

Food Safety Programs and Auditing Protocol for the Fresh Tomato Supply Chain, 2019

Forward

The *Food Safety Programs and Auditing Protocol for the Fresh Tomato Supply Chain* was initiated in October 2008, shortly after completion of the *Commodity Specific Guidelines for the Fresh Tomato Supply Chain*, 2nd Edition, in an effort to harmonize food safety audit standards for the fresh tomato supply chain. To prevent the Tomato Food Safety Protocol from becoming ‘just another standard’, a critical mass of fresh tomato “buyers” (e.g., processors, foodservice and retail) were asked to participate and be prepared to accept audits of their suppliers using this standard. In this way, the goal was ultimately to replace the multitude of similar but different audit standards with this single standard. Since its completion, the Tomato Food Safety Protocol (or, ‘Tomato Metrics’) has been intended for use in operations that are primarily handling tomatoes, and those who would undergo tomato-specific audits only; e.g., open field operations, harvesting, field packing, greenhouses, packinghouses, tomato repackers, tomato distributors and warehouses.

In June 2009, the United Fresh Food Safety & Technology Council and Board of Directors endorsed a similar plan to drive harmonization of all-inclusive produce GAP standards, to reduce audit fatigue and allow operations to focus their food safety resources on achieving food safety, rather than passing audits. This plan evolved into the Produce GAP Harmonization Initiative, an industry-wide effort including growers, shippers, produce buyers, government agencies, audit organizations and other stakeholders from a wide variety of commodities and growing regions. United Fresh helped convene this diverse group of stakeholders to review and harmonize existing GAP audit standards, with the goal of “One audit by any credible third party, acceptable to all buyers.” Thirteen commonly accepted fresh produce food safety standards were evaluated by a group of 150 volunteer technical experts. The group identified the commonalities and selected the words from each that best suited a common standard, without sacrificing any food safety considerations. The end result was the Produce GAPs Harmonized Standard.

2011 Revision

In late 2010, the tomato industry reconvened to review the performance of the Tomato Metrics and recommended some changes involving the clarification and addition of select items. Accompanying checklists were also amended based on new additions.

2019 Revision

In an effort to further reduce redundancy among audits, the Tomato Working Group compared requirements in each of the four modules to requirements in the Combined Harmonized Standards. The group identified a considerable amount of Tomato Metrics requirements that were functionally the same as requirements in the Harmonized Standards (i.e., not unique to tomato operations). A new structure for the Tomato Metrics was agreed upon in which tomato operations will use the Harmonized Standard (or other similar GAP programs) as the base food safety protocol with the Tomato Metrics included as an industry specific addendum. As such, in the 2019 revision the Tomato Metrics were greatly reduced compared to previous versions. Those items that remain are either unique to the tomato industry, or not necessarily unique, but not currently in the Harmonized Standards.

Format of the Tomato Metrics and Their Use

Four sets of Tomato Metrics were developed for use by operations and auditors: Open Field Production, Harvest and Field Packing; Greenhouse; Packinghouse; and Repacking and Distribution. Each set contains auditable requirements – “Items” – that the participants concluded should be attainable and in place for any North America fresh tomato operation, regardless of region, size, growing practice (e.g., organic) or sub-commodity handled. As appropriate to the type of operation, the Items were further divided into sections that the participants considered critical for a food safety program.

For each Item, the Tomato Metrics contains a simply-stated Requirement and a Procedure that restates the requirement in other words, in an effort to minimize misunderstanding. The Requirement and Procedure are instructions to the operation to clearly describe the programs that are expected to be in place and maintained, and that will be audited. Each Item also includes a Verification and Corrective Action/Disposition. The Verification is provided as instruction to the auditor how to verify whether the operation has complied with the Requirement. The Corrective Action/Disposition is provided as instruction to the operation if the audit determines that compliance has not been achieved. While each of these is not necessarily binding on the operation or the auditor – equivalent procedures and actions that meet the intent of the Item are acceptable or, in some cases, not applicable – they are provided in an effort to minimize “standards creep”, which has led to the multitude of disparate and often conflicting standards.

