



## PSA Curriculum Changes – Version 1.0 to Version 1.1

Issued: December 11, 2017

This document outlines changes made to the Produce Safety Alliance Grower Training Curriculum: Version 1.0. Both version 1.0 and the new version, 1.1, are acceptable for use in current PSA Grower Training or Train-the-Trainer Courses as of December 11, 2017 and until the next version is issued.

### Updates for Modules 1-7

Module Number	Slide Number (V 1.0)	Slide (S) or Notes (N)	Bullet Number	Sub-Bullet	Description of Change
1	7	N	3	N/A	Remove: Extra parenthesis around § 112.2(a)
1	7	N	7	2	Add: "(in any location)" to definition of qualified end user
1	7	N	7	2	Change to: "Restaurants and retail establishments located in another state or country may be qualified end users if they are within 275 miles of the farm."
1	9	N	Slide Reference	1	Added: "The Centers for Disease Control & Prevention (CDC). (2013). Produce Outbreak Data. Prepared by CORE Post Response Team on January 13, 2013."
1	10	N	4-5	N/A	Reorganized: Bullets into sub-bullets for chemical and physical risks. Content remains the same.
1	10	S	3	1	Added: " <i>Toxoplasma gondii</i> "
1	13	S	Graphic	N/A	Change: Rearrangement of bubbles in graphic to match FATTOM acronym.
1	13	N	5	2	Change to: "Acidity: Most pathogens thrive under slightly acidic or alkaline conditions (pH 6.6–7.5), but some can grow at acidic pH values as low as 4.5."
1	13	N	5	5	Change to: "Most pathogens are facultative anaerobes, meaning they can grow in the presence or absence of oxygen."
1	13	N	Additional Resource	1	Updated URL (PPT Only): <a href="https://www.extension.iastate.edu/foodsafety/L4.1">https://www.extension.iastate.edu/foodsafety/L4.1</a>
1	13	N	References	1-2	Added: "Food and Drug Administration. (2011). Fish and fishery products hazards and controls guidance. U.S. Department of Health and Human Services Food and Drug Administration Center for Food Safety and Applied Nutrition." and "Food and Drug Administration. (2012). The Bad Bug Book Foodborne Pathogenic Microorganisms and Natural Toxins. 2nd Edition. Center for Food Safety and Applied Nutrition."
1	14	N	Additional Resources	2	Updated URL (PPT Only): <a href="https://www.epa.gov/pesticide-registration/list-g-epas-registered-antimicrobial-products-effective-against-norovirus">https://www.epa.gov/pesticide-registration/list-g-epas-registered-antimicrobial-products-effective-against-norovirus</a>
1	15	N	2	N/A	Change to: "Examples of parasites include: <i>Giardia</i> , <i>Toxoplasma gondii</i> (often carried by cats), <i>Cyclospora</i> , <i>Cryptosporidium</i> , and <i>Angiostrongylus catonensis</i> (rat lungworm)."
1	15	N	Reference	1	Added: "Hollyer, J.R., Toegner, V.A., Cowie, R.H., Hollingsworth, R.G., Nakamura-Tengan, L.C., Castro, L.F. & Buchholz, A.E. (2010). Best On-Farm Food Safety Practices: Reducing Risks Associated with Rat Lungworm Infection and Human Eosinophilic Meningitis. University of Hawai'i at Manoa - Food Safety and Technology, FST-39. <a href="https://www.ctahr.hawaii.edu/oc/freepubs/pdf/FST-39.pdf">https://www.ctahr.hawaii.edu/oc/freepubs/pdf/FST-39.pdf</a> "
1	18	S	Graphic	N/A	Remove/Formatting: Border around "Buildings/Equipment/Tools" to match other bubbles
1	24	N	3	N/A	Change to: "Surfaces may also be cleaned with a <b>detergent</b> and then sanitized with an antimicrobial pesticide or another treatment to reduce or eliminate pathogens and spoilage <b>microorganisms</b> ."
1	30	S	1	N/A	Remove: Period at the end of the sentence
1	33	S	4	N/A	Change to: "Required records must be dated and signed or initialed by the person who performed the activity"
1	33	S	5	N/A	Added: "Some records must be periodically reviewed, signed, and dated by a supervisor or responsible party"

