

**BEST MANAGEMENT PRACTICES  
FOR THE  
PRODUCTION OF FRESH TOMATOES  
PRODUCED BY MEMBERS OF THE  
CALIFORNIA TOMATO FARMERS**



**2008 Season  
Adopted May 20, 2008**

## PROGRAM OVERVIEW

Safe production and packing of fresh tomatoes depend upon the diligent efforts and food safety commitment of all involved in the growing, packing, and transport of fresh tomatoes. There are guidelines for receivers and users of fresh tomatoes, which if ignored, may undo the efforts of the grower and packinghouse to ensure that tomatoes are produced under the highest standards for food safety. No single resource document can anticipate every food safety issue or provide answers to all food safety questions.

In 1998, the U.S. Food and Drug Administration (FDA) issued its "Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables." The practices outlined are known as Good Agricultural Practices or GAPs. California Tomato Farmers Best Management Practices (BMPs) are the GAPs of the *Fresh Standard for Food Safety*. GAPs and BMPs provide general food safety guidance on critical production steps where food safety might be compromised during the growing, harvesting, transportation, washing, packing and storage of fresh produce.

California Tomato Farmers BMPs seek to minimizing microbial food safety hazards by providing actions, based on the best available science, that have been shown to be effective to minimize microbial contamination of fresh tomatoes. This document is to be considered a work in progress and shall be updated as the best available science supports amendments to recommendations and/or requirements that follow.

The BMPs of California Tomato Farmers have been developed in accordance with the 2008 Edition of Commodity Specific Guidance for Fresh Tomatoes, a joint effort of the North American Tomato Trade Work Group, United Fresh Produce Association, Florida Tomato Exchange, and California Tomato Farmers. The BMPs take into account recent investigations and directives of the FDA applicable to the production of fresh tomatoes. In addition, California Tomato Farmers have incorporated recommendations of our Advisory Committee that is composed of representatives from government, scientists, customers, and labor.

The BMPs and the accompanying audit checklists have been reviewed by the U.S. Department of Food and Agriculture, the agency responsible for the verification of these practices in the production of fresh tomatoes by members of California Tomato Farmers.

There are a number of requirements related to the implementation of the *Fresh Standard for Food Safety* that are beyond that detailed in the BMPs. Those requirements, including the requirements of *Spray Safe*, are contained in the Operational Policy for 2008 that is contractually binding upon all members.

In an effort to establish a national standard for the safe production of fresh tomatoes, the *Fresh Standard for Food Safety* shall compliment that of the Florida statute regulating fresh tomato production, in scope and content, where possible, until such time there is a true national standard established by the U.S. Food and Drug Administration.

## **1. Prerequisites for the CTF Member in the Field**

The safe production of fresh tomatoes begins in the field prior to the preparation of land. From land selection to the harvest process, growers set the standard for food safety that is to be maintained throughout the supply chain.

- 1) Members shall designate an individual responsible for their food safety program. Non-compliance shall result in an automatic failure of USDA verification audits.
- 2) Members shall demonstrate compliance with the CTF BMPs by participating in a CTF approved Food Safety policy seminar. Attendance shall be by the member or his appointed representative(s) responsible for food safety programs. Non-compliance shall result in an automatic failure of USDA verification audits.
- 3) Members shall demonstrate compliance with the BMP of the CTF that is based upon, but not inclusive of, the 2008 edition of the Supply Chain Guidance for Fresh Tomatoes developed by United Fresh Produce Association, California Tomato Farmers, Florida Tomato Exchange, in conjunction with FDA and USDA, through successfully passing a USDA verification audit on each ranch farmed.
- 4) Members shall have written policy to record compliance with the BMPs and the resulting corrective actions required as a result of any operation/activity failing to meet the CTF BMP. Non-compliance shall result in an automatic failure of USDA verification audits.
- 5) At any time a member is found to have an immediate food safety risk, such as fruit being contaminated as the result of flooding, urination or fecal contamination, corrective actions shall be taken and a recall conducted if required. If discovered at the time of an audit, an automatic failure of the USDA verification audit shall occur.

## **2. Minimizing Risk in the Field – Farm Management**

The development of good agricultural practices for field tomato production must consider all the elements of the field production system; field site, land use, adjacent land use, irrigation water, workers, production practices and harvesting procedures. Microbial contamination can occur from a number of sources and management and evaluation of these risks are essential to producing fresh tomatoes. Members are required to conduct environmental assessments on each field where tomatoes are produced.

### Field History

Member shall determine previous usage of land if at all possible and should assess potential sources of contamination on land used, including land that may have been used for toxic waste disposal or a landfill. If in doubt, employ soil testing to ensure soil is free from E. coli O157:H7 and Salmonella. The member shall be required to document what sources are used to determine the adjacent land use history and all mitigation measures.

- 1) Verify to the extent possible, providing documentation to substantiate:
  - i) No animal husbandry has been conducted on the farm.
  - ii) No toxic waste disposal has been conducted on the farm.
  - iii) No incinerator waste has been disposed of on the farm .
  - iv) If the land was previously used as a landfill, history is available and an audit shows no documented risk.
- 2) The environmental assessment shall include a general description or map that includes: topography, land history, adjacent land use and movement of domestic animal and wildlife presence.
- 3) Tomato fields should not be located in any area that can receive runoff or drainage or drift from an animal operation or any other source of contamination. When in doubt:
  - i) Establish a berm or buffer to avoid, prevent or mitigate run-off into the field from animal contamination.
    - (a) There is no scientific basis for a given distance for berms or buffers. Where berms or other buffers are required, the member shall consult with the designated food safety representative of the company or other qualified professional to establish and document the rationale employed in the measures undertaken to prevent contamination.
  - ii) In the event of unforeseen run-off or drift from any animal operation, measures shall be enacted to minimize risk.
    - (a) Procedures used to mitigate risks shall be documented.
    - (b) If an event would increase the potential risk from runoff or flooding, the grower shall initiate appropriate soil testing in addition to mitigation measures.

#### Adjacent Land Use

Land adjacent to the farm should not pose a significant risk of contamination to the product. Hazards may include but not be limited to livestock, wildlife, landfills, chemical plants, etc. The member shall be required to document what sources are used to determine the adjacent land use history and all mitigation measures.

- 1) Determine if the adjacent land has or is being used for industrial purposes; if so, document that pollution control measures are sufficient to protect tomato fields from contamination.
- 2) Determine if the land is used for municipal waste storage; if so, document that waste is securely composted or secured. If in doubt as to the control measures, conduct analytical tests for heavy metals and toxins.
- 3) If land is used for animal husbandry, ensure that barriers are in place to prevent movement of animals or their waste into tomato fields, through a berm, fence, ditch, buffer zone, or other physical barrier appropriate to the situation.
  - i) There is no scientific basis for a given distance for berms or buffers. Where berms or other buffers are required, the member shall consult with the designated food safety representative of the company or other qualified

professional to establish and document the rationale employed in the measures undertaken to prevent contamination.

