

The NCR FSMA Year 3 Evaluation Report

THE NORTH CENTRAL REGION CENTER FOR FSMA TRAINING,
EXTENSION AND TECHNICAL ASSISTANCE

By Arlene Enderton

Iowa State University Extension and Outreach Local Foods Program

March 2019



North Central Region
Center for FSMA Training, Extension
and Technical Assistance

Contents

- Introduction 1
- Methods 1
 - PSA Grower Training follow-up survey 1
 - State lead interviews 2
 - Communication survey..... 2
 - PSA Grower Training knowledge assessment..... 2
 - Success Story Interviews 3
- Results 3
 - How have participants benefited from Produce Safety Alliance Grower Trainings delivered by NCR FSMA partners? 3
 - What kinds of changes have growers made since attending the PSA Grower Training?..... 4
 - How well did the PSA Grower Training prepare growers to make such changes? 6
 - How have State Leads benefited from the NCR FSMA? 6
 - Which NCR FSMA communications have partners most commonly used?..... 7
 - With which NCR FSMA communications are partners most satisfied? 8
 - How has the NCR FSMA improved its work over time?..... 8
 - How can the NCR FSMA better serve partners?..... 11
 - How can the NCR FSMA better help produce growers attain FSMA compliance? 15
- Conclusions and recommendations 17
- Appendix A: PSA Grower Training Knowledge Assessment survey instrument with answers 18

Introduction

The North Central Region Center for FSMA Training, Extension and Technical Assistance (NCR FSMA) formed in March 2016 with funding from the US Food and Drug Administration. The NCR FSMA is housed at Iowa State University and works to organize and equip food safety professionals from 12 Midwest states so they can help farmers, food handlers, and food processors prepare for compliance with the Food Safety Modernization Act (FSMA).

The center staff continually evaluates their efforts to learn how they can improve the collaborative work. This report summarizes the evaluation conducted in year 3 (March 2018 through March 2019).

The NCR FSMA has been awarded funding for an additional three years from the US Department of Agriculture. This award began in September 2018, so that the first and second source of center funding overlapped for six months.

Methods

Five evaluation methods were utilized in year 3. Nine hundred forty-five contacts were made through the evaluation process (Table 1). This may not be the number of unique individuals reached, because some people may have participated in more than one evaluation method.

The following summarizes the methods used for each of the five evaluation components:

Table 1: 945 contacts were made through the evaluation in year 3.

Evaluation method	# of participants
PSA Grower Training follow up survey	140
State lead interviews	10
Communications survey	24
PSA Grower Training knowledge assessment	767
Success story interviews	4
Total contacts	945

PSA Grower Training follow-up survey

This survey was sent to participants in the Produce Safety Alliance (PSA) Grower Training approximately one year after completing the course. Food safety specialists from six states sent the survey out to their contact lists. Not all states participated, because some did not offer PSA Grower Trainings in the winter of 2016-17.

The survey was conducted electronically using Qualtrics for participants who use technology. It was sent out by postal mail to

participants who do not use technology. One or two reminders were sent to those who use technology; no reminder was sent to those who received paper copies. Table 1 shows the dates when

Table 2: The PSA Grower Training follow-up survey was conducted over the course of several months.

State	Send date	Close date	Format	# of responses
IL	05/09/2018	06/05/2018	Electronic & paper	11
IN	04/04/2018	05/03/2018	Electronic only	24
KS/MO	11/22/2017	12/20/2017	Electronic only	10
MI	02/07/2018	04/01/2018	Electronic only	92
OH	02/01/2018*	N/A	Paper only	3
Total responses				140

*Approximate date

invitations were sent and the survey format used (electronic and/or paper). An estimated 721 invitations were sent. We received 140 responses, for an approximate 18 percent response rate.

Evaluator Arlene Enderton analyzed the data using SPSS™ (version 25).

State lead interviews

Twelve NCR FSMA state leads were invited to participate in interviews in November 2018. Ten accepted the request, for an 83 percent response rate.

Arlene Enderton, the NCR FSMA evaluator, interviewed respondents over the phone using a common interview template and a semi-structured interview style. She coded the data for themes using NVivo 12™ software.

Communication survey

One goal of the new NCR FSMA center funded by the USDA is to improve communications with stakeholders, with emphasis on revamping the NCR FSMA website and newsletter. This survey was funded through the new USDA-funded center.

The survey opened on January 15, 2019, and closed on February 22, 2019. Ellen Johnsen, program coordinator for the NCR FSMA, sent an invitation to participate to everyone on the NCR FSMA list serve and posted the invitation on the NCR FSMA Facebook page. In addition, state leads were asked through personal phone calls from Joe Hannan, regional horticulture specialist for Iowa State University Extension and Outreach and the principal investigator for the USDA-funded center, to distribute the invitation to their teams during the week of February 7. Respondents were offered an incentive: the opportunity to enter a drawing to win one of four gift cards, each valued at \$25.

We received 24 responses. We are not able to calculate a response rate, because we do not know how many people received the invitation to participate.

PSA Grower Training knowledge assessment

The knowledge assessment was developed by Dr. Amy Harder, evaluator for the Southern Center for Training, Education, Extension, Outreach, and Technical Assistance to Enhance Produce Safety. (The instrument is in Appendix A.)

The knowledge assessment consisted of 25 multiple choice questions related to the seven modules of the PSA Grower Training. Training participants were asked to complete the quiz in writing before beginning the training and again after the training.

Trainers associated with the NCR FSMA collected the paper copies from the growers and sent them to the NCR FSMA evaluation team. Data was entered into Qualtrics, an online data collection and analysis platform, to create the dataset. Pre-test and post-test responses were matched using a unique identification number written on each quiz, along with the date of the training and the state.

Only responses which included both a pre-test and a post-test from the same person were included in the analysis. (In a few cases, a person completed only the pretest or only the posttest, in which case the data was not used.) We received 767 complete responses from 40 trainings.

