California Kiwifruit has a strong reputation as a food that is safe to eat. That reputation depends upon each grower doing their part to protect the quality and safety of the kiwifruit we produce.

This guide highlights some common sense agricultural practices that growers can take to reduce the risk for on-farm contamination of kiwifruit.
The information contained in this voluntary Food Safety Guide was compiled by the California Kiwifruit Commission from a variety of sources. Every effort was made to provide the most accurate and current information available. This guide is designed to provide kiwifruit growers with a convenient reference that they can use to examine and improve safety practices on their farm. Nothing in this guide is intended to replace a growers own technical experts or advisors, and the Commission encourages growers to consult with packers, shippers and food safety professionals before implementing a Food Safety Program.

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A. INTRODUCTION

A number of factors can threaten the safety of fresh produce. While many consumers rank pesticide residues as their most important safety concern, health authorities and scientists regard microbial contamination as the number one safety concern for the fresh produce industry. Microbial contamination includes any yeasts, molds, bacteria, protozoa, worms or viruses that cause illness or injury. Without question, foodborne illness has emerged as a major worldwide issue impacting production, processing, domestic and export marketing, and consumer confidence in the food supply.

Food safety is defined as the assurance that the food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use. The produce industry as a whole is being compelled to move towards a food safety systems approach, with accountability at all levels of the farm-to-table chain. Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs) are the foundations of a food safety assurance system. GAPs and GMPs are guidelines established to ensure a clean and safe working environment for all employees while eliminating the potential for contamination. Within the produce industry, GAPs and GMPs address the issues of field sanitation, adjacent land use, fertilizer usage, water quality and usage, pest control and pesticide monitoring, harvesting practices, worker hygiene, packaging, storage, and product transportation.

In order to maintain the wholesome nature and safe consumption of kiwifruit the industry should be aware of the potential risks and identify and establish management practices that minimize the chances of microbial contamination at every step from growing to selling. A food safety program should be an on-going process, focusing on the prevention of problems, not simply curing them. Each kiwifruit grower, packer and shipper can benefit from a strong reputation for kiwifruit as a fruit that is safe to eat without any perceived threat of foodborne illness.

The California Kiwifruit Commission has developed this Kiwifruit Growers Food Safety Guide in an effort to help increase grower awareness of potential hazards and provide recommendations on how to reduce microbial hazards. These are voluntary guidelines based on widely recognized good agricultural and management practices. The kiwifruit grower’s guide was based on information from a vast number of sources including UC Davis and Cornell University with the heaviest reliance upon the U.S. Food and Drug Administration’s Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables. The FDA guide is a respected authority throughout the agricultural community and its safe-food guidelines have been widely adopted by agricultural entities in recent years.

Growers can create their own food safety planning and management programs based on the application of good agricultural practices outlined in this guide. Helpful resources related to food safety planning are provided at the end of this guide.
B. WATER

Water use in kiwifruit field operations includes irrigation, applications of pesticides and fertilizers, and frost control. Water has the potential to be a direct source of contamination and a vehicle for spreading pathogens to the fruit. Practices exposing the edible portion of plants to direct contact with contaminated water may increase microbial food safety risks, especially if that exposure takes place close to harvest. The kiwifruit skin does not guarantee protection of the edible interior, and contaminants on the skin may be transported to the interior when the fruit is cut in preparation for consumption.

Current prevailing kiwifruit irrigation practices reduce or avoid water-to-produce contact but can occur when overhead sprinklers are used or microsprinkler spray contacts lower hanging fruit. The closer surface water comes in contact with kiwifruit in relation to harvest the greater the importance that growers follow good agricultural practices that minimize the risk of contamination.

Water for non-irrigation uses such as frost protection or pesticide applications may also be a potential source of microbial contamination and should be considered in the same manner as irrigation water. Water used for any foliar application should come from a pathogen-free source.

Growers should consider the following issues and practices when assessing water quality used for irrigation, spray applications and over-head frost protection:

1. Identify the source and distribution of water and be aware of its relative potential for being a source of pathogens. All water sources must be clearly identified and traceable.