Module Number	Slide Number (V 1.0)	Slide (S) or Notes (N)	Bullet Number	Sub-Bullet	Description of Change
1	33	N	4	N/A	Change to: "Certain required records must be reviewed, then signed and dated by a supervisor or responsible party (§ 112.161(b))."
1	37	S	5	N/A	Change to: "Is required by third party audits and some buyers"
1	38	N	5	N/A	Add word: "Necessary resources for food safety may include training, facilities, and equipment <i>that</i> must be provided to workers so that they can do their jobs correctly and follow regulatory requirements (Discussed in more detail in Module 2: Worker Health, Hygiene, and Training)."
2	4	N	Reference	1	Updated URL (PPT Only): " <a href="https://www.ers.usda.gov/webdocs/publications/39501/30244_vgs30501_002.pdf?v=41465">https://www.ers.usda.gov/webdocs/publications/39501/30244_vgs30501_002.pdf?v=41465</a> "
2	5	N	3	N/A	Remove: "for example," and extra commas
2	12	S	2	N/A	Formatting: "symptoms of" was smaller font than other text, corrected for consistency
2	15	N	3	N/A	Change to: "cantaloupes" to match other commodities listed as plural
2	17	N	1	N/A	Added: Comma after "first aid kits"
2	19	S	1	N/A	Added: "Dehydration and" since slide refers to multiple risks (dehydration and heat exhaustion)
2	19	N	1	N/A	Change to: Second sentence - "risks" since referring to two items (dehydration and heat exhaustion)
2	22	N	2	N/A	Added: Comma after "thoroughly"
2	23	S	N/A	N/A	Added: Provision symbol to slide - notes reference a regulatory requirement § 112.130(d)
2	30	N	2	N/A	Change to: "Other records that should be kept include"
2	33	N	1	2	Change to "Pathogens also can be..."
3	10	N	2	N/A	Change to: "All biological soil amendments of animal origin <i>treatment processes</i> , including mortality composting, must meet the microbial standards in §§ 112.55(a) and (b) or must be considered untreated."
3	12	N	3	N/A	Added: Comma after "rearing practices"
3	14	S	N/A	N/A	Added: Provision symbol to slides - notes reference multiple regulatory requirements
3	15	S	Title	N/A	Change to: "Treated Soil Amendments"
3	15	S	1	N/A	Change to: "Treatment requires a controlled process such as composting that decomposes organic matter and reduces pathogens"
3	15	S	3	N/A	Change to: "Only a treatment process that has been scientifically validated ensures pathogen reduction"
3	15	S	4	N/A	Change to: "Process monitoring and recordkeeping are critical to ensuring the soil amendment is adequately treated"
3	15	N	3	N/A	Change to: "§ 112.54 provides more information on scientific validation including examples involving composting. The next slide contains more information about this, but is an optional slide for growers using these types of amendments."
3	15	N	4	N/A	Formatting: Bolded word "curing" since it is a glossary term
3	16	N	Resource	3	Updated URL (PPT Only): " <a href="https://extension.psu.edu/compost-how-to-make-it-and-how-much-to-use">https://extension.psu.edu/compost-how-to-make-it-and-how-much-to-use</a> "
3	16	N	4	N/A	Change to: "In § 112.54, other methods are allowed if they are scientifically valid, controlled processes supported by adequate scientific information and that <i>have</i> been validated to achieve the microbial standards outlined in § 112.55."
3	17	N	4	N/A	Change to: "Side-dressing should only be utilized if properly composted or treated soil amendments are used and applied in a manner consistent with § 112.56."
3	18	N	3	N/A	Remove: Extra "in a"
3	18	N	Resource	1	Updated URL (PPT Only): " <a href="https://www.gpo.gov/fdsys/pkg/CFR-2011-title7-vol3/xml/CFR-2011-title7-vol3-sec205-203.xml">https://www.gpo.gov/fdsys/pkg/CFR-2011-title7-vol3/xml/CFR-2011-title7-vol3-sec205-203.xml</a> "
3	19	N	8	N/A	Change to: "§ 112.52(a) requires that those on covered produce farms must handle, convey and store any biological soil amendment of animal origin in a manner and location such that it does not become a potential source of contamination to covered produce, food contact surfaces, areas used for a covered activity, water sources, water distribution systems, and other soil amendments."
4	6	N	1	N/A	Change to: "Some types of wildlife can be beneficial to farm production, such as raptors or <i>predatory</i> mammals that reduce rodent populations."

