

**HARVESTING  
&  
FIELD PACKING  
SECTION**

**SECTION A**  
**TABLE OF CONTENTS**

Page

Hazard Control Program Overview .....	1
Introduction.....	1
Harvesting and Packing GAP Plan .....	3
Figure 1. Flow Chart .....	3
Table 1. GAP – Land Selection, Preparation, Planting Pest Control, etc. ....	4
Field Testing Program.....	7
Table 2. Water Sampling Log .....	8

# HAZARD CONTROL PROGRAM OVERVIEW

## INTRODUCTION

At Fresh Kist Produce, LLC. our Food Safety philosophy is simple; “We put Food Safety first.” Food Safety is the most important task of all our operations. All of our operations, actions and tasks will, in some way, involve Food Safety.

Food Safety is an integral part of our entire operation. It includes growing, harvesting, warehousing, packing and shipping. It also includes non-production items such as training of employees and training materials.

Food Safety is not a static program. It is dynamic in nature. Each and every meeting discusses Food Safety and each and every management action ensures that Food Safety not only fits comfortably into the overall objective of Fresh Kist Produce, LLC., but that it is also understood and easily executed by each and every employee of Fresh Kist Produce, LLC.

The goal of the Grower Shipper Company Hazard Control program is to institute a proactive food safety system for its growing and cooling operation whereby any potential product hazards are anticipated and controlled from product reception through distribution. Food safety and quality control is the responsibility of all the employees of Fresh Kist Produce, LLC. and affiliated service and product providers. Management has provided the tools and established guidelines for producing safe, wholesome, quality products. All employees are accountable for consistently maintaining these standards.

The Hazard Control program has been established with the help of the company officers. Although the burden of food safety and quality control is in the hands of management and supervisors, all employees serve as inspectors when product moves through their area. Fresh Kist Produce, LLC.’s employees are authorized to hold or reject product found to be out of compliance, subject to the evaluation and final approval of authorized management.

Fresh Kist Produce, LLC. incorporates Good Agricultural Practices and Good Manufacturing Practices as a system. This concept is based on teamwork, continuous operation improvement, and three-way communication between management, sales and production employees. Quality improvement teams have been organized to address issues of finished product checks, working conditions, waste control, equipment maintenance, operation efficiency, safety in facilities, sanitation, employee personal hygiene, etc., and to encourage all employees to utilize their talents in helping to maintain and/or improve product quality. The management at Fresh Kist Produce, LLC. believes that these measures will ensure that the finished product meets the highest standard of quality for the customer’s end use.

At Fresh Kist Produce, LLC., GAP and GMP are everyone's responsibility. Site sanitation and personnel hygiene are an integral part of each employee's responsibility. Employee personal hygiene starts with management. Management has the responsibility for:

1. Providing and maintaining a safe and clean working environment, safe equipment and safe tools.
2. Establishing and enforcing work rules and conduct.
3. Developing and conducting a continuing education program to promote safe and sanitary work habits.

Although Fresh Kist Produce, LLC. is responsible for the conduct and practices of employees, following are some of the responsibilities assigned to employees at the time employment begins:

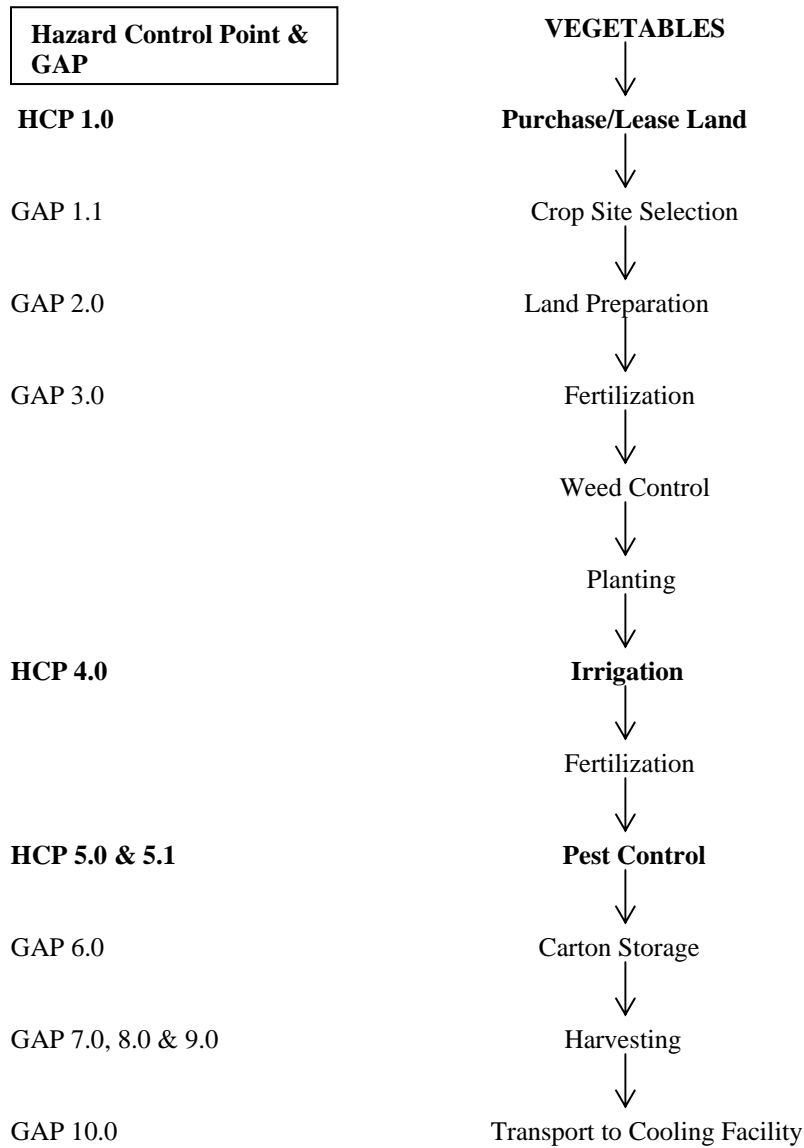
1. Unhealthy conditions such as respiratory or gastrointestinal complications (e.g., head cold, sinus infection, bronchial or lung disorders, diarrhea, etc.) should be reported to the supervisor.
2. Injuries including cuts, burns, boils, and skin eruptions, should be reported to the supervisor.
3. Personal cleanliness that should be practiced includes daily bathing, hair washing at least twice a week, daily changing of clothing, and maintaining clean hands and fingernails.
4. Employees should be instructed to inform the supervisor when the bathroom facilities' water, soap or towels need to be replenished.
5. During food handling, habits such as spitting, scratching the head or other body parts should be prohibited.
6. The mouth and nose should be covered when coughing or sneezing.
7. The hands should be washed after visiting the toilet, using a handkerchief, smoking, eating, handling soiled utensils or articles, handling money, etc.

Personal hygiene is a basic step Fresh Kist Produce, LLC. requires to ensure the production of safe and wholesome fresh produce. Fresh Kist Produce, LLC. will emphasize hygiene practices of employees through these protocols:

1. Employees will be provided training in raw product handling and personal hygiene.
2. A regular inspection of employees and their work habits will be conducted. Violations of defined personal hygiene practices will be handled as disciplinary violations.