   Typical sources of agricultural water include flowing surface waters from rivers, streams, irrigation ditches, and open canals; impoundments such as ponds, reservoirs, and lakes; groundwater from wells; and municipal supplies. Surface and reservoir sources vary considerably in their microbial content and can be exposed to temporary or intermittent contamination. Elimination of contaminated surface water may involve modification of the water’s route or the introduction of intervention methods, such as filters. It is generally believed that groundwater is less likely than surface water to be contaminated with pathogens since ground water generally loses much of its bacterial and organic compound content after filtration through rock and clay layers. However, under certain conditions, such as with shallow, old or improperly constructed wells, the potential for contamination of ground water by surface water is a great risk.

2. Maintain wells in good working condition.

   It is important to maintain wells in good working order. Growers with older wells (e.g., wells constructed 30 - 40 years ago, and especially wells constructed before 1925), or who have other reasons for concern about the condition of their well and possible contamination, may want to have their well examined by a water quality expert. Older wells tend to be situated at the center of a farm operation, surrounded by potential contaminants. A “sanitary well sleeve” may be installed to protect against flood contamination. Good well maintenance includes preventing backflow into the well. Use anti-backflow devices when filling pesticide sprayer tanks, as well as on faucets with hose connections.
3. Review existing practices and conditions to identify potential sources of contamination.

Agricultural water can become contaminated, directly or indirectly, by improperly managed human or animal waste. Human contamination may occur from improperly designed or malfunctioning septic systems and sewage treatment facility discharges such as combined sewer overflows and storm sewer overflows. Examples of on-site sources of contamination from animal waste are animals pasturing in growing areas; manure storage adjacent to crop fields; leaking or overflowing manure lagoons; uncontrolled livestock access to surface waters, wells, or pump areas; and high concentrations of wildlife.

4. Be aware of current and historical use of land

Agricultural water is frequently a shared resource. In some regions, agricultural water comes from surface waters that travel some distance before reaching the produce growing area. While growers may not have control over factors that affect the watershed, awareness of potential problems helps determine which control options are most appropriate. In assessing water quality, growers should consider what affects their portion of the watershed and consider questions such as:

- What is the prevalence of animal production in the region?
- Do feedlots, animal pastures, and dairy operations in the region use fences or other barriers to minimize animal access to shared water sources? Recommendations for the distance between potential contaminants and a water source range from 30 to 40 feet.
- Is manure applied to land by many farms in the region?
- Do local rainfall patterns and topography impact the likelihood of contaminated runoff from these operations reaching surface waters?
- Has the growing site experienced heavy flooding? Individual assessment of each flooding situation along with a review of the time that has passed since the flood can mitigate or reduce the risks of contamination.
- Are controls generally in place to minimize contamination of agricultural waters from other farm or animal operations?

5. Consider practices that will protect water quality.

Where a potential source of microbial contamination can be identified and controlled, growers should consider practices to protect the quality of agricultural water. Good agricultural practices may include protecting surface waters, wells, and pump areas from uncontrolled livestock or wildlife access to limit the extent of fecal contamination. Soil and water conservation practices such as grass/sod waterways, diversion berms, runoff control structures, and vegetative buffer areas may help prevent polluted runoff water from contaminating agricultural water sources and produce crops.

6. Water quality testing.

There are a number of significant gaps in the science upon which to base a microbial testing program for agricultural water. Growers concerned about water quality should first concentrate on good agricultural practices to protect and maintain the quality of their water sources such as manure management and runoff controls.
Proper records of water microbiological quality are an important good agricultural practice, and the frequency and results of each water test should be documented.

The focus of water testing is often on *E. coli*, which is a specific strain of *E. coli* bacteria, but other pathogens such as *Salmonella*, *Shigella*, *Campylobacter*, and Hepatitis A have also been linked to waterborne diseases and should not be overlooked. The most reliable indicator of fecal contamination of water is generic *E. coli*. Coliform bacteria and fecal coliform bacteria are not reliable indicators of fecal contamination because there are many non-fecal bacteria in agricultural soils that are positive in coliform and fecal coliform tests. For this reason generic *E. coli* is preferred as an assay of agricultural water sanitation.

