**Farm Food Safety Workshop Evaluation**

**Winter 2012**

During winter 2012, Penn State Extension conducted on-farm food safety workshops across the state to train fruit and vegetable growers on Good Agricultural Practices (GAPs). To offer a comprehensive GAP program, four types of training/workshops were conducted. Trainings included food safety awareness, GAP certificate training, food safety plan writing support and mock audits.

In total, 32, 60-90 minute Produce Food Safety Awareness sessions involving 1,243 participants were conducted. These sessions provided an overview of GAPs rather than in-depth, how-to training and also served to promote and recruit participants for more in-depth training. In order to prepare growers to properly implement and document GAPs, 15 certificate workshops entitled Keeping Fresh Produce Safe Using Good Agricultural Practices provided growers technical information regarding GAP topics. These five-hour workshops focusing on implementing GAPs on the farm targeted growers who sold their produce through outlets including auctions, cooperatives, and supermarkets. Other targeted workshops were carried out on behalf of Giant Eagle and Wegmans supermarkets as well as PDA (Pennsylvania Department of Agriculture).

Overall, 582 individuals participated in the GAP workshops. The educators estimated that close to 60% of the participants were plain sect. Of these 582 individuals, only 501 requested certificates to verify their workshop participation. This difference most likely is due to multiple attendees participating from one farm. Although any participant could request a certificate, sometimes just one registered participant in a family did so. Following the in-depth training workshops, educators also provided writing support to draft food safety plans at the request of growers (N=57). Later in the growing season, on-farm mock audits involving 68 growers were conducted at three farms in Berks and Lancaster counties.

In order to improve Extension’s GAP educational programming, evaluation surveys were administrated to the training workshop participants (Table 1). Participants were asked to complete the survey before and after the workshops in order to assess changes in GAP knowledge, skills, attitudes and behavior. Evaluation questions also addressed growers’ sources for information on GAPs. Demographic information focused on the growers’ operation type and size and their sales outlets.

Table 1

**Winter 2012 Workshop Locations, Participants and Evaluation Responses**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Location** | **County** | **Date** | **Target Audience** | **Attending** | **Evaluations** | **Response rate (%)** |
| **Bareville** | Lancaster | 1/27/12 | Leola Produce Auction Growers | 22 | 20 | 90.9 |
| **Quarryville** | Lancaster | 2/13/12 | Produce Growers | 14 | 13 | 92.9 |
| **Hustontown** | Fulton | 2/21/12 | Growers Supplying Tuscarora Organic Growers Cooperative | 52 | 35 | 67.3 |
| **Terre Hill** | Lancaster | 2/23/12 | Weaverland Auction Growers | 26 | 24 | 92.3 |
| **Shippensburg** | Franklin | 3/02/12 | Leinbach Produce Auction Growers | 28 | 28 | 100.0 |
| **Kutztown** | Berks | 3/20/12 | Kutztown Produce Auction Growers | 27 | 27 | 100.0 |
| **Smicksburg** | Indiana | 3/24/12 | Smicksburg Produce Auction Growers | 31 | 29 | 93.5 |
| **Myerstown** | Lebanon | 3/29/12 | Lebanon Produce Auction Growers | 54 | 38 | 70.4 |
| **Bethlehem** | Lehigh | 4/12/12 | Growers Supplying Wegmans | 50 | 29 | 58.0 |
| **Limestoneville** | Northum-berland | 4/16/12 | Produce Growers | 26 | 20 | 76.9 |
| **Total** |  |  |  | 330 | 263 | 79.7% |

In addition to the ten workshops (Table 1) included in this analysis, five additional workshops were conducted during winter 2012 (Table 2). Evaluation surveys were not administered at these five workshops.

Table 2

**Additional Workshop Locations and Participants**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location** | **County** | **Target Audience** | **Date** | **Attending** |
| **Bird-in-Hand** | Lancaster | Oasis at Bird-in-Hand Cooperative Growers | 2/06/12 | 25 |
| **Farmersville** | Lancaster | Onion Growers Cooperative members | 2/28/12 | 71 |
| **Somerset Produce Auction** | Somerset | Somerset Produce Auction Growers | 4/11/12 | 145 |
| **State College** | Center | PDA Food Safety Inspectors | 5/08/12 | 9 |
| **One-on-One** | Somerset | Produce Growers | 7/25/12 | 2 |
| **Total** |  |  |  | 252 |

The analysis reported is based on evaluations collected from 263 participants (Table 1) for an overall response rate of 79.7%. This report describes responses from these growers.