**Figure 1. Flow Chart Vegetable Production.**

***Fresh Kist Produce, LLC.***  
***Field GAP Flow Chart***



**Table 1. GAP – Land Selection, Preparation, Planting Pest Control, etc.**

<b>Field Hazard Control &amp; GAP Plan for Fresh Kist Produce, LLC.</b>							
Hazard Control Point & GAP  Number and Step	Hazard To Be Controlled Biological “B” Chemical “C” Physical “P”	Control Procedures		Critical Limit	Actions to be Taken if Deviation Occurs	Responsible Persons	Documentation
		Procedure	Frequency				
<b>HCP 1</b>  Site Selection	<b>Contaminated Soils</b>  “C & B”	<b>Research site history and conduct a visual review</b> <b>-Restrict growing to land with well documented history</b>	<b>Each Land Purchase or Lease</b>	<b>Past use which may contribute to inappropriate chemical residues and/or micro-flora</b>	<b>Parcel is not purchased or leased</b> <b>Extensive chemical and/or microbial analyses should be conducted to confirm suitability</b>		<b>Record site history or laboratory results</b>
GAP 1.1  Adjacent or nearby property uses should be compatible with intended use.	Contamination from run off or wind “B & C”.	Site selection and/or physical barrier (i.e. trenches, etc.)	Continuously		Select an alternative site or develop adequate barriers (i.e. wind break, etc.)		Record in the Notice of Unusual Occurrence and Correction Log (Table 15)
GAP 2  Alternative uses and Sustainable Agricultural Practices	Grazing or movement of livestock. Use of the field for disposal of waste (i.e. incinerator ash, sludge etc.) “B”	Site selection and/or physical barrier (i.e. fences, etc.)	Continuously		Prohibit the disposal of waste and restrict movement of livestock.		Record in the Notice of Unusual Occurrence and Correction Log (Table 15)
GAP 3  Fertilization	Microbiological or chemical contamination “B” & “C”	Limit the use of manure on all fields and limit manure and mineral fertilizers to approved suppliers	Each purchase		Limit supplier base to approved vendors. Base approval on State approved guidelines		Record fertilizer purchases, including lot # Record all applications.
<b>HCP 4</b>  Irrigation	<b>Presence of <i>E. coli</i>, etc. in irrigation water</b> “B”	<b>Test water supply for presence of <i>E.coli</i> &amp; Coliform</b>	<b>Underground wells-yearly, reservoirs &amp; canals-quarterly</b>	<b><i>E. coli</i> negative Coliform &lt;100 CFU/ml</b>	<b>Stop use of contaminated water, use furrow or drip irrigation until contamination is corrected or access alternative source.</b> <b>Determine and address source of contamination.</b>		<b>Record test results &amp; corrective action</b> (Table 4)

**Table 1. GAP – Land Selection, Preparation, Planting, Pest Control, etc. (cont.)**

Hazard Control Point & GAP Number and Step	Hazard To Be Controlled Biological “B” Chemical “C” Physical “P”	Control Procedures		Critical Limit	Actions to be Taken if Deviation Occurs	Responsible Persons	Documentation
		Procedure	Frequency				
HCP 5  Pest Control	Inappropriate pesticide use “B & C”	Restrict all pest materials to those registered by the USEPA and use as instructed by the label. Pesticide recommendations made by licensed PCA or equivalent.	Each application	Zero tolerance for any and all pesticides found above the federal EPA tolerances or at or above FDA action levels	Delay harvest. Sample the affected crop. Analyze the sample for inappropriate pesticide residues. Evaluate, release or reject the crop.		Record application date, pesticide used and application rate.
GAP 5.1  Selection of carrier waters used for application of pesticides	Presence of <i>E. coli</i> , etc. in irrigation water “B”	Test water supply for presence of <i>E.coli</i> & Coliform	Underground wells-yearly, reservoirs & canals-quarterly	<i>E. coli</i> negative Coliform <100 CFU/ml	Stop use of contaminated water; access alternative source. Determine source of contamination and address cause of contamination.		Record test results & corrective action (Table 4)
GAP 6  Cartons	Microbiological and chemical contamination of harvested commodities “B & C”	Proper storage of all cartons & containers used to hold and transport produce	Continuously		Do not use contaminated cartons, etc.		Maintain inventory records and storage sanitation program. (Table 6)
GAP 7  Harvesting: Site Sanitation and Personnel Hygiene	Microbiological contamination of harvested commodities “B”	Employee hygiene education  Enforce State & Federal field sanitation regulations	Provide educational sessions on a regular basis  Continuously		Alter personnel manuals and service provider contracts to reflect compliance as a requirement of continued employment or business		Document employee non-compliance. (Table 20)  Record educational sessions; date, topic, personnel in attendance at meetings (Table 18)
		If rubber gloves worn Supervisor(s) provide adequate supply of clean gloves.	Rubber gloves cleaned daily using a high alcohol soap, replaced at least weekly as necessary. Knives should be cleaned in chlorinated water.		Issue new gloves; educate personnel on hygiene requirements. Clearly define disciplinary action and procedure for termination		