The NCR FSMA evaluation team analyzed the data using Microsoft Excel™ (2016). Each question was assigned to the related PSA Grower Training module and a total score of correct answers was calculated

for each module. The scores by module were averaged and rescaled from zero to five. Rescaling allowed the evaluators to compare participants' knowledge of each module with other modules.

Success Story Interviews

Enderton and an Iowa State University intern interviewed three farmers and one state lead in two states (Minnesota and Missouri) over the phone in 2018. One farmer had participated in the PSA Grower Training and two had become trainers. Interviews focused on how participating in education or becoming trainers affected the farmers' on-farm food safety practices. The farmers vetted the stories prior to releasing them publicly. An additional five food safety professionals and one grower were interviewed for two stories that have not yet been released.

Results

How have participants benefited from Produce Safety Alliance Grower Trainings delivered by NCR FSMA partners?

Participants increased their knowledge about FSMA and food safety during the training.

On average, respondents' scores improved by 4.1 points (out of 25) from the pre-test to the post-test (Figure 1). The average pre-test score was 16.3 (65 percent), and the average post-test score was 20.4 (82 percent). The difference between pre-test and post-test scores is statistically significant at a level of $p < 0.001$, meaning the difference is not likely due to chance, but to a true difference between pre-test and post-test scores in the population.

The NCR FSMA and its partners have provided growers with guidance and education regarding FSMA.

Forty-five follow-up survey respondents described in their own words how the NCR FSMA and its

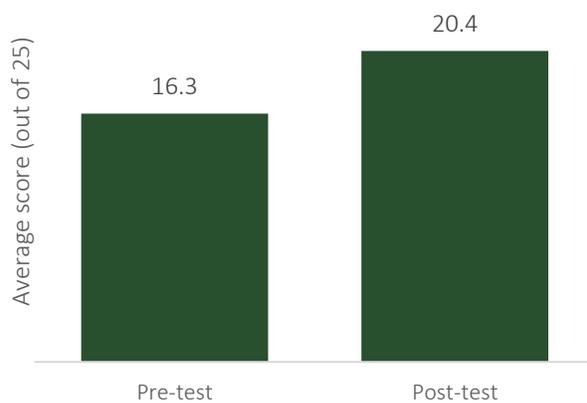
partners have provided them with guidance regarding FSMA. Their responses were coded for themes:

Explained the requirements of the FSMA Produce Safety Rule: Thirteen respondents appreciated learning what the FSMA Produce Safety Rule requires. As one said, "It was beneficial to hear from individuals who understood the law."

Provided information about food safety practices: Eleven respondents said the NCR FSMA has introduced participants to new information about food safety practices. This demonstrates that some growers had not already learned this information in other trainings.

Provided additional resources: Seven respondents valued the resources that are available to them through the NCR FSMA, including educational resources as well as people to call when they have a question.

Figure 1: On average, scores on the knowledge assessment increased by 4.1 points (n=767)



Explained how the FSMA Produce Safety Rule differs from food safety certification: Seven respondents said they were food safe certified, such as through Primus or USDA Good Agricultural Practices (GAP). These growers explained that they already implement good food safety practices and have a good understanding of food safety. For some of these, however, it was helpful to understand how the FSMA Produce Safety Rule differs from their certification.

Provided the required training: Four growers found the greatest value of the NCR FSMA in that it provided a training they were required to take.

Helped growers plan for the future: Three growers said the training has helped them plan for the future. For example, one grower said, “[The training] helped us better understand what is coming our way. It helped us to think ahead and plan for more food safety progress on our farm.”

What kinds of changes have growers made since attending the PSA Grower Training?

31% of growers made changes to infrastructure or equipment to improve food safety practices within one year of taking the PSA Grower Training.

The follow up survey showed that infrastructure and equipment made by growers included:

Eleven growers upgraded or added **hand-washing stations**.

Ten growers built new or upgraded existing **buildings or packsheds**. For example, one built a new building to hold pesticides apart from produce; another updated a garage to a clean area for washing and packing vegetables.

Nine growers added new equipment or changed their **washing/packing line**. For example, one upgraded the packing line to stainless steel.

Nine growers upgraded or added new **restrooms**. One relocated them within ¼ mile of farm fields so workers can reach them within a five-minute walk.

Five growers changed their **irrigation system**.

Three growers made changes to how they **transport produce**. For example, one added covers for hauling asparagus from the field to the receiving station.

Three improved or bought new **coolers**.

Two improved **food contact surfaces** by upgrading to stainless steel or FDA-approved plastics.

Two changed their **water source** to a safer source. For example, one switched from using rain water to wash root crops to using tap water.

Two growers replaced their **harvest crates** with ones more easy to clean.

One grower put up new food safety-related **signage**.

73% of grower respondents (94 of 128) made some sort of change on their farm to improve food safety practices after attending the training.

Figure 2 shows which changes growers made, as well as which practices they already had in place prior to the training (and, therefore, did not need to change). The percentage was calculated as the number of

growers with a practice in place out of the total to whom that practice applies. For example, Biological Soil Amendments of Animal Origin (BSAAO) applied to 84 growers; 45 do not use BSAAO.