- 4) If land is used for storage of animal manure, ensure that it is composted and securely stored.
  - i) If required or questions remain as to the safety of the tomato farmland, conduct soil testing to ensure that fields are free from *E. coli* O157:H7 and Salmonella.
    - (a) All testing shall be conducted by a recognized lab. The protocol used for sampling shall be documented.

#### Animal Exclusion

- 1) Measures shall be taken to exclude domestic animals and livestock from tomato fields.
- 2) Wildlife or animal presence can not be excluded; if an identified risk is established, the risk should be minimized to the greatest extent possible, including the use of barriers or other wildlife deterrents, minimizing wildlife attractants and harborage, and/or redirecting wildlife to non-sensitive areas or incorporating of methods identified by wildlife experts.
  - i) If animal intrusion is detected, measures shall be taken to remove or prevent the harvest of any potentially contaminated product.
  - ii) Test any fruit suspected of contamination for *E. coli*: O157:H7 and Salmonella
    - (a) All contaminated fruit shall be disposed of.
    - (b) Portions of fields contaminated shall not be harvested.
- 3) Pest control
  - i) Establish and maintain a pest control program including removal of debris materials that might harbor or provide habitat for pest reproduction.
- 4) Environmental Review and Monitoring
  - i) Routinely review field environment and maintain records of findings and assessments.
  - ii) Conduct a final review not more than five days from the first harvest date.

### **3. Use of Soil Amendments and Pesticides**

- 1) It is recognized that members have licensed advisors and contractors who apply such materials. Most hold records related to their usage; in some cases, the member may have access to these records. Although not the subject of the CTF GAP verification audit, usage records must be maintained, including documentation of the following:
  - i) Pesticides are authorized for use on fresh tomatoes.
  - ii) That the appropriate pre-harvest intervals are respected.
  - iii) MSDS are available for all employees.
  - iv) All requirements of *Spray Safe* must be met at all times.

- 2) Water used in the application of all pesticides meets the requirements set forth in the CTF BMPs (See Section 4 of Field BMP).
- 3) Members shall use only soil amendments approved for use in the production of fresh tomatoes.
- 4) Each lot of organic soil amendment that DOES NOT contain animal manure must have a certificate that it is manure-free. The certificate may be in the form of an ingredient list, statement of identity, or letter of guarantee from the suppliers.
- 5) All manure should be properly composted and incorporated into the soil no less than 60 days prior to harvest or as provided under federal, state, or local regulations.

Soil amendments containing animal manure that has been physically heat-treated or processed may be used if the physical heat treatment processes applied to the soil amendment is done via a process validated to assure the process is capable of minimizing pathogens of human health significance to acceptable levels:

Requirements for Soil Amendments Containing Processed Manure

- |    |                             |  |
|----|-----------------------------|--|
| 1. | <i>Target Organism:</i>     | <i>Fecal coliforms and Salmonella</i>              |
| 2. | <i>Testing Frequency:</i>   | <i>Supplier provided prior to use</i>              |
| 3. | <i>Acceptance Criteria:</i> | <i>Fecal Coliforms: Negative &lt;1000MPN/grams</i> |
|    |                             | <i>Salmonella: Negative &lt;1/30 grams</i>         |
|    |                             | <i>E. coli O157:H7: Negative &lt;1/30 grams</i>    |

**4. Irrigation Water Use in the Field**

Wherever water comes into contact with fresh produce, the quality of the water may directly determine the potential for pathogen contamination. Water may be the most important factor to consider in response to reducing the risk of microbial contamination because of its presence at nearly all stages of growth. Contaminated water may come into contact with soil, equipment, or containers, which in turn come into contact with fresh tomatoes.

Water Source

Growers are to evaluate irrigation methods (drip vs. furrow) for their potential to introduce, support, or promote the growth of pathogens. Consider factors such as the potential for depositing soil on the crop, measures required to avoid the presence of pooled or standing water. When waters from various sources are combined, consider the potential for pathogen growth in the water. For surface water sources, consider the impact of storm events on irrigation.

- 1) Document the source of water for irrigation for each crop.
  - i) Use irrigation water that is of appropriate microbial quality for its intended use, within the acceptance levels established.
    - (a) Document the source of water used for irrigation.

(b) Conduct water testing once each production cycle or more often if required due to the potential variability in the quality of the water source; if municipal water sources are used, there is evidence of testing or certification from the supplier.

(c) A remedial action plan must in place to address positive samples.

- 2) Ensure that any well used is properly designed, constructed and maintained in such a way as to prevent contamination.
- 3) Any ditch, channel or on-farm reservoirs are inspected and cleaned routinely.
- 4) Ensure any water being utilized for irrigation is not contaminated with animal or human feces and meets the standard for *E. coli* in recreational waters contained in 40 CFR Part 131.41(c), (< 126MPN/100ml generic *E. coli*). (See testing requirements)
- 5) Any foliar application of pesticides may only be mixed with water that meets the microbial standards for potable water as established by the U.S. Environmental Protection Agency as set forth in 40 CFR Part 141.63 (<2 MPN/100ml generic *E. coli*). (See testing requirements)

#### Irrigation Water Testing Requirements – Non-Foliar

1. *Target Organism:* *Fecal coliforms*
2. *Testing Frequency:* *Not less than once each crop production cycle*
3. *Test Method:* *15 tube MPN, (FDA BAN), or other US. EPSA, AOAC, or other method accredited for quantitative monitoring for generic *E. coli*.*
4. *Acceptance:* *<235 MPN/100 ml single, or, in the event of >235/100 ml on the initial testing, <126 MPN/100 ml based upon a rolling geometric mean of five samples for generic coliforms.*

#### Remedial Action Required:

1. If any one sample exceeds the acceptance criteria, then the water shall not be used for the purpose unless appropriate disinfectants have been added or until remedial actions have been completed and the generic *E. coli* levels are within the acceptance criteria.
2. Conduct a sanitary survey of water source(s) and the distribution systems to determine if a contamination source is evident and can be eliminated. Eliminate contaminated water source.
3. Test water supply for five days, approximately 24 hours apart, closest to the point of use.
4. If any of the samples are outside the metric, repeat survey of remedial action.
5. Test the product for the presence of *E. coli* O157:H7 and *Salmonella*; if positive, do not market, and follow your established recall and/or disposal policy.