Module Number	Slide Number (V 1.0)	Slide (S) or Notes (N)	Bullet Number	Sub-Bullet	Description of Change
4	13	N	3	N/A	Add: "Some states require a license in order to relocate wild animals that have been caught in a trap."
4	15	S	2	1	Change to: "As working animals"
4	19	N	4	N/A	Change to: "Because of these and other risks, <i>animals</i> must be excluded or separated from areas where covered produce activities performed in fully enclosed buildings (§ 112.127)."
4	21	N	Additional Resources	1	Updated URL (PPT Only): " <a href="http://www.lgma.ca.gov/wp-content/uploads/2014/09/LGMA_DecisionTree_AssessingAnimalActivity.pdf">http://www.lgma.ca.gov/wp-content/uploads/2014/09/LGMA_DecisionTree_AssessingAnimalActivity.pdf</a> "
5	4	N	1	N/A	Formatting: Bolded word "agricultural water" since it is a glossary term
5	10	N	3	1	Formatting: Bolded word "ground water" since it is a glossary term
5	10	N	4	1	Formatting: Bolded word "surface water" since it is a glossary term
5	20	N	Additional Resources	1	Updated URL (PPT Only): " <a href="http://postharvest.ucdavis.edu/files/269366.pdf">http://postharvest.ucdavis.edu/files/269366.pdf</a> "
5	21	N	Additional Resources	1	Updated URL (PPT Only): " <a href="http://uscode.house.gov/view.xhtml?req=body%3A%28Sec.+402%09Sec.+342+-+Adulterated+food%29&amp;f=treesort&amp;fq=true&amp;num=3&amp;hl=true&amp;edition=prelim&amp;granuleId=USC-prelim-title21-section342">http://uscode.house.gov/view.xhtml?req=body%3A%28Sec.+402%09Sec.+342+-+Adulterated+food%29&amp;f=treesort&amp;fq=true&amp;num=3&amp;hl=true&amp;edition=prelim&amp;granuleId=USC-prelim-title21-section342</a> "
5	22	S	2	N/A	Change to: " Tools are available to assist in calculating these values"
5	22	N	3	N/A	Change to: First sentence, "Tools are available to assist in calculating the GM and STV."
5	28	N	3	N/A	Formatting: Capitalize "Method" in "Method 1603", two places in this paragraph
5	29	N	2	1i	Remove: Word "Provision" change to "\$"
5	29	N	2	1ii	Remove: Word "Provision" change to "\$"
5	29	N	3	N/A	Change to: "A 0.5 log removal or die-off can be approximated as 68% reduction (32% remaining)."
5	31	S	N/A	N/A	Slide order: V 1.0 Slide 31, now V 1.1 Slide 33
5	34	N	10	1i	Remove: Word "Provision" change to "\$"
5	34	N	10	1ii	Remove: Word "Provision" change to "\$"
5	40	N	3	6	Remove: Word "provision"
