

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

Evaluation Report

Produce Safety Alliance Grower Training one-year follow-up
survey: NCR FSMA longitudinal regional results

Produce Safety Alliance Grower Training one-year follow-up survey: longitudinal regional results

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

Abstract

The NCR FSMA is a collaboration of food safety professionals and regulators in 12 Midwestern states. Collectively their work helps small- and mid-scale fruit and vegetable farmers and processors to understand the Food Safety Modernization Act (FSMA) and its impact on their businesses. This helps farmers and processors prepare to comply with FSMA.

The NCR FSMA has provided opportunities for Produce Safety Alliance Grower Training trainers to learn from one another and assess their effectiveness. For four years, the NCR FSMA has worked with trainers to conduct a follow-up survey with participants in the training approximately one year after taking the course. This report details the aggregated results.

Results show that the vast majority of growers who responded to the survey have made changes to food safety practice, infrastructure, and/or equipment since taking the training. This is true of farmers no matter their FSMA coverage status.

New in 2021, the survey asked questions to assess the effectiveness of trainings offered via remote delivery due to the COVID-19 pandemic. Results showed that respondents were satisfied with remote delivery trainings. They also made changes at a higher rate than participants in face-to-face trainings, but the results are not statistically significant due to a very small sample size.

The following recommendations flow from the results in this report:

- Continue to use flow charts during and after trainings to help participants in the PSA Grower Training determine their coverage status.
- Consider ways to reach out to Plain clothes growers, especially those whose farm in which part of the farm must comply with FSMA and another part is not required to comply, to reduce difficulties they face. These farms may face unique challenges related to operating diversified farms. These growers may need assistance in identifying the changes they need to make and ways to make them.
- Continue to offer On-Farm Readiness Reviews, as these have proven effective in helping growers make on-farm food safety changes.
- Consider modifying future follow-up surveys to ensure respondents can share accurate responses regarding their FSMA status and inspection.

- If allowed, continue to offer some trainings using remote delivery, because those trainings are more accessible to some people, because they do not have to travel to attend.

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North Central Region
Center for FSMA Training, Extension
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Introduction

The Food Safety Modernization Act (FSMA) was signed into law in 2011. The law is the first in decades to regulate fruit and vegetable farms and handlers. The law includes seven rules, one of which is the Produce Safety Rule.

One requirement of the Produce Safety Rule is that fruit and vegetable growers who are covered under the rule participate in an approved food safety course. The Produce Safety Alliance Grower Training is currently the only approved course.

The North Central Region Center for FSMA Training, Extension, and Technical Assistance (NCR FSMA) works with food safety professionals and regulators from 12 Midwest states (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin). Among its many activities, the NCR FSMA has worked extensively with its partners to share ideas and best practices to effectively teach the Produce Safety Alliance Grower Training. Starting in March 2020, the NCR FSMA worked with partners to adjust to the COVID-19 pandemic, including offering trainings remotely after the Produce Safety Alliance announced they could be offered.

The NCR FSMA also works with partners to evaluate the course. In four consecutive years, the NCR FSMA has worked with partners to conduct a follow-up survey with course participants. The survey is sent to participants approximately one year after participating in the course. It measures behavior change among participants. This report shares results from the four years that the survey has been conducted. New in this report is an evaluation of the impacts of two of the first trainings offered through remote delivery.

Methods

The survey was first conducted in January 2018, sent to participants who took the course during the winter of 2016-17. The most recent survey was sent in January 2021, to participants who took the course during the winter of 2019-20. In total, partners from 11 states (all except Minnesota, who conducted their own survey) have participated in the survey, although not every state has participated in every year. The survey has followed up with participants from 225 trainings.

Partners from each state sent invitations to participate in the survey to people who took the training in their state. The invitation was sent via email to those who use technology and on paper to those who do not use technology. The electronic survey was conducted using Qualtrics™. At least one reminder was sent to those who received the electronic invitation, and no reminder was sent to those who received paper invitations. The only variations were in Wisconsin in years 2-4 and North Dakota in year 4, where they sent a paper copy of the survey to all participants as well as an electronic invitation to those who use technology.

Table 1 shows the number of people invited to take the survey in each state in each year and the number of responses received. The yearly response rate has ranged from 18 percent (year 1) to 26 percent (years 2 and 3). In total, 4723 people were invited to take the survey and 1126 responded. Therefore, the overall response rate is 24 percent, which is good for this type of survey.

Table 1: 11 states have collected 1,126 responses in four years.

Training yr.	# of people invited to take survey					# of responses					State response rate
	Year 1 2016-17	Year 2 2017-18	Year 3 2018-19	Year 4 2019-20	TOTAL	Year 1 2016-17	Year 2 2017-18	Year 3 2018-19	Year 4 2019-20	TOTAL	
Illinois	47	60*	93	206	406	11	9	18	50	88	22%
Indiana	86	59	148	96	389	23	14	30	14	81	21%
Iowa	0	183	0	132	315	0	44	0	44	88	28%
Kansas and Missouri	28	359	296	185	868	11	99	70	33	213	25%
Michigan	600*	495	500*	301	1896	92	105	78	42	317	17%
Nebraska	0	47	19	17	83	0	14	8	2	24	29%
North Dakota	0	17	0	55	72	0	5	0	27	32	44%
Ohio	20	0	0	0	20	3	0	0	0	3	15%
South Dakota	0	20*	23	0	43	0	0	6	0	6	14%
Wisconsin	0	196	347	88	631	0	77	156	41	274	43%
TOTAL	781	1436	1426	1080	4723	140	367	366	253	1126	24%
Yearly response rate:						18%	26%	26%	23%		

*Estimated,

The response rate to surveys distributed on paper (30 percent) was higher than the response rate to the electronic survey (18 percent). This may mean our sample is skewed to include a higher proportion of Plain clothes growers than participated in the training. (Year one is not included in paper versus electronic response rates, because whether responses were received electronically or on paper was not tracked.)

North Dakota had the highest response rate (44 percent), followed by Wisconsin (43 percent). These high response rates are likely due to sending the survey on paper to all participants in addition to sending electronic invitations to those who use technology, which both Wisconsin and North Dakota did. Offering participants more than one way to participate appears to have boosted response rates in those states.

In two cases, partners shared data from the follow-up surveys that they had conducted themselves. These two surveys are not included in Table 1.

In the first instance, partners in Iowa surveyed training participants who had taken the course in the previous two years (the 2017-18 training season, and the 2018-19 training season). They sent their survey in November 2019. Their data was added to the year three regional dataset for a few questions that both surveys had in common. Iowa received 60 responses to that survey.

