

# 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*, 2<sup>nd</sup> 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*, 3<sup>rd</sup> 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.

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## Open Field Production, Harvest, and Field Packing

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**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.

<b>1. Management Responsibility</b>				
<b>Corresponds to Field Operations and Harvesting Harmonized Standard section 1.1</b>				
<b>Item#</b>	<b>Requirement</b>	<b>Procedure</b>	<b>Verification</b>	<b>Corrective Action/ Disposition</b>
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.
<b>2. Self-Audits</b>				
<b>Corresponds to Field Operations and Harvesting Harmonized Standard section 1.9</b>				
2.1	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, <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.

### 3. Field History and Pre-harvest Assessment

Corresponds to Field Operations and Harvesting Harmonized Standard sections 2.1 and 3.1

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
3.1	If the field is subject to flooding, operation has an established decision tree or corrective action plan in the event of flooding in the production area. Procedures prohibit harvest of product that has come into contact with flood waters.	Flooding is defined as the uncontrolled introduction of large amounts of water of unknown quality into the production area that is reasonably likely to come into contact with the edible portion of the crop, or otherwise cause adulteration of the crop. If the field is subject to flooding, procedure is established that includes a decision tree or corrective action to take in the event of flooding in a production area. Procedure specifies performance of a written risk assessment, which will consider whether there is an increased potential of contamination from the flood event. If warranted by the risk assessment, a no-harvest zone is positioned so that operations in the non-flooded zone are not compromised by the flooded zone; for example, 10 feet.	If the field is subject to flooding, auditor verifies that the operation has a policy/procedure regarding flooded fields. Auditor looks for evidence of flooding in the field. If the field has flooded since the last audit, the auditor observes the operation's risk assessment for current acceptability of the field and/or crop.	Operation develops a written procedure for flooded fields. Operation must obtain/develop a written risk assessment for the relevant field.
3.2	Operation shall conduct the required Combined Harmonized Standard 3.1.1. pre-harvest risk assessment no more than five (5) days from the first scheduled harvest date.	The environmental assessment is re-performed, and documented, for environmental conditions that reasonably may have changed since the last assessment, including flooding, adequacy of water sources for their intended use, adjacent land uses, animal migrations, debris, worker health and hygiene, or other potential sources of fruit adulteration.	Auditor reviews the re-assessment document, including corrective action documents for mitigations or deficiencies identified in the pre-production risk assessment, and confirms the assessment occurred within five (5) days of the first scheduled harvest date.	Operation develops or modifies the document, or reviews, as needed. Perform training as needed.

#### 4. Worker Health/Hygiene and Toilet/Handwashing Facilities

Corresponds to Field Operations and Harvesting Harmonized Standard section 2.2

Item#	Requirement	Procedure	Verification	Corrective Action/Disposition
4.1	A response plan is in place in the event of a major spill or leak of field sanitation units.	A written corrective response plan is developed and implemented in the event of a major leak or spill.	Auditor verifies existence of the plan and interviews the responsible person for knowledge.	Operation prepares or edits the plan. Retrain or replace the responsible person.
4.2	If 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.
4.3	Policies shall require hand washing with soap and potable water at the appropriate time, such as before starting work, after use of toilet facilities, after breaks and when hands may have become contaminated. Policy shall apply to employees, outside contractors, inspectors, and visitors. Compliance is emphasized by management.	Operation shall have a written SOP regarding hand washing practices. Operation management reinforces importance of and compliance with handwashing policy. Sanitizers may not be used in lieu of soap and water hand washing, but may be used to supplement. If gloves are used when contacting tomatoes or food contact surfaces, policies will clearly communicate that gloves are not a replacement for good handwashing practices.	Auditor observes handwashing practices of employees and visitors for compliance. If handwashing practices are observed to be compliant, auditor will judge management emphasis to be sufficient. Affected product is evaluated for potential contamination and disposition.	SOP is developed or revised. Retraining is performed. Management increases frequency of or approach to reinforcing hand washing policy.

4.4	If gloves are used, there must be a written SOP regarding their use.	If gloves are used for product or food contact purposes, operation shall have a written policy and SOP regarding their use, maintenance and disposal, including cleaning of reusable gloves, not taking gloves into restrooms or eating areas, replacing gloves that may be damaged or have become a source of contamination. The SOP should also address limitations of use of non-sanitary gloves (i.e., work gloves). The SOP will require that reusable gloves shall not be taken home by workers for cleaning and sanitizing.	If gloves are used, auditor reviews the SOP, records of SOP performance, and visually verifies that glove use is consistent with the SOP; i.e., gloves at the beginning of tomato handling activities are clean and not damaged; workers are observed to not take gloves into restrooms or eating areas; and that gloves are not taken into restrooms or eating areas.	SOP is developed or revised. Non-compliances are corrected on site. Retraining is performed.
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**5. Pesticides**

**Corresponds to Field Operations and Harvesting Harmonized Standard section 2.3**

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
5.1	<b>Pesticide Usage</b> Water used to mix pesticides meets FDA <i>E. coli</i> standards for water in 21 CFR § 112.44(a); i.e., no detectable generic <i>E. coli</i> in 100 mL of agricultural water.	Operation has a written policy requiring foliar-application pesticides to be diluted only with water that meets FDA microbial standards for post-harvest agricultural water. Operations will have documentation demonstrating compliance, such as test results for the water source used.	Auditor reviews the policy and inspects pesticide mixing and application records.	Operation develops a written policy. Retraining of pesticide applicator as needed. If unknown or non-drinking quality water was used to prepare pesticides, then test the water source for compliance with FDA <i>E. coli</i> standards for post-harvest agricultural water. Do not harvest product unless water test results demonstrate compliance.

