

Alternate Curricula Review Procedure by the North Central Region FSMA Center

Scope of Work

The North Central Region FSMA Center will review Alternate Curricula based on the FDA Produce Safety Rule.

- Alternate curricula should achieve the same course goals and include at least equivalent learning objectives to those from the standardized curriculum, which have been identified as critical in the draft FDA guidance (see Appendix). In addition, alternate curricula should accomplish the course goals and learning objectives and be technically accurate. Official recognition by FDA is not required for training curricula to be “at least equivalent to that received under standardized curriculum recognized as adequate by the Food and Drug Administration” under 21 CFR 112.22(c).

For the scope of this project, the Produce Safety Alliance Grower training is the FSMA Standardized Curriculum (See Appendix #7 for learning objectives) and any organization or entity can submit a request to the Regional Center for an alternate curricula review (not just Cooperative Agreement grantees). FDA plans has issued guidance on what is expected for alternate curricula in order to be considered equivalent to standardized curriculum. The North Central Region FSMA Center with partnerships from FDA, Western, Southern/ Lead, and Northeast Regional Centers and partners developed the below review process for Alternate Curricula as part of a national technical assistance plan. As per the FDA Produce Safety Rule, there is no requirement that entities to follow this review process described below, thus any entity (i.e. university, non-profit, community organization, etc.) may determine equivalency through another mechanism (i.e. an organization or third party audit company, etc.) and choose not to proceed for FDA’s review after the Regional Center’s review or may proceed directly to FDA for recognition as an Alternate Curricula without an initial review by the Regional Centers.

A preliminary rubric has been developed based on the partnership with FDA and takes into account the FDA draft Guidance on Alternate Curricula. At the conclusion of the review process by the Regional Centers of submitted Alternate Curricula, each submission will receive a final designation of “Ready for FDA Review” or “Not Ready for FDA Review”. After the review by the Regional Centers, these entities may then consider submitting to FDA for a final review and gain designation as an “Alternate Curricula”.

The Review process by the North Central Region FSMA Center is as follows:

Stage 1: Learning Objective and Activity Description Equivalency Review

Responsibility: North Central Region FSMA Center

Objective: To determine if the proposed learning objectives and learning activities are adequately covered and at least equivalent to the standardized curricula as described in FDA’s guidance.

Details: No training materials need to be developed at this stage. Descriptions of the proposed learning objectives and learning activities can be submitted by individual module or an entire curriculum. This stage can be combined with Stage 2 if training materials (e.g. slide decks, instructions for activities) have already been developed. The Regional Center, however, does not recommend that this stage be combined with Stage 2 as feedback on the learning objectives may significantly impact the approach used and information identified in the course content.

Output from NCR to Submitter: Filled out “Review Form #1” with feedback will be supplied by the North Central Region FSMA Center with a designation of “Ready for Stage 2” or “Not Ready for Stage 2”.

Output from NCR to FDA: FDA will be notified when any entity submits an intake form and will receive the “Review Form #1” after the review.

Procedure for submission:

1. Fill out the intake form located on www.ncrfsma.org (not available yet). All information must be submitted in English.
 - a. General Information about “submitter”: Name, Organization, Address, Email, Phone;
 - b. Summary of project and the intended audience; Training gap being addressed through curriculum;
 - c. Submit “Intake Form #1”
2. NCR team will do the review of the submitted information and provide the “submitter” back with “Review Form #1” and designation of “Ready for Stage 2” or “Not Ready for Stage 2”. NCR will also send “Review Form #1” to FDA for awareness.
3. If submitter receives a:
 - a. Ready for Stage 2: Proceed to Stage 2
 - b. Not Ready for Stage 2: Review the “Review Form #1” and make appropriate corrections and resubmit for Stage 1 review. When materials are resubmitted for Stage 1 review, a correction form that details the changes made must be submitted.

Stage 2: Learning Activity and Course Content Equivalency Review

Responsibility: North Central Region FSMA Center

Objective: Initial evaluation to determine if the course content and learning activities support the learning objectives as described in Stage 1.

Details: Course materials (e.g. slide decks with speaker notes, instructions for learning activities, etc.) for each proposed learning objectives must be developed at this stage and submitted as part of the review. Course materials can be submitted as individual module or the entire curriculum. This stage cannot be bypassed but can be submitted in combination with Stage 1. The submitter will not receive “line-by-line” feedback on the materials but rather general comments on whether the learning activity and course content support the learning objective.