The evaluation survey included ten knowledge-based true/false questions relating to technical information on GAPs (Table 3). Of the 263 respondents, 168 (72.2%) answered all of the knowledge questions both before and after the workshops. Means for the correct answers of respondents were calculated for their before and after workshop responses. Descriptive analysis indicated that the overall mean score increased by 1.51 from a mean of 6.60 (out of 10) before the workshop to 8.11 after the workshops.

The largest difference in correct responses before and after the workshops occurred for the question regarding fresh fruits and vegetables as the primary cause of foodborne illnesses. Correct responses increased from 47.4% before the workshops to 95.3% after the workshops, a difference of 47.9% (Table 3).The second largest difference in correct responses was 37.9%, which was for the question related to the necessity to fully enclose packing areas. Correct responses increased from 43.7% before the workshops to 81.6% after the workshops. A similar increase occurred for the question regarding hand sanitizer sprays as acceptable substitutes for hand washing (65.8% before the workshops to 96.8% after the workshops, a 31.0% increase). After the workshops, a 23.7% increase in correct responses occurred for the question regarding testing of irrigated water from ponds for microbes. In addition, a 17.9% increase in correct responses occurred for the statement regarding using a clean cloth towel to dry hands after hand washing, increasing from 45.8% before the workshops to 63.7% after the workshops.

Correct responses decreased from before to after the workshops for three questions: 1) the safe application of manure-based compost (declined from 66.8% before the workshops to 54.7% after the workshops); 2) FDA Food Safety Modernization Act stating that all produce growers submit to a farm audit (decreased from 71.6% before the workshops to 63.2% after the workshops); and 3) the restriction of wild animals entering fields (declined from 73.2% before the workshops to 66.3% after the workshops).

Table 3

**Before and After GAP Knowledge Scores of Respondentsa (n=168)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Before workshops**  **Correct Incorrect**  **Answers Answers** |  | **After workshops**  **Correct Incorrect**  **Answers Answers** | **Change in**  **Correct**  **Response** |
| 131 59  68.9% 31.1% | USDA standards require that pond water used for irrigation be tested for microbes at least 3 times during the growing season (True) | 176 14  92.6% 7.4% | 45  +23.7% |
| 87 103  45.8% 54.2% | After hand washing, hands should be dried thoroughly with a clean cloth towel (False) | 121 69  63.7% 36.3% | 34  +17.9% |
| 136 54  71.6% 28.4% | The FDA Food Safety Modernization Act recently passed by Congress requires all produce growers to submit to a farm audit (False) | 120 70  63.2% 36.8% | 16  -8.4% |
| 159 31  83.7% 16.3% | Produce harvested into boxes or bins should be covered when they are transported to a packing house (True) | 176 14  92.6% 7.4% | 17  +8.9% |
| 127 63  66.8% 33.2% | It is possible for manure-based compost to be safely applied around produce crops (True) | 104 86  54.7% 45.3% | 23  -12.1% |
| 178 12  93.7% 6.3% | Drip irrigation methods are more likely to cause crop contamination than overhead spraying (False) | 188 1  98.9% 0.5% | 10  +5.2% |
| 139 51  73.2% 26.8% | USDA audit standards require produce growers to prove that wild animals are not able to enter fields (False) | 126 64  66.3% 33.7% | 13  -6.9% |
| 90 100  47.4% 52.6% | Fresh fruits and vegetables are responsible for the greatest number of foodborne illnesses (True) | 181 9  95.3% 4.7% | 91  +47.9% |
| 125 65  65.8% 34.2% | Hand sanitizer sprays are an acceptable substitute for hand washing (False)) | 184 6  96.8% 3.2% | 59  +31.0% |
| 83 107  43.7% 56.3% | USDA audit standards require packing areas to be fully enclosed (False) | 155 35  81.6% 18.4% | 72  +37.9% |

aKnowledge measured using True or False

The evaluation survey also asked respondents to indicate their confidence in three specific skills (writing a food safety plan, conducting a self-audit, and preparing for a third-party audit) that are important in the process of GAP implementation (Table 4). Among the 263 survey respondents, 192 (73.0%) responded both before and after the workshops to the items measuring participants’ confidence in their GAP skills. After the workshops, 124 (64.6%) respondents reported that they were either confident or very confident in writing a food safety plan, an increase of 44.8% from before the workshops (Figure 1). Of the 192 respondents, 69 (35.9%) were either confident or very confident in conducting a food safety inspection before the workshops, which increased to 138 (71.9%) after the workshops, a 36% increase (Figure 2). After the workshops, 101 (52.6%) respondents were either confident or very confident in preparing for a third-party audit, an increase of 34.3% from 35 (18.3%) before the workshops (Figure 3).