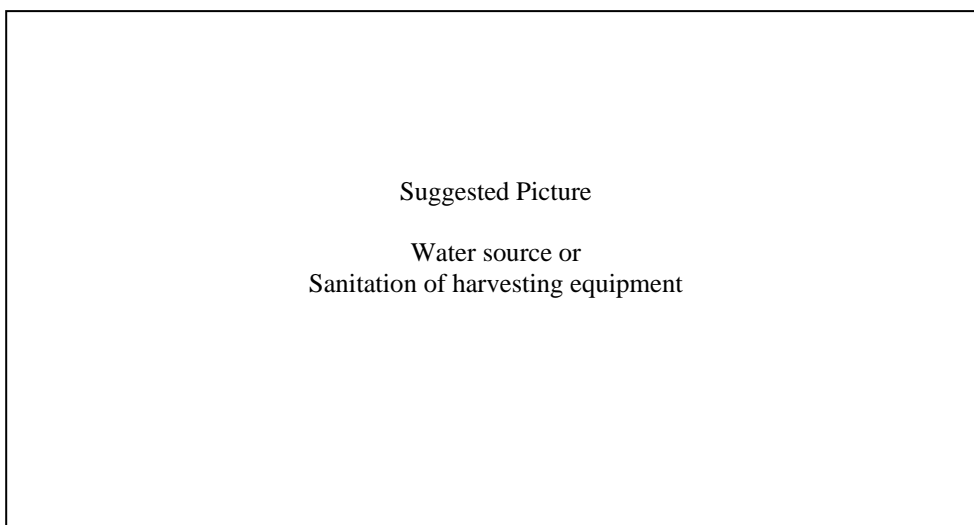
**Table 1. GAP – Land Selection, Preparation, Planting, Pest Control, etc. (cont.)**

Hazard Control Point & GAP  Number and Step	Hazard To Be Controlled Biological “B” Chemical “C” Physical “P”	Control Procedures		Critical Limit	Actions to be Taken if Deviation Occurs	Responsible Persons	Documentation
		Procedure	Frequency				
GAP 8  Harvesting	Foreign material contamination of harvested commodities “P”	Prohibit smoking and eating on harvesting equipment and actively harvested field areas	Continuously		Inspect employee harvested commodity for contaminants; release or destroy; re-educate personnel on foreign material control; consider disciplining employees or subcontractors who display a disregard for foreign material control		Document employee non-compliance. (Table 20)  Record date, topic, and personnel in attendance at the educational meetings. (Table 18)
		Examine each carton prior to packing	Each carton				
		Supply harvesters with wash or dip stations for cutting equipment	All harvest sites				
GAP 9  Transportation	Temperature of harvested crop “B”	Expeditious transport to the cooling facility using vehicles dedicated to crop transport.	As necessary		Identify pallets with heat stress on arrival at cooler; inform sales; hold product at cooler for evaluation of raw product condition; release or destroy.		Incoming product non-conformance log. (Table 10)

# FIELD TESTING PROGRAM

## INTRODUCTION

Microbial and chemical monitoring is designed to aid in establishing priority water sources for irrigation waters and pesticide carriers. Frequency will depend on the type of water source (i.e. surface waters, enclosed wells, etc.). The abnormal presence of microbiological organisms or chemicals in water samples will trigger an immediate search for the identification of the source and institute appropriate remedial methods. Likewise, alterations in the sanitation program and microbiological sampling are added as the monitoring and analysis dictate.



**Figure x**



**SECTION B**  
**TABLE OF CONTENTS**

	Page
<b>Best Management Practices for Control of Microbial Hazards</b>	<b>1</b>
Harvesting Operations	1
Field Packing Checklist	2
<b>Fresh Kist Produce, LLC. Employee Education Outline – Harvesting Crews</b>	<b>4</b>
Employee Hygiene	4
Sanitary Practices	4
Table 3. Employee Education and Training Log	6

## **BEST MANAGEMENT PRACTICES FOR CONTROL OF MICROBIAL HAZARDS**

### **Harvesting**

Depending on the specific operation and commodity, harvested product is processed through the field packing equipment into cartons, bins or trays. This equipment should be cleaned to eliminate dirt, foreign material, and product or product parts that may accumulate.