### Irrigation Water Testing Requirements – Foliar

- |    |                           |   |
|----|---------------------------|---|
| 1. | <i>Target Organism:</i>   | <i>Fecal coliforms</i>                      |
| 2. | <i>Testing Frequency:</i> | <i>Not less than once per water source</i>  |
| 3. | <i>Acceptance:</i>        | <i>Less than 2MPN/100ml generic E. coli</i> |

#### Remedial Action Required:

1. If any one sample exceeds the acceptance criteria, then the water shall not be used for the purpose unless appropriate disinfectants have been added or until remedial actions have been completed and the generic E. coli levels are within the acceptance criteria.
2. Conduct a sanitary survey of water source(s) and the distribution systems to determine if a contamination source is evident and can be eliminated. Eliminate contaminated water source.
3. Test water supply for five days, approximately 24 hours apart, closest to the point of use.
4. If any of the samples are outside the metric, repeat survey of remedial action.
5. Test the product for the presence of E. coli O157:H7 and Salmonella; if positive, do not market, and follow your established recall and/or disposal policy.

## **5. Employees and Harvest Crews**

Ensure that production and harvest contractors and crews are aware of food safety risk reduction principles and that they agree to adhere to the firm's practices.

### Written Policies and Employee Training

- 1) Members shall develop and implement written GAP and Employee Hygiene Practices applicable to workers and visitors.
- 2) All employees shall receive mandatory safe product handling and personal hygiene education at time of hire with periodic reinforcements as provided for under company SOPs.
- 3) Training sessions shall be documented, with records kept of topics covered, date, names and signatures of those in attendance.
- 4) Periodic (e.g., daily, weekly, monthly, quarterly, as appropriate) self-audits shall be used to verify and document compliance with worker hygiene and sanitation policies and practices.

### Cleanliness/Sanitation for Workers

- 1) Sanitation facilities shall be provided for all field workers and visitors during harvest activities. Toilet facilities shall be provided with a minimum of one per twenty employees and readily accessible, located not more than ¼ mile of all employees.

- 2) Toilet facilities shall be located and serviced in a manner to not be a source of contamination of the field. Grey water shall be captured and disposed of away from the field.
  - i) In the event of a spill or leak, a response plan is in place.
- 3) Toilet facilities shall have appropriate hand washing stations, with signs in the appropriate language reminding workers to wash their hands after using the toilet.
  - i) Portable hand washing units are cleaned and sanitized according to a written schedule.
- 4) Toilet facilities shall be maintained in a clean and sanitary condition and properly stocked with soap and water for hand washing that meets the microbial standard for potable water, single use towels, toilet paper, etc. and a written record of cleaning shall be kept.
  - i) Toilets shall be made of cleanable materials.
  - ii) There shall be a program for the disposal of used toilet paper.
- 5) Restroom cleaning equipment shall be labeled and segregated so as not to pose a risk of contamination.
- 6) Policies shall require hand washing with soap and water at the appropriate time such as before starting work, after breaks, using the restrooms, sneezing, or coughing.
- 7) If gloves are used in the harvest of fresh tomatoes, the appropriate policy is followed:
  - i) Disposable Gloves
    - (a) The use of single use disposable gloves for the harvesting of tomatoes is not recommended. Should disposable gloves be used:
    - (b) Proper use of gloves requires hands to be washed before putting on gloves.
    - (c) Hand sanitizers may be used on gloves, but not as a substitute for proper washing of hands.
    - (d) Disposable gloves must be changed after meals, smoking, using toilet facilities, any process involving handling of materials other than tomatoes or when the gloves have become torn, soiled or otherwise contaminated.
  - ii) Reusable Gloves
    - (a) Reusable gloves are recommended for harvesting, and the following requirements shall apply.
    - (b) The gloves must be made of materials that can be readily cleaned and sanitized.
    - (c) It is the responsibility of the company to ensure that gloves are washed in hot water ( $\geq 140^{\circ}\text{F}$ ) and sanitized daily before reuse, following a validated procedure to eliminate any potential contamination of public health concern. Gloves shall not be permitted to be taken home by workers for cleaning and sanitizing.
    - (d) Appropriately cleaned and sanitized gloves shall be issued each day and at such times as needed during the day. Reusable gloves must be changed after meals, smoking, using toilet facilities, any process

- involving handling of materials other than tomatoes or when the gloves have become torn, soiled or otherwise contaminated.
- (e) Gloves that have come in contact with the ground or other non-food contact surfaces shall be changed.

### Health

- 1) Supervisors are trained to recognize employees with symptoms of potentially infectious disease.
  - i) Worker health policies shall restrict employees with symptoms of diarrhea, fever, vomiting or other potentially infectious illnesses from working with or in the vicinity of tomatoes or tomato contact surfaces.
- 2) Employees with open sores, cuts, burns, boils, etc., shall report to a supervisor before working. The supervisor shall determine if the employee will be allowed to work with or in the vicinity of tomatoes or tomato contact surfaces
- 3) Establish and communicate a clear policy that allows workers who report or are observed to have diarrhea or symptoms of illness that could impact food safety to be reassigned to activities that do not involve food contact.

### Hygiene

- 1) Employees shall have designated areas for eating, drinking, smoking, breaks, personal effects, etc.
- 2) There shall be a written policy prohibiting eating, drinking, chewing gum, and using tobacco in a field where harvesting is taking place.
- 3) Drinking water shall be provided in single use cups.
- 4) There shall be a written policy restricting jewelry in the field.
- 5) Other good food handling techniques shall be developed as appropriate to the specific operation to prevent cross contamination. Document and monitor worker hygiene and sanitation practices and improve practices through training and education.

### First Aid Policy

- 1) Worker health policies shall restrict employees with symptoms of diarrhea, fever, vomiting or other potentially infectious illnesses from working with or in the vicinity of tomatoes or tomato contact surfaces.
- 2) Employees with open sores, cuts, burns, boils, etc., shall report to a supervisor before working. The supervisor shall determine if the employee will be allowed to work with or in the vicinity of tomatoes or tomato contact surfaces. Policy is

established related to the handling/disposition of tomatoes or food contact surface that have come into contact with blood or bodily fluids.

## **6. Harvest Process/Containers/Transport**

Field packing of tomatoes is prohibited. Members must process tomatoes through a recognized member packinghouse.

### Harvest Process

- 1) Conduct an environmental assessment no more than five days prior to harvest, to include wildlife movement, run-off or standing water, or other factors that may contribute to an increased risk of microbial contamination.
- 2) Chemical applications at the time of harvest, including in-field sanitizing agents or any product making an anti-microbial claim on tomatoes, must be in compliance with all requirements of EPA registration, and any federal, state, or local regulation.
- 3) Harvesting tools shall be constructed of impervious materials that can be cleaned and sanitized using chemicals that comply with all requirements of EPA registration, and any federal, state, or local regulation. Use of wooden items and surfaces has been eliminated or reduced.
- 4) Tomatoes contaminated with fecal matter shall not be harvested.
- 5) A tomato that has separated from the plant and fell onto the ground prior to harvest shall not be recovered from the ground.
- 6) Dirt, stems and leaves and debris should be removed from tomatoes to the degree possible in the field, in a manner that does not pose a risk of contamination.
- 7) Diligent removal of injured fruit to the degree possible will provide the best opportunity to reduce microbial contamination.
  - i) To the degree possible, tomatoes in the damaged, soft or decayed tomatoes category should not be harvested to minimize microbial contamination.