Table 4

**Level of Confidence in Documenting GAP Practices (n=192)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Before workshops** | | | | | |  | **After workshops** | | | | | |
| **Not At All**  **Confidenta** | | | **Very**  **Confident** | | |  | **Not At All**  **Confident** | | | **Very**  **Confident** | | |
| 1 2 3 4 5 | | | | | |  | 1 2 3 4 5 | | | | | |
| 29  15.1% | 52  27.1% | 73  38.0% | | 21  10.9% | 17  8.9% | **Write a food safety plan** | 2  1.0% | 11  5.7% | 55  28.6% | | 81  42.2% | 43  22.4% |
| 15  7.8% | 39  20.3% | 69  35.9% | | 43  22.4% | 26  13.5% | **Conduct a food safety inspection** | 2  1.0% | 5  2.6% | 47  24.5% | | 85  44.3% | 53  27.6% |
| 49  25.5% | 50  26.0% | 58  30.2% | | 22  11.5% | 13  6.8% | **Prepare for a third-party audit** | 6  3.1% | 20  10.4% | 65  33.9% | | 71  37.0% | 30  15.6% |

aScale: 1 = Not At All Confident through 5 = Very Confident

Figure 1

**Percentage of Participants Confident in Writing a Food Safety Plan (*n* = 192)**

Figure 2

**Percentage of Participants Confident in Conducting a Food Safety Inspection (*n* = 192)**

Figure 3

**Percentage of Participants Confident in Preparing for a Third-Party Audit (*n* = 192)**

Respondents’ attitudes toward GAPs were measured using a five-point Likert scale (1=Do Not Agree through 5=Very Much Agree) (Table 5). For the statement regarding the degree to which growers believe that they have responsibility for the safety of their produce, a majority of the respondents agreed or very much agreed both before and after the workshops (90.2% and 94% respectively). Slight to moderate increases occurred in the confidence level of respondents before and after the workshops for the following statements: food safety will help their farms maintain produce sales (65.4% and 74.7% respectively); their sales are impacted by consumers’ attitudes on the safety of their farm’s produce (80.0% and 85.6% respectively); have adequate resources to write their own food safety plans (30.7% and 37.1% respectively); and have adequate resources to prepare for and pass a GAP audit (27.5% and 61.9% respectively).

Table 5

**Respondents’ Attitudes toward GAP Related Issues**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Before workshop** | | | | | |  | **After workshop** | | | | | |
| **Do Not**  **Agree** | | | **Very Much**  **Agree** | | |  | **Do Not**  **Agree** | | | **Very Much**  **Agree** | | |
| **1 2 3 4 5** | | | | | |  | **1 2 3 4 5** | | | | | |
| 0  0.0% | 2  1.0% | 17  8.7% | | 24  12.3% | 152  77.9% | Farmers have a responsibility for the safety of produce coming off their farms (*n* = 195) | 0  0.0% | 2  1.0% | 8  4.1% | | 22  11.3% | 163  83.6% |
| 8  4.1% | 14  7.2% | 45  23.2% | | 53  27.3% | 74  38.1% | Preparing for a food safety audit will help my farm maintain produce sales (*n* = 194) | 4  2.1% | 9  4.6% | 36  18.6% | | 48  24.7% | 97  50.0% |
| 4  2.1% | 8  4.1% | 27  13.8% | | 42  21.5% | 114  58.5% | How consumers feel about the safety of my farm’s produce affects how much produce my farm sells (*n* = 195) | 3  1.5% | 9  4.6% | 16  8.2% | | 42  21.5% | 125  64.1% |
| 21  11.1% | 41  21.7% | 69  36.5% | | 30  15.9% | 28  14.8% | I have adequate resources to write my own food safety plan (*n* = 189) | 3  1.6% | 12  6.3% | 46  24.3% | | 64  33.9% | 64  33.9% |
| 19  10.1% | 49  25.9% | 69  36.5% | | 28  14.8% | 24  12.7% | I have adequate resources to prepare for and pass a GAP audit (*n* = 189) | 2  1.1% | 15  7.9% | 55  29.1% | | 69  36.5% | 48  25.4% |