The type of water source will determine the recommended frequency of testing:

- **Municipal/district water**: Acquire test results from the local water authority annually.
- **Closed, covered, or underground systems**: If the system is properly designed, one annual test is considered sufficient.
- **Uncovered well, open canal, water reservoir, collection pond**: Testing every three months during the season is recommended in order to track the water’s safety.
- **Additional testing should be considered after a significant event that might cause water contamination such as heavy rain or flooding.**
- **Keep records for all water tests.** If water test results indicate the presence of fecal coliforms, possible alleviation measures include disinfecting with chlorine or another disinfectant or filtration of the water source.

7. **Irrigation method.**

It is recommended that drip irrigation be used whenever possible. This method provides the least risk of crop contamination because the edible portion of the fruit is not wetted directly. Where water quality is unknown or cannot be controlled, growers may want to consider modifying their current irrigation practices in order to, 1) minimize contact between water and the edible portion of the crop, and 2) increase the time between water application and harvest. By applying overhead irrigation in the morning, water use efficiency is maximized and leaf drying time reduced. Rapid drying and ultraviolet light will reduce survival of both plant and human pathogens on the crop.

8. **Non-irrigation uses.**

The quality of water for non-irrigation uses such as spray applications and over-head frost protection should be considered in the same manner as irrigation water. Water used for any foliar application should come from a pathogen-free source and the use of surface water for spray applications is not recommended. Whenever possible, maximize the time between water use applications and harvest. If water for spray applications is sourced off-site, growers should request a letter of assurance regarding the water quality from the contract applicator. Potable water must be available at all times for field workers.
C. MANURE AND MUNICIPAL BIOSOLIDS

Properly treated manure or biosolids can be an effective and safe fertilizer. Untreated, improperly treated, or recontaminated manure or biosolids used as a fertilizer, used to improve soil structure, or that enters surface or ground waters through runoff, may contain pathogens of public health significance such as *Salmonella* or *E. coli* that can contaminate produce. Most vulnerable are crops that grow in or near the soil but low growing crops that may be splashed with soil during irrigation or heavy rainfall are also at risk if pathogens in manure persist in the soil. To minimize risk in kiwifruit fields, low hanging canes should be trimmed so that they do not come in contact with the ground.

Composting is an active treatment commonly used to reduce the microbial hazards of raw manure. When composting is carefully controlled and managed, and the appropriate conditions are achieved, the high temperature generated can kill most pathogens in a number of days. Thus, the risk of microbial contamination from composted manure is reduced compared to untreated manure.

Composting should not be confused with simpler passive treatments such as aging. In general, passive treatments such as aging require a significantly longer period of time to reduce microbial hazards. Some pathogens tolerate higher temperatures than others. In addition, management practices required to achieve the time and temperature necessary to eliminate or reduce microbial hazards in manure or other organic materials may vary depending on seasonal and regional climatic factors (such as ambient temperature and rainfall) and on the specific management practices of an individual operation.

Growers should ensure manure is well composted before applying to fields and that it is disked or mechanically incorporated into the soil to complete the composting process. The use of untreated animal manure (without composting) in the production of kiwifruit results in a greater risk of contamination than treated manure and is not recommended.

The following precautions should be considered when dealing with manure and biosolids:

1. Use only reputable compost suppliers and document all applications.

   Compost suppliers should comply with approved “aging” procedures. Growers should obtain a specification sheet from suppliers which document the aging procedure and include other information on the sources of the compost material. Each compost application should be documented with supplier information, including lot number, as well as dates, amounts, methods of application and applicator name.

2. Manure storage and treatment sites should be situated as far as practicable from kiwifruit production and handling areas.

   The minimum distance necessary will depend on many factors, including farm layout and the slope of the land, what runoff controls are in place, the likelihood of wind-spread or heavy rainfall, and the quantity of manure and how it is contained. To minimize risks associated with manure storage, it should be applied as soon as possible after delivery rather than stored for future use.
3. Consider barriers or physical containment to secure manure storage or treatment areas where contamination from runoff, leaching, or wind spread is a concern.