### Harvest Containers

- 1) Harvest implements, such as buckets and totes, should be cleaned and sanitized as necessary according to written, established schedules.
  - i) Harvest implements are used only for the product being harvested.
  - ii) Any corrugated cardboard items are used one time only.
- 2) Workers shall not be allowed to remove harvest bucks from the field.
- 3) Bins, buckets, and totes, shall be stored in a secure location.

### Harvest Transport

- 1) Any containers used to hold tomatoes that are received back from a packinghouse must be checked for cleanliness prior to use.
  - i) Where bins or gondolas are employed to transport tomatoes from the field to the packing shed, that they are maintained in a clean, operational condition.
  - ii) When used to transport tomatoes from the field to the packing shed, tomatoes shall be packed into containers for that specific purpose, are not identifiable as final packaging, and are maintained in clean, operational condition.
  - iii) Vehicle use in the field is done in a manner that prevents contamination of product.
- 2) Clean and sanitize harvest containers or bins at least weekly, more often if needed, to remove sand, grit, dirt, and other residue.

### Equipment Sanitation

- 1) Product contact tools are made of stainless steel or other cleanable material.
- 2) Any surfaces or equipment intended to, or that touches fresh produce is a food contact surface and must be cleaned according to a written schedule so to prevent the surfaces from becoming a source of contamination.
- 3) All compounds used to clean finished product tools, surfaces or equipment that comes in contact with fresh tomatoes shall be approved for that use by the US EPA, FDA, or other appropriate agency.
- 4) Tools, utensils, containers, or knives, will be stored in a location where they cannot contaminate tomatoes.

## **7. Product Labeling/Recall/Traceability**

All levels of the tomato supply chain shall maintain adequate traceability, to a minimum of one step forward (next recipient) and one step back (immediate previous supplier). California's Food and Agriculture Code, Article 43, provides specific regulations for fresh tomatoes produced in California. In addition, the CTF provides:

- 1) The member shall maintain adequate records relating to the production of the crop, including the source of all agricultural-based products, (e.g., seed lot, transplants, pesticides, fertilizers) used in the production of the crop, and the disposition of the crop, e.g., the packinghouse.
  - i) All appropriate records will be made available to the packinghouse to assist in their trace back and recall programs.
- 2) If contaminated product is discovered, the member shall initiate his recall program and inform the member packinghouse of the discovery.

## **8. Record Keeping**

- 1) Records shall be maintained for two years documenting adherence to these BMPs, including those addressing environmental review, water usage, record of completed education and training, pest control and crop production practices for the operation must be maintained and producible on demand of the USDA auditor or his appointed representative.

## 1. Prerequisites for the CTF Approved Packinghouse

A well-designed and operated central packing facility can contribute to the reduction of pathogen contamination, but not its elimination. Lapses in systems management can amplify localized contamination, broadly redistribute pathogens, and create opportunities for pathogen build up within the facility.

- 1) Members shall designate an individual responsible for their food safety program. Non-compliance shall result in an automatic failure of USDA verification audits.
- 2) Members shall register with the Secretary, California Department of Food and Agriculture, in compliance with Article 43, § 1472.7.2 of the California Ag Code, and meet all requirements set forth under the Ag Code for the packing of tomatoes. It is recommended, but not required, that members who repack meet the requirements set forth in the 2008 edition of the Commodity Specific Food Safety Guidelines for the Fresh Tomato Supply Chain.

### *§ 1472.7.2. Tomatoes, Registration of a Handler*

*(a) For purposes of this section, a handler is any individual or company that engages in the operation of selling, marketing, or distributing tomatoes that have been produced, purchased, or acquired from a producer, and are first marketed on behalf of a producer, whether as an owner, agent, employee, broker, or otherwise, but shall not include retailers or restaurants, and Certified Producers as defined in Section 1392.2.*

*(b) Prior to commencing packing, handlers shall register with the Secretary of the Department of Food and Agriculture. Registration shall be on a Department form and shall include only the following:*

- (1) The name, address (including zip code), and telephone number of the handler*
- (2) The name of the principal owner(s) of the company*

*(c) In the event of a suspected violation of this article, a handler shall provide, upon request of the Secretary or his representative, records related to field location, grower, harvest date, pack date, transporter, and purchaser of packed tomatoes. Such records shall be maintained for the current marketing year.*

- 3) Members shall demonstrate compliance with CTF policy by participating in a CTF approved Food Safety policy seminar. Non-compliance shall result in an automatic failure of USDA verification audits.
- 4) Members shall demonstrate compliance with the BMP of CTF that is based upon, but not inclusive of, the 2008 edition of the Commodity Specific Food Safety Guidelines for the Fresh Tomato Supply Chain developed by United Fresh Produce Association, California Tomato Farmers, Florida Tomato Exchange, in conjunction with FDA and

USDA, through successfully passing a USDA verification audit within the first 30 days of their operation during the 2008 season.

- 5) Members that pack and market tomatoes under contract to California Tomato Farmers shall provide evidence all tomatoes are from suppliers who are following the BMPs of the cooperative applicable for field production. Non-compliance shall result in an automatic failure of USDA verification audits.
- 6) Members shall employ the CTF issued Crisis Management Plan and will maintain a recall plan (see section 8). Non-compliance shall result in an automatic failure of USDA verification audits.
- 7) Members shall maintain for two years written records as provided for under Section 11 of this document and policy to record any corrective actions required as a result of any operation/activity failing to meet the CTF BMPs. Non-compliance shall result in an automatic failure of USDA verification audits.
- 8) At any time a packinghouse is found to have an immediate food safety risk, such as evidence of fruit being contaminated by blood, bodily fluids, or fecal matter, corrective actions shall be taken and a recall conducted if required. If discovered at the time of an audit, an automatic failure of USDA verification audit shall occur.

## **2. Harvest and Packaging Materials**

Please reference CTF BMP's for the Field for requirements on all totes, bins, and other containers used for harvest and transport to the member. The packinghouse is responsible for the development of a written plan that shall address the following requirements for transport of tomatoes from field to member:

### Transport Bins/Gondola

- 1) Where bins or gondolas are employed to transport tomatoes from the field to the packing shed, that they are maintained in a clean, operational condition.
  - i) When used to transport tomatoes from the field to the packing shed, tomatoes shall be packed into containers for that specific purpose, are not identifiable as final packaging, and are maintained in clean, operational condition.
- 2) Clean harvest containers or bins at least weekly, more often if needed, to remove sand, grit, dirt, and other residue.

### Boxes/Trays/Field Packing

- 1) When used to transport tomatoes from the field to the packing shed, tomatoes shall be packed into containers for that specific purpose, are not identifiable as final packaging, and are maintained in clean, operational condition.
- 2) Tomatoes may not be field packed during the 2008 season.

