

Growing a Network of GAPs Educators in the Upper Midwest

Final Report for ENC12-135

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Region: North Central

State: Minnesota

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Project Information

Abstract:

The goal of this project was to develop curricula and provide in-depth training and information regarding Good Agricultural Practices (GAPs) and on-farm food safety practices to educators and other professionals who work with fruit and vegetable growers in Minnesota and the upper Midwest. Improved GAPs are critical to maintain the competitiveness and sustainability of Minnesota's fruit and vegetable industry and protect the food supply from unintended microbial contamination. Farmers need help understanding and adopting GAPs on their farm, but few resources exist to help them outside a few key GAPs specialists in the state. This project provided 3 two-day training sessions and 1 one-day session to key agricultural educators and professionals in the region. Each training session included an on-site farm visit to provide a participatory experience and a chance to see fundamental applications of food safety practices. These educators can now provide training for other professionals and farmers, thus disseminating accurate, clear and useful GAPs information to farmers across the region. By educating cohorts of agricultural professionals, farmers gain access to GAPs educators in their regions for years to come. As a result of this project, farmers may be more likely to develop and adopt a farm food safety plan, improve their food safety practices and protect our local food supply from potential sources of microbial contamination.

Project Objectives:

The objectives of this project were to:

1. Hold 4 workshops at which at least 80 Extension educators and agricultural

professionals would be provided with GAPs information so they could be resources for on-farm food safety in their communities/regions.

2. Create a set of practical, tailored GAPs curriculum for farmers in the Upper Midwest.
3. Develop an online platform to provide information to participants before, during and after the GAPs workshops
4. Recruit and communicate with a project advisory board of agricultural educators and farmers
5. Disperse and share all GAPs training materials created for the project

Introduction:

Good Agricultural Practices (GAPs) are critical to maintain the competitiveness of the Upper Midwest's fresh produce industry and protect the food supply from unintended microbial contamination. Commercial buyers such as schools, wholesale distributors and restaurants are increasingly interested in buying from farmers who practice GAPs and who have created a documented food safety plan. Many of these buyers are beginning to require a 3rd party audit to verify these practices. While GAPs are becoming more important, farmers in the Upper Midwest have few GAPs specialists available in their region to provide clear, science-based, region- specific GAPs information.

The project team observed an increase in farmers from all farm sizes and types requesting GAPs information for their operation. Some growers were required to pass a GAPs audit by their buyer (usually a wholesale distributor), but many were simply interested in writing a food safety plan for their farm as a means of documenting their food safety procedures and policies. They were also extremely interested in the best practices they could implement to minimize microbial contamination of fresh produce on the farm, to ensure the food they were providing their customers is safe.

There was an increasing need for trained educators across the state who were able to provide sound food safety-related information to farmers. Farmers are likely to turn to their local Extension Educator or non-profit agricultural organization for assistance, therefore providing educators with accurate and comprehensive information is the best way to get the information into the hands of farmers.

Educators, while familiar with many aspects of farming, often lacked in-depth GAPs knowledge and the confidence to answer detailed and technical questions regarding practices or GAP audits, especially related to the science and research behind the rationale for GAPs best practices. The purpose of this proposal was to use a train-the-trainer model to multiply our ability to reach local growers to sustain ongoing on-farm food safety education needs.

Education & Outreach Initiatives

Objective:

Description:

Methods

An advisory group was formed and included farmers, agriculture professionals, Extension Educators, and Latino and Hmong agriculture professionals and farmers. The advisory group helped to develop goals, evaluation tools, outcomes and training activities and provided feedback and guidance to the project, and reviewed our workshop training materials.

Four 2-day hands-on GAPs train-the-trainer workshops were developed and implemented for agricultural professionals and Extension educators in the Upper Midwest. Educators participated in an intensive learning workshop on day 1 and were provided with tailored educational materials that they can then use with farmer constituents in their regions. Day 2 included hands-on learning at a nearby farm to see how farmers implement food safety and what sort of questions arise. Workshops included an online Moodle component before and after the workshop.

Workshop Learning Objectives:

1. Extension educators and other ag educators are able to answer questions to community members and lead 1 or 1.5 hour workshop on basic GAPs concepts.
2. Extension educators and other ag educators know where/who GAPs resources are within the state and their region and how to connect farmers to them.
3. Extension educators and other ag educators help overcome constraints to farmers implementing GAPs on their farms and writing food safety plans and help them prioritize.

On-line Moodle pre-workshop modules. The online platform Moodle was used to modules for content delivery, participant interaction and to complement the in-person learning. Participants watched a welcome video from the instructors and a few short assigned videos, completed a pre-course knowledge quiz, and looked over the syllabus and materials. The pre-course knowledge quiz allowed the team to tailor the information to the needs and level of understanding of the participants, and got the participants thinking about the topic area prior to the workshop.