Scale 1 = Do Not Agree through 5 = Very Much Agree

After the workshops, respondents indicated their intent to implement specific GAP activities (writing or updating a food safety plan, conducting a food safety inspection, and/or performing a third-party audit) for the 2012 growing season (Table 6). The majority of respondents, (51.8%) indicated that they intended to write or update a food safety plan and 63.5% indicated their intent to conduct their own food safety inspection. However, only 20.2% of the respondents indicated that they would have a third-party audit conducted on their farms.

Table 6

**Respondents’ Intentions to do GAP-related Activities**

|  |  |  |  |
| --- | --- | --- | --- |
| **For the 2012 growing season, will you** | **Yes** | **No** | **Unsure** |
| Write or update a food safety plan? (*n* = 220) | 114  51.8% | 17  7.7% | 89  40.5% |
| Conduct your own food safety inspection? (*n* = 222) | 141  63.5% | 14  6.3% | 67  30.2% |
| Have a third-party audit done on your farm? (*n* = 213) | 43  20.2% | 75  35.2% | 95  44.6% |

In order for Extension to adapt its future GAP programming to meet growers’ interests, the respondents were asked in an open-ended question to indicate information in which they were interested. The following topics were mentioned by respondents.

* Feasibility, affordability and accuracy in testing for pathogens
* Future training for consumers on handling products they buy
* Organic certification
* Creating demand for GAP certified produce
* Costs related to a third-party audit
* Mechanical products to clean and wash produce
* Rules and regulations for passing an audit
* Identifying online GAP resources
* Training for backyard gardeners
* Information on composting and purchasing of organic fertilizer

When asked to describe their farm operations, 151 respondents (71.9%) reported that they grade and pack their produce in their own packing houses, while 76 respondents (36.4%) pack their harvested produce in the field for immediate delivery (Table 7). Only 24 respondents (11.4%) send their harvested produce to their cooperative to pack, and 6.2% (n=13) of the respondents indicated that they send their produce to buyers to pack. Among the respondents who indicated that they have other operation types, four mentioned auctioning their produce and four others reported that they sell their produce at roadside stands. One respondent indicated that s/he packs his/her produce and then ships it to the buyer.

Table 7

**Description of Farm Operations of Respondents**

|  |  |  |
| --- | --- | --- |
|  | **Yes** | **No** |
| We grade and pack in our own packing house (*n* = 210) | 151  71.9% | 59  28.1% |
| We pack harvested produce in the field for immediate delivery (*n* = 209) | 76  36.4% | 133  63.6% |
| We send harvested produce to our own cooperative to pack (*n* = 210) | 24  11.4% | 186  88.6% |
| We send harvested produce to a buyer who packs it  (*n* = 210) | 13  6.2% | 197  93.8% |
| Other (*n* = 209) | 19  9.1% | 190  90.9% |

The evaluation survey also asked respondents to identify the sources that they most commonly use for information related to GAPs. Respondents indicated that they most frequently use Penn State Extension as their source for GAP-related information (Table 8). Among the 202 respondents, 154 (76.2%) indicated they obtained information from Penn State Extension. Other information sources that were commonly used included growers associations (50.0%) and other farmers (48.0%). Social media (2.0%) and radio and/or television (1.1%) were growers’ least used information sources. Four respondents who answered “other” indicated that produce auctions provided them with GAP information.

Table 8

**Sources Used to Obtain GAP Information (*n* = 202)**

|  |  |  |
| --- | --- | --- |
| **Source of Information** | **Yes** | **No** |
| Penn State Extension | 154  76.2% | 48  23.8% |
| Growers Association | 101  50.0% | 101  50.0% |
| Other farmers | 97  48.0% | 105  52.0% |
| Your Cooperative | 49  24.3% | 153  75.7% |
| Newspapers/Publications | 43  21.3% | 159  78.7% |
| Online sources | 41  20.3% | 161  79.7% |
| Consultants | 37  18.3% | 165  81.7% |
| Agricultural Industry Representative | 26  12.9% | 176  87.1% |
| State and/or federal government agencies | 24  11.9% | 178  88.1% |
| Other | 5  2.5% | 197  97.5% |
| Social Media | 4  2.0% | 198  98.0% |
| Radio and/or Television | 2  1.0% | 200  99.0% |