### Final Packaging

Members shall establish a written plan that will reduce the risk of contamination to finished tomato packaging by adopting a written plan that addresses each of the following issues:

- 1) Inspection of all packaging materials upon arrival.
- 2) Pallets used to store materials shall be visibly clean.
- 3) Bins, totes, cartons, RPC's or other containers that may contact fruit, are stored in a secure, clean location.
- 4) Reusable containers, such as RPCs, shall be clean and sanitized in accordance with SOPs.
- 5) Where corrugated containers are to be used for the packing of fresh tomatoes, they must be new and not previously used.
- 6) Finished produce containers are distinguished from those serving other purposes.
- 7) There is no evidence of rodent, bird, or insect infestations in the storage location.

### **3. Produce Washing and Wash Water**

Water used, both in the field and at the packinghouse, is a critical issue for achieving and maintaining food safety. When tomatoes are washed, the quality of post harvest water that contacts fresh produce during post harvest flume transport, cleaning, grading, and surface treatment application is widely recognized as an essential pathogen control point for fresh produce. Damaged or decayed fruit provides a potential source of contamination.

#### Debris Removal

- 1) Dirt, stems and leaves and debris should be removed from tomatoes to the degree possible, in a manner that does not pose a risk of contamination.
- 2) Debris shall not be allowed to collect in the dump tank.
- 3) Establish procedures to identify and remove injured and damaged tomatoes from dump tanks to reduce microbial contamination. To the degree possible, damaged, soft or decayed tomatoes should be removed whenever detected in order to minimize microbial contamination.

## Facility Management

- 1) Provide that there is not backflow from, or cross-connection between, piping systems that discharge wastewater or sewage and piping systems that carry water for the processing of fresh tomatoes.
- 2) Appropriate backflow prevention devices (e.g., air gaps, backflow valves) shall be used to protect water quality at the source and during distribution and use.

## Water Quality Management

The packinghouse shall follow Good Manufacturing Practices (GMPs) to ensure that all water is of adequate quality throughout all packing operations from start-up to the last packed unit. Water used in post-harvest operations must be changed as necessary for the given operation; water used in the first dump tank may need to be changed more frequently than water used in the subsequent tank.

Members shall use only water that meets the microbial standards for potable water as established by the U.S. Environmental Protection Agency as set forth in 40 CFR Part 141.63 (<2 MPN/100ml generic E. coli):

### Water Quality Testing Requirements

- |    |                           |   |
|----|---------------------------|---|
| 1. | <i>Target Organism:</i>   | <i>Fecal coliforms</i>                        |
| 2. | <i>Testing Frequency:</i> | <i>Not less than once per water source</i>    |
| 3. | <i>Monitoring:</i>        | <i>As provided for in written member SOPs</i> |
| 4. | <i>Acceptance:</i>        | <i>Less than 2MPN/100ml generic E. coli</i>   |

### Remedial Action Required:

1. If any one sample exceeds the acceptance criteria, then the water shall not be used for the purpose unless appropriate disinfectants have been added or until remedial actions have been completed and the generic E. coli levels are within the acceptance criteria.
2. Conduct a sanitary survey of water source(s) and the distribution systems to determine if a contamination source is evident and can be eliminated. Eliminate contaminated water source.
3. Test water supply for five days, approximately 24 hours apart, closest to the point of use.
4. If any of the samples are outside the metric, repeat survey and remedial action.
5. Test the product for the presence of E. coli O157:H7 and Salmonella; if positive, do not market, and follow your established recall and/or disposal policy.

## Dump Tank Management

- 1) An approved sanitizer shall be used in the dump tank water or spray line. Approved sanitizers shall include those registered for use in California, including but not limited to: Peroxyacetic Acid, Chlorine Dioxide, Free Chlorine, and Ozone. All sanitizers shall be used according to the manufacturer's recommendations.
  - i) Other disinfectants may be used, but must be registered with the U.S. EPA for its intended purpose, with the member following manufacturer recommendations for monitoring and limits, and the product must be documented to achieve a minimum 3 log reduction in Salmonella or like organisms.
  - ii) A log shall be used to record temperature, pH, sanitizer concentration and/or ORP.
- 2) Water temperature shall be monitored to maintain post harvest water a minimum of 10F over and above pulp temperature. Temperatures shall be recorded hourly.
- 3) Tomatoes shall not be submerged in more than one foot of water for more than two minutes total time.
- 4) Water is to be changed daily, or more often if required.
- 5) If water maintenance is based upon manual monitoring, chlorine levels, water temperature, free chlorine, and pH must be verified at least at start-up and not less than hourly thereafter and recorded in writing.
- 6) Chlorine concentration shall be no less than 150ppm of free chlorine. pH is to be maintained in the range of 6.5 to 7.5.
- 7) If water quality is based upon Oxidation Reduction Potential (ORP), maintain an ORP of at least 650 mV.
- 8) When monitoring oxidant concentrations electronically, the monitoring shall be verified against a back-up measurement system, such as an effective chemical test that measures disinfectant levels and pH, at start-up, preferably each hour but no more than every 2 hours thereafter, and recorded.
- 9) Electronic monitoring devices, including those for recording temperature, shall be calibrated at a frequency sufficient to achieve continuous accuracy.

## **4. Employee Hygiene**

CTF's requirement for the packing of fresh tomatoes is that packinghouse shall meet the requirements for grounds, processing, packing, holding of foods, equipment and utensils, sanitary facilities and controls, sanitary operations and processes and controls as provided for under 21 CFR Part 110 as appropriate to the facility or as follows:

### Written Policies and Employee Training

- 1) Facilities shall develop and implement written policy that includes Employee Hygiene Practices as provided for under 21 CFR Part 110.
- 2) All employees shall receive mandatory safe product handling and personal hygiene education at time of hire and at least annually.
- 3) Training sessions shall be documented, with records kept of topics covered, date, names and signatures of those in attendance.
- 4) Periodic (e.g., daily, weekly, monthly, quarterly, as appropriate) self-audits shall be used to verify and document compliance with worker hygiene and sanitation policies and practices.

### Hand washing and Toilet Facilities

- 1) Restrooms shall be available to all personnel (at least one toilet for every 20 employees) and located in proximity to the packinghouse, but should not be a source of contamination. Restrooms should not open directly into tomato handling areas.
  - i) Restrooms that do open directly into tomato handling areas should be equipped with self-closing mechanisms or have a maze-type entrance/exit.
- 2) Toilet facilities shall be maintained in a clean and sanitary condition and adequately stocked with soap, water for hand washing that meets the microbial standard for potable water (including hot water where available), single use towels, toilet paper, etc.
  - i) A written record of cleaning shall be kept.
  - ii) There shall be a program for the disposal of used toilet paper
- 3) Policies shall require hand washing with soap and water at the appropriate time such as before starting work, after breaks, visiting the locker rooms, using the restrooms, sneezing, coughing, touching any unsanitary surface or material or anytime hands become soiled.
  - i) Portable hand washing units are cleaned and sanitized according to a written schedule.
- 4) Hand-washing facilities shall be adequate in number and location, and be furnished with running water at a suitable temperature. Compliance with this requirement may be accomplished by providing:
  - i) Hand-washing and, where appropriate, hand-sanitizing facilities at each location where good sanitary practices require their use.
  - ii) Soap and water for hand washing that meets the microbial standard for potable water (including hot water where available).
  - iii) Sanitizers may not be used in lieu of proper hand washing, but should be used in addition to hand washing.
  - iv) Single use towels or air-drying devices.
  - v) Hand washing signs posted at all stations. Signs shall be multilingual or pictorial, as appropriate to the workforce

- vi) Refuse receptacles that are constructed and maintained in a manner that protects against contamination of tomatoes.
- vii) Provisions shall be in place for capture, disposal or drainage of gray water in a manner that prevents contamination of the environment.