After the workshop, participants had assignments to either create a GAPs topic mini teaching plan or answer an assigned, farmer-asked question, posing any additional questions they would need to ask the farmer and then post it onto Moodle so other participants could view and comment on it

Participants completed a post-workshop knowledge quiz and evaluation on the site as well. Additional materials were added to the Moodle site as requests were made and were available to the participants for six weeks after the course.

Workshop content included:

Good Agricultural Practices. Background, epidemiology, governance and legislation updates, and in-depth coverage of the practices. In-depth coverage of the Produce Safety Rule was included in Year 2 after the FDA published the Proposed Rule for Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. The final version of Rule for Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption was delayed by almost two years and not finalized until November of 2015, after our last workshop. There continued to be some changes in the Rule that were relevant to the materials in our training, mainly manure handling and water testing requirements, and we updated our materials as needed.

Risk assessment and decision making. Discussion covered the ecology of pathogens, food safety risk factors on a farm, how to develop a framework for risk control, and

decision-making tools to determine the most economically feasible risk reduction practices.

Identification of common hazards and risks for the region. While the hazards are the same throughout the US, local and regional variation exists and need to be considered when discussing manure and compost, irrigation water, washing and processing water, and wildlife and pest intrusions. Handwashing and worker health and hygiene, packinghouse and equipment cleanliness were covered. The available science behind the risk management guidance was provided.

Writing SOPs and Food Safety Plans. Participants learned the purpose and benefits and practical aspects of creating individualized farm food safety plan. Examples and templates were provided. On Day 1 of each workshop we covered the parts of a Standard Operating Procedure; on Day 2 participants broke into small groups and wrote SOPs for the host farm. SOP topics were those suggested by the farmer as what s/he needed. The groups came together to discuss writing SOPs, ask questions and clarifications and the farmer was then presented with at least 3 finished SOPs for that particular farm.

Supplemental training materials. For participants who may be doing group teaching we provided instruction on adult learning styles and cultural teaching considerations when teaching immigrant and minority growers, how to facilitate a food safety workshop, and provide sample workshop agendas, PowerPoint slide sets, and resource lists. We also included "most frequently asked questions from growers" section throughout to provide context using the materials and to demonstrate how those questions could be answered.

Materials and food safety content: Project team continued adapting existing farmer specific materials and materials from other states and state and federal agencies, and tweaking our own materials, tailoring them to Upper Midwest-specific educator audiences to reflect the typical cultural growing practices, vegetables and fruits grown, and environmental situations. Suggestions from educators were incorporated into a final product, the *GAPs Toolkit*.

Outreach and Publications

The *GAPs Toolkit* is available at <http://z.umn.edu/workbook>

An overview of the Moodle site is here: <https://youtu.be/0IXt8OrhEFl>

We sent a pre-course welcome video:

<https://www.youtube.com/watch?v=G9qMap2HR88>

We sent a thank you post-workshop video: <http://youtu.be/kd3eR0Y63T8>

Outcomes and impacts:

SARE Pre and Post Workshop Data.

Participant confidence

We asked questions about how confident educators were in their ability to help farmers with their on farm food safety questions. By the end of the workshop means in confidence in all categories increased.

Table 1. CONFIDENCE Pre and Post data for the question using scale of 1=Not at all confident to 5=Very confident. (total N is not equal to the number of participants; some did not do the pre- and/or post-test)

Please rate your CONFIDENCE in your own ability to do the following:	Pre or Post	N	Mean
Help a farmer write a food safety plan	Pre	33	2.36
	Post	32	3.97
Conduct a food safety self-inspection at a farm	Pre	33	2.21
	Post	32	3.53
Tell a farmer where to go to find more help with GAPs	Pre	33	3.18
	Post	32	4.41
Teach a short Workshop	Pre	33	2.15
	Post	32	3.81
Answer basic questions from a farmer about GAPs principles on the farm	Pre	33	2.52
	Post	32	4.06
Help a farmer prepare for an audit	Pre	32	1.97
	Post	32	3.28

We had also asked how many times had educators been asked GAPs related questions in the last year and how many times educators anticipated being asked more questions about GAPs in the upcoming year (average 3.35 and 3.5 times per month).

We also asked how likely people were to be asked by to help farmers with certain activities related to food safety. The mean likelihood of being asked to do something in the coming area increased from pre- and post-test time. This may be related to increasing confidence in their ability to answer questions or do activities, or increased understanding of all the facets of Good Agricultural Practices that they probably had been talking about, e.g. safe manure handling.