Regulations for on-farm food safety standards through the Food Safety Modernization Act (FSMA) will eventually be mandated through federal guidelines. The evaluation survey asked a series of questions related to the exemption criteria specified in the law. Growers who sell more than 50% of their produce directly to consumers, restaurants, or grocery stores; generate less than $500,000 in sales annually; and sell a majority of their fresh produce within the state or within 275 miles of their farm operation across the state line are exempt. Of the 198 respondents, 58 (29.3%) reported that they sell 50% or more of their fruits and vegetables directly to supermarkets, restaurants, and/or consumers (Table 9). However, the majority of the respondents (70.7%) do not sell 50% or more of their produce directly to these outlets, meaning that these growers will not qualify for exemption from the FSMA.

Among 198 respondents, 67 (33.8%) indicated selling 50% or more of their produce at produce auctions. Another 35.9% never sell their produce at auctions. Results indicated that 32 respondents (16.1%) sell 50% or more of their produce through the cooperatives to which they belong. In addition, 30 respondents (15.2%) sell at least 50% of their produce to resellers, while 127 respondents (64.1%) do not sell any of their produce to resellers. Of the 23 respondents who reported selling their produce through other outlets, 6 respondents indicated selling their produce at farmers’ markets, 2 sell at roadside stands, and 1 grower indicated selling produce to a local customer.

Table 9

**Marketing Outlets for selling Fruits and Vegetables**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| What percentage of your fruit/vegetable sales comes from: | **0%a** | **1-24%** | **25-49%** | **50 – 74%** | **75-100%** |
| Direct sales to supermarkets, restaurants, and/or consumers? (*n* = 198) | 86  43.4% | 39  19.7% | 15  7.6% | 22  11.1% | 36  18.2% |
| Sales at produce auctions? (*n* = 198) | 71  35.9% | 42  21.2% | 18  9.1% | 18  9.1% | 49  24.7% |
| Sales through cooperatives to which I belong? (*n* = 199) | 145  72.9% | 18  9.0% | 4  2.0% | 12  6.0% | 20  10.1% |
| Sales to resellers (*n* = 198) | 127  64.1% | 34  17.2% | 7  3.5% | 16  8.1% | 14  7.1% |
| Other (*n* = 197): Farmers Markets, Farm stands, Pick your Own, CSA | 174  88.3% | 8  4.1% | 3  1.5% | 5  2.5% | 7  3.6% |

aDo not sell produce through sales outlets listed

The majority of the growers (84.1%) reported that they sell some or all of the produce they grow within their state and 31.4% indicated that they sell some or all of their produce to places in other states that are closer than 275 miles (Table 10). Growers who sell their produce within their state and/or in other states within a 275 mile radius from their farms are likely fulfilling one criterion for exemption from the FSMA. Only 15 respondents (7.2%) indicated that they sell their produce in other states farther away than 275 miles from their farms. These growers do not qualify for the FSMA exemption. The results also indicated that 42 growers (20.3%) sell their own produce along with produce grown by others.

Table 10

**Selling Produce Within and Outside State Boundaries (n=207)**

|  |  |  |
| --- | --- | --- |
|  | **Yes** | **No** |
| I sell some or all of the produce I grow WITHIN my state. | 174  84.1% | 33  15.9% |
| I sell some or all of the produce I grow to places in OTHER states that are CLOSER than 275 miles to my farm. | 65  31.4% | 142  68.6% |
| I sell produce others have grown in addition to what I have grown. | 42  20.3% | 165  79.7% |
| I sell some or all of the produce I grow to places in OTHER states that are FARTHER AWAY than 275 miles from my farm. | 15  7.2% | 192  92.8% |

The majority of the respondents (91.6%) reported that the gross value of their produce sales was less than $500,000 in 2011 (Table 11). These growers meet one of the criteria for exemption from the FSMA.

Table 11

**What was the gross value of your produce sales in 2011? (*n* = 190)**

|  |  |
| --- | --- |
| Less than $500,000 | 174  91.6%  91.2% |
| $500,000 or More | 16  8.4% |

Just one-fourth (25.4%) of those responding indicated that they had previously attended on-farm food safety training. For 74.6% of the respondents, these workshops were their first GAP training (Table 12).