#### First Aid Policy

- 1) Worker health policies shall restrict employees with symptoms of diarrhea, fever, vomiting or other potentially infectious illnesses from working with or in the vicinity of tomatoes or tomato contact surfaces.
- 2) Employees with open sores, cuts, burns, boils, etc., shall report to a supervisor before working. The supervisor shall determine if the employee will be allowed to work with or in the vicinity of tomatoes or tomato contact surfaces.
- 3) Members shall establish policy related to the handling/disposition of tomatoes or food contact surface that have come into contact with blood or bodily fluids.

#### Habits and Conditions

- 1) Employees shall have designated areas for eating, drinking, smoking, breaks, personal effects, etc. The designated area shall be described in written policy and/or by physical markings or barriers.
- 2) There shall be a written policy prohibiting eating, drinking, chewing gum, and using tobacco in facilities except in clearly designated areas.
- 3) Drinking water shall be provided and either single use cups or fountain.
- 4) There shall be a written policy restricting jewelry in the workplace.
- 5) Workers are trained that product dropped on the floor is to be discarded.
- 6) If gloves are used when contacting tomatoes or food contact surfaces, policies will clearly communicate that gloves are not a replacement for good hand washing practices, and that single use gloves must be replaced, and reusable gloves must be washed and sanitized, whenever they become soiled.
  - i) Disposable Gloves
    - (a) If gloves are used, the use of single use disposable gloves for packing of tomatoes is recommended.
    - (b) Proper use of gloves requires hands to be washed before putting on gloves.
    - (c) Hand sanitizers may be used on gloves, but not as a substitute for proper washing of hands.
    - (d) Disposable gloves must be changed after meals, smoking, using toilet facilities, any process involving handling of materials other than tomatoes or when the gloves have become torn, soiled or otherwise contaminated.

ii) Reusable Gloves

- (a) Reusable gloves are not recommended for packing; if used the following requirements shall apply.
- (b) The gloves must be made of materials that can be readily cleaned and sanitized.
- (c) It is the responsibility of the company to ensure that gloves are washed in hot water ( $\geq 140^{\circ}\text{F}$ ) and sanitized daily before reuse, following a validated procedure to eliminate any potential contamination of public health concern. Gloves shall not be permitted to be taken home by workers for cleaning and sanitizing.
- (d) Appropriately cleaned and sanitized gloves shall be issued each day and at such times as needed during the day. Reusable gloves must be changed after meals, smoking, using toilet facilities, any process involving handling of materials other than tomatoes or when the gloves have become torn, soiled or otherwise contaminated.
- (e) Gloves that have come in contact with the ground or other non-food contact surfaces shall be changed.

Education and Training

- 1) Employees shall be trained in basic food safety principles and records kept of those in attendance and topics covered.
- 2) Employees shall be trained in basic personal hygiene and records are kept of those in attendance and topics covered.
- 3) Supervisors are trained to recognize and look for symptoms of illness

**5. Plant Condition**

CTF's requirement for the packing of fresh tomatoes is that packinghouse shall meet the requirements for grounds, processing, packing, equipment and utensils, sanitary facilities and controls, sanitary operations and processes and controls as provided for under 21 CFR Part 110 as appropriate to the facility or as follows:

General Maintenance

- 1) Packinghouses shall provide for the separation of incoming fruit, in-process fruit, and finished product.
  - i) "Hold" or rejected product shall be identified and separated from other product.
- 2) Buildings, fixtures, and other physical facilities of the packinghouse shall be maintained in a clean and sanitary condition and shall be kept in repair sufficient to prevent food from becoming adulterated.
  - i) Grounds are to be reasonably free of litter and debris

- 3) There shall be no cross-connection between, piping systems that discharge wastewater or sewage and piping systems that carry water for the processing of fresh tomatoes.
  - i) Appropriate backflow prevention devices (e.g., air gaps, backflow valves) shall be used to protect water quality at the source and during distribution and use.
  - ii) Sewage disposal shall be made into an adequate sewer system or disposed of through other adequate means.
- 4) Trash and tomato waste shall be so conveyed, stored, and disposed of as to minimize the development of odor, minimize the potential for the waste becoming an attractant and harborage or breeding place for pests, and protect against contamination of food, food-contact surfaces, water supplies, and ground surfaces.
- 5) Outside dumpsters are located away from the packing facility, are contained, and the areas around them are kept reasonably clean.
- 6) Floors and roofs shall be kept in good repair.
  - i) Floor drains shall be adequate, functional and free of obstruction.

#### Facility Design

- 1) All food contact surfaces shall be of non-porous material.
- 2) All food contact surfaces shall be free of rust or corrosion.
- 3) Seams between food contact surfaces are smooth and accessible for cleaning.
- 4) Lights have shatterproof bulbs or covers in all areas where tomatoes are packed or held.
- 5) Any instruments used in the facility should not be made of glass and shall not contain potential contaminants, such as mercury.
- 6) Where workers walk over product contact surfaces, surfaces are protected by kick plates or other barriers.
- 7) Glass items are prohibited from packing or processing areas.
- 8) Motors in food handling areas have drop pans under them where leakage may occur.
- 9) All lubricants are of food grade.
- 10) Storage racks are free of rust.
- 11) Goods in storage areas are kept at least 6 inches from walls and are kept off the ground for cleaning and inspection.