5	40	N	3	9	Formatting: Capitalize "Method" in "Method 1603", very last bullet in slide notes
5	48	N	2	N/A	Formatting: Capitalize "Method" in "Method 1603"
5	59	N	Additional Resources	4	Updated URL (PPT Only): " <a href="http://postharvest.ucdavis.edu/Postharvest_Yellow_Pages/">http://postharvest.ucdavis.edu/Postharvest_Yellow_Pages/</a> "
5	60	N	Additional Resources	2	Updated URL (PPT Only): " <a href="http://www.epa.gov/sites/production/files/2015-09/documents/list_a_sterilizer.pdf">http://www.epa.gov/sites/production/files/2015-09/documents/list_a_sterilizer.pdf</a> ", also remove hyphen and replace with "U.S. EPA"
5	65	N	5	9	Formatting: Capitalize "Method" in "Method 1603"
6	5	S	1	1	Change to: "Using basic housekeeping practices"
6	6	S	1	N/A	Change to: "Workers must never harvest covered produce contaminated with feces"
6	8	N	1	6	Change to: "Separate covered produce from produce not covered by the FSMA Produce Safety Rule. "
6	8	N	1	N/A	Add: Comma after "packinghouses"
6	8	N	2	N/A	Add: Word "specific" before "references", first sentence
6	9	N	Additional resource	N/A	Updated URL (PPT Only): " <a href="http://www.centerforproducesafety.org/amass/documents/document/263/Listeria%20Guidance%20UFPA%202013.pdf">http://www.centerforproducesafety.org/amass/documents/document/263/Listeria%20Guidance%20UFPA%202013.pdf</a> "
6	16	S	1	N/A	Formatting: Remove bold font on first sentence.
6	16	N	2	N/A	Change to: "If the risks involve concerns about the cleanliness of worker hands as they pack produce, growers may need to perform additional training or improve worker training programs."
6	16	N	3	1	Change to: "Are the belts and brushes that move produce dirty and/or <i>damaged</i> ?"
6	16	N	3	3	Change to: "See the slide Best Case Is Not Always Possible for information regarding use of <i>wooden</i> bins or <i>wooden</i> harvest containers."
6	17	N	1	N/A	Formatting: Change "CANNOT" to "cannot"
6	17	N	2	N/A	Change to: "Surfaces may also be cleaned with a <b>detergent</b> and then sanitized with an antimicrobial pesticide or another treatment to reduce or eliminate pathogens and spoilage <b>microorganisms</b> ."
6	17	N	3	N/A	Add: (§ 112.3) after "FSMA Produce Safety Rule"
6	18	S	1	N/A	Formatting: Remove period from sentence
6	19	S	1	N/A	Formatting: Remove period from sentence