Output from NCR to Submitter: Filled out “Review Form #2” with feedback will be supplied by the North Central Region FSMA Center with a designation of “Ready for Stage 3” or “Not Ready for Stage 3”.

Output from NCR to FDA: FDA will be notified when any entity submits an intake form and the “Review Form #2” after the review.

Procedure:

1. Fill out intake form located on NCR website (www.ncrfsma.org)
 - a. General Information about “submitter”: Name, Organization, Address, Email, Phone
 - b. Summary of project and the intended audience, and training gap that is being addressed
 - c. If Stage 1 was utilized, the “Review Form #1” with “Ready for Stage 2” designation must be submitted

- d. Submit “Intake Form #2”
2. The Course Content must be submitted in its delivery form (e.g., online module or PowerPoint slides with instructor guide) and with some form of a lesson plan (example provided). If it is a field activity or demonstration, a video or a lesson plan/instructor notes must be submitted to provide evidence of the delivery of materials.
3. NCR team will do the review of the submitted information and provide the “submitter” back with “Review Form #2” and designation of “Ready for Stage 3” or “Not Ready for Stage 3”
4. If submitter receives a:
 - a. Ready for Stage 3: Proceed to Stage 3
 - b. Not Ready for Stage 3: Review the “Review Form #2” and make appropriate corrections and resubmit for Stage 2 review. When materials are resubmitted for Stage 2 review, a correction form that details the changes made must be submitted

Stage 3: External Review

Responsibility: The North Central Region FSMA Team and three reviewers identified by the North Central, Western, Southern, and Northeast Regional Centers.

Objective: Evaluation to determine if the proposed learning objectives are adequately met, whether the Produce Safety Rule is appropriately cited within the course content, and that content is technically/scientifically accurate and complete (topics are adequately covered).

Details: Materials can be submitted by module or for the entire curriculum. This stage cannot be bypassed and stage 2 must be completed with feedback addressed, and with a designation of “Ready for Stage 3”. The submitter will not receive “line-by-line” feedback on the materials but rather general comments.

Output to Submitter: Filled out “Review Form #3” with a designation of “Ready for FDA Review” or “Not Ready for FDA Review”.

Output to FDA: FDA will be notified when any entity submits an intake form and the “Review Form #3 Summary Sheet” after the review.

Procedure:

1. Fill out intake form
 - a. General Information about “submitter”: Name, Organization, Address, Email, Phone
 - b. Summary of project and the intended audience, and training gap being addressed
 - c. Are there any persons that have a Conflict of Interest with your project and thus should be excluded as potential reviewers?
 - d. The “Review Form #2” with “Ready for Stage 3” designation must be submitted
 - e. Submit “Intake Form #3
2. The Course Content must be submitted in its delivery form (e.g., online module or PowerPoint slides with instructor guide) and with some form of a lesson plan (example provided). If it is a field activity or demonstration, a video or a lesson plan/instructor notes must be submitted to provide evidence of the delivery of materials
3. The NCR FSMA Center will solicit names for reviewers of the material based on the project description from the North Central, Western, Southern, and Northeast Regional Centers
 - a. The NCR FSMA Center will choose 3 people based on the list of potential reviewers based on the “Review Form #3”

- b. If the materials has multiple parts or modules, this material may be split and sent to different reviewers. The determination on whether to split materials between reviewers will depend on the subject of the material, the amount of submitted material, and the time required for the review.
 - c. Review will be completed by the three reviewers and each reviewer will fill out a “Review Form #3”.
 - d. The length of time for the review will be based on submitted materials.
4. Once the 3 reviews are completed, the NCR team will review and compile the comments and provide the “submitter” back with “Review Form #3 Summary Sheet” and designation of “Ready for FDA Review” or “Not Ready for FDA Review”
- a. If submitter receives a:
 - i. Ready for FDA Review: Proceed to FDA Review
 - ii. Not Ready for FDA Review: The submitter can choose to address feedback received and proceed to FDA Review or resubmit for Stage 3 review to NCRC. For either option, a correction form that details the changes made must be submitted.
 - b. For all “Ready for FDA Review” materials, the NCR FSMA Center will submit the “Review Form #3 Summary Sheet” to the FDA designated person. It will be the “submitter’s” responsibility to contact FDA designated person to formally submit curriculum for review to determine if it is approved.