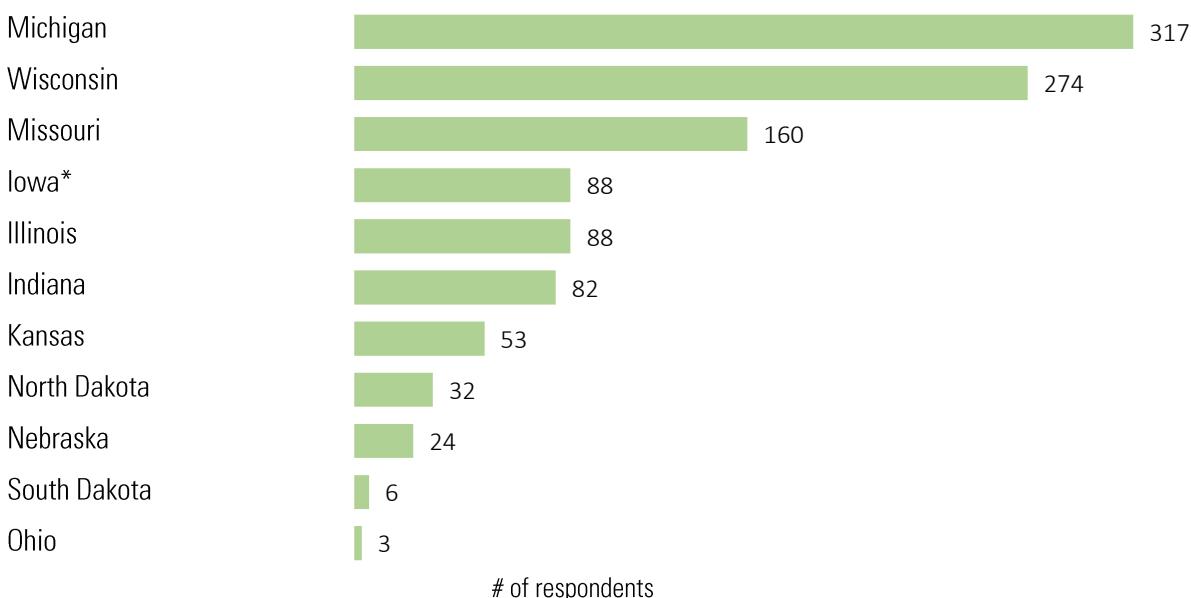
In the second case, Minnesota has conducted their own follow-up survey for three years, following up with participants from trainings starting in the 2017-18 training season (year 2) through 2019-20 (year 4). They shared aggregated results from four questions that were similar enough to the regional survey to be added to the regional results. They received 108 responses.

Data was analyzed using descriptive statistics using SPSS™(version 26) software.

Figure 1 shows the number of responses from each state. More people responded from Michigan (317 responses) than from any other state.

Participants in two remote delivery trainings were invited to respond to the survey.

Figure 1: The data set includes responses from trainings in eleven states.**

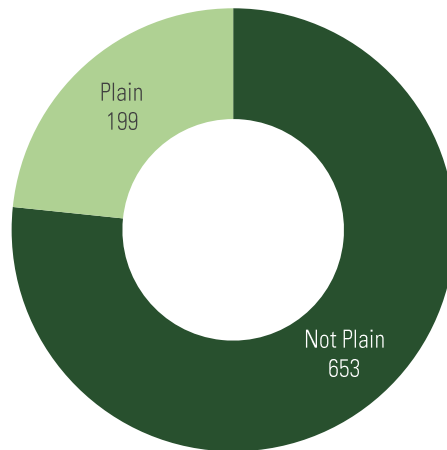


*Does not include 60 responses collected by state partner in Iowa November 2019 to their unique survey.

**This chart does not include responses collected by Minnesota to their unique survey.

One hundred ninety-nine respondents participated in a training offered primarily for Plain clothes growers (Figure 2). Not counting trainings for which we have no data regarding population served, 23 percent of respondents attended a training for Plain clothes growers. While we do not know if all participants in these trainings belong to a Plain community, throughout this report we assume that the majority who took part in those trainings do belong to a Plain community.

Figure 2: 23% of respondents participated in a training for Plain clothes growers.
(of 852 respondents)



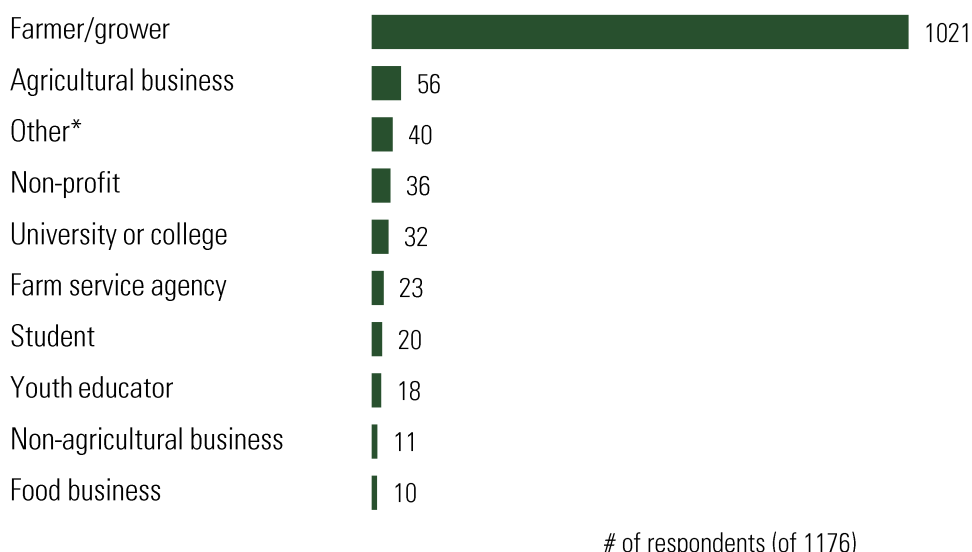
Results

In what industries do respondents work?

Respondents are most commonly growers or farmers.

When asked their occupation, respondents were able to select multiple categories. In total, 1021 (87 percent) respondents were produce farmers/growers (Figure 3). The remaining respondents fill a variety of occupations, such as agricultural business (56), non-profit (36), college or university (32), farm service agency (23), student (20), youth educator (18), non-agricultural business (11), and food business (10).

Figure 3: Most respondents are farmers or growers.



*regulators, aspiring farmers, gardeners, land owner, regulators, local or tribal government, economic development, policy advocate, auctioneer, laboratoroty

What changes have non-farm respondents made since the training?

47 percent of non-farm respondents have made a change since attending the training.

The most common change made by nonfarm respondents was updating or improving education offered to clients. For example, one respondent shared, "I know how to use the chart for exemptions and share that with producers." Another said, "I have included this topic in discussion during ServSafe training, since most of the participants are purchasing fresh produce from local farmers."