It was the intention in the development of these Tomato Metrics that the *Commodity Specific Guidelines for the Fresh Tomato Supply Chain*, 3rd edition serves as a prerequisite reference to the use of this document. Each of the four Tomato Metrics are intended for discrete segments of the fresh tomato supply chain, and it is the responsibility of the user to utilize the appropriate document. Throughout the documents, the term “shall” is used to indicate an action mandatory for compliance, while “should” indicates a recommended action that may not be necessary for some operations. In an operation’s food safety program that is compliant with the Tomato Metrics, standard operating procedures (SOPs) may be designed to cover more than one requirement.

Performance of an audit to verify compliance with the Tomato Metrics is expected to include reviews of pertinent policies and SOPs, official records demonstrating compliance, and visual observations of the operation to determine the current level of compliance. In order to demonstrate compliance, all required documentation shall be kept on file and made available for review by the auditor. Lot-specific records shall be retained for two (2) years or as required by prevailing laws or regulations. Observation of incomplete or otherwise noncompliant records required for compliance shall require a corrective action, such as retraining of the responsible individuals. The operation shall assess whether the noncompliant records indicate a potential food safety risk. Where training is required, it is expected that employees sign their training records, indicating that they understand and agree to follow the policy or procedure that is the subject of the training. Observations of noncompliances that may result in a risk of contamination of public health concern shall require an immediate corrective action and an assessment of the actual noncompliance and, if contamination is reasonably likely to have occurred, a corrective action shall be taken to prevent the affected product from being harvested or distributed into commerce. Such corrective actions shall be documented and those records shall be available for regulatory review, in compliance with prevailing laws and regulations. It is a violation of federal law (i.e., Federal Food, Drug and Cosmetic Act) to

introduce or deliver for introduction into interstate commerce any food that is adulterated or misbranded. Foods, including fresh tomatoes, that are discovered to be adulterated and have been released into commerce should be recalled and the prevailing regulatory authorities notified.

User's Note

This Tomato Food Safety Protocol identifies food safety practices that are intended to minimize the microbiological hazards associated with fresh and fresh-cut tomato production and handling. The intent of this document is to identify current industry standards for food safety and handling in a manner consistent with existing applicable regulations, standards and guidelines. The information provided herein is offered in good faith and believed to be reliable, but is made without warranty, express or implied, as to merchantability, fitness for a particular purpose, or any other matter. This Tomato Food Safety Protocol was designed to apply to any applicable North America fresh tomato operation, with the recognition that alternative processes and standards may be equally effective and acceptable, and that future research and experience may demonstrate a need, from time to time, to amend these standards. It is the responsibility of the user of this document to verify that this Tomato Food Safety Protocol is the current version and is appropriate for the audited operation. United Fresh Produce Association, its members and participants in the development of this Tomato Food Safety Protocol do not assume any responsibility for compliance with applicable laws and regulations, and recommend that users consult with their own legal and technical advisers to be sure that these standards meet with applicable requirements.

Food Safety Programs and Auditing Protocol for the Fresh Tomato Supply Chain, 2019 Packinghouse

Sections	Page
1. Management Responsibility	2
2. Raw Material Sourcing	2
3. Traceability	3
4. Self-Audits	3
5. Product Containers and Packaging Materials	4
6. Packinghouse Condition and Equipment	5
7. Worker Health/Hygiene and Toilet/Handwashing Facilities.....	6
8. Product Wash Water Management	7
9. Quarantine or On-hold Materials.....	8
10. Tomato Rerunning Processes.....	9
11. Food Defense Awareness.....	9

Note: These protocols are intended to be used as an addendum to the Harmonized Standard, or other GAP program. As such, corresponding sections of the Harmonized Standard are listed below the heading of each section within this protocol.