Appendix Table of Content

1. Intake Form #1
2. Reviewer Form #1
3. Intake Form #2
4. Reviewer Form #2
5. Intake Form #3
6. Reviewer Form #3
7. Full List of Produce Safety Alliance Produce Grower Objectives
8. Example Activity Lesson Plan Template

Appendix 1: Intake Form #1 Learning Objectives and Proposed Activities

This intake form will be located on the NCRFSMA.org website and should be filled out by the submitter for every objective to be reviewed. The filled out form will be submitted to NCR FSMA reviewer.

| Standardized Curriculum Learning Objective AND Produce Safety Rule or Standard citation | Proposed Alternate Curricula Learning Objective AND proposed Produce Safety Rule or Standard citation | Proposed Learning Objective Assessment (optional) | Proposed Alternate Curriculum Learning Activity Description |
|---|--|---|---|
| APPENDIX 7 | Example: Monitoring of wild and domesticated animals intrusion into the growing area of covered produce. §112.83(a) | N/A | Lecture on the different ways animals can contaminate produce |

Appendix 2: Reviewer Form #1 Learning Objectives and Proposed Activities

This form will be supplied by and completed by the NCR FSMA Center for every objective reviewed and supplied to the “submitter” after the review.

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| Standardized Curriculum Learning Objective |
| Copy and pasted from Intake form #1 by NCR FSMA Center |
| Proposed Alternate Curriculum Learning Objective |
| Copy and pasted from Intake form #1 by NCR FSMA Center |
| Equivalent Learning Objective (Y/N with comments if necessary) |
| Filled out by NCR FSMA Center Reviewer |
| Activity Aligns with the Proposed Learning Objective (Y/N with comments) |
| Filled out by NCR FSMA Center Reviewer |
| Designation (Ready for Stage 2 or Not Ready for Stage 2) |
| Filled out by NCR FSMA Center Reviewer |

Appendix 3: Intake #2 Learning Objectives and Course Content Alignment

This intake form will be located on the NCRFSMA.org website and should be filled out by the submitter for every objective to be reviewed. The filled out form will be submitted to NCR FSMA reviewer.

| Standardized Curriculum Learning Objective AND Produce Safety Rule or Standard citation | Proposed Alternate Curriculum Learning Objective AND proposed Produce Safety Rule or Standard citation | Proposed Alternate Curriculum Learning Objective Assessment (optional) | Proposed Learning Activity | Location of Pre-Requisite Knowledge (optional) | Location of the Required Knowledge |
|---|---|--|---|--|------------------------------------|
| APPENDIX 7 | Example: Monitoring of wild and domesticated animals intrusion into the growing area of covered produce. §112.83(a) | N/A | Lecture on the different ways animals can contaminate produce | Module 1 Slides 1-2 | Module 2, Slides 2-5 |

Appendix 4: Reviewer Form #2 Learning Objectives and Course Content

This form will be supplied by and completed by the NCR FSMA review for every objective reviewed and supplied to the “submitter” after the review.

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| Standardized Curriculum Learning Objective with Citation of Produce Safety Rule or Good Agricultural Practice |
| Copy and pasted from Intake form #2 by NCR FSMA Center |
| Proposed Alternate Curricula Learning Objective with Citation of Produce Safety Rule or Good Agricultural Practice |
| Copy and pasted from Intake form #2 by NCR FSMA Center |
| Learning activity align with the Learning Objective (Y/N with comments if necessary) |
| Filled in by Reviewer |
| Does the Course Content Adequately support the Learning Objective (Y/N with comments if necessary) |
| Filled in by Reviewer |
| Designation (Ready for Stage 3 or Not Ready for Stage 3) |
| Filled in by Reviewer |

Appendix 5: Intake form #3 for External Review.

This intake form will be located on the NCRFSMA.org website and should be filled out by the submitter for every objective to be reviewed. The filled out form will be submitted to the three external reviewers along with the course content.

| Standardized Curriculum Learning Objective AND Produce Safety Rule or Standard citation | Proposed Alternate Curriculum Learning Objective AND proposed Produce Safety Rule or Standard citation | Proposed Alternate Curriculum Learning Objective Assessment (optional) | Location of Pre-Requisite Knowledge (optional) | Location of the Required Knowledge |
|---|---|--|--|------------------------------------|
| APPENDIX 1 | Example: Monitoring of wild and domesticated animals intrusion into the growing area of covered produce. §112.83(a) | N/A | Module 1 Slides 1-2 | Module 2, Slides 2-5 |

Appendix 6: Reviewer Form #3 and Review Form #3 Summary Sheet.