Many of the changes made by non-farm respondents were related to agricultural practices, showing that these respondents are involved in the growing and harvesting fresh produce, although in a noncommercial setting. Changes that they made include:

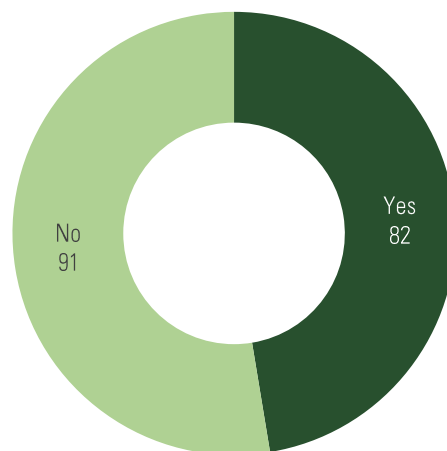
- improved harvest and postharvest practices (8 respondents),
- improved health and hygiene practices (7), and

- changing crop mix to focus on crops not covered by FSMA (1).

Additional changes made by non-farm respondents include:

- writing new or improved standard operating procedures, good agricultural practices, or food safety plans (8 respondents),
- identifying or improving credentials that buyers or market managers require from producers (7),
- improved record keeping (3),
- improved traceability procedures (1),
- changing warehouse light covers (1), and
- improving underwriting procedures (1).

Figure 4: 47% of non-farm respondents made a change following the training.
(of 173 respondents)



What is the FSMA coverage status of growers who responded to the survey?

Farmers who responded were most commonly not covered by FSMA, because they sell on average less than \$25,000 in produce per year.

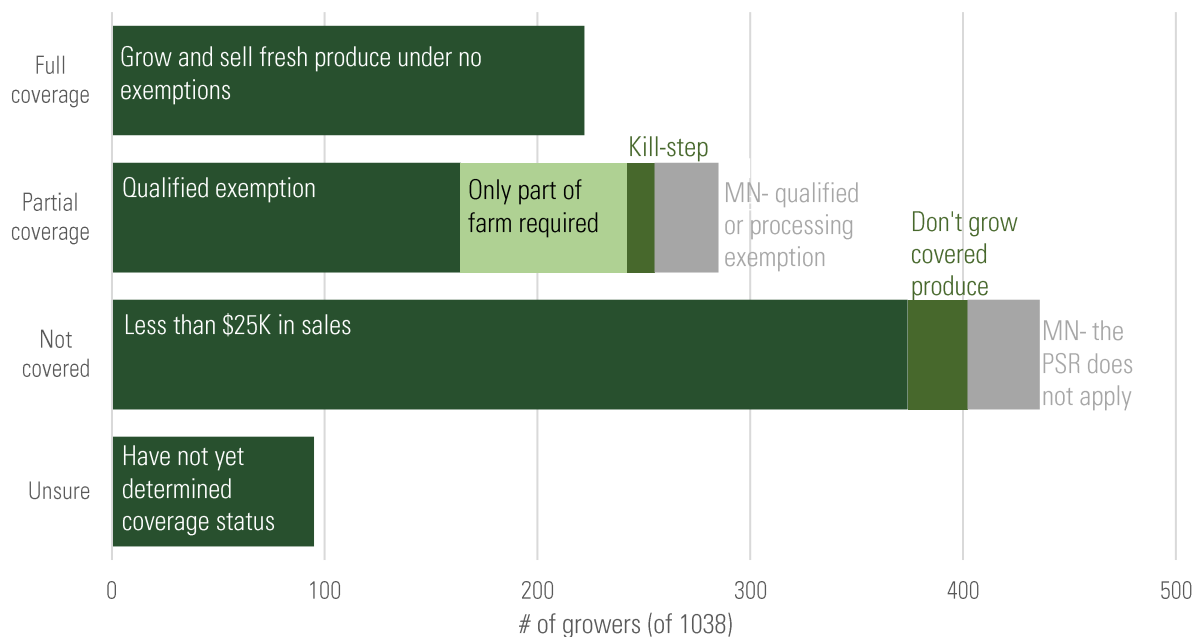
Farm respondents indicated that they are most commonly not covered by FSMA, with 42 percent fitting in into this category. This category is subdivided into those who are not covered by FSMA because they sell on average less than \$25,000 per year of the produce and those who are not covered because they do not grow covered produce. This is also one of the questions that was included in the survey conducted independently by the Minnesota Department of Agriculture. Their survey included a category of those who are not covered by the Produce Safety Rule, but did not differentiate between those who sell less than \$25,000 per year and those who do not grow covered produce. Hence, their data is shown separately in Figure 5.

Only 18 percent of respondents are fully covered by FSMA, meaning they grow and sell fresh produce and are under no exemptions. These are the only growers who are required by law to take an FDA-approved

produce safety course. This demonstrates that many people who participate in the course are not legally required to do so.

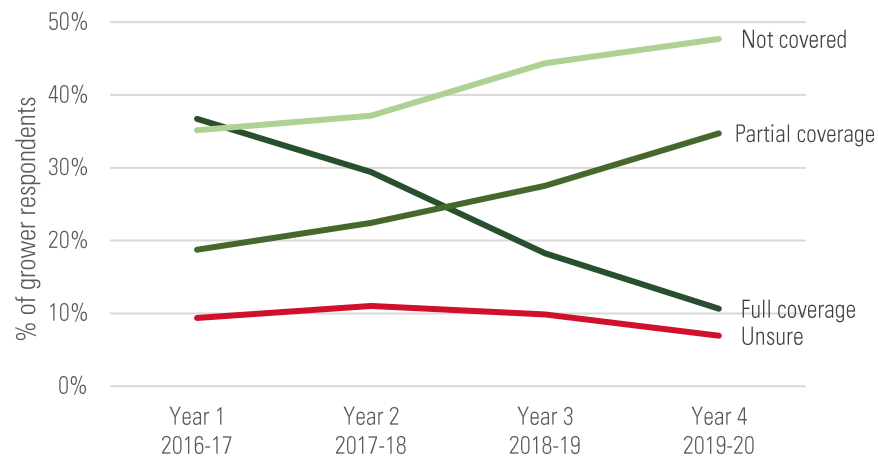
Nine percent of respondents indicated that they are unsure of their coverage status. These farms may need additional resources or consultation to determine their coverage status, because these farms had approximately one year since the training during which they could determine their status. However, Figure 6 (next page) shows the number of respondents who are unsure of their status has declined slightly since year 2, which may indicate an improvement in helping farmers understand their coverage status.

Figure 5: Most respondents know their coverage status. Respondents most commonly are not required to comply with FSMA, because their sales are lower than \$25,000/yr.



Not surprisingly, the composition of types of farms which have sent people to the training has changed over time. Respondents who took the training in 2016-17 were most likely to come from farms that are fully covered by FSMA. The percentage of respondents from fully covered farms has steadily declined since then, while the percentage of respondents from not covered and partially covered farms has increased (Figure 6). This can be explained because fully covered farms are the only farms required to send someone to a training and they were expected to take the training prior to inspections, which began in 2019.

Figure 6: People from fully covered farms were more likely to take the training when it was first offered.



What kinds of changes have farmers made since attending the training?