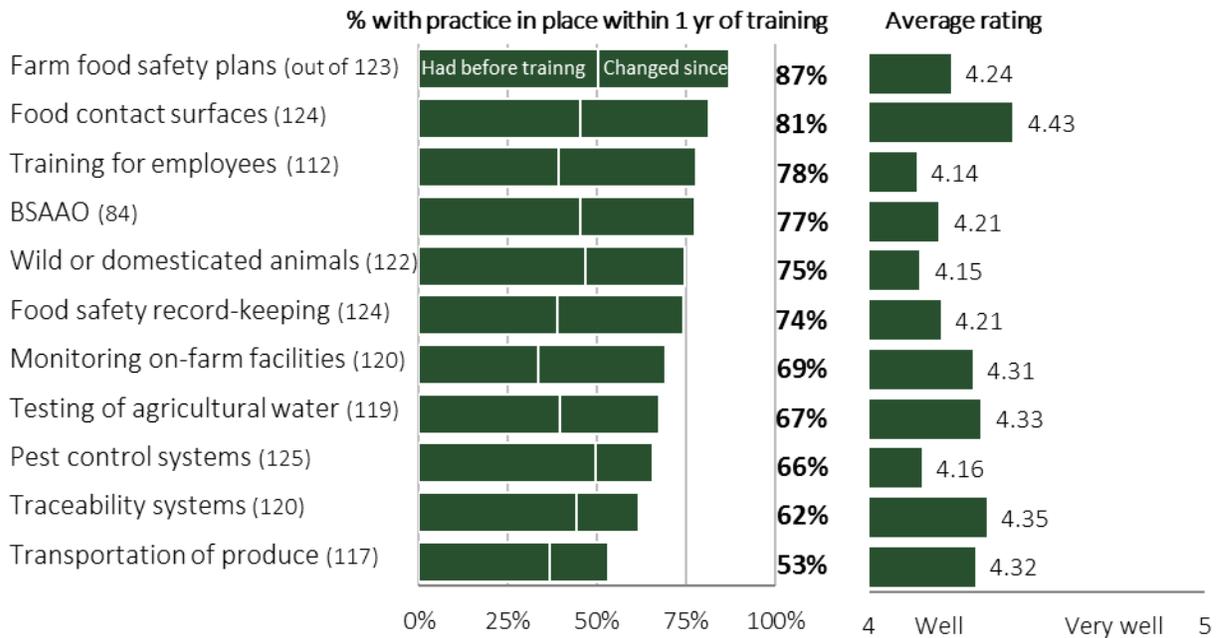
The most common changes made by growers were beginning to write, completing, or modifying farm food safety plans and implementing new or different methods for cleaning or sanitizing food contact surfaces. Forty-five growers made these changes.

Added to that, half of respondents (62 of 124) already had an adequate farm food safety plan prior to the training. Therefore, the clear majority (107 of 124, or 87 percent) of grower respondents had an adequate food safety plan in place within a year of taking the PSA grower training. While the food safety plan is not required by FSMA, it is a useful way for growers to organize their food safety protocols.

Figure 2

Writing/changing food safety plans and record-keeping systems were the most common changes made by growers after training.

The training prepared farms well to make changes.



How well did the PSA Grower Training prepare growers to make such changes?

Overall, the PSA Grower Training prepared participants well to make changes to improve on-farm food safety.

Figure 2 also shows how well the PSA Grower Training prepared farms to make changes. (Respondents only answered this question for those areas in which they made a change following the training.) The training received high ratings for all types of changes, with ratings ranging from an average of 4.43 (food contact surfaces) to 4.14 (training of employees). The training did the best job of preparing growers to make changes to sanitizing or cleaning food contact surfaces.

This may be because the training distinguishes between cleaning and sanitizing, which some growers may not have realized before.

“[Purdue Extension staff provided] support and guidance which allowed us to create a better farm food safety plan. Resources, on-site evaluations, mock auditing. Their services were invaluable in helping us successfully meet the FSMA regulations.”

Grower from Indiana

How have State Leads benefited from the NCR FSMA?

The peer network of NCR FSMA partners is by far the greatest benefit of the center.

Through the network, members are more aware of resources, are able to discuss ideas and solve problems with others doing similar work, and feel supported. The network has grown greatly in trust and familiarity since year 1, when interviewees expressed they had met (through electronic communication) but did not truly know one another.

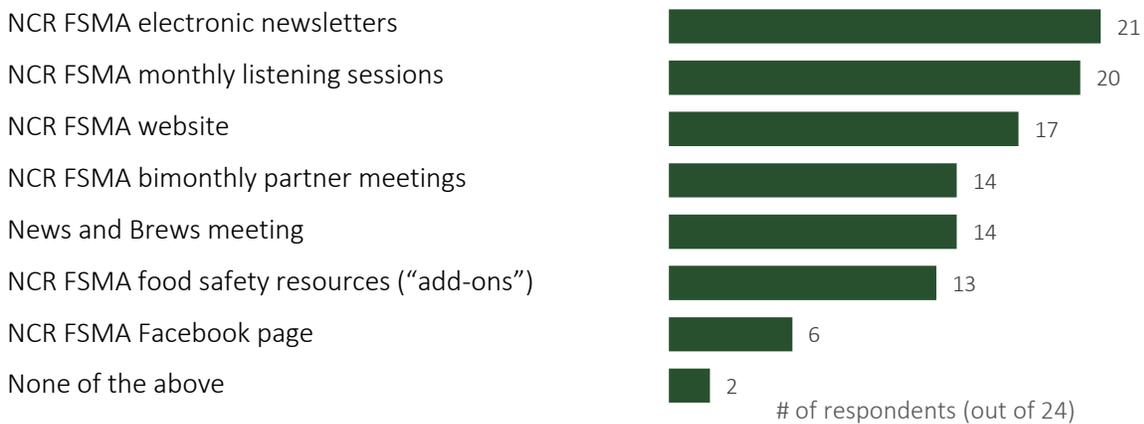
Which NCR FSMA communications have partners most commonly used?

Communication survey respondents have most often used NCR FSMA electronic newsletters and monthly listening sessions.

On average, respondents have used four different types of NCR FSMA communications. Nearly all respondents have used NCR FSMA electronic newsletters and have participated in monthly listening sessions (Figure 3). Over half of respondents have used the website, and approximately half have participated in bimonthly partner calls, participated in the News and Brews meeting, and utilized NCR FSMA “add-on” resources.

The NCR FSMA Facebook page was the least-used NCR FSMA communication, with only six respondents indicating they used it. This may be partially due to not everyone having a Facebook account.

Figure 3: The NCR FSMA Facebook page was used by the fewest number of respondents.