This form will be completed by each of the three External Reviewers for every objective reviewed and supplied to the “submitter” after the review.

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| Standardized Curriculum Learning Objective with Citation of Produce Safety Rule or Good Agricultural Practice |
| Copy and pasted from Intake form #3 by NCR FSMA Center |
| Proposed Alternate Curriculum Learning Objective with Citation of Produce Safety Rule or Good Agricultural Practice |
| Copy and pasted from Intake form #3 by NCR FSMA Center |
| Does the Course Content (i.e. Proposed Activities) Adequately Cover the Learning Objective (Y/N with comments if necessary) |
| Filled in by Reviewer |
| Does the Course Content Adequately Cover the Produce Safety Rule requirements designated per objective (Y/N with comments if necessary) |
| Filled in by Reviewer |
| Is the course content technically and scientifically accurate? |
| Filled in by Reviewer |
| Are the Produce Safety Rule requirements appropriately cited? |
| Filled in by Reviewer |
| Designation (Ready for FDA Review or Not Ready for FDA Review) |
| Filled in by Reviewer |

Appendix 7: Full List of Critical Objectives from FDA’s Draft Guidance

| Terminal Learning Objective | Enabling Learning Objective | From the FDA’s Draft Guidance | Specific Rule Citation | GAP Topics |
|------------------------------------|------------------------------------|---|------------------------------------|---|
| 1 | | Discuss produce safety | | |
| | 1.1 | Explain how FSMA supports food safety | | Primary FSMA Rules |
| | 1.2 | Explain how the Produce Safety Rule supports produce safety | 112.2; 112.3; 112.4; 112.5; 112.6; | Definition of Produce and Covered Produce |
| | 1.4 | Discuss the impact of produce-related outbreaks on public health | | |
| 2 | | Explain how produce safety may impact your operation | | |
| | 2.1 | List compliance dates for Produce Safety Rule | | By farm size/exemption status |
| | 2.2 | Explain why someone familiar with the farm should be involved in assessing “known or reasonably foreseeable hazards” related to produce and implementing the requirements of the Rule | | |
| 3 | | Identify the types of human pathogens that can contaminate produce | | Describe Bacteria, Viruses and Parasites |
| | 3.2 | Describe the characteristics of each type of human pathogen | | Define a pathogen. Describe bacteria, viruses, and parasites |
| | 3.3 | Explain how each type of human pathogen can be transmitted to produce | | Describe Bacteria, Viruses and Parasites |
| | 3.4 | Describe the conditions that impact survival and growth of each type of human pathogen | | Describe Bacteria, Viruses and Parasites |
| 5 | | List common ways that produce may become contaminated on the farm | | Humans; Soil; Water; Animals; Buildings, Tools and Equipment; |
| | 5.1 | List how contamination is spread by humans | | Background for Subpart D; |
| | 5.2 | List how contamination is spread by animals | | Background for Subpart I; |
| | 5.3 | List how contamination is spread by water | | Background for Subpart E; |
| | 5.4 | List how contamination is spread through soil amendments | | Background for Subpart F; |
| | 5.5 | List how contamination is spread by contact surfaces such as equipment, tools, and buildings | | Background for Subpart L; |

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| 6 | | Describe strategies to prevent and reduce risks of contamination by human pathogens | | Assess risks; Implement; Monitor; Corrective Actions; Records; |
| | 6.1 | Differentiate between cleaning and sanitizing | | |
| | 6.2 | Describe the items you should consider when assessing risks associated with your farm and practices | | Humans; Soil; Water; Animals; Buildings, Tools and Equipment; Environment; |
| | 6.3 | Describe how to implement practices to reduce specific risks | | |
| | 6.8 | Describe practices to ensure appropriate records are maintained | 112.161(a)(4); 112.161(b); 112.164; 112.166; | |
| Module 2: Worker Health, Hygiene, and Training | | | | |
| 1 | | Describe potential routes of contamination associated with workers and visitors that could result in the contamination of produce in fields and packing houses | | |
| | 1.1 | Explain why workers can be food safety concern | | |
| | 1.2 | Describe the ways workers and visitors can introduce contamination to produce | | Feces; Clothing; Hands; Footwear; Tools & Equipment; Illness & Injury; |
| | 1.3 | List the required qualifications for workers and supervisors | 112.22; 112.23; 112.21 | |
| | 1.4 | Describe information to provide to visitors to minimize contamination of produce on the farm | 112.3 (visitor definition); 112.33 | |
| | 2.4 | Identify who should receive produce safety training | 112.21; 112.22 (c) | Managers/Supervisors; Volunteers; Farm Workers; |
| 3 | | List the topics that must be included in a worker training program | 112.30 (b); 112.22 | |
| | 3.1 | Identify what trained workers must know at the completion of the training program | 112.22 | |
| | 3.2 | List the topics that must be included in the training program | 112.22(a) and 112.21 | |
| | 3.4 | List the topics that must be covered in a harvest training program | 112.22 (b); 112.112; 112.114 | |