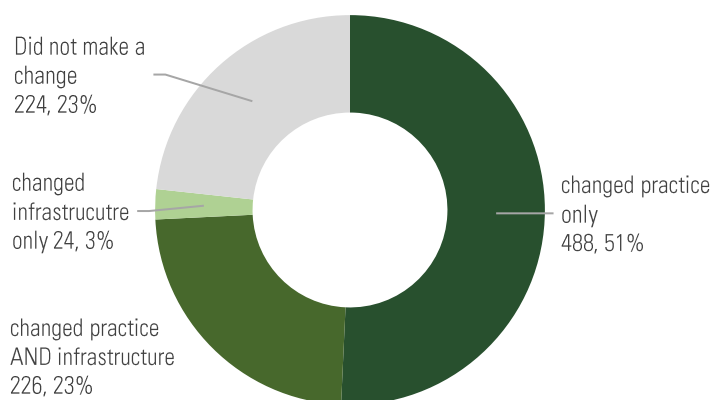
Writing or modifying food safety plans was the most common type of food safety practice change made since the training by respondents.

Adding new or upgrading existing handwashing stations or facilities was the most common type of infrastructure or equipment change.

The survey asked about two categories of changes that farms might have made since taking the training. The first was changes to food safety practices and the second was changes in on-farm infrastructure and equipment.

When the two categories of change are combined, 77 percent of respondents made some sort of change since attending the PSA grower training. (This does not include Minnesota data.) Figure 7 shows that 23 percent of respondents made a change to food safety practice *and* infrastructure or equipment; 51 percent made a change to practice only; and 3 percent made a change to infrastructure only.

Figure 7: 77% of respondents made a change since the training to food safety practice, infrastructure, or equipment. (962 respondents)

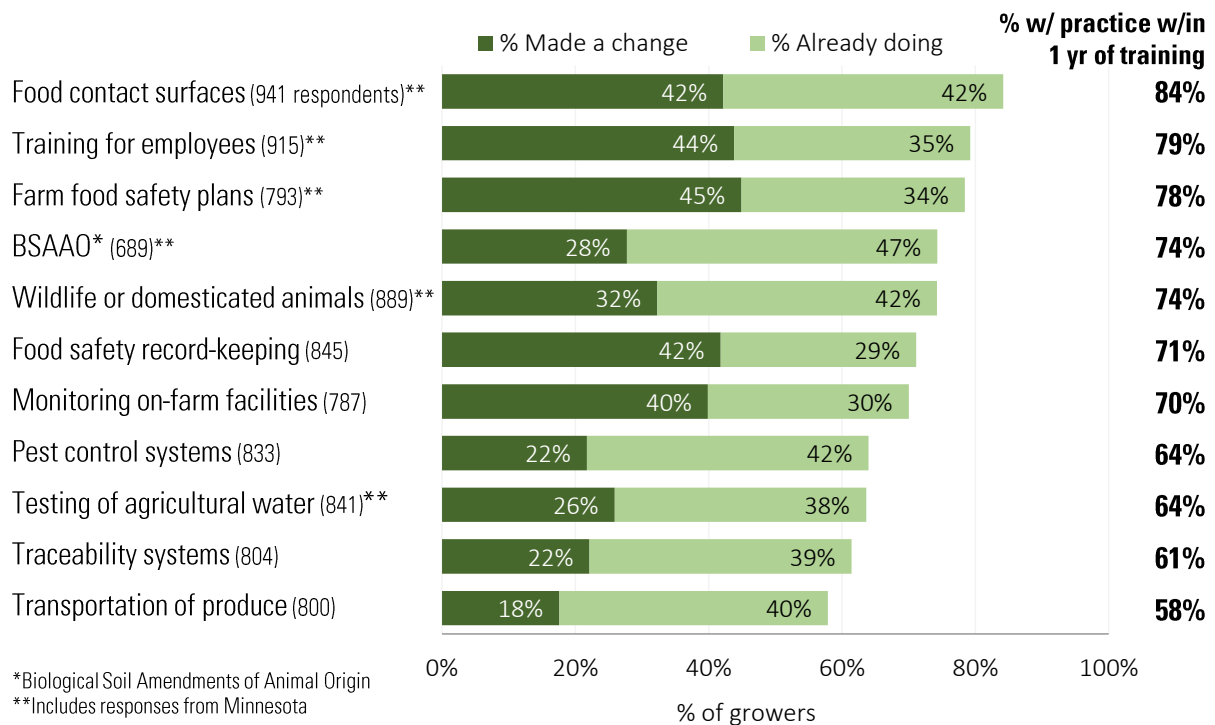


The most common practice change was writing or modifying farm food safety plans, with 45 percent of respondents doing this since the training (Figure 8). This is followed by training employees on food safety/hygiene protocols (44 percent), cleaning or sanitizing food contact surfaces (42 percent), and creating or modifying food safety record keeping systems (42 percent). (Data for types of changes made includes Minnesota for select items, marked in the figure with a double asterisk².)

Respondents also identified farm food safety practices that they already had in place prior to the training. When respondents who already had practices in place are added in with those who made a change since the training, 84 percent of respondents reported having adequate practices in place for cleaning and sanitizing food contact surfaces, making this the most commonly implemented practice. Interestingly, FSMA inspectors who participate in the NCR FSMA have observed during inspections that some farms have not identified all their food contact surfaces. They have also observed farm workers sanitizing food contact

surfaces without first cleaning them. This serves as a reminder there may still be room for improvement even after practices are in place.

Figure 8: Within one year of training, 8 in 10 farms reported having sufficient practices for cleaning and sanitizing food contact surfaces.



Infrastructure changes made by respondents included:

- adding or upgrading handwashing stations or facilities (96 respondents),
- adding new or improving equipment, such as packing line equipment (59),
- constructing new, adding on to existing, or upgrading buildings (38),
- adding new or upgrading existing restrooms or portable toilets (34),
- improving water systems, including switching to drip irrigation or changing water sources (29),
- constructing fences, netting, or other barriers to deter wildlife or domesticated animals from production areas (12),
- upgrading food contact surfaces so they are easily cleanable (12),
- upgrading storage or picking containers so they are easily cleanable (9),
- dedicating vehicles for the transportation of produce (9),
- creating clean zones within buildings (9),
- displaying new signage (4), and
- changing growing areas, including building a hoop house with food safety principles in mind and moving growing stations to areas more suitable for food safety (2).

The percentage of farms that made a food safety practice or infrastructure/equipment change differed by the farm's FSMA coverage status. Figure 9 shows that respondents from qualified exempt farms made changes at the highest rate (84 percent). Fully covered farms made changes at a relatively lower rate (70 percent). Perhaps these farms are more likely than other types of farms to already have been implementing good food safety practices, explaining why they made changes at a slightly lower rate than most other types of farms.

Farms that are not covered by FSMA because they do not grow covered produce were the least likely to make food safety changes (63 percent). However, given the fact that these farms will not be inspected unless they start growing covered produce, a surprisingly high percentage made food safety changes since taking the training.

Figure 9: The percentage of respondents who made practice, infrastructure, or equipment changes differed by FSMA status.