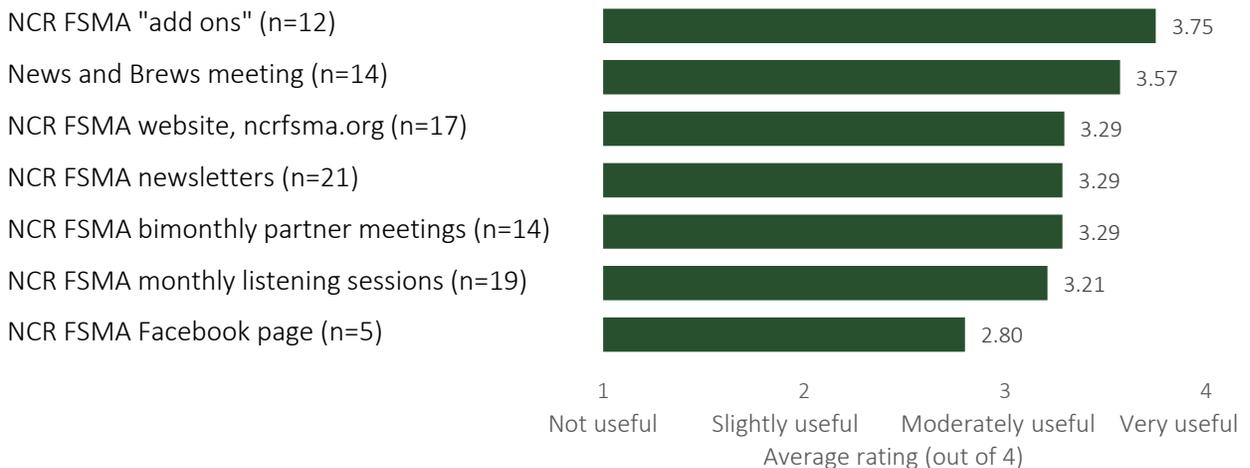
With which NCR FSMA communications are partners most satisfied?

NCR FSMA partners found NCR FSMA add-on resources and the News and Brews meeting most useful. Respondents were asked to rate the usefulness of each NCR FSMA communication method which they indicated earlier in the survey they had used. They rated the items on a scale from one to four, where 1 = not useful and 4 = very useful.

All resources received an average usefulness score above 2.5, indicating that they are moderately or very useful (Figure 4). The communications survey showed that NCR FSMA add-ons and the News and Brews event received the highest usefulness ratings, on average. The add-ons and News and Brews meeting were used/attended by fewer respondents than most other resources (Figure 3), which may indicate there are barriers using or attending them, which the NCR FSMA may need to address, especially since those who have used or attended them found them to be so useful.

The NCR FSMA Facebook page received the lowest rating (2.8), with no individual rating it as very useful.

Figure 4: Respondents found NCR FSMA "add-ons" and the News and Brews meeting to be very useful.



How has the NCR FSMA improved its work over time?

The NCR FSMA has provided opportunities for state leads to know one another on a deeper level.

In year 1, state lead interviewees said they had met new people through the NCR FSMA but needed opportunities to get to know one another better. By year 3, interviewees described members of the network as their "coworkers," "colleagues," "partners," and "working group"—all of which are terms describing actual relationships. A few interviewees expressed that they could not do their work without the NCR FSMA peer network, or that they would feel alone without it.

The NCR FSMA has provided some opportunities for face-to-face interaction and is prioritizing this under new center funding.

State lead interviewees requested opportunities to meet one another face to face in year 1, so they could get to know one another better. The North Central Region never hosted an annual conference during its first three years, because a face-to-face gathering was not included in the NCR FSMA budget. However, during year 3, NCR FSMA partners worked together to plan and host a News and Brews in Detroit, during

which partners shared resources for improving PSA Grower Trainings. During year 3 interviews, several state leads said for the first time that they had traveled to other states to collaborate with other NCR FSMA partners or had hosted a partner from another state. This demonstrates that relationships among partners had grown to a depth to where they naturally created opportunities to work together face-to-face.

NCR FSMA communications have improved greatly since year 1.

State lead interviewees' top complaints in year 1 were difficulty accessing or navigating Box, the NCR FSMA's file-sharing system, and technical problems during NCR FSMA online calls, both of which were important communication avenues used by the NCR FSMA at the time. By year 3, nearly all interviewees expressed satisfaction with NCR FSMA communications, especially the newsletter.

PSA trainers associated with the NCR FSMA have delivered more effective PSA Grower Trainings.

We analyzed data from the PSA Grower Training knowledge assessment two times during the 2017-18 training season.

Preliminary data was analyzed in January 2018 using data from 92 respondents. It showed the participants' scores increased, on average, by 3.5 points, from 16.1 points (out of 25 possible points) on the pre-test to 19.6 on the post-test (Figure 5). We shared the preliminary results, including which test questions were most often missed on the post-test, with trainers to give them feedback. We discussed the results and ways to improve knowledge gain on the most problematic questions during an NCR FSMA partner call.

We analyzed the **final data** set in summer 2018. It showed participants' scores increased by an average of 4.1 points, from 16.3 points on the pre-test to 20.4 on the post-test.

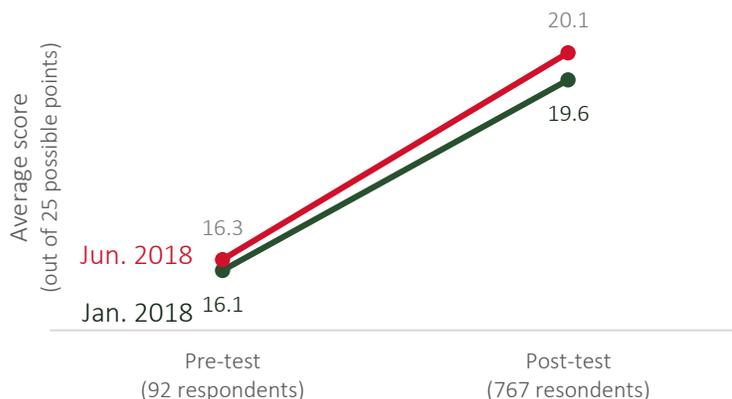
T-tests showed that the pre-test scores from the preliminary data and the final data were not significantly different, meaning that participants entered the early-season trainings at the same knowledge level as those participating in later-season trainings. However, the difference between post-test scores was statistically significant (alpha = 0.05), which means that participants in later-season trainings left with a higher level of knowledge than participants in early-season trainings. Reasons for an increase in post-test scores as the season went on may include:

PSA Grower Training trainers improved the training based on feedback from the preliminary data,

Trainers increased their skill as trainers as they gained experience during the season, or

Trainers learned and implemented different ways

Figure 5: PSA Grower Training Knowledge Assessment scores



to deliver the training from other trainers through the many discussions hosted by the NCR FSMA, the Produce Safety Alliance, or others.