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| 4 | | Describe what hygiene sanitation facilities and supplies should be provided to workers and visitors to reduce the risk of produce contamination | 112.129; 112.33 (b); 112.130 | |
| | 4.2 | Describe the requirements for toilet and handwashing facilities that must be provided to workers | 112.129; 112.130 | OSHA requirements wouldn't apply (e.g. based on employee size or other factors) |
| | 4.3 | Describe the drinking water and break area resources that should be provided | 112.32 (b) (6) | OSHA requirements wouldn't apply (e.g. based on employee size or other factors) |
| 5 | | Describe practices workers must follow to reduce the risk of produce contamination | 112.32 | |
| | 5.2 | List the food safety practices that must be followed by workers | 112.32 | |
| | 5.3 | Describe handwashing requirements and best practices | 112.32 (b) (3); 112.130 (d); | |
| | 5.4 | Describe requirements and best practices related to proper toilet use | 112.32 (b) (3); 112.33 (b); 129(b)(3); 129(c) | |
| | 5.5 | Describe worker clothing/glove use requirements and best practices | 112.32 (b) (4); 112.32(b)(1); 112.32(b)(3); 112.32(b)(5). | |
| | 5.6 | Describe food safety requirements and best practices related to ill workers | 112.31 | |
| 6 | | Describe the practices for monitoring toilet/handwashing facilities and worker's hygiene | 112.32 (b) (3); 112.129(b); 112.130(b) and (c) | |
| 8 | | Identify recordkeeping tools to monitor and manage a worker health, hygiene, and training program | 112.30 (a) and (b) | |
| | 8.1 | List the information that must be documented for worker health, hygiene, and training | 112. 30(a) and (b) | |
| Module 3: Soil Amendments | | | | |

| 1 | | Describe soil amendment use on a farm | SubPart F | Type of soil amendment; Application Method; Timing; Crops; Frequency; Quantity; |
|---|----------|--|------------------------------------|---|
| | 1.1 | Define a soil amendment (SA) , Biological Soil Amendment (BSA), and Biological Soil Amendment of Animal Origin (BSAAO) | 112.3 | Chemical/Physical/Biological Soil Amendments; Manure based BSAAO; Non-Manure Based BSAAO; |
| | 1.3 | Differentiate between treated and untreated soil amendments | 112.54 and (b); 112.51 | |
| | 1.4 | Define untreated soil amendments | 112.51 (b) | |
| | 1.5 | Define treated soil amendments | 112.51 (a) | |
| | 1.6 | Explain the risks associated with using untreated soil amendments | 112.52 | |
| | 1.7 | Describe the treatment requirements for soil amendments | 112.54; 112.55 | |
| | 1.8 | List examples of untreated soil amendments | 112.51 (b) | Raw manure; Untreated manure teas/slurries; Agricultural teas; |
| | 2.3 | Describe the risks associated with untreated human waste and biosolids | 112.53 | 40 CFR Part 503 |
| | 2.4 | Define pre-consumer vegetative waste | 112.3 | |
| | 2.5 | Identify the risks associated with pre-consumer vegetative waste | | Potential contamination sources; |
| | 2.6 | Describe requirements for untreated BSAAO (including non-manure based) | 112.56(a)(1) | |
| | 2.8 | Discuss the risks associated with untreated BSAAO (especially manure-based) | | |
| | 3 | Identify key strategies that will reduce the risk of human pathogens contaminating produce | 112.52; 112.56 | |
| | 3.1 | List the key strategies that reduce soil amendment risks | 112.52; 112.56 | |
| | 3.2 | Describe how treating BSAAO can reduce the associated risks | 112.54; 112.55 (a) and (b); 112.56 | |
| | 3.3 | Describe the two codified composting options as examples of scientifically validated BSAAO treatment process | 112.54 (b) (1 and 2) | |