In addition, growers who participated in a training for Plain clothes growers were less likely to make a food safety practice, infrastructure, or equipment change after the training (64 percent) than those who participated in a training for general audiences (80 percent). This difference is statistically significant ($p=0.001$). One possible explanation for this might be that Plain clothes growers experienced more difficulties in making food safety changes than other types of growers, on average (explained further on page 13). In addition, it might be explained by Plain clothes growers being more likely to express negative attitudes regarding food safety or FSMA which was worded more fully in the year three follow up survey report¹.

¹ https://www.ncrfsma.org/files/page/files/region_results_12_month_follow_up_survey_2020_.pdf

What difficulties have respondents encountered in making food safety changes?

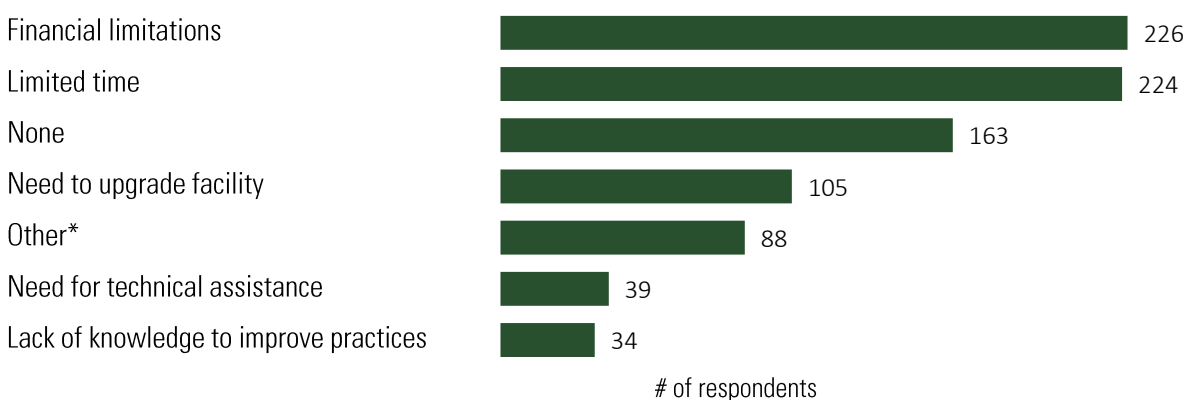
Limited finances and time are the top barriers to making food safety changes.

The survey in years three and four asked respondents to identify barriers they have faced when making food safety changes. Figure 10 shows that financial and time limitations are the top barriers faced by respondents. In total, 163 (22 percent) respondents indicated they faced no barriers.

Only 34 (5 percent) of respondents indicated they lacked knowledge to improve practices, which indicates that only a few respondents believe they need additional education to make changes. In addition, only 39 (5 percent) respondents indicated they need technical assistance.

Open ended responses identified several unique challenges identified by respondents, including operating small-scale farms, difficulties with worker and visitor compliance, a belief that previous practices were already good, a need to upgrade equipment, record keeping, challenges with wildlife management, difficulties changing old habits, etc.

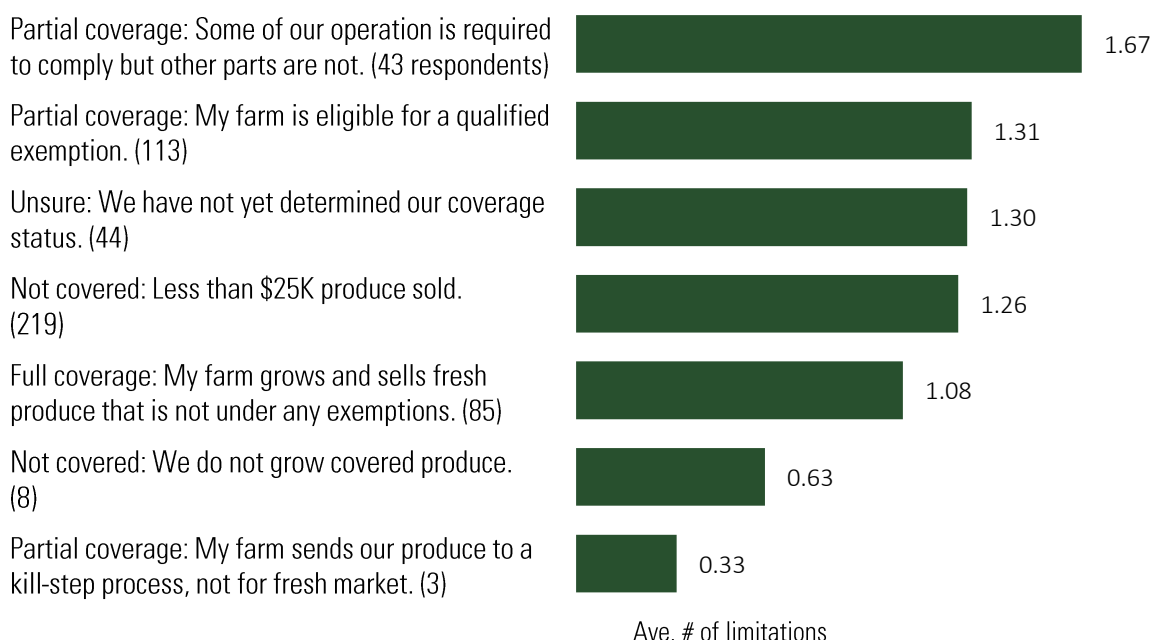
Figure 10: Limited finances and time are the most common barriers to making food safety changes.
(736 respondents, includes Minnesota)



*small scale (11 respondents), not selling produce (8), worker and visitor compliance (7), previous practices were already good (5), need to upgrade equipment (5), record keeping (5), animal/wildlife management (4), difficulty changing habits (4), COVID-19 (4), water testing (3), lack of financial benefit (3), grey areas (3), relocated farm (2), belief that FSMA is unnecessary or unfair (2), sourcing equipment and consumables (2), indecision (2), lack of concrete info to put in food safety manual (1), rules are vague (1), apathy from farm management (1), farm is exempt (1), aesthetics preferences of farm owner (1), under multiple regulations (1), soil amendment and infrastructure for storage of vegetables (1), and consumers need to change (1).

The number of difficulties faced by farms differed by FSMA coverage status. Figure 11 shows that respondents for which part of the operation is required to comply but other parts are not faced the most challenges, on average. These farmers likely operate diversified farms that produce fruits or vegetables as well as grain or livestock. To add context, 45 percent of these farms are from a Plain clothes community. They may face unique challenges, because they may use horses in vegetable or fruit production fields to plow, cultivate, or pull wagons to transport harvest which adds challenges with preventing contamination by manure.

Figure 11: The average number of challenges differs by a farm's FSMA coverage status.



Did difficulties differ between Plain clothes growers and other growers?

Plain clothes growers are more likely to indicate they lack time and knowledge to change practices and less likely to identify limited finances as a challenge.

On average, Plain clothes growers identified facing more difficulties to implementing food safety (0.83 difficulties) than non-Plain clothes growers (0.67, $p=0.047$).