Physical containment may include concrete blocks, soil berms, pits, or lagoons. Practices such as storage on concrete slabs or in clay lined lagoons may reduce the potential of leachate entering groundwater.

4. Consider good agricultural practices to minimize leachate, or liquid waste from manure storage or treatment areas contaminating produce.

Rainfall onto a manure pile can result in leachate, potentially containing pathogens. Consider covering manure piles, such as storing manure under a roof or covering piles with an appropriate covering.

5. Consider practices to minimize the potential of recontaminating treated manure.

Treated manure can be recontaminated by birds and rodents. Covered storage and reducing nearby harborage, like tall grass and debris, may reduce the potential for recontamination.

Equipment, such as tractors, that come into contact with untreated or partially treated manure and are then used in the field can be a source of contamination. Equipment used to turn compost, and other multiple use equipment that contacts manure, should be cleaned (such as with high pressure water or steam sprays) before it contacts fresh produce. Growers should also be aware of other factors, such as farm layout and traffic flow, that may allow a tractor to drive through manure before entering a produce field.

6. Maximize the time between the application of manure and harvest.

In general, the shorter the time between applications of raw manure to the production area and harvest, the greater the risk of pathogens being present in manure or soil and contaminating the crop. Growers should maximize, to the greatest extent possible, the time between manure application and harvest. A 120-day preharvest interval is recommended. Manure should be incorporated into the soil immediately after application.
7. Avoid contact of manure with kiwifruit.

Canes should be trimmed so that fruit does not come in contact with the soil. Make sure that any fruit coming in contact with the ground is not packed.

8. Domestic animals and wildlife, to the extent possible, should be excluded from fields during the growing season.

All animals are considered vehicles for contamination with pathogenic organisms. A large number of microorganisms can be found on the surface of animals (hair, feathers, hide, etc.) and in their respiratory and gastrointestinal systems. It is not possible to completely exclude all animal life from the field, but growers should review existing practices and conditions to assess the prevalence and likelihood of significant amounts of uncontrolled deposits of animal feces coming into contact with crops. Good management practices may include keeping livestock confined (e.g., in pens or yards) or preventing their entry into fields by using physical barriers such as fences. In addition, refrain from bringing dogs into growing and handling areas. Physical barriers such as ditches, mounds, diversion berms and vegetative buffer areas are effective to ensure that animal waste from adjacent fields or pastures does not contaminate the growing area.

High concentrations of wildlife (such as deer or waterfowl in a field) may increase the potential for microbial contamination. Control of wild animal populations is difficult or restricted by animal protection requirements. To the extent feasible, where high concentrations of wildlife are a concern, adopt practices to deter or redirect wildlife to none growing areas.
D. WORKER HEALTH AND HYGIENE

Past outbreaks of food-borne illness associated with fresh fruits and vegetables are usually the result of produce becoming contaminated with fecal material. Infectious diseases, ill health accompanied by diarrhea, open lesions, or other ailments are a source of disease-causing microorganisms. Workers can unintentionally contaminate fresh produce, water supplies and other workers, and transmit food-borne illness if they do not know and follow hygienic principles. Sanitation policies need to be clearly outlined and should apply to anyone with direct contact with kiwifruit. In most cases contract labor is used in the fields and growers must work with labor contractors, packing houses, and others responsible for supplying labor to ensure that all workers are properly trained on sanitation policies and practices.

Growers are responsible to implement or oversee that the following sanitation practices are in place for all employees in the field:

1. Provide training on the importance of good hygiene and basic sanitation practices for all employees, including full time, part time and seasonal personnel.

   Workers should understand the consequences of poor sanitation for their own health and the potential for spreading foodborne illness to others. A formalized training program with instruction on health and hygiene practices such as proper handwashing techniques, and use of toilet facilities should be given to all employees. Written records of the training, together with the signatures of those trained, should be maintained. In the case of contract labor, growers should require verification that workers have received appropriate training. Because of differences in cultures don’t assume that workers are familiar with a particular procedure, therefore visual demonstrations should be included as part of the training. Periodic evaluations of sanitary practices and refresher courses on hygiene policies should be done. Post signs in the appropriate language(s) reminding workers of sanitation policies.