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| | 3.4 | Discuss the application method and days to harvest interval requirements for BSAAO to reduce the risk of human pathogens contaminating produce | 112.56 and "Reserved" | |
| | 3.5 | Describe the BSAAO storage area requirements and best handling practices to reduce the risk of human pathogens contaminating produce | 112.52 (a through c) | |
| | 3.6 | Describe expectations for training workers who handle BSAAO | 112.21; 112.22 | |
| 5 | | Recall the information that must be documented related to soil amendments to reduce the risk of contaminating produce | 112.60 | |
| | 5.1 | List the information that must be documented related to treated BSAAO | 112.60 | |
| | 5.2 | List the information that must be documented related to on-farm BSAAO treatment processing | 112.60 (b) (2); 112.60(a) | |
| | 5.3 | List the information that must be documented related to treated BSAAOs obtained from a third party | 112.60 (b) (1) | |
| Module 4: Wildlife, Domesticated Animals, and Land Use | | | | |
| 1 | | Identify the potential routes of contamination associated with wildlife, domesticated animals, and land use | 112.81; 112.83; | |
| | 1.1 | Describe why animals are a produce safety concern on the farm | | |
| | 1.2 | Describe how to assess the risk posed by wildlife on your farm | 112.83(b)(1) | |
| | 1.3 | Describe how to monitor for wildlife activity on your farm | 112.83 (b) | During Growing; Prior to Harvest; |
| | 1.4 | Recall why domesticated animals can pose a produce safety concern on the farm | | |
| | 1.5 | Describe how to assess the risks posed by domesticated animals on your farm | 112.134 (a); 112.83; 112.127 | Working Animals; Pets; Location respective to production area; |
| | 1.6 | Describe how to assess the risks associated with land use | 112.83 (b) (1) | Before planting; Field Location; Adjacent Land Use; Wildlife/Domesticated Animals; |

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| 2 | | Describe practices to mitigate risks associated with wildlife, domesticated animals, and land use | 112.32(b)(2) and (3); 112.83(b)(2); 112.112; 112.84; 112.134; 112.127 | Deterrents (e.g., decoys; fencing); |
| 4 | | Describe the importance of conducting a pre-plant and pre-harvest assessment of fields | 112.112 | |
| | 4.1 | Describe how to conduct a pre-plant assessment of fields to identify potential produce safety risks | 112.112 | |
| | 4.2 | Describe the process of conducting a pre-harvest assessment of fields to inform harvest practices | 112.112 | |
| 5 | | Describe corrective actions to be used if significant risks from wildlife and domesticated animals are present in production fields | 112.112; 112.83 | |
| | 5.1 | Describe the corrective actions to use if there is evidence of contamination from wildlife and domesticated animals in production fields | 112.83; 112.112 | |
| 6 | | Recall the information that should be documented related to management, monitoring, or corrective actions that are taken to reduce produce safety risks in and around produce fields | | Examples: Pre-Plant/Harvest Assessments; Animal Monitoring; Animal Intrusion Events; Corrective Actions; |
| Module 5-1: Agricultural Water Used During Growing Activities | | | | |
| 1 | | Describe types of water use on the farm | | |
| 2 | | Describe risks that may impact the microbial safety of water sources | | |
| | 2.2 | List the three main impact points for produce safety risks related to water used during growing activities | | Water source/quality, application method, application timing |
| | 2.3 | Recognize probability for contamination of water used during growing activities based on its source | | E.g. relative risk levels of public water supplies, ground water, and surface water |
| | 2.4 | List potential sources of surface water contamination | | |
| | 2.5 | Describe the level of risk water used during growing activities poses based on its application method / degree of contact | | |