Plain clothes growers and non-Plain clothes growers experienced three difficulties at statistically significant different rates. First, Plain clothes growers were much less likely than non-Plain clothes growers to identify finances as a difficulty (20 percent versus 26 percent, respectively, $p=0.001$). This may indicate that these farms are better resourced than other farms.

Second, Plain clothes growers are more likely to indicate they lack time to make food safety changes (31 percent) than non-Plain growers (19 percent, $p=0.001$).

Finally, while only a minority of respondents indicated that a lack of knowledge of how to change practices was a difficulty, Plain clothes growers identified that as a difficulty at a higher rate than non-Plain clothes growers (8 percent versus 2 percent, respectively, $p=0.020$). The knowledge assessment that NCR FSMA partners conduct during the PSA grower trainings confirms that Plain clothes growers enter trainings with a lower knowledge of food safety and FSMA than non-Plain clothes growers and learn less at the trainings. This may indicate that additional education or educational resources directed at Plain clothes growers may be warranted.

To what extent have respondents participated in On-Farm Readiness Reviews (OFRR)?

While few respondents have participated in an OFRR, the majority of those who have participated made changes on their farm as a result.

Seventeen percent of farm respondents indicated they have participated in an OFRR. These reviews are intended to prepare farmers for inspection by conducting an on-farm visit during which food safety professionals identify practices or infrastructure that could be improved.

Sixty-eight percent of respondents who have participated in an OFRR indicated they made a change to practices or infrastructure as a result of what they learned, demonstrating that OFRRs are effective at helping growers make on-farm changes.

Figure 12: 17% of farm respondents have participated in an OFRR. (of 503 respondents)

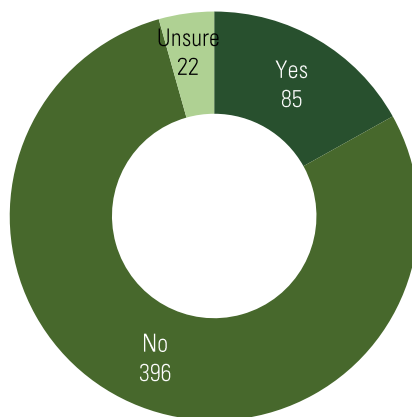
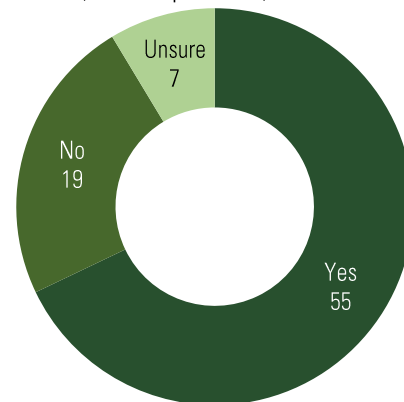


Figure 13: 68% of OFRR participants made a change based on what they learned during the review. (of 81 respondents)



Changes they made included:

- changes in cleaning and sanitizing practices (15 respondents),
- updating record keeping (10),
- creating clean zones (9),
- improving worker training (5),
- updating water and irrigation systems (4),
- adding new handwashing stations (3),
- improving field hygiene (3),
- posting new signs (3),
- implementing new or different water testing (2),
- obtaining new or updated equipment (2),
- changing to disposable towels from reusable (1),
- adding a cooling step postharvest (1),
- changing how produce is covered during transport (1),
- improving pest control (1),
- controlling drips of water in the cooler (1), and
- cleaning up a you-pick operation (1).

Not surprisingly, those who participated in an OFRR were most commonly from fully covered farms (26 respondents). Another 18 respondents from qualified exempt farms participated in an OFRR and 17 from farms which are partially covered by FSMA, because part of the farm is required to comply and other parts are not.

Interestingly, 14 respondents who indicated they are not covered by FSMA, because they sell less than \$25,000 of produce annually, indicated they participated in an OFRR. These farms will not be inspected, yet still found value in participating in an OFRR to learn how to improve food safety practices.

How many respondents have been inspected?

41 farmers (8 percent) who responded to the survey have been inspected.

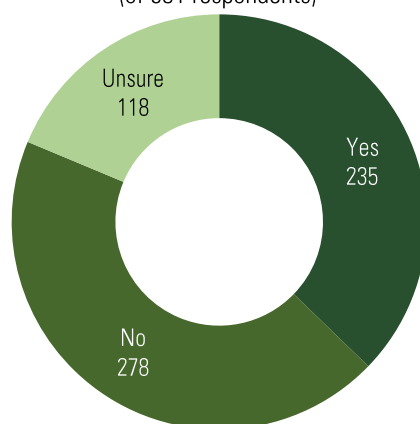
However, respondents shared contradictory answers to the question related to inspection and the question asking for their FSMA coverage status. One would expect all of those who indicated they have been inspected to be fully covered by FSMA. However, only 20 of those who indicated they have been inspected are fully covered by FSMA. The remainder of respondents are partially covered by FSMA (9 respondents), not covered (6), or unsure (2). Perhaps these respondents were inspected for something else on their farm, such as value-added processing or have had a Good Agricultural Practices (GAPs) audit. These responses call into question whether respondents interpreted the questions about FSMA status and inspections as intended and whether these questions could be further clarified in future iterations of the survey.

How much have respondents invested in food safety or FSMA compliance?

An estimated \$1,010,965 has been invested by respondents to make food safety improvements or reach FSMA compliance.

In total, 235 (37 percent) respondents have made financial investments for food safety improvements or FSMA compliance. Of these respondents, 144 shared the total amount they had invested: \$919,965. If those who did not share how much they had invested spent the median amount of \$1000 (a conservative measure than using the average in this case), then respondents have invested \$1,010,965 for food safety.

Figure 14: 37% of respondents made financial investments for food safety or FSMA compliance.
(of 631 respondents)



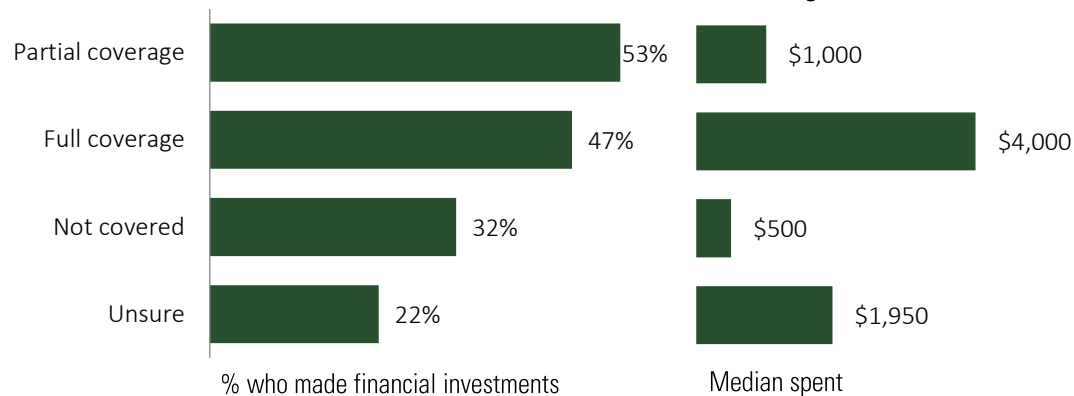
Not surprisingly, farmers made investments in food safety at a higher rate than non-farmers (40 percent versus 17 percent). Yet, it is useful to know that some non-farmers have invested money for food safety. Those who made food safety investments included those who work for agricultural business (8 respondents), nonprofits (2), and food business (1), and a youth educator (1).