1. Management Responsibility				
Corresponds to Post-Harvest Operations Harmonized Standard section 1.1				
Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
1.1	Operation has current copies of the <i>Commodity Specific Food Safety Guidelines for the Fresh Tomato Supply Chain, Food Safety Programs and Auditing Protocol for the Fresh Tomato Supply Chain</i> , the relevant <i>Harmonized Food Safety Standard</i> , and additional food safety documents as required by state and/or federal regulation.	Operation has a current copy of the Guidelines, this audit document and all other required documents.	Auditor observes the current copies at the operation.	Operation obtains current copies.
1.2	Operation has been registered or permitted as a food handling establishment as required by state or federal regulation.	Operation demonstrates knowledge of prevailing requirements and has a copy of required permit(s) or registration.	Auditor reviews copies at the operation to verify they are current and complete.	Operation applies for or renews required permits or registration.
2. Raw Material Sourcing				
Corresponds to Post-Harvest Operations Harmonized Standard section 1.3				
Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
2.1	The operation has a policy and takes affirmative steps to ensure that all fresh tomatoes that are packed or stored in the facility are grown following requirements in <i>Tomato Metrics Audit - Open Field Production, Harvest and Field Packing</i> .	The packinghouse requires all raw product suppliers to provide evidence of food safety/GAP programs and compliance. Such evidence must include sufficient documentation to demonstrate that the supplier complies with the requirements in <i>Tomato Metrics Audit - Open Field Production, Harvest and Field Packing</i> .	Auditor reviews policy and verifies that operation's evidence of supplier compliance with food safety/GAP programs is in compliance with the operation's policy.	Operation obtains required documentation. Operation ceases accepting or shipping product from non-approved suppliers, until sufficient documentation demonstrating compliance is received by the operation.

2.2	Operation has procedures to ensure that the tomato staging area and staging practices do not pose a risk of tomato contamination.	The packinghouse staging area is designed so that overhead areas do not pose a contamination risk of uncovered tomatoes, or that tomatoes are protected during staging to prevent contamination.	Auditor reviews procedures and inspects staging area for potential sources of contamination.	Operation develops procedures and/or redesigns staging area or staging practices to prevent reasonably likely to occur opportunities for contamination. Tomatoes that have become contaminated are discarded.
-----	-----------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

3. Traceability

Corresponds to Post-Harvest Operations Harmonized Standard section 1.6

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
3.1	Lot identification shall be labeled on all cases and clearly legible.	A product coding system is in place where product or raw material shall be labeled with grower and lot identification, and coded to enable access to date of harvest and/or packing, origin (name of farm, grower and/or packing location), and country of origin for traceback purposes.	Auditor reviews coding procedures, observes cases for appropriate coding, and verifies compliance by review of records.	Boxes with missing, inaccurate or illegible coding are labeled with appropriate identification. Procedure is developed or revised. Retraining is performed.

4. Self-Audits

Corresponds to Post-Harvest Operations Harmonized Standard section 1.9

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
4.1	Operation has procedures for conducting self-audits and conducts self-audits to verify compliance with established internal policies and procedures.	In addition to the requirements of the Harmonized Standards, the operation's self-audit procedure ensures compliance with established internal policies and procedures, the <i>Commodity Specific Food Safety Guidelines for the Fresh Tomato Supply Chain</i> , these Tomato Metrics, and additional food safety documents as required by state and/or federal regulation.	Auditor reviews the self-audit procedures, and records of self-audits to verify compliance with the procedures.	Operation develops and maintains self-audit program, with corrective actions preventive measures, documentation and follow-up.

5. Product Containers and Packaging Materials

Corresponds to Post-Harvest Operations Harmonized Standard section 1.12

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
5.1	Tomato-contact bulk bins, gondolas, totes and trays shall not be constructed of wood.	In accordance with the Post-Harvest Operations Harmonized Standard 1.12.5 regarding acceptable product-contact containers, operation has eliminated or has a plan to eliminate the use of wooden product contact containers.	Auditor reviews SOP, visually observes product bins, trays and containers and their use for evidence of non-compliance.	Policy is developed or revised. Non-compliances are corrected. Operation removes non-conforming product containers from food contact purposes. Retraining is performed. Operation develops a plan to phase out wooden bins, and demonstrates compliance with the plan.
5.2	The operation has written procedures for cleaning and sanitizing of produce food contact containers, requiring that bulk bins, gondolas, totes and trays are cleaned and sanitized periodically and is documented.	Written SOP is established to ensure that bulk bins, gondolas, totes, trays and other food contact containers and implements are adequately cleaned and sanitized at a frequency sufficient to maintain clean and sanitary food contact surfaces, and documentation of compliance is maintained.	Auditor reviews SOP, cleaning logs and records, interviews responsible individuals for knowledge of the SOP and observes containers, employees and records for evidence of compliance.	Policy is developed or revised. Non-compliances are corrected on site. Retraining is performed.
5.3	Operation has a policy that requires bins trays and boxes made of corrugated cardboard are for single use only.	Written policy prohibits re-use of single-use bins, trays and boxes made of corrugated cardboard or fiberboard for product contact purposes. Repacking of tomatoes into a corrugated cardboard container that contained the same lot of tomatoes is acceptable, provided the container is clean, sanitary and properly labeled.	Auditor reviews policy, observes practices related to corrugated cardboard or fiberboard bins, trays and boxes for evidence of non-compliance.	Policy is developed or revised. Tomatoes that have been packed in a re-used cardboard or fiberboard bin, tray or box shall be corrected, which may include tomatoes are segregated, washed and repacked in new containers, or discarded. Retraining is performed.