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| | 2.6 | Determine the risk posed by water used during growing activities based on the timing of application | | |
| | 3.6 | Describe practices related to method of irrigation that can reduce the produce safety risk due to water used during growing activities | | E.g. die-off that occurs between last application and harvest |
| Module 5-2: Agricultural Water: Agricultural Water Used During Harvest and Post-Harvest Activities | | | | |
| 3 | | Describe importance of postharvest water management | | |
| 4 | | Describe how to manage the risk of infiltration | | Impact of temperature/use of temperature differentials |
| 5 | | Explain use of antimicrobial products, including sanitizers, for postharvest water | | Discuss various available options, labelling, impact of turbidity/pH on antimicrobial levels/efficacy, how to monitor, etc. |
| | 5.2 | Recognize that antimicrobial products may be subject to other local, state, and federal laws | | |
| 6 | | Describe practices that can be used to monitor and maintain the quality of water used in postharvest activities | | Use of water change schedules, importance of monitoring turbidity, importance of reducing infiltration |
| | 6.1 | List key water quality variables that impact the quality of water used in postharvest activities | | Examples: quality at start of use, pH, temperature (water + commodity), turbidity/ water change schedule, etc. |
| | 6.2 | Describe why it is important to monitor the pH of water used in postharvest activities | | pH can impact effectiveness of antimicrobials |
| | 6.4 | Describe why it is important to monitor the temperature of water used in postharvest activities | | Risks due to infiltration |
| | 6.6 | Describe why it is important to monitor the turbidity of water used in postharvest activities | | Can assist in establishing water change schedules to maintain water quality |
| | 6.10 | Describe the requirements for disposing of used water | 112.130 (c); 112.133; 112.132 | |

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| | 7.2 | List the information that must be documented related to monitoring the microbial quality of postharvest water | | GAPs-type knowledge on monitoring antimicrobial concentrations, water temperature, pH, ORP, water changes, etc. |
| Module 6: Post-Harvest Handling and Sanitation | | | | |
| 1 | | Identify potential routes of contamination associated with harvest and postharvest activities | | Tools; Equipment; Workers/Clothing; Postharvest Water; Buildings; Vehicles; |
| 2 | | Identify key practices that can be implemented and maintained to reduce identified risks in produce packing areas | 112.126; 112.132; Subpart L | Cleaning; Pest Management; Avoid standing water/condensate; Hygiene facilities; Separate produce handling areas; |
| | 2.3 | List the basic practices that can be implemented to reduce risks in any produce packing areas | 112.111; 112.123 (d) (1 and 2); 112.132; Subpart L | Sanitation; Worker Hygiene; |
| | 2.4 | List key worker training requirements that must be implemented to reduce identified risks during harvest and postharvest activities | 112.112; 112.113; 112.114; 112.22 (b); 112.22 (a) (1); 112.32; 112.21 | |
| | 2.7 | Describe cleaning and/or sanitizing requirements for food contact surfaces and non-food contact surfaces in a packinghouse | 112.123 (d) (1 and 2); 112.111 | Detergents; Sanitizers; Biofilms; |
| | 2.9 | Describe practices that can be implemented in the packing area to reduce identified risks | 112.123; 112.126; 112.128; 112.132 and 112.122 | Consider fully vs. partially enclosed; Clean break; |
| | 2.10 | Describe practices related to packing containers that can be implemented to reduce identified risks | 112.116; 112.115 | |
| | 2.11 | Describe practices related to cold storage areas that can be implemented to reduce identified risks | 112.126 (b) (2); 112.124; | Ice; Ice slurries; |
| | 2.14 | Describe how the sanitary design of equipment contributes to the cleaning and sanitizing of food contact surfaces | 112.123 | |
| | 2.15 | Describe how to maintain equipment that is not designed using sanitary design principles | 112.123 | |

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| 3 | | Identify the steps involved in cleaning and sanitizing food contact surfaces | | GAPs |
| 4 | | Describe key parts of a pest control program that will reduce or eliminate rodents, birds, insects, and other pests from postharvest packing areas | 112.128 | |
| | 5.1 | Describe the requirements for equipment used to transport produce | 112.125; 112.123 (c) | |
| | 9.2 | List the information that must be documented related to postharvest handling practices | 112.140 (b) (2) | |
| Module 7: How to Develop a Farm Food Safety Plan | | | | |
| | 8.2 | Describe labeling requirements for qualified exempt farms | 112.6 (a and b) | |

Appendix 8: Example Activity Lesson Plan Template

| Activity Lesson Plan |
|---|
| Learning Objective: |
| Produce Safety Rule Covered: |
| Audience: |
| Instructional Delivery Method: |
| Description of the Activity (add time suggestions for each step): |
| Assessment/Evaluation of Knowledge (if Applicable): |