Table 12

**Have you previously attended a farm food safety workshop? (*n* = 209)**

|  |  |
| --- | --- |
| **Yes** | 53  25.4% |
| **No** | 156  74.6% |

**Conclusion**

These food safety workshops were organized to provide participating growers the knowledge and skills to comply with and verify GAPs on their farms. Administrated both before and after the workshops, the surveys evaluated changes in growers’ GAP knowledge, skills, and attitudes. Three-fourths of the respondents had never before attended a farm food safety workshop, which reflects Extension’s effective outreach to newer grower audiences. Because Penn State Extension, growers’ associations, and other farmers are growers’ most frequently used information sources on GAPs, these sources should be used to communicate with growers who have previously attended a GAP training workshop and to recruit growers who have yet to do so.

The majority of the respondents (71.6%) described their farming operations as grading and packing produce in their own packing house, and 36.4% of the respondents indicated that they pack their harvested produce in the field for immediate delivery. Comparatively few responding growers (6.2%) send their harvested produce to buyers for packing. Given these findings, Extension programming must focus more intensively on procedures to minimize microbial contamination while packing produce in packing houses or in the field.

Several important findings relevant to exemption from the FSMA also emerged from the analysis of the evaluation surveys. The results indicated a majority of the respondents (70.7%) do not sell 50% or more of their produce directly to consumers, supermarkets and/or restaurants. This means that the majority of respondents are not exempt from the FSMA, even though 84.1% of the respondents sell some or all of their produce that they grow within Pennsylvania and 91.2% of the respondents reported that their gross value of produce sales in 2011 was less than $500,000. Penn State Extension, therefore, must continue to provide technical training on GAP implementation and documentation in order to meet the needs of growers who must adhere to the FSMA requirements.

Growers who are exempt from the FSMA may still utilize markets that have GAP requirements in place. Supermarkets, produce auctions, and cooperatives can implement their own food safety policies to which their produce suppliers must adhere. To target growers who sell to private marketing outlets that require evidence of GAP compliance, Extension can provide on-farm food safety training in conjunction with these private buyers. Working in partnerships with these different outlets will position Extension to tailor its programming to the specific policies/needs of these buyers.

After-workshop evaluations revealed an overall increase in growers’ GAP knowledge. However, based on the decreases in correct answers on the questions related to FDA requirements on food safety, safe use of manure-based compost, and USDA audit standards on the restriction of wild animals, Penn State Extension must improve its content delivery in these areas. Based on growers’ responses, workshop content can also be adapted to incorporate topics in which growers have interest but were not presented at prior workshops. These content areas relate to the costs of a third-party audit, similarities and differences between organic certification and GAP certification, and protocols that can be used to clean produce once harvested.

With regard to the confidence in skills that are necessary for growers to adhere to GAPs, more than 60.0% of the responding growers indicated confidence in both writing a food safety plan and conducting a self-inspection. Given the lower percentage (52.6%) of respondents who were confident in preparing for a third-party audit, Extension must provide in-depth training on the steps necessary to pass an audit. This type of technical training on third-party audits should be targeted to growers who need that degree of verification for GAP compliance.

The findings also suggest that the workshops prepared growers to write food safety plans and conduct self-inspections. After the workshops, 51.8% indicated their intention to write a food safety plan, while 63.5% indicated that they would conduct a food safety inspection. However, only 20.2% intended to become certified through a third-party audit. These findings suggest that growers are willing to take initial steps to verify GAP compliance but not the final one of obtaining an audit. Future workshop evaluations should include questions on the challenges that growers confront in their efforts to apply for and pass a third-party audit. In the future, evaluations should also be sensitive to the diversity of needs that growers have. For growers who are exempt from the FSMA and do not need to adhere to private policies of their buyers, a third-party audit is likely not relevant to their operations. Therefore, Extension must incorporate more flexibility into its programming in order to meet the diverse on-farm food safety needs of growers. Growers themselves should articulate their own goals and objectives for their operations. Extension must target growers based on these different needs and tailor its programming accordingly.

The intent of Extension’s on-farm food safety workshops is to address the needs of growers of fruits and vegetables. In order to assure a safe produce supply, all produce growers need to learn about and implement food safety practices, but many of the growers who attended these workshops are not yet required by law or their buyers to undergo an audit. Because the issue is constantly evolving and the expectations for growers are not yet clearly defined, Extension’s GAP initiative must continue to develop educational resources and educational forums to help growers be prepared for the future as the law and buyer policies are articulated.