The median shows that half of growers who invested money for food safety or FSMA compliance spent less than \$1000, and half of them spent more than \$1000. In contrast, non-farmers spent less, with half of them spending less than \$750 and half spending more than \$750 (the median).

When comparing types of farms, farms partially covered by FSMA reported spending money on for food safety or FSMA compliance at the highest rate (53 percent, Figure 15). This is followed by fully covered farms, of which 47 percent reported spending money. However, farms fully covered by FSMA spent much more (median of \$4,000), on average, than any other type of farm (median ranging from \$500-\$1,950).

Figure 15: Partially covered farms were most likely to spend money for food safety or FSMA compliance...

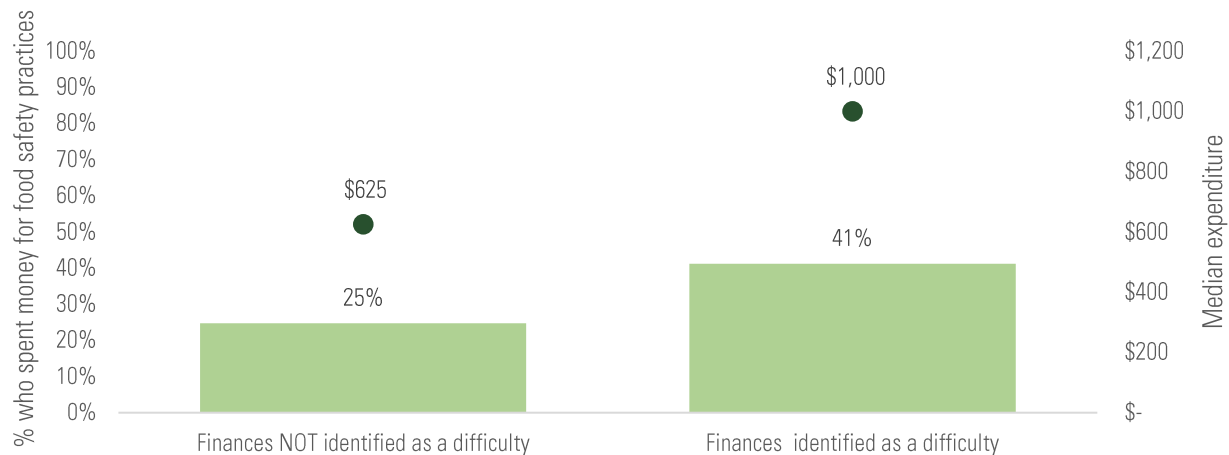
...but fully covered farms spent more, on average.



Forty-one percent of those who identified financial limitations as a difficulty had made investments to improve food safety practices (Figure 16). They were more likely to have spent money than those who did not identify financial limitations as a difficulty, of whom only 25 percent had spent money (Figure 17). This is somewhat counterintuitive, because one might expect that those who believe they cannot afford to make changes would not do so. Perhaps the act of spending money for food safety has made these respondents realize how much more they could have spent if they had the financial means to do so.

Those who identified financial limitations as a difficulty but spent money anyway also spent more money (median of \$1,000), on average, than those who did not identify finances as a difficulty and who spent money (median of \$625).

Figure 16: Those who identified finances as a limitation to make food safety changes on their farm were more likely to have spent money on food safety and spent more than those who didn't identify finances as a limitation. (471 respondents)



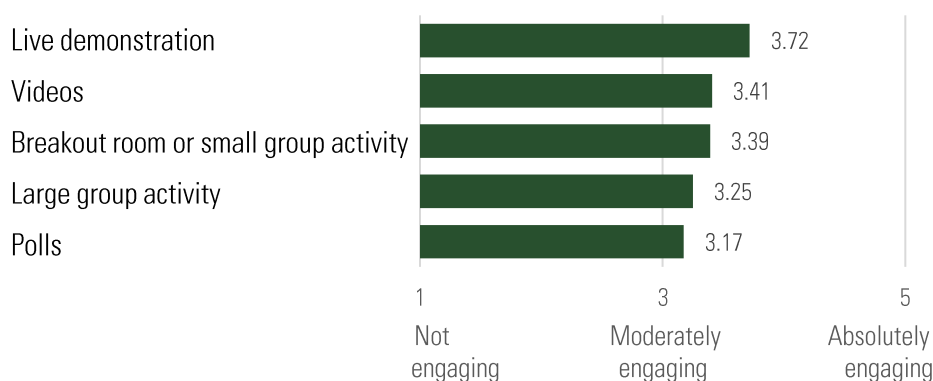
Which supplemental educational activities offered during the training were most useful?

Live demonstrations received the highest ratings.

New in year four, respondents were asked to rate how engaging various supplemental educational activities were during the grower training. Figure 17 shows that live demonstrations received the highest rating, followed by videos and breakout rooms or small group activities. Polls received the lowest ratings, on average.

Figure 17: Live demonstrations were the highest rated element of trainings.

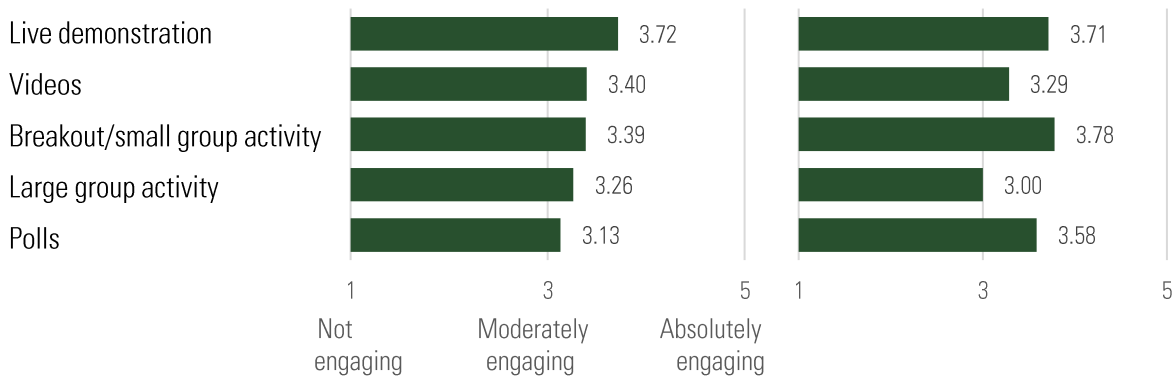
(177 respondents)



One purpose of this question is to understand the effectiveness of various educational activities in face-to-face trainings and remote delivery trainings. Figure 18 shows remote delivery participants' answers differed from those of face-to-face participants. Remote participants rated breakout rooms the highest, followed by live demonstrations and polls. However, only 13 people who participated in remote delivery trainings responded to this question. Whether these trends hold steady will be determined in year five when the number of remote delivery trainings is higher.