6. Packinghouse Condition and Equipment

Corresponds to Post-Harvest Operations Harmonized Standard section 1.13

A. General Building

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
6.1	Facility is constructed/ arranged to allow separation of incoming, in-process and finished products.	Facilities or processes assure separation and positioning of incoming raw materials so as not to become a source of contamination of in-process and finished product.	Auditor observes placement of incoming raw materials, in-process and finished products for opportunities for cross-contamination.	Procedures are developed or revised. Non-compliances are corrected on site. Retraining is performed.
6.2	Operation has procedures that minimize the accumulation of standing water.	If floor drains exist, they are adequate, functional, free of obstruction and are properly maintained and cleaned sufficient to prevent them from becoming sources of contamination. If standing water exists, it is removed from floors and floors cleaned in a manner and at a frequency sufficient to prevent creation of a source of contamination.	Auditor observes floor drains and evidence of standing water for compliance with procedures.	Floor drains are installed, repaired or maintained, or procedures are modified, to prevent standing water from becoming a potential source of contamination.

B. Facility and Equipment

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
6.3	All food contact surfaces are made of material and designed to be easily cleaned and sanitized, and are maintained in good condition.	All tomato contact surfaces and equipment are made of materials, designed or constructed to be easily cleaned and sanitized, all food contact surfaces are free of rust or corrosion, and seams between food contact surfaces are smooth or accessible for cleaning.	Auditor observes product contact surfaces and equipment and their use for evidence of non-compliance.	Non-compliances are corrected or replaced. Operation makes a commitment for phasing out non-conforming tomato contact surfaces and equipment, in a reasonable timeline. Retraining is performed.

6.4	Wood is not used as a food contact surface.	Operation has eliminated, or has a plan to eliminate, use of wooden items as food contact surfaces	Auditor inspects facility for evidence of wooden food contact surfaces.	Operation that still utilizes wood as a food contact surface has a plan to phase out such surfaces, and is in compliance with the plan.
6.5	SDS are on file for all chemicals used in the facility, and readily accessible.	Operation maintains a list of all chemicals approved for use in facility and maintains SDS for all. SDS are in a location easily accessible by employees.	Auditor reviews SDS binder and observes chemicals in facility for evidence of compliance.	Obtain missing SDS. Relocate SDS.

7. Worker Health/Hygiene and Toilet/Handwashing Facilities

Corresponds to Post-Harvest Operations Harmonized Standard section 1.21

Item#	Requirement	Procedure	Verification	Corrective Action/Disposition
7.1	If portable hand wash water tanks are used, they are cleaned and sanitized and the water is changed periodically.	Water tanks used to provide hand wash water shall be maintained at a prescribed frequency in a clean and sanitary manner.	Auditor reviews cleaning and sanitizing protocol and service logs, and visually observes condition of water tanks for signs of non-compliance.	Clean and sanitize the tank, replace water to compliance.