Table 2. LIKELY Pre and Post data for the question using scale of 1=Not at all likely to 5=Very likely

How LIKELY is it you will be asked to do each of the following during the coming growing season?	Pre or Post	N	Mean
Help a farmer write a food safety plan	Pre	33	2.76
	Post	31	3.94
Conduct a self-audit with a farmer on their farm	Pre	32	2.88
	Post	31	3.45

Tell a farmer where to go to find more help with GAPs on their farm	Pre	33	3.94
	Post	31	4.19
Teach a short workshop or lead a discussion on GAPs	Pre	33	3.18
	Post	31	4.10
Answer basic questions from a farmer about GAPs principles on the farm	Pre	32	3.84
	Post	31	4.10
Help a farmer prepare for an audit	Pre	33	2.42
	Post	31	3.06

Workshop content evaluation and usefulness. We asked questions about the delivery and content of the workshop, using a scale of 1=not at all useful to 5=very useful.

1. How useful was the information you received on food safety and GAPs practices? Mean=4.63
2. How useful was day 1 (in the classroom)? Mean 4.70
3. How useful was day 2 (at the farm)? Mean 4.60
4. What was most useful? (short answer). We had a plethora of responses on what was most useful. Not everything is listed here, but thematically responses could be clumped into Resources, Activities, and Perspectives.
 1. *Resources* included the food safety plan templates, flashdrive, annotated PowerPoint presentation for individual adaptation, and the educational materials.
 1. Resources on flashdrive, PowerPoint especially,
 2. The educational materials that address problems that farmers actually had,
 3. The take home resources
 2. *Activities* were group activities to write Standard Operating Procedures, do a risk assessment and statement for the host farmer, and mini teaching plans.
 1. Creating SOPs and materials to teach them
 2. I liked the visual risk assessment activity
 3. The hands on experience looking for hazards and seeing how a packing process actually works.
 3. *Perspectives* were how people gained additional insight into Good Agricultural Practices issues by hearing farmers talk, being on a farm, and networking with each other.
 1. Simply getting a proper perspective on the subject
 2. On farm visit and group discussion. I learn so much from others' experiences
 3. Understanding things from a producers standpoint

5. What was least useful or could be improved (short answer)? We had much fewer responses in this category. We especially paid attention to the feedback from Workshop 1 and made changes to subsequent workshops based on that feedback, which was about rearranging the content and addressing some issues right at the very beginning, even before the introductory and background content and adding more hands-on activities.
 1. more hands-on examples
 2. less sitting
 3. more background and epidemiology, how it relates to illness
 4. more about recordkeeping

6. What else do YOU need to help you provide GAPs information to farmers? This question helped us continually improve our workshop and form collaborations or networks. The feedback here was very thoughtful and specific about their need for more study as well as how to best help their constituents.
 1. More practice
 2. More understanding, who to go to for questions
 3. Resources to help direct farmers who are in need of GAP info.
 4. How to link farmers outside my network to work with/ desire training
 5. Work more on actual food safety handbook
 6. I believe the flashdrive and folder site will help quite a bit
 7. Nothing, just knowledge that we can go to you if we need your help.
 8. The scientific data or guidelines for safety
 9. Individual technical assistance to farmers.
 10. More on-farm experience w/ different types of farms
 11. Take time to do it, and have back up support from trainers
 12. It would be great to make some packaged programs that center around one of two concepts only.
 13. How best to follow-up with producers to give assistance on completing and maintaining food safety plans.

Project Outcomes

Project outcomes:

An advisory board of key farmers and partners was created in Feb 2014 to help guide the project; five of the six same advisory board continued during Year 2 of this project. In addition to the advisory board, key partners in MN and ND Extension were consulted to help with participant recruitment and to plan the workshop. These connections were critical to ensure Extension employees understood the importance of GAPs and to tie it into their own training and educational goals.

Workshops.

Four workshops were held: Workshop 1, April 2014, was in Le Sueur and Henderson MN (n=11), Workshop 2, October 2014, was Fargo ND and Halstad MN (n=15), Workshop 3, June 2015 in Avon, Minnesota (June 2015) (n=12) and Workshop

4, October 2015, in Cloquet and Wrenshall MN (n=4). Total number of educators attending the workshops was 42.

Curriculum – Throughout the workshops the project team gathered information to develop into a Minnesota GAPs manual. The manual was reviewed by the advisory committee and farmers and changes were incorporated. This manual will be presented in the final report. We had been hoping to incorporate the Produce Safety Alliance food safety curriculum into our Minnesota GAPs manual. Because the Produce Safety Rule was delayed by almost 2 years, and the PSA curriculum isn't expected until September 2016 at the earliest, and well after our project ends, we continued to use a flash drive to disseminate materials at workshops. Flash drive reprinting was expensive than using paper and can be changed relatively quickly. As FSMA materials were added to the FDA website we included the most relevant pieces on the flash drive as well as adding other science-based documents from other government or educational sources. Over 200 flash drives were given or mailed out during the course of this project.