## 6. Water Used in Growing Activities

Corresponds to Field Operations and Harvesting Harmonized Standard section 2.4

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
6.1	<b>Non-Foliar</b> The water test meets FDA <i>E. coli</i> standards for foliar application water as described in 21 CFR § 112.44(b).	Written procedure requires a BAM or other testing procedure validated for generic <i>E. coli</i> quantitation in water.	Auditor reviews water test results and any corrective actions taken to bring the water source into compliance.	Perform a sanitary survey for each affected water source, perform any remedial action as required and retest. If the retest also exceeds the standard, further evaluate potential corrective actions, such as treatment, retreatment, or discontinue use of source.
6.2	<b>Foliar</b> The water test meets FDA standards for water in 21 CFR § 112.44(a); i.e., no detectable generic <i>E. coli</i> in 100 milliliters (mL) of agricultural water.	Written procedure requires a BAM or other testing procedure validated for generic <i>E. coli</i> quantitation in water.	Auditor reviews water test results and any corrective actions taken to bring the water source into compliance. If tomatoes have been contacted with non-compliant water, auditor reviews the risk assessment and disposition.	Perform a sanitary survey for each affected water source, perform any remedial action as required and retest. If the retest also exceeds the standard, further evaluate potential corrective actions, such as treatment, retreatment, or discontinue use of source. Operation shall evaluate tomatoes that have been contacted with non-compliant water to assess food safety risk. The assessment is documented and tomatoes dispositioned accordingly.

<b>7. Soil Amendments</b>				
<b>Corresponds to Field Operations and Harvesting Harmonized Standard section 2.6</b>				
<b>Item#</b>	<b>Requirement</b>	<b>Procedure</b>	<b>Verification</b>	<b>Corrective Action/ Disposition</b>
7.1	If fertilizers containing manures or composts are used, only properly treated (composted or heat treated) manures are allowed for use in fields. Biosolids are not permitted.	Soil amendment use records are available, reviewed and current (conventional or organic). If treated manures are used, records of composition, dates of treatment, methods utilized, application dates and letter of guarantee, certificate of analysis (COA) or any test results or verification data demonstrating compliance with process or microbial standards must be documented. For non-composted animal by-products-containing soil amendments, the operations shall retain a certificate or letter showing the lethality of the process. Compost applications shall be no less than 45 days prior to harvest.	Auditor reviews the amendment use documents and records demonstrating compliance with prevailing national or local established composting or heat treatment standards or guidelines.	Operations must obtain the necessary documents. If the documents cannot be obtained, field cannot be harvested for that crop cycle.
<b>8. Sanitizing Agents Used During Harvest</b>				
<b>Corresponds to Field Operations and Harvesting Harmonized Standard section 2.7</b>				
<b>Item#</b>	<b>Requirement</b>	<b>Procedure</b>	<b>Verification</b>	<b>Corrective Action/ Disposition</b>
8.1	All compounds used to clean or sanitize food contact containers, tools, utensils, equipment or other food contact surfaces are approved for that use by the US EPA, FDA or other prevailing agency. Actual use conforms to label directions.	Documentation is available to demonstrate that cleaning and sanitizing products are approved for their use and are used according to label directions. Sanitizing chemicals uses shall be documented.	Auditors review documentation and supplies to confirm approved use, and interview individuals responsible for their use for knowledge of approved use. Auditor reviews records of use, and visually observes use, to verify compliance with label directions.	Non-compliances are corrected on-site. Records are reviewed for potential product adulteration. Retraining is performed.

## 9. Product Containers

Corresponds to Field Operations and Harvesting Harmonized Standard section 2.7.2 and 3.3

Item#	Requirement	Procedure	Verification	Corrective Action/ Disposition
9.1	All compounds used to clean or sanitize food contact containers, tools, utensils, equipment or other food contact surfaces are approved for that use by the US EPA, FDA or other prevailing agency. Actual use conforms to label directions.	Documentation is available to demonstrate that cleaning and sanitizing products are approved for their use and are used according to label directions. Sanitizing chemicals uses shall be documented.	Auditors review documentation and supplies to confirm approved use, and interview individuals responsible for their use for knowledge of approved use. Auditor reviews records of use, and visually observes use, to verify compliance with label directions.	Non-compliances are corrected on-site. Records are reviewed for potential product adulteration. Retraining is performed.
9.2	Reusable product bins, trays and containers are made of impervious materials that can be cleaned and sanitized.	Written SOP requires that all re-usable product containers are made of materials that can be sanitized, or clean and sanitary liners are used. Wood is not an appropriate food contact surface. Procedures require damaged containers that are no longer easily cleanable or sanitary shall be removed from service of food contact purposes.	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 makes a commitment for phasing out non-conforming product containers; e.g., wooden bins, in a reasonable timeline. Retraining is performed.

9.3	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.	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.
9.4	SOP specifies that workers do not remove harvest buckets from the field.	Written SOP prohibits taking harvest buckets home.	Auditor reviews SOP and observes practices related to handling of harvest buckets.	Policy is developed or revised. Retraining is performed.

## 10. Field Packing of Tomatoes

Corresponds to Field Operations and Harvesting Harmonized Standard section 3.4

Item#	Requirement	Procedure	Verification	Corrective Action/Disposition
10.1	Packing containers shall be labeled as to their source, and to identify that the product has been field packed.	Cartons or other primary packaging shall be labeled accurately and shall clearly communicate the tomatoes were packaged in the field.	Auditor observes packaging for accuracy and is clearly labeled as field packed.	Operation ceases to use non-compliant packaging or labeling. Non-compliances are corrected on-site.