NCR FSMA partners discussed how to better deliver the PSA Grower Training by identifying topics which participants continued to misunderstand after taking the PSA Grower Training

Evaluators held a discussion during a required bimonthly NCR FSMA call during which PSA trainers reflected on results of the PSA Grower Training Knowledge Assessment.

First, they reflected on which modules participants understood the least after completing the training (Figure 6), to better understand which modules may require greater emphasis in the future. It showed that respondents continued to lack some knowledge on modules 4 and 7 after completing the training.

Ten percent (n=76) of respondents answered Questions 21 and 24 (from module 7) correctly on the pre-test, but were incorrect on the post-test, which may indicate the training added confusion regarding safety data sheets (Question 21) and which records are required by FSMA (Question 24).

Figure 6: After the training, respondents scored lowest on Modules 4 and 7.

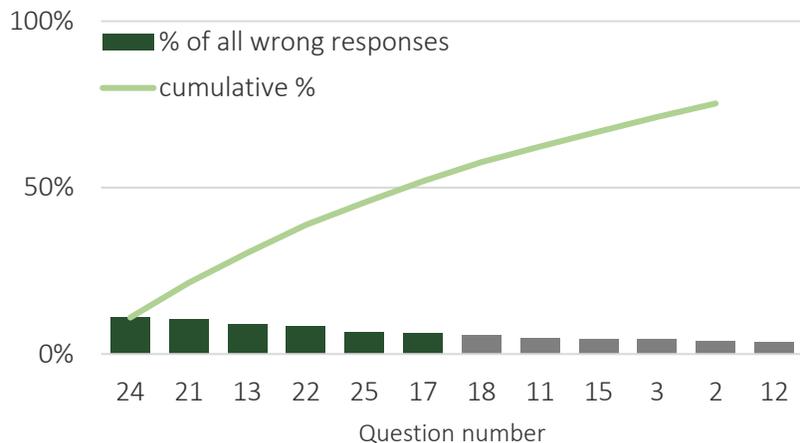


A Pareto chart (Figure 7) reports the questions that were most often answered incorrectly on the PSA Grower Training Knowledge

Assessment. Questions 13, 17, 21, 22, 24, and 25 account for more than 50 percent of all incorrect answers. (The questions are included in Appendix A.)

Discussion participants concluded that two questions were poorly worded or chosen. Question 13 (about reducing wildlife populations) was poorly worded, because FSMA emphasizes deterring wildlife from production areas, rather than reducing or eliminating it. They agreed that

Figure 7: Over half of the incorrect answers on the knowledge assessment were from six questions.



Question 21 (about Safety Data Sheets) was not the most important topic covered in Module 6, so that many trainers may not be giving the topic much emphasis.

Trainers agreed that many growers are confused regarding Question 22 (about Farm Food Safety Plans) and some trainers may add to the confusion. They believed that they need to do a better job of explaining that while Farm Food Safety Plans are encouraged by FSMA, they are not required.

Regarding Question 24 (about records required by FSMA), trainers agreed that they needed to add slides to their presentations at the end of each module reviewing required records. They also agreed they should hand out a document from the Produce Safety Alliance about required records and review it during the training.

Finally, trainers had mixed reactions to Question 25. Some thought the question was unfair, because it made it sound as if Farm Food Safety Plans must be developed using a specific sequential procedure. Others believed the question was fair and that trainers can do more to emphasize that assessing risk is the first step when thinking of each part of the Produce Safety Rule.

How can the NCR FSMA better serve partners?

Provide regular opportunities for partners to meet face to face.

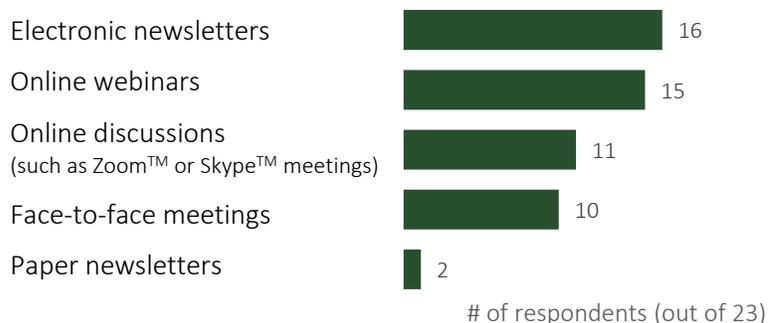
Three state lead interviewees suggested the NCR FSMA provide more face-to-face opportunities for networking and learning among NCR FSMA partners, which is included in the center's plans under new funding through the USDA. As an example of the value of face-to-face meetings, two interviewees explained that they found great value in attending the News and Brews event in Detroit, believing one assimilates more when meeting face to face. This is the third year in a row in which state leads have requested this type of opportunity.

Reduce barriers to participating in face-to-face meetings by offering scholarships, choosing locations that are easy to access, and offering the option to join these meetings remotely.

State lead interviews showed that state leads continue to ask for face-to-face meetings. The only face-to-face meeting held so far, the News and Brews meeting, was rated by communication respondents as very useful (Figure 4).

Yet the communication survey showed that face-to-face meetings were not among most respondents' most preferred modes of communication (Figure 8). One success story interviewee who participated in the News and Brews meeting remotely appreciated the opportunity to join the meeting online, saying that traveling for the meeting was not possible for him/her because of the financial cost, a long drive to the nearest airport, and the time commitment involved. This may indicate that the reason face-to-face meetings aren't among respondent's top preferences is due to barriers to participation. The NCR FSMA can help overcome these barriers by offering scholarships,

Figure 8: Respondents' most preferred forms of communication include electronic newsletters and online webinars.



choosing easily-accessible locations, and offering the option to join remotely.