## General Sanitation

- 1) A preventative maintenance program shall be established for the physical plant, processing, and packaging equipment.
- 2) Cleaning and sanitizing of utensils and equipment shall be conducted in a manner that protects against contamination of food, food contact surfaces or packaging materials. A master cleaning and sanitizing schedule shall be established.
  - i) A written cleaning crew schedule shall be kept current at all times.
- 3) Members shall establish written policy related to the general cleaning and sanitation of the facility, including maintenance of dump tanks, bump pads, brush rollers, and other equipment to minimize micro-abrasions or other damage to fruit. Although a set schedule may be workable, the volume of product handled may require more frequent attention to cleaning. Minor surface injuries such as micro-abrasions that might not result in the culling of a tomato have been shown to promote survival of pathogens, especially in combination with fruit waxes.
- 4) Members shall establish written policy related to the general cleaning and sanitation of the ripening and cooling rooms, and the related cooling systems. Storage and ripening rooms are to be kept clean and sanitary.
  - i) All walls, ceilings, and other surfaces shall be systematically and periodically cleaned to avoid the built-up of mold or other potential contaminant that may render the tomato susceptible to contamination.
  - ii) Temperature logs shall be maintained.
  - iii) Product is to be palletized to avoid direct contact with the floor.
  - iv) A perimeter between pallets and wall shall be maintained to facilitate visual inspection of pest control and sanitation.
  - v) Product on hold or rejected, shall be clearly identified and separated from other product.
  - vi) There is to be no storage of trash or waste, food, or other non-product items in the storage and/ripening rooms.
- 5) Non-contact surfaces of equipment used in the operation of the packing of tomatoes shall be cleaned as frequently as necessary to protect against the contamination of food.
  - i) Water from refrigeration drip pans shall be drained and disposed of away from holding and preparation areas.
- 6) Storage rooms shall be maintained in an orderly manner. Cleaning compounds, sanitizing agents, pesticide chemicals and other facility chemicals shall be identified, held, and stored in a manner that protects against contamination of food, food-contact surfaces, or food-packaging materials. Food-grade and non-food grade chemicals shall be segregated from each other. All relevant regulations promulgated by Federal, State, and local government agencies for the application, use, or holding of these products shall be followed.
- 7) No surface water or untreated water shall be used in the cleaning of the packinghouse.

## **6. Pest Control**

- 1) Effective measures shall be taken to exclude pests from the tomato handling areas and to protect against the contamination by pests. This shall be accomplished through the implementation of a written pest control program by a licensed pest control operator.
  - i) Packinghouses and storage areas shall be kept clear of immediate threats from pest infestation.
  - ii) A visual inspection shall document that the facility is free from significant pest infestations (birds, rodents, insects).
  - iii) Potential nesting or hiding places for pests are to be eliminated or cleaned.
- 2) The pest control plan shall include, but not be limited to:
  - i) Registered insecticides or rodenticides are permitted only under precautions and restrictions that will protect against the contamination of food, food-contact surfaces, and food-packaging materials.
  - ii) Use of any traps be identified by label or number and coincide with the master plan including maps, logs, or other appropriate records, and shall include all areas of the member.
    - (a) Traps shall be located in a manner to be accessible for inspection.
    - (b) Any use of bug zappers shall be limited to three meters distance from tomatoes.
  - iii) Domestic animals shall be prohibited from the facility.

## **7. Facility Supplies and Equipment**

CTF's requirement for the packing of fresh tomatoes is that packinghouse shall meet the requirements for grounds, processing, packing, equipment and utensils, sanitary facilities and controls, sanitary operations and processes and controls as provided for under 21 CFR Part 110 as appropriate to the facility or as follows:

- 1) Cleaning equipment and tools shall be maintained in an orderly manner.
- 2) Cleaning compounds, sanitizing agents, pesticide chemicals and other facility chemicals shall be identified, held, and stored in a manner that protects against contamination of food, food-contact surfaces, or food-packaging materials.
  - i) Food-grade and non-food grade chemicals shall be segregated from each other. All relevant regulations promulgated by Federal, State, and local government agencies for the application, use, or holding of these products shall be followed.
- 3) All materials used to clean and sanitize food contact surfaces shall be approved for that use by U.S. EPA, FDA, or the appropriate agency.
- 4) All waxes, coatings, or chemicals applied to the product are approved by the U.S. EPA, FDA, or the appropriate agency for the designated use and are used according to label instructions.

- i) MSDS are on file for all materials used
  - ii) A log or inventory of these materials is maintained
- 5) Loading docks shall be kept clean.
- 6) Ripening and cooling rooms shall be maintained as provided for under Section 5.

## **8. Product Labeling/Recall/Traceability**

All levels of the tomato supply chain shall maintain adequate traceability, to a minimum of one step forward (next recipient) and one step back (immediate previous supplier). California's Food and Agriculture Code, Article 43 § 1472, provides specific regulations for fresh tomatoes produced in California. In addition, the CTF provides:

- 1) Documentation of packed tomatoes shall include sufficient information about the source (i.e., grower, production location, lot identification, personnel/crew involved in the harvest of the product) as well as the customer receiving the product to allow for the appropriate tracing of product.
  - i) The grower shall be able to document the source of agricultural inputs used in each lot of tomatoes handled by the packinghouse.
- 2) Corrugated containers for the packing of fresh tomatoes shall be new, and accurately labeled with commodity name, member name, and lot identification sufficient to allow for accurate trace back.
- 3) If using reusable containers, (e.g. Reusable Plastic Containers - RPCs), they shall be clean and sanitized before reuse. Ensure that labels are accurate prior to reusing for packing.
- 4) A traceability system to track tomatoes back to supply source and forward to customers shall be developed and tested annually. A record of this test shall be kept on file.
  - i) Traceability records shall be readily available for USDA auditors.
- 5) Tomatoes that are repacked must be done in compliance with California Agriculture Code, Article 43 § 1472.7.1, and shall maintain traceability established by the original shipper and/or grower:

### *§ 1472.7.1. Tomatoes, Registration of Commercial Repackers*

*(a) A commercial repacker is a person or firm who is engaged in repacking of tomatoes in used containers, and has facilities for receiving, storing, and grading tomatoes. Every commercial repacker shall register with the Secretary of the Department of Food and Agriculture. Registration shall be on a Department form and shall include only the following:*

- (1) The name, address (including zip code), and telephone number of the repacking company;*
- (2) The name of the principal owner(s) of the repacking company.*
- (3) The address of each location where the tomatoes are being*

*repacked.*

*(b) Registration shall be valid for one year beginning April 1 and ending March 31 of the following year.*

*(c) To be approved by the Secretary, repacking facilities shall have the following:*

*(1) Lighting adequate for inspection by an enforcing officer;*

*(2) Tables for grading and sorting tomatoes;*

*(3) A drinkable water supply;*

*(4) Approved weighing scales for assuring quantity of containers packed to net weight.*

- 6) The company shall document the establishment of a recall action team, product complaint log, a flow chart or other means to identify the steps to be taken in the recall process, a plan for product recovery, and annually conducts a successful mock recall.
- 7) The member maintains adequate record of the sale of product, the disposition of unsold product and the source of all products used in the production and marketing of a member's crop.

## **9. Transportation**

Transportation vehicles should be sufficiently clean so as not to be a source of contamination.

- 1) Using a checklist, inspect transportation vehicles for cleanliness, odors, visible dirt and debris before loading.
  - i) If determined that the truck had been used for the transport of animals or animal product, the vehicle shall be cleaned or cleaned and sanitized by a documented procedure prior to loading.
- 2) If non-dedicated vehicles are used for transportation, verify records of prior loads. Should there be any doubt as to previous loads transported and a potential risk from microbial contamination, such as from raw animal proteins, garbage or other refuse, the vehicle shall be cleaned or cleaned and sanitized by a documented procedure prior to loading.
- 3) A representative of the packinghouse and the driver shall sign the checklist.