Module Number	Slide Number (V 1.0)	Slide (S) or Notes (N)	Bullet Number	Sub-Bullet	Description of Change
6	19	N	2	N/A	Change to: " <b>Detergents</b> should be appropriate for use on food contact surfaces."
6	20	S	1	N/A	Formatting: Remove period from sentence
6	24	S	3	N/A	Change to: "Consider consulting technical assistance resources or a sanitation expert if using the equipment for a new purpose or for which it was not designed"
6	24	N	1	N/A	Change to: "Unfortunately, retrofitting equipment and using it in ways <i>for which it was not originally designed</i> can introduce risks."
6	24	N	4	N/A	Change to: "Avoid materials that may be difficult to sanitize such as carpeting on packing lines or other materials that do not dry and could spread contamination as they contact produce."
6	28	S	6	N/A	Add: ", when possible" after "Keep produce covered"
6	29	N	3	N/A	Change to: "Growers may need to hire an outside pest <i>control</i> company to help them deal with a problem."
6	29	S	1	3	Change to: "Check traps regularly and keep records"
6	29	S	1	4	Change to: "Do not use bait inside the packing area"
6	29	S	2	N/A	Change to: "Store pallets of produce at least 12" from walls to aid in visual inspection and trap monitoring"
6	29	N	3	N/A	Change: "daily" to "regular"
6	29	N	2	N/A	Change to: "Unbaited traps can be used to monitor and eliminate pests. Baited traps might actually draw pests to the area. If monitoring identifies a problem, growers should take action. Remember, § 112.128 includes routine monitoring for pests." Also combined with bullet 4.
6	29	N	4	N/A	Change: Delete, combine with bullet 2, see above note.
6	32	N	5	N/A	Change: "Proposed" to "Final"
6	33	N	4	N/A	Delete: "the" before produce
6	34	N	3	N/A	Change: "SOPs" to "SOP's" in second sentence.
6	38	S	1	5	Change to: "Adjust practices to address risks, keep records, and monitor to make sure the corrective actions have fixed the problem"
6	39	S	Title	N/A	Change to: "Examples of When Corrective Actions Should Be Considered"
6	39	N	3	1	Change to: "Pest infestations: Remove and manage pest infestations."
6	39	N	3	3	Change to: "Review §§ 112.126(a)(2), 112.129, 112.131 and 112.133."
6	39	N	3	2	Change to: "Ill or injured worker in packing area: Workers should first seek medical attention. First aid kits should be provided and workers should be trained on how to use the kits properly. Surfaces that may have come in contact with bodily fluids, such as vomit, blood <i>or fluid from an open lesion</i> , should be cleaned and sanitized. Any produce that has come in contact with vomit, blood, or other bodily fluids should be disposed of properly. If there is concern that a large volume of produce <i>is reasonably likely to be contaminated</i> , the lot may need to be discarded. Notify the owner/manager about injuries and contamination issues. All actions should be documented. Review Subpart D: <i>Health and Hygiene for requirements</i> ."
6	40	S	1	N/A	Delete: Extra space between "job" and "gets"
7	4	S	1	N/A	Formatting: Removed bold text and underlined "not" instead of capitalizing
7	4	N	1	N/A	Formatting: Removed bold text and underlined instead
7	4	N	1	N/A	Formatting: Capitalize "Working Committees"
7	4	N	1	N/A	Change to: The FSMA Produce Safety Rule does not require a written Farm Food Safety Plan but <i>it has been included in this module....</i> "
7	6	N	2	N/A	Change to: Second sentence, "Growers know about the agricultural water, soil amendments, and harvest practices they use."
7	7	S	4	N/A	Change: "Must" to "Should"
7	7	N	4	N/A	Change to: "§ 112.22(c) requires that at least one supervisor or responsible party from the farm complete food safety training at least equivalent to the standardized curriculum recognized by the FDA. The PSA curriculum and training program is one way to satisfy this requirement."
7	7	N	5	N/A	Change to: "§ 112.23 requires that a grower assign or identify personnel to supervise (or otherwise be responsible for) their operations to ensure compliance."
7	9	S	3	N/A	Change to: "Name and contact information for the farm food safety manager"