2. Become familiar with signs and symptoms of infectious diseases.

   Any worker diagnosed and/or showing symptoms of an infectious illness or disease should be excluded from work assignments that involve contact with fresh produce.

3. Have first aid kits available to employees with cuts, abrasions, or other minor injuries.

   Open wounds, lesions, cuts, sores, etc. that could come in contact with equipment or kiwifruit must be completely covered with appropriate first aid materials. If a worker has a lesion that cannot be effectively covered, the employee should not be working in any aspect with fresh produce. Any fruit exposed to blood should be disposed of properly.
4. If gloves are used, ensure that they are always clean and used appropriately.

If gloves are used, it is important that as much attention is given to changing them and keeping them clean as would be given to keeping hands clean. Single-service disposable gloves can be an important and effective hygienic practice in combination with handwashing in some circumstances. If cloth gloves are used as is fairly common during kiwifruit harvest, be sure they are clean and do not become another vehicle for spreading pathogens. The same pair of gloves should not be used for multiple purposes.

5. Ensure that good hygienic practices are followed by visitors to the field or transport facilities whenever they come into contact with fresh produce.

Encourage visitors to wash their hands by providing convenient, properly equipped handwashing stations in the field.

6. The importance of handwashing.

Don’t assume that workers know how to wash their hands properly. Proper handwashing techniques include the use of soap and warm water and thoroughly scrubbing (under fingernails and between fingers), rinsing, and drying of the hands with paper towels. Common, or shared, towels should be not be used. Used hand washing water should be collected and disposed of away from growing areas. The portable water tanks should be periodically cleaned and sanitized.

7. Hygiene policies in the field.

Activities such as eating and drinking should be prohibited in the field both because of hygiene concerns and because extra food and drink attract pests. Smoking in the field should also be forbidden. Designate areas outside of the field for these purposes. Garbage containers should be provided and maintained in these areas.

8. Provide drinking water for employees.

Sufficient amounts of suitably cool drinking water must be provided for employees. Water should be dispensed either by fountains or in single-use drinking cups.


Growers should have written policies regarding sanitation policies, and maintain records of training programs.
E. FIELD SANITARY FACILITIES

Growers should operate their farms in accordance with the laws and regulations that describe field and facility sanitation practices. The field sanitation laws prescribed under OSHA describe the appropriate number of toilets to the number of workers, proper handwashing facilities, maximum worker-to-restroom distance, and how often such facilities should be cleaned. Good field sanitation helps reduce the potential for contaminating produce and ensures that employees and consumers are protected from foodborne diseases.

The following is a list of field sanitation requirements that should be considered:

1. Toilet facilities should be accessible.

   The more accessible the facilities, the greater the likelihood that they will be used. The toilet facilities should be within 1/4 mile from each workers place in the field. Workers should always have the opportunity to use the facilities when they need to, not only when they are on break. This helps reduce the incidence of workers in the field from relieving themselves elsewhere.

2. Toilet facilities should be properly located.

   Toilet facilities in the field should not be located near a water source used in irrigation or in a location that would subject such facilities to potential runoff in the event of heavy rains. Runoff from improperly constructed and located toilet facilities has the potential to contaminate soil, water sources, produce, animals, and workers.

3. Toilet facilities and handwashing stations should be well supplied.

   Provide an adequate supply of toilet paper. Toilet paper must be held on a proper dispenser to keep it from being set on the floor or another place where it could become contaminated. Handwashing stations should be equipped with a basin, water, liquid soap, single-use paper towels, and a waste container.

4. Signs should be posted in the appropriate language(s) telling employees to wash their hands after they use the toilet.

5. All facilities should be kept clean with maintenance logs up to date.

   Toilets and handwashing stations, whether attached to the toilet facility or located near it, should be cleaned and supplied on a regular basis. Containers used to transport or store water for handwashing should, on a routine basis, be emptied and thoroughly cleaned, sanitized, and refilled with potable water. Maintenance logs of field sanitation facilities should be kept up to date.