## **10. Food Defense Awareness**

All members shall comply with the requirements of The Public Health Security and Bio-terrorism Preparedness and Response Act of 2002.

## **11. Records to be Made Available in Support of BMP Compliance**

Records shall be maintained for:

- 1) Product packed, shipped, handled.
- 2) Product transported or stored.

- 3) Standard Operating Procedures (SOP) and Sanitation Standard Operating Procedures (SSOP).
- 4) Sanitization Monitoring Records as applicable:
  - i) Chlorination of dump water tank.
  - ii) pH
  - iii) Wash water temperature.
  - iv) Aqueous Chlorine Dioxide: Registered product used, concentration, contact time and operating procedure.
  - v) Peroxyacetic Acid: Registered product used, concentration, contact time and operation procedure.
  - vi) Overhead application of chlorine spray: Registered product used, concentration, contact time and operating procedure.
- 5) Testing and Monitoring Records for:
  - i) Water Usage including microbiological monitoring of wash waters, well water and surface irrigation water monitoring.
  - ii) Calibration of any automated equipment to monitor chlorine.
  - iii) Calibration of pH measuring device.
  - iv) Calibration of thermometer.
  - v) Any microbial testing for product, equipment, etc.
- 6) Sanitation Monitoring Records.
- 7) Daily logs of sanitation procedures.
- 8) Housekeeping sanitation records.
- 9) Equipment sanitation records.
- 10) Monitoring records for hand washing facilities and toilets.
- 11) Other records – Requirements for records relating to other state or federal laws may also apply.

## **APPENDIX - CTF ENVIRONMENTAL ASSESSMENT PROTOCOL**

### ***Initial Environmental Assessment***

Determine previous usage of farm land.

Provide a map or narrative that includes topography, history, adjacent land use and animal movement.

Determine whether the field can receive runoff or drainage from a commercial animal operation.

Determine whether adjacent land may pose a significant risk to the tomato field. If so, establish preventive measures and note mitigation efforts.

Document animal activity, including any migration patterns or animal feces.

Remove any debris that may harbor pests.

### ***Pre-Harvest Environmental Assessment***

Note any changes observed since the original assessment of the field conditions.

Document any animal movement that resulted in feces being deposited onto tomato plants. If contamination is suspected, remove affected plants and test fruit on immediately adjacent plants for contamination.

Document any flooding that may have occurred from other than irrigation.

### ***Water Sanitary Survey***

Create a map of all water sources and systems used on the ranch.

Check with your laboratory to determine whether your testing methods are approved by an accredited organization (EPA, FDA, AOAC, etc)

You are required to conduct one sampling during the season. Should the sample be outside of the BMP metric, you must initiate remedial actions and document the dates of follow-up testing and document all actions taken and the resulting test results.

## GLOSSARY

Under otherwise note, this glossary of definitions have been obtained from Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables, October 1998 ([www.foodsafety.gov/~dms/prodguid.html](http://www.foodsafety.gov/~dms/prodguid.html)) and the definitions describing risk are those adopted on an interim basis at the 22nd Session of the Codex Alimentarius Commission:

**Agricultural Water:** includes water used for irrigation, or as a carrier for fertilizers and pesticides. A more specific term may be used, such as “recreational or potable water.” CTF BMPs utilize specific standards established by the U.S. Environmental Protection Agency and referenced throughout the document.

**Adequate:** means that which is needed to accomplish the intended purpose in keeping with good practice.

**Clean:** means that food or food-contact surfaces are washed and rinsed in accordance with written SOPs of the CTF member.

**Control:** (a) to manage the conditions of an operation in order to be consistent with established criteria, and (b) to follow correct procedures and meet established criteria.

**Control Measure:** any action or activity that can be used to prevent, reduce, or eliminate a microbiological hazard.

**Facility:** the buildings and other physical structures used for, or in connection with, the harvesting, washing, sorting, storage, packaging, labeling, holding, or transport of fresh produce.

**Field packed/packing:** means that grading, sorting, sizing, packing, and palletizing are carried out in the field. Such practices are not allowed under the CTF BMPs.

**Food-contact Surfaces:** are those surfaces that contact fresh produce and those surfaces from which drainage onto the produce or onto surfaces that contact the produce may occur during the normal course of operations. “Food-contact surfaces” includes equipment, such as containers and conveyor belts, which contact fresh produce, whether used in harvesting, post- harvesting, or packaging operations. It would not include tractors, forklifts, hand trucks, pallets, etc. that are used for handling or storing large quantities of contained or packed fresh produce and that do not come into actual contact with the food.

**Good Agricultural Practices:** refer to the guidelines set forth in the “Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables,” which was published by the U.S. Food and Drug Administration in 1998 ([www.foodsafety.gov/~dms/prodguid.html](http://www.foodsafety.gov/~dms/prodguid.html)) or the Best Management Practices of California Tomato Farmers as referenced.

**GMPs Good Manufacturing Practices:** Current Good Manufacturing Practices in Manufacturing, Processing, Packing, or Holding Human Food (21 CFR 110).

**Hazard:** refers to a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

**Human Pathogen:** means a microorganism capable of causing disease or injury to people. This is different from a plant pathogen that may cause disease to plants.

**Microorganisms:** include yeasts, molds, bacteria, protozoa, helminths (worms), and viruses. Occasionally, the term “microbe” or “microbial” is used instead of the term “microorganism.”

**Microbial Hazard:** means occurrence of a microorganism that has the potential to cause illness or injury.

**Packinghouse:** means a facility where raw agricultural commodities are washed or sorted and packed in commercial containers e.g. cartons.

**Pest:** refers to any animal or insect of public health importance including, but not limited to, birds, rodents, cockroaches, flies, and larvae that may carry pathogens that can contaminate food.

**Risk:** is a function of the probability of an adverse health effect and the severity of that effect consequential to a hazard(s) in food.

**Sanitize:** means to treat clean produce by a process that is effective in destroying or substantially reducing the numbers of microorganisms of public health concern, as well as other undesirable microorganisms, without adversely affecting the quality of the product or its safety for the consumer.

**Sanitize (food contact surfaces):** means to adequately treat clean food-contact surfaces by a process that is effective in destroying or substantially reducing the numbers of microorganisms of public health concern, as well as other undesirable microorganisms, without adversely affecting the quality of the involved product or its safety for the consumer. It means the application of cumulative heat or chemicals on cleaned food-contact surfaces that, when evaluated for efficacy, is sufficient to reduce populations of representative microorganisms by 5 log or 99.999%.

**Packed:** means grading, sorting, sizing, packing, and palletizing are carried out in a packing packinghouse.