Module Number	Slide Number (V 1.0)	Slide (S) or Notes (N)	Bullet Number	Sub-Bullet	Description of Change
7	10	N	2	N/A	Change: Second sentence, "farmers" to "growers"
7	10	N	5	N/A	Change to: "Other records are not required by the FSMA Produce Safety Rule but may be a useful part of a farm food safety plan."
7	10	N	6	N/A	Change to: "FSMA Produce Safety Rule Subpart O—§§ 112.161–112.167 includes information on recordkeeping requirements for making and keeping records that are required by the FSMA Produce Safety Rule."
7	11	N	3	N/A	Change to: "Modules 1 through 6..."
7	11	S	1	N/A	Add: "and conditions that may" after "practices"
7	14	N	3	N/A	Formatting: Change "LIVING" to "living"
7	16	S	2	N/A	Formatting: Change "YOUR" to "your"
7	17	S	1	N/A	Formatting: Change "YOUR" to "your"
7	17	S	2	N/A	Formatting: Change "NOT" to "not"
7	17	N	1-2	N/A	Formatting: Change capitalized words "EVERYDAY" and "WISH" to "everyday" and "wish"
7	23	N	2	N/A	Formatting: Capitalize "G" in "girl"

## Updates for Other Sections

Manual Section	Page Number (V 1.0)	Description of Change
Overall	N/A	Consolidation: Original "References" tab and "Resources" tab into one section, renamed "References & Resources"
Overall	N/A	Remove: URL's in PSA Curriculum Module References and Resources, now available online for easier maintenance of broken web links. Resources and references still listed in order of appearance within each module. URL links were updated in the PPTs.
Overall	N/A	Update: V 1.0 tab and tab cover; "FSMA" changed to V 1.1 "FSMA Produce Safety Rule"
Welcome	3	Update: Contact information for Gretchen Wall - new phone, 607-882-3087
Welcome	3	Update: Title for Michele Humiston - "Produce Safety Alliance Extension Specialist"
Welcome	5	Update: Contact information for Gretchen Wall
Welcome	5	Update: Version number and publication date - Version 1.0 to Version 1.1
Welcome	6	Update: Replace "Byron Beerbower" with "Erik Bungo, Program Supervisor, Produce Safety, Virginia Department of Agriculture & Consumer Services"
Welcome	6	Update: Replace "Charles Parrot" with "Sonia Jimenez, Deputy Administrator, USDA-AMS Specialty Crop Program"
Welcome	6	Add: "In addition, we would like to recognize several Executive and Steering Committee members who have retired or moved to other positions including Byron Beerbower, Bill Miller, and Charles Parrot for their contributions to the success of the Produce Safety Alliance."
Welcome	7	Update: Replace "Bill Miller" with "Steve Schirmer – Produce Safety Field Administrator, New York State Department of Agriculture & Markets"
Welcome	8	Update: Contact information for PSA staff, remove contact "Barb Fick", add "Connie Fisk"
Welcome	9	Add: "Copyright © Cornell University, 2017 Cornell University permits these materials to be downloaded, printed, and distributed for educational purposes and to meet requirements of the Produce Safety Alliance Grower Training Course. It may not be altered or published electronically without expressed permission of Cornell University (Produce Safety Alliance, 630 West North Street, Jordan Hall, Geneva, NY 14456, USA). It may not be printed, published electronically, and sold in whole or in part by a third party or company for profit."
Glossary	3	Covered Activity - Added: "to" before "21"
Glossary	4	Dropped covered produce - Change: "Cantaloupe" to "Cantaloupes"
Glossary	5	Farmers' Market - Remove: Comma before "meat"
Glossary	5	Green Waste - Remove: First "green" in sentence to make it read "If the waste contains any materials of animal origin, including animal feces, it cannot be considered green waste."
Glossary	9	Parts Per Million (PPM) - Remove: "(or 1 milliliter)"
Glossary	10	Produce Safety Rule Preamble - Added: "and" before "describes" in last sentence
Glossary	11	Recall - Change: "consumer's" to "consumers' "
Glossary	11	Safety Data Sheets - Formatting: italicize final parenthesis
Glossary	13	Statistical Threshold Value - Change: "lognormal" to "log-normal"
Glossary	13	Total Coliforms, Fecal Coliforms, and Eschericia coli (E. coli) - Added: "quality" before "criteria" in last sentence
References	8	Formatting: Lopez-Velasco et al. and Yuk et al. - removal of italics on publication issue number
Resources	3	Update: Final question refers to "this fall", update to reflect current timeline. "There are online trainings, and Produce Safety Alliance trainings available nationally."
Resources	4	Relocate: Farm Food Safety Plan Writing Resources are now located at the end of Module 7 - How To Develop a Farm Food Safety Plan.
FDA/USDA		Add: Table of Content for FDA/USDA Resources tab