8. Product Wash Water Management

Corresponds to Post-Harvest Operations Harmonized Standard section 2

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
8.1	In systems where tomatoes are submerged or dwell in water, water temperature is monitored and controlled. Water temperature should be at least 10°F above average pulp temperature of tomatoes when entering the water.	Operation shall have methods for determining average pulp temperature of a minimum of 5 tomatoes, a procedure for control of water temperature, shall monitor temperature at a prescribed frequency sufficient to assure continuous compliance (minimum of hourly), and shall maintain records of water temperature. Operation shall have a procedure as to what corrective actions are taken if criteria are not met. Water spray or shower systems, wherein tomatoes are not submerged or dwell, do not require temperature control.	Auditor shall review the procedure and shall review records of temperature monitoring. Auditor observes process including the operation's sampling of pulp and water temperatures. Auditor reviews records for deviations and their disposition.	Procedure is developed or revised. Retraining is performed. Tomatoes washed in water at temperatures less than the average measured pulp temperature shall be discarded back to the last evidence of compliance.
8.2	Operations utilizing spray systems in place of whole tomato immersion shall design the line so that the entire tomato surface is rinsed.	Spray systems shall be designed such that rinse water contacts all surfaces of the tomato.	Auditor observes spray system for compliance.	Equipment or process is redesigned or retrofitted to ensure all surfaces of tomato are contacted.
8.3	If a spray bar system is used, operation has a water use SOP that addresses treatment of that water.	Operation's water use SOP requires spray bar water to be treated using an approved antimicrobial to maintain a microbially hostile environment on equipment.	Auditor shall review water use SOP for completeness, and observes water treatment records for adequacy and consistency of treatment.	Operation discontinues using spray bar water that is not treated sufficiently to maintain a hostile environment on equipment. Retraining is performed and documented. Affected product is evaluated for potential contamination and disposition.

8.4	If water quality is based upon a chlorine-based sanitizer, the process shall be targeted to be at least 100 ppm free available chlorine (FAC), measured at the exit of the product from the water system, unless validation data are available to demonstrate a lower FAC is effective under operating conditions.	Operation shall have a procedure to manage FAC levels, shall establish process adjustments for when the FAC drops below 100 ppm, and shall maintain records to verify proper management of levels.	Auditor shall review the procedure and shall review records of FAC measurement and appropriate management. Auditor reviews records for deviations and their disposition.	Procedure is developed or revised. Retraining is performed. Tomatoes washed in water at FAC less than 100 ppm shall be discarded back to the last evidence of compliance.
8.5	If water quality is based upon a peroxyacetic, peracetic or peracid system, levels shall be maintained in accordance with manufacturer's label directions.	Operation shall have a procedure to manage peracid levels, shall establish process targets so as not to drop below the minimum ppm, shall establish adjustments for when the peracid level drops below the target ppm, and shall maintain records to verify proper management of levels.	Auditor shall review the procedure and shall review records of peracetic measurement and appropriate management. Auditor reviews records for deviations and their disposition.	Procedure is developed or revised. Retraining is performed. Tomatoes washed in water at less than manufacturer's recommendation shall be discarded back to the last evidence of compliance.

9. Quarantine or On-hold Materials

No corresponding section in Post-Harvest Operations Harmonized Standard

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
9.1	Materials placed on hold, quarantined or rejected are clearly identified and segregated from other products and packaging materials.	Operation has a written procedure to clearly identify and segregate on-hold, quarantined and rejected materials, to prevent commingling with other products or adulteration of products, production area or packaging materials.	Auditor reviews procedure, reviews logs and observes all currently on-hold, quarantined and rejected materials for compliance with procedure.	Non-compliances are corrected on site. If on-hold, quarantined or rejected materials are not segregated according to procedure, operation shall assess potential for product adulteration. Procedures are developed or revised. Retraining is performed.

10. Tomato Rerunning Processes				
No corresponding section in Post-Harvest Operations Harmonized Standard				
Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
10.1	Tomato lots shall not be commingled in a rerunning process. Boxes shall not be reused if prohibited by prevailing regulation or law.	Operation has a policy prohibiting commingling of tomato lots if lots are rerun.	Auditor reviews the policy, observes packing records and, if possible, example of rerunning process, for compliance.	Operation ceases commingling lots. Boxes with commingled lots are labeled with component tomato sources and lot identification. Policy is developed or revised. Retraining is performed.
11. Food Defense Awareness				
No corresponding section in Post-Harvest Operations Harmonized Standard				
Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
11.1	The facility is registered with FDA as required by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002.	If required by 21 CFR Part 1, Subpart H, facility is registered with FDA and registration is current.	Auditor asks whether facility is registered. Facility is not required to demonstrate registration to auditor.	Facility registers with FDA as required.
11.2	There are procedures in place that readily identify employees, and those with specific access privileges, e.g., to chemical storage, to the water system.	Operation has a written procedure for identifying current employees. Procedure also indicates which employees have access to restricted areas or materials, and how access is restricted.	Auditor reviews procedure, verifies list of special access employees, observes restricted areas and materials for evidence of compliance and interviews employees for knowledge of procedure.	Procedures are developed or revised. Retraining is performed.