Figure 18: Live demonstrations were the highest rated element among face-to-face training respondents... (194 respondents)

... breakout rooms among remote delivery respondents. (13)



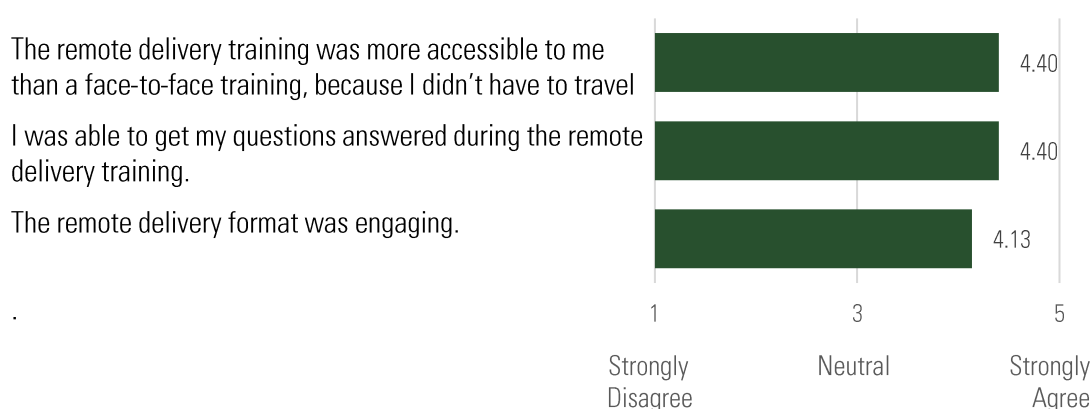
How did participants feel about remote delivery trainings?

Overall, respondents rated the remote delivery trainings highly.

The survey asked three questions related to the experience of remote delivery participants. Participants agreed the remote delivery training was more accessible to them than a face-to-face training, because they did not have to travel. This may provide evidence that remote delivery trainings could continue to meet a need even after the COVID-19 pandemic is over. Respondents also agreed they were able to get their questions answered during the remote delivery training. Participants also agreed, albeit to a lesser extent, that the remote delivery format was engaging. Maintaining engagement in a day long course is challenging even in face-to-face trainings, but is especially difficult when participants are in the midst of the distractions of home and lacking personal connection with the trainer and other participants.

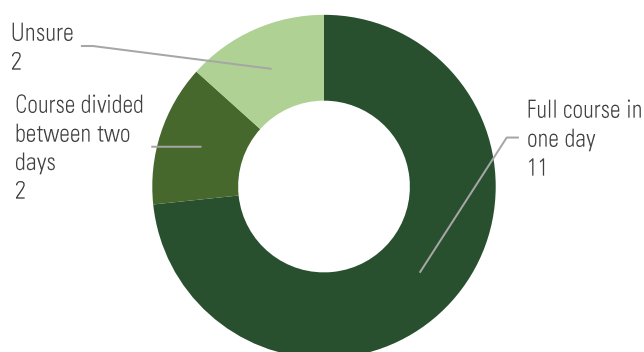
Figure 19: Remote delivery trainings received high ratings.

(15 respondents)



Trainers have suggested that offering the training divided over the course of two days rather than one full day would help participants maintain their attention. Remote delivery participants were asked via the survey if they would prefer a one-day course or two-day course, and the majority indicated they prefer the full course in one day (Figure 20). One respondent wrote in the margins that a full-day course is best in winter and a course divided over two days is best during the growing season.

Figure 20: Respondents prefer a full course offered in one day.



Did participants in remote trainings make food safety changes at the same rate as participants in face-to-face trainings?

Remote delivery respondents made changes at a higher rate than those participating in face-to-face trainings, but statistical significance cannot be determined, because of the small sample size.

Ninety-two percent (11 of 12) of respondents who participated in a remote delivery training made a change to practice, infrastructure, or equipment. This is slightly higher than for those who participated in face-to-face trainings (77 percent, 728 of 951). However, because of the small sample size of remote delivery participants, statistical significance cannot be determined.

Conclusions and recommendations

The longitudinal follow-up survey results show that participants in the Produce Safety Alliance grower training report making changes at a high rate. Approximately three of four growers who responded to the survey made at least one change to food safety practice, infrastructure, or equipment since participating in the training.

Only those who are fully covered by FSMA are required to take the course, but the majority of those who take the course do not fall in this category. One might expect that only those who are required to comply with FSMA would make changes following the course. However, these results show that even those who are not covered by FSMA have made changes and financial investments since taking the course. In fact, those who are partially covered by FSMA have made changes at a higher rate than those who are fully covered. This shows that the course is effective in eliciting change even if it is not required by law.

Yet, the information shared on the survey are respondents' perceptions. For example, 84 percent of respondents reported they had adequate practices for cleaning and sanitizing food contact surfaces in place within one year of taking the training. However, inspectors involved in the NCR FSMA report that farmers commonly have not identified all food contact surfaces on their farm and commonly sanitize surfaces without first cleaning them. This shows there may still be room for improvement even after practices are in place.

Participants in the remote delivery training expressed satisfaction with the training, for the most part. While participants agree to a lesser degree that the remote delivery was engaging, most would prefer to offer the full course in one day, even though trainers believe dividing the course over two days might increase engagement. The results of the survey showed that remote delivery participants made changes to food safety practices, infrastructure, or equipment at a higher rate than face-to-face participants, but the number of remote delivery participants was very small. This means we cannot make any conclusions regarding whether the rate of change between remote delivery and face-to-face participants differs.

Finally, some conflicting answers regarding FSMA status, On-Farm Readiness Review participation, and inspections showed that some respondents may not have shared accurate information on the survey. This may indicate that some of the survey questions are not clear to respondents. Alternatively, it could mean additional support to help participants in the PSA grower training determined their coverage status may be warranted.

This leads to the recommendations of this report:

- Continue to use flow charts during and after trainings to help participants in the PSA Grower Training determine their coverage status.
- Consider ways to reach out to Plain clothes community growers, especially those operating farms in which part of the farm must comply with FSMA and another part of it is not, to reduce difficulties they face. These farms may face unique challenges related to operating diversified farms. These growers may need assistance to identify the changes they need to make and ways to make them, as they are more likely to indicate they lack knowledge of how to change practices and are less likely to have made a change since the training than non-Plain clothes growers.
- Continue to offer On-Farm Readiness Reviews, as these have proven effective in helping growers make on-farm food safety changes.
- Consider modifying future follow-up surveys to ensure respondents can to share accurate responses regarding their FSMA status and inspection.
- If allowed, continue to offer some trainings using remote delivery, because those trainings are more accessible to some people, because they do not have to travel to attend.