After hearing from the educators at the workshops that they wanted the overview, slide sets, and farmer materials instead of a more formal curriculum, we compiled all our GAPs factsheets, one-pagers, including the nationally designed and science-based Cornell University Food Safety Decision Trees (Schermann was a co-author) into one *GAPs Toolkit*. Educators wanted the flexibility to design their own sessions but wanted the tools; they felt confident in their ability to design a teaching event. *GAPs Toolkit* can be downloaded and printed (at a cost of approx \$5.00 when printed in black and white and bound with a color cover) and handed out at workshops online. In addition to the downloadable *GAPs Toolkit*, everyone received a pre-loaded flash drive library of information, food safety plan templates, and videos. Educators appreciated having all the information in one easy to access location. Many have told us that they have bookmarked the GAPs Manual on their computers.

Recommendations:

Potential Contributions

-- Strengthened networks among University Extension, non-profit agency and other educators. Agricultural educators from Extension and non profits had an opportunity to meet and talk about serving farmers, share tips on providing technical assistance and other informal relationship building that will lead to future collaborations. There was lots of sharing about what farmers are asking about food safety (and other topics) and brainstorming ways to answer questions.

-- Relationships formed between project staff and participants lead to further collaborations and partnerships. For example, Glenyce Peterson-Vangsness, Extension Educator working with both farmers and restaurants relating to food safety and sourcing was so excited by the workshop that she worked with our program to plan and host a GAPs workshop at a vegetable farm for grower/producers in south central Minnesota. Other educators have reached out to the program staff to ask questions, share their farmer education activities or collaborate on project proposals or events.

-- Connected growers to local businesses. Lunches were catered by restaurants or caterers who used produce grown by the host farms. We identified the farm as being a host for educators to learn about their food safety practices. At least one farm sold to a caterer/restaurant who had not purchased local food previously and the connection continued after the conclusion of the project.

-- Increased the numbers of educators who have a more knowledge to answer food safety questions. Prior to these workshops, there had been no concerted or specific effort to provide on-farm food safety education to agricultural educators. Educators simply turned to Google to try to answer questions they got from growers. As a result of these workshops educators know the basics of GAPs and where to send more growers for more information.

-- Because of this workshop one grower/packer met and formed relationships which led to new contracts with a food hub they and a large school district to buy his product.

-- Education for host farmers - the farmers that hosted day 2 on the farm benefited from exposure to Extension educators and other non-profit staff, and made new connections within their area. Farmers received basically a full day of technical assistance specific for their farm, including the development of SOPs, a walk through with many sets of eyes, suggestions and questions. Farmers reported that they really enjoyed this aspect and the "jump start" and intense food safety help they received from the group of educators and program staff.

Future Recommendations

-- Charge some amount for the workshop. We have people sign up and not show up, especially in the northeast. There may be no perceived value in a "free" workshop even though we say this workshop has a \$400 value. A \$50 fee may be appropriate.

--Develop a method to "require" post workshop homework. Without any reward or consequences (e.g. grade, course rebates, certifying agency certificate) there was only self-motivation and a goal of self-empowerment to encourage group activity and course completion. Usually about half the people in the groups did not attempt or complete their post-workshop assignment. We had designed this part of the course for sharing ideas and methods with each other and building a network through interaction. This was not just an issue of not having access to computers (those participants DID find a way to do the activity) but instead, some people may just not have made the time to do more work, since they had already spent 2 days away from work for the workshop.

-- Lower your expectations. We were over-enthusiastic about the numbers of people who would attend. We did not reach our goal of 20 people per workshop. The people who did show up however were engaged and involved and felt like they were worth at least 2 or 3 people each!

--Recognize regional political/cultural norms. Some areas of the state have been extremely difficult for us with scheduling any workshop that is related to anything "government" (though we are not related to the government at all, but that is the perception.) We had difficulty recruiting educators in those areas. Some of those areas have a small number of educators to start with, so the potential pool is quite small to begin with.

-- All types of recruitment must be used. We used SARE publicity staff for recruitment (SARE Twitter, Facebook, and email blasts) as well as our own social media networks, email lists, personal calls and flyers. Recruitment was the most difficult part of holding these courses and as much as we tried we had a difficult time in one part of our state. We did have attendees from Wisconsin and North Dakota. Make sure to connect early with management in the organizations to see if there are existing conferences or workshops you need to schedule around.

-- Course should be one day instead of two. Two full days of professional development may be more than most people are willing to spend time doing, and

Extension educators are extremely busy and expected to know "a little about a lot." They may not be willing to spend that much time on one topic.

-- Increase the online component of the course for greater reach. The online portion could be available to others who do not participate in the in-person portion, but who are still interested in learning about GAPs and interacting with other educators. There are many options for interactive software to accomplish this.

-- Find another platform besides Moodle for the online portion of the course. Moodle student registration is time consuming to get people set up on the University Moodle site for those that do not have an x500 username. Options such as Schoology may be more user friendly.

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