Continue to offer opportunities for partners to work together in small groups.

Starting in year 2, NCR FSMA partners worked together in subgroups to create educational “add-on” materials; some of those groups continued their work into year 3. Three state lead interviewees said they were able to get to know others better in the small group setting than through large group calls. They also agreed that these groups were able to accomplish more.

Help partners become more familiar with NCR FSMA add-ons.

Two state lead interviewees, one success story interviewee, and two survey respondents indicated they had not read NCR FSMA add-ons, other than those they helped create. Ten of 18 service providers or educators who took the communications survey said they had shared add-on resources with produce growers or processors, leaving room for more people to share these resources. Yet, those who have used the add-on resources rated it as the most useful NCR FSMA communication tool (Figure 4).

These results indicate partners who aren’t using or sharing add-ons may be missing out on good resources. They may be more likely to share NCR FSMA add-ons if the NCR FSMA helps them become more familiar with the content. This could be achieved by asking the authors to verbally highlight key points during an online meeting or by summarizing key points in a newsletter.

Replace at least some optional listening sessions with a “deep dive” into a topic, either by offering webinars or an interactive time during which participants answer a common question regarding a predetermined topic.

Interviews with state leads revealed opposite priorities regarding NCR FSMA communications. NCR FSMA partners for whom FSMA education is a small part of their work prefer succinct communications, whereas those who work closer to full-time on FSMA are more likely to prefer longer interactive calls.

These differing priorities affected their preferences for NCR FSMA calls. Some liked the bimonthly partner calls; others did not. Those who did not like the calls were concerned that they overlap with information already being shared through other avenues, and they want to keep the calls short and succinct. Another interviewee didn’t like the partner calls for the opposite reason, perceiving that most participants want the call to be brief and therefore questions were not welcome. Interviewees who indicated they need communications to be succinct tended not to participate in the optional listening sessions, because they did not know if they’d learn anything helpful.

Interviewees as well as the communications survey results support a recommendation to switch listening sessions to a “deep dive” regarding a predetermined topic, either using a webinar format where a few people share their experience or by asking all participants to answer a common question regarding how they are approaching the topic.

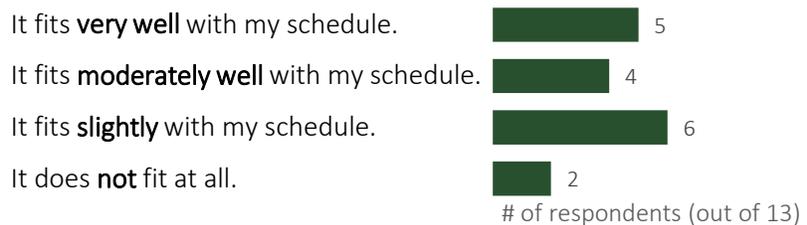
Do not hold listening sessions over the noon hour. Reschedule them to the third week of the month on Tuesday at 2 p.m., Thursday at 11 a.m., or Thursday at 2 p.m.

The survey asked respondents how well the day and time of the monthly listening session fits their schedule. Listening sessions had been held monthly on the third Tuesday of the month at noon.

Responses were mixed, showing that the current time works very well or moderately well for about half of respondents, and slightly or not at all for the other half of respondents, shown in Figure 9. This indicates there may be room for improvement by finding a time that works with the majority's schedule.

Respondents were also asked which times did not work at all with their schedule, so the NCR FSMA can avoid conflicting with other standing meetings partners might have. Three time slots during the third week of the month do not conflict with anyone's schedule: Monday at 2 p.m., Thursday at 11 a.m., and Thursday at 2 p.m. The worst times to hold a meeting are at 8 a.m., 4 p.m., and Fridays.

Figure 9: Noon listening sessions fit about half of respondents' schedules.



One survey respondent commented that noon is not a good time for a standing meeting, saying, "Don't schedule at lunch time. Treat it like a real meeting where 1) participants are not eating and distracted or 2) participants have to either work through lunch or not participate."

Discuss during a partner call how to best resolve conflicting desires for a short call vs. longer calls with deeper learning and interaction.

There is less consensus on how to format the required partner calls, as some interviewees prefer they be kept as short as possible, and others (2 interviewees and 1 survey respondent) prefer time to hear from all call participants and time spent in deep discussion and learning. Therefore, discussing how to resolve this dilemma during a partner call may lead to a creative solution, such as hosting two distinct partner calls or splitting the call between announcement time and an optional time for interaction and learning.

Continue to keep the newsletters as succinct as possible, potentially by moving some content (like upcoming events and the list of NCR FSMA add-ons) to a website and providing a link in the newsletters, and by including only new information in the newsletter.

Overall, partners are happy with the newsletters. Figure 4 showed that respondents rated newsletters as moderately useful, averaging a rating of 3.29 on a scale from 1 to 4 (4=very useful). During state lead interviews, six interviewees mentioned the NCR FSMA newsletter and all of them liked it, primarily because it is succinct. Interviewees like that the newsletter allows them to quickly find the information they need, as opposed to a phone call that may include some information that is not of interest to them.

However, that is not to say the newsletter cannot be improved or that no one prefers a switch to an email newsletter program. In total we received three suggestions for improving the newsletter:

Add more original content to the newsletter. (Interviewee)

Shorten the newsletter by housing calendar events and job opportunities on the website and including a link in the newsletter. List in the newsletter only what is new since the last newsletter, rather than repeating information previously shared. (1 survey respondent)

Have further discussion with partners regarding whether the newsletter should be moved to an email program, such as MailChimp or Constant Contact, or to keep it as a PDF attached to an email.

The NCR FSMA included plans to revamp its electronic newsletters in its grant proposal to the USDA. Respondents who have received the newsletter in the past (n=20) were asked to identify the format they most prefer for the newsletter. Over half (12 of 20) prefer that the newsletter remain as it already is—a PDF document attached to an email (Figure 10).