6. Have a plan for containment and treatment of any sewage in the event of leakage or a spill.
F. CONTAINERS AND FIELD EQUIPMENT

Containers and field equipment used in the production of kiwifruit may become contaminated if not properly handled. In many cases part or all of the equipment is supplied by someone other than the grower such as packing houses and labor contractors. Growers must work together with those supplying the field equipment to ensure that good agricultural practices are used to minimize the risk of microbial contamination.

The following items should be considered when using containers and field equipment:

1. Use appropriate containers and use only for their intended purpose.

   Non-washable materials such as wood, burlap, and reused corrugated fiberboard can pose a food safety hazard because their porosity provides sites that harbor microorganisms. It is important to gradually replace these materials with ones that can be more easily cleaned and sanitized. Containers used for fresh produce should not be used to transport any other items including lunches, tools, combustibles, pesticides or any other material.

2. All bins and containers should be kept clean and in good repair.

   Containers should be cleaned and sanitized regularly under a standard procedure such as: clean with a detergent, rinse and sanitize with a sodium hypochlorite solution. Do not allow workers to stand in bins. Boots and shoes can carry pathogens. Ensure that picking bags remain clean and dry throughout harvest.

   Clean bins left in the field overnight are at risk from contamination. Consider storing bins in a clean, secure environment and not delivering to the field until just prior to harvest. If bins are left in the field overnight consider practices that will reduce the risk of contamination such as covering the bins with tarps.

3. Damaged containers should be discarded when cleaning becomes difficult or when damage is such that they might break and pieces might fall onto the kiwifruit.

4. Use farm equipment appropriately and keep it as clean as practicable.

   Growers should be conscientious with farm equipment because it is often neglected as a potential source of contamination. A standard cleaning schedule should be followed and documented for all large farm equipment, baskets, buckets, personal hand tools, etc. Any equipment used to haul garbage, manure, or other debris should not be used to haul fresh produce or contact the containers or pallets that are used to haul fresh produce without first being carefully cleaned and sanitized. No field equipment, mechanical tools, or other objects that could potentially cause contamination should be placed in or on top of containers or bins.

5. Assign the responsibility for equipment to the person in charge.

   The responsible individual should be aware of how the equipment is being used during the day and where it is stored overnight. A regular inspection and cleaning schedule should be implemented for all containers and bins, with proper documentation maintained by the person in charge.
G. PEST CONTROL

All animals, including mammals, birds, reptiles, and insects, are potential sources of contamination in produce environments because they harbor, or could be a vector for, a variety of pathogenic agents. Implementation of the following can reduce the risk factor associated with pest contamination:

1. Maintain the grounds in and around the kiwifruit production area.

   Grounds should be kept clear of waste, litter, and improperly stored garbage. Grasses should be cut to discourage the breeding, harboring, and feeding of pests, such as rodents and reptiles. Remove any unnecessary articles, including old and inoperative equipment that is no longer used, to eliminate areas that harbor rodents and insects.

2. Sanitize to reduce pest populations.

   Minimize the availability of food and water to pests. Remove dead or trapped birds, insects, rodents, and other pests promptly to ensure clean and sanitary facilities and to avoid attracting additional pests. As much as practicable, ensure that potential nesting or hiding places for pests have been eliminated.

3. Use a pest control log.

   Maintain a pest control log that includes dates of inspection, inspection report, and steps taken to eliminate any problems. Establish frequent monitoring of affected and treated areas to determine the effectiveness of the treatment applied.
H. PESTICIDE USE

Growers must ensure that their crop is protected from unsafe or illegal pesticide residues. Growers should develop and implement the following in order to ensure that unlawful pesticide residues will not contaminate their kiwifruit crop:

1. All pesticide applications must be handled in accordance with state and federal guidelines.
2. Proper notice of intent and field signage must be followed according to state and federal laws.
3. Pesticide use reports must be recorded and filed with the county in which the kiwifruit is grown.
4. The pesticide applicator must read and follow label directions on the products use label.
5. Implement measures to avoid spray drift onto nontargeted commodities.
6. Pesticide containers must be disposed of properly.
7. Field and applicator training programs must be conducted per state law.
8. All necessary field reentry and preharvest interval timelines must follow product label guidelines.
9. Water used for any pesticide applications should come from a pathogen-free source.
10. Farms should adopt policy restricting the storage, loading, mixing or dilution of agriculture chemicals near water sources, as well as restricting the cleaning of spray tanks and equipment near water sources.
I. TRACEBACK

Traceback is the ability to track food items back to their original source (growers, packers, etc.). Should an outbreak of illness occur, an effective traceback system can give investigators clues that may lead to a specific region, packing facility, even field, rather than an entire commodity group. An effective traceback system may help to lessen the chance of making false associations and help to narrow the potential scope of an outbreak thereby lessening the economic burden on the industry as a whole.

Traceback within the produce industry offers some unique challenges due to practices such as the co-mingling of products during distribution or at retail, and the repacking of produce into different container styles such as consumer packs after the initial shipping point. Growers have little control over what happens once kiwifruit leaves their farm, but are encouraged to partner with packers and shippers to develop the most effective and practical traceback system possible for their individual operation.

An effective traceback system should have documentation to indicate the source of a product. Documentation should include:

a. Date of harvest,

b. Farm identification, and

c. Who handled the produce from grower to receiver.

It should also include a mechanism for marking or identifying the product capable of following the kiwifruit from the farm to the consumer. Use of technologies such as bar codes, stamps, stickers, tags, etc. can be effective in providing accurate traceback to the grower/packer level. Growers are urged to join with packers and shippers in practicing a “mock recall” to demonstrate the effectiveness of their current traceback system.
J. RECORD KEEPING

Documentation is a key component of an effective and credible food safety program. In order to ensure that all food safety guidelines have been followed, growers should implement a record-keeping program. It is not enough to just have a safe product; kiwifruit growers must be prepared to quickly demonstrate their food safety program in the case of an outbreak. Records that are accurate and complete can provide helpful information should a problem arise in the future.

The following should be incorporated into a food safety documentation/record-keeping program:

1. Previous land use history.
2. Map or lay-out of the farm and adjacent land.
3. Identification of a designated person to implement and oversee food safety program.
4. Documents regarding water, soil and any fruit testing.
5. Records of manure applications (supplier, lot number, composition).
6. Clearly defined worker sanitation policies.
7. Records of employee training and refresher courses with regard to sanitation policies.
8. Maintenance logs of field sanitation facilities.
9. Plan for containment and treatment in the event of a sewage leakage or spill.
10. Documentation of inspection and cleaning of containers and farm equipment.
11. Pest control log.
12. Copies of all pesticide labeling material and safety data sheets.
13. Chemical use reports.
K. CRISIS MANAGEMENT

The California Kiwifruit Commission has developed a Crisis Response and Communications Plan detailing a series of response steps that will be taken in the event of a kiwifruit crisis. A crisis is defined as any unplanned event that triggers a threat to public safety, health, environment, a kiwifruit grower’s profitability or to the industry’s reputation or credibility. In the event of a crisis, the California Kiwifruit Commission will defend the overall California kiwifruit industry and respond on behalf of the entire kiwifruit community. Documented procedures relevant to the use of good agricultural practices on the farm could be of benefit to individual growers as well as to the industry as a whole in the event of a crisis. An industry that can claim widespread grower use of a food safety program is much better prepared to deal with food safety threats and media scrutiny than one that doesn’t.

L. FOOD SAFETY RESOURCES

1) **Key “Good Agricultural Practices” Websites**


- University of California, Davis; Good Agricultural Practices: [http://ucgaps.ucdavis.edu](http://ucgaps.ucdavis.edu)


2) **Other Websites**


- Food Safety Information Website: [http://FoodHACCP.com](http://FoodHACCP.com)

- FDA Center for Food Safety & Applied Nutrition: [http://www.cfsan.fda.gov/list.html](http://www.cfsan.fda.gov/list.html)

- Food and Drug Administration: [www.fda.gov](http://www.fda.gov)