safety trainings or were required to complete training did not affect their decisions. This observation is consistent with logit regression results. It suggests that the decision may be related to participant time constraints (e.g. family obligations) but not willingness to participate.

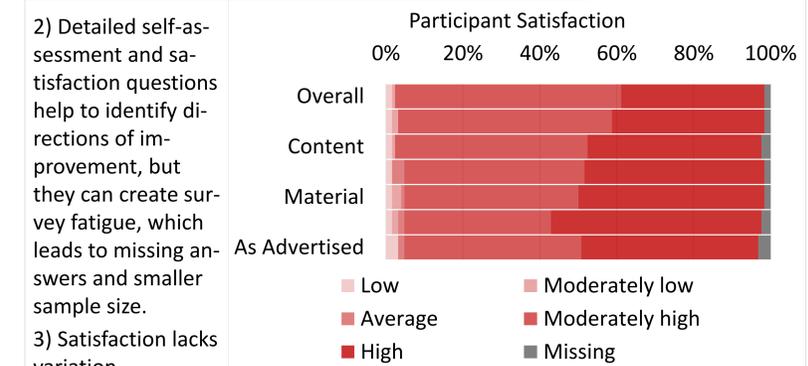


Lesson 2: Include knowledge test scores in evaluation

Currently, most extension trainings are evaluated by only satisfaction and self-assessment questions. However:



1) Self-assessment and objective assessment by test scores have different implications in detail-ed analysis. Self-assessment measures both knowledge gain and self-efficacy change. While both are important, separating the two helps to point to directions of improvements.



2) Detailed self-assessment and satisfaction questions help to identify directions of improvement, but they can create survey fatigue, which leads to missing answers and smaller sample size.

3) Satisfaction lacks variation.

Benefit of including knowledge test (in combination with general satisfaction and self-efficacy questions) in Extension training evaluation includes: 1) to objectively measure knowledge gain, 2) to pin down teaching quality at module/section level, 3) to allow for statistical analysis, and 4) can be integrated into the learning process and avoid survey fatigue.

Finding 2

- According to the follow-up survey and MDA summary statistics, 11 participants from 2014 and 2015 reported that their farm is MDA GAP certified in 2015. In 2015, a total of 20 farms were MDA GAP certified. Over 50% of them were certified within two years of receiving basic GAP training.
- In 2015, none of the participants with only basic GAP trainings reported their farm to be USDA GAP or Harmonized GAP certified.
- 13 participant from 2014-2016 basic GAP trainings proceeded to attend advanced GAP training in 2015 and 2016.

Acknowledgement

This material is based on work that is supported by the Agriculture and Food Research Initiative, National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2014-68003-21588.