This result is somewhat surprising, because the NCR FSMA project team was already planning to switch the newsletter to a program like MailChimp or Constant Contact, believing this would be an improvement. These results indicate, however, that while some people do prefer an email newsletter program, most are satisfied with the current format. Hence, NCR FSMA organizers may want to have further discussion with partners regarding whether a change to the newsletter format is necessary.

Figure 10: Most respondents prefer newsletters as a PDF file attached to an email.



Continue to host partner meetings bimonthly, primarily using a live meeting as opposed to a recorded one. Most respondents prefer that the partner meetings continue to be held bimonthly and to be live, as opposed to pre-recorded (Figures 11 and 12). Again, this is surprising, because the NCR FSMA project team thought those who prefer succinct communications might prefer pre-recorded meetings.

Figure 11: Most respondents prefer bimonthly partner meetings.

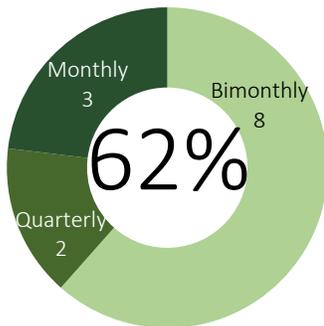
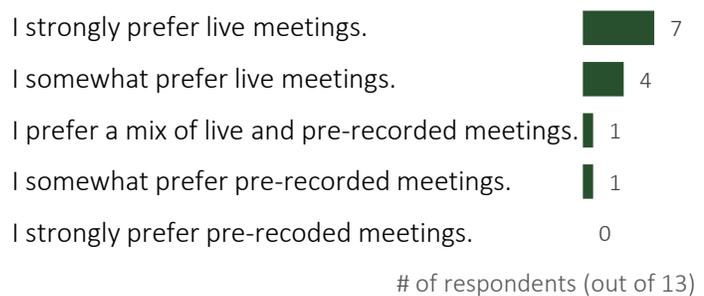


Figure 12: Respondents prefer live partner meetings.



Switch the NCR FSMA Facebook page to a Facebook group.

The NCR FSMA Facebook page was used by the fewest number of communications survey respondents and was rated as least useful. To make this resource more useful, the NCR FSMA could consider switching to a Facebook group (rather than a Facebook page). Groups are designed to be more interactive than pages by prominently displaying posts from all group members.

How can the NCR FSMA better help produce growers attain FSMA compliance?

Forty-two follow-up survey respondents shared suggestions for how the NCR FSMA can help growers attain FSMA compliance. Their responses were coded for themes, shared here:

Continue to offer food safety education.

Eleven respondents suggested the NCR FSMA continue to do what it is already doing (provide food safety education), making this the most common theme. Respondents requested both that the NCR FSMA continue to offer the Produce Safety Alliance Grower Training and add supplemental trainings. A few respondents indicated that they would attend the course again in the future to keep up to date and refresh their memories, or to train other members of their farm team.

Disseminate information about FSMA whenever it is updated.

Growers want to know if FSMA regulations change, so they can know the most up-to-date information. Five respondents mentioned this theme.

Provide clarification on the requirements for water testing.

Five respondents requested clear, concise information about required water testing. One requested information about where testing can be done. Another said, “Understanding the agricultural water initiative is the most challenging part of the program. Clear concise how-to instructions are the most important. We are always looking for a better guidance document which is clear and can provide real on farm solutions and metrics to monitor.”

Create templates growers can use for records required by FSMA.

Three respondents requested templates that growers can fill out to help them keep records required by FSMA. Specific requests included: a template employee training form based off the minimum Produce Safety Rule requirements vs. PCQI for Human Foods employee training requirements; templates for routine environmental monitoring and swabbing; FSMA-compliant Excel spreadsheets; and sample protocol language for emergencies.

Share resources on the differences between FSMA and food safety certification.

Three respondents requested additional education on the differences between the requirements of the FSMA Produce Safety Rule and GAP certification. One specifically mentioned the differences between requirements for employee training.

Continue to explain how to determine if a farm falls under the Produce Safety Rule.

Two respondents requested additional information on how to determine which rules apply to a farm. One respondent said, “Continue to explain and review how farms determine if they fall under the Produce Safety Rule and PCQI for human food or not.” The fact that nearly 10 percent of respondents were not sure of their FSMA coverage status corroborates this result.

Provide on-farm food safety plan workshops.

Two respondents requested a workshop during which they can write a farm food safety plan with guidance from experts.

Be available to answer questions.

Two respondents requested that the NCR FSMA and its partners be available to answer growers’ questions. One said, “Provide a way to send in discreet questions and get answers or suggestions on how

to find answers.” The online question and answer portal that the NCR FSMA is planning to start during the next grant cycle would fulfill this request.

Conclusions and recommendations

The NCR FSMA year 3 evaluation made 945 contacts with food safety professionals and produce growers, processors, and handlers. NCR FSMA leaders and partners used the evaluation to continuously improve their work by learning what they are doing well and how they can improve.

Among the things that the NCR FSMA and its partners are doing well are:

Maintaining a social network of food safety professionals by providing opportunities for them to interact and learn from one another through regular online meetings and small group work.

Communicating important information in a succinct way through its electronic newsletter.

Preparing participants in the Produce Safety Alliance Grower Training to make on-farm changes. It prepared them especially well to make changes related to cleaning and sanitizing food contact surfaces.

Created add-on resources. These resources were rated as highly useful by communications survey respondents, and the process of creating these resources in small groups strengthened trust and relationships among NCR FSMA partners.

The following are recommendations for improving or sustaining the work of the NCR FSMA:

Provide opportunities for NCR FSMA partners to meet face to face, but also allow those who cannot travel the option to join remotely.

Continue to offer opportunities for partners to work together in small groups.

Help partners become more familiar with NCR FSMA add-ons by highlighting key points in a newsletter or online call.

Replace at least some optional listening sessions with a “deep dive” into a topic, either by offering webinars or an interactive time during which participants answer a common question regarding a predetermined topic.

Discuss with partners how to best format the required partner calls to reconcile differing desires for a short call vs. a longer, interactive call.

Continue to keep the newsletters as succinct as possible, potentially by moving some content to a website and by including only new information in the newsletter.

Have further discussion with partners regarding whether to move the newsletter to an email program, such as MailChimp or Constant Contact, or to keep it as a PDF attached to an email.

Switch the NCR FSMA Facebook page to a Facebook group.

Continue to help growers by: creating systems to ensure growers are informed whenever FSMA is updated, providing clarification on the requirements for water testing, creating templates growers can use for records required by FSMA, sharing resources on the differences between FSMA and food safety certification, continuing to explain how to determine if a farm falls under the Produce Safety Rule, providing on-farm food safety plan workshops, and being available to answer questions.

Appendix A: PSA Grower Training Knowledge Assessment survey instrument with answers

1. What is the overall objective of the Food Safety Modernization Act?
 - a. To prevent food safety issues.
 - b. To ensure the environmental sustainability of farms.
 - c. To promote equitable employment conditions between foreign suppliers.
 - d. To reduce federal control of local food production systems.

2. Which of the following actions in the fresh produce production and sales system is not covered by the FSMA Produce Safety Rule?
 - a. Growing
 - b. Selling
 - c. Holding
 - d. Harvesting

3. Why is the FSMA different from previous federal guidelines regarding produce, such as the “Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables”?
 - a. The FSMA provides funds to producers while previous guidelines did not.
 - b. The FSMA includes a wider range of products than previous guidelines.
 - c. The FSMA is mandated while previous guidelines were voluntary.
 - d. The FSMA includes guidelines for selling produce while other guidelines did not.

4. What is the biggest food safety hazard in fresh produce?
 - a. Improper packaging
 - b. Foreign material
 - c. Undeclared allergens
 - d. Pathogens

5. What practice should be done before starting work, before putting on gloves, and after a break?
 - a. Footwear sanitization
 - b. Clothing contamination check
 - c. Application of sunscreen
 - d. Hand washing

6. Offering workers which of the following options would be in violation of farm safety standards?
 - a. Portable toilets
 - b. Tap water
 - c. Liquid soap
 - d. Reusable towels

7. Which of the following poses the greatest risk to food safety?
 - a. Chemical soil amendments
 - b. Biological soil amendments of non-animal origin
 - c. Biological soil amendments of animal origin
 - d. Physical soil amendments

8. Which of the following products is the result of converting untreated human waste into a usable soil amendment?
 - a. Manure
 - b. Heated urine
 - c. Frozen feces
 - d. Biosolids

9. Which of the following methods of soil amendment application reduces food safety risks?
 - a. Apply manure when ground is frozen
 - b. Apply manure during non-produce field rotations
 - c. Apply manure several inches off the ground to maximize covered area
 - d. Apply manure using side-dressing techniques

10. Which of the following is a method of reducing pathogens in soil amendments?
 - a. Sanitizing
 - b. Freezing
 - c. Washing
 - d. Composting

11. Co-management refers to the balance between which two factors?
 - a. Profit of the farm and its owners and pay of the seasonal and full-time workers
 - b. Conservation of resources and minimization of microbiological hazards
 - c. Efficiency of the farm's daily practices and health and safety of the workers
 - d. Maximization of produce and crop yields and minimization of farm costs

12. Which of the following should guide risk management actions?
 - a. Personal expertise
 - b. Recommendations of seasoned producers
 - c. Suggestions from consumers
 - d. Scientific evidence

13. Which of the following choices is least likely to reduce your property's wildlife population?
 - a. Decoys
 - b. Netting
 - c. Pesticides
 - d. Air cannons

14. If a crop is found to be contaminated with wildlife excreta, which of the following actions must be taken?
- The produce must be cooked before it is sold
 - The produce must be washed before it is sold
 - The produce must not be labeled as organic
 - The produce must not be harvested
15. Which of the following water sources is least likely to contain microorganisms associated with feces that can lead to food safety risks?
- Surface water
 - Ground water
 - Municipal water
 - Reclaimed water
16. Which of the following irrigation methods has the lowest risk of contamination?
- Drip
 - Flood
 - Overflow
 - Furrow
17. Which of the following is used as an indicator of fecal contamination of a water supply?
- Pathogenic *E. coli*
 - Generic *E. coli*
 - Salmonella enterica*
 - Norovirus
18. Which of the following is considered covered produce by the FSMA?
- The leaves of potato plants
 - The roots of carrot plants
 - The entire tomato plant
 - The flowers of okra plants
19. Which packinghouse zone poses the greatest concern for cross-contamination of produce?
- Zone 1
 - Zone 2
 - Zone 3
 - Zone 4

20. Which of the following statements regarding cleaning and sanitizing is true?
- Sanitizing may be done in place of cleaning when unavoidable
 - Cleaning and sanitizing are synonymous
 - All surfaces can be cleaned and sanitized
 - Surfaces that have not been cleaned cannot be sanitized
21. Safety data sheets are used to inform workers during which of the following?
- Microbial contamination emergencies
 - Physically hazardous emergencies
 - Chemical emergencies
 - Emergencies related to pests
22. Which of the following statements regarding Farm Food Safety Plans is true?
- The FSMA requires a written Farm Food Safety Plan
 - The Farm Food Safety Plan only needs to include covered produce
 - The Farm Food Safety Plan is not required
 - The Farm Food Safety Plan should be provided to all consumers
23. Who should be responsible for developing a Farm Food Safety Plan?
- An external auditor
 - A grower on the farm
 - An advisory panel
 - An FSMR representative
24. Which of the following records is required by the FSMA Produce Safety Rule?
- Worker training dates
 - Water change schedules
 - Soil amendment applications
 - Management of sanitary facilities
25. What is the first step in developing a Farm Food Safety Plan?
- List practices likely to reduce potential risks
 - Write a plan to guide implementation of possible actions
 - Detail the origins and history of the farm
 - Assess risks