Good employee hygiene is very important. Employees training, health monitoring and constant monitoring of sanitary practices (hand washing, personal hygiene) are an important part in reducing product contamination by employees.

Field packing equipment should always be maintained in clean condition. The remnants of product left on the belt tables, lines and conveyors could provide a source for microbial growth; therefore, cleaning by scrubbing to remove particles should be part of the cleaning procedure. If it is deemed appropriate, sanitizing with a chlorine solution could be accomplished on corrosive sensitive areas by spot spraying with hand sprayers. Knives, saws, blades, boots, gloves, smocks and aprons should be cleaned or replaced as needed.

Since the extreme sanitation controls applied to processing plants are not possible when utilizing field-packing equipment, the central focus should be on the areas that are controllable. The checklist below summarizes the areas that offer the best opportunities for control and/or reduction of microbial contamination.

**Field Packing Check List**

**A. Product Wash Water**

OK

Needs  
Attention

- |    |  |       |       |
|----|--|-------|-------|
| 1. | Is the water supplied from a clean source?   | _____ | _____ |
| 2. | If chlorinated water is used, is the chlorine level of the water maintained at specified levels? | _____ | _____ |
| 3. | Is re-circulated water changed on a regular basis?   | _____ | _____ |
| 4. | Is there a water change log and are there pH and chlorine test records?                          | _____ | _____ |

**B. Employees**

- |    |  |       |       |
|----|--|-------|-------|
| 1. | Are employees trained in good sanitary practices?  | _____ | _____ |
| 2. | Are employees monitored for obvious health problems?   | _____ | _____ |
| 3. | Are employees monitored to ensure good sanitary practices?   | _____ | _____ |
| 4. | Are toilet facilities maintained in clean and sanitary condition?                                  | _____ | _____ |
| 5. | Are rest rooms/wash facilities supplied with antibacterial soap and disposable hand-drying towels? | _____ | _____ |
| 6. | Are there employee training materials and are they utilized?                                       | _____ | _____ |
| 7. | Is there a cleaning crew checklist?  | _____ | _____ |

**C. Field Packing Equipment**

- |    |   |       |       |
|----|---|-------|-------|
| 1. | Are belts, tables, packing lines and conveyors clean?                                     | _____ | _____ |
| 2. | Is the cleaning of the belts, tables, packing lines and conveyors on a schedule?          | _____ | _____ |
| 3. | Is there any residue of product or other material on the equipment or on the plant floor? | _____ | _____ |
| 4. | Is the sanitizing of the belts, tables, packing lines, and conveyors on a schedule?       | _____ | _____ |
| 5. | Is there a cleaning crew checklist?   | _____ | _____ |

**D. Pest Control**

- |    |   |       |       |
|----|---|-------|-------|
| 1. | Is there evidence of pest population's at/near storage areas?                         | _____ | _____ |
| 2. | Is there product residue that has not been cleaned up that may be attracting pests?   | _____ | _____ |
| 3. | Have all potential nesting or hiding places for pests been eliminated and/or cleaned? | _____ | _____ |

4. Is there a pest control log? \_\_\_\_\_

**E. Packing and Sorting Supplies**

1. Are supplies clean and in good working condition? \_\_\_\_\_

2. Is there a scheduled replacement of worn or soiled items? \_\_\_\_\_

3. Is there a supply of replacement items in stock? \_\_\_\_\_

4. Is there a daily crew checklist? \_\_\_\_\_

# Fresh Kist Produce, LLC.'s Employee Educational Outline

for

## Romaine Lettuce, Green and Red Leaf Lettuce, Celery Harvesting Crews

1. All growers/harvesters shall have a written employee sanitation and hygiene program and shall maintain a continuous documented training program for all field workers.
2. Produce handlers and supervisors should be trained on the proper food protection principles and should be informed of the dangers of poor personal hygiene and unsanitary practices.

### A. EMPLOYEE HYGIENE

1. All persons working in direct contact with Fresh Kist Produce, LLC. produce, food-contact surfaces and packaging materials shall comply with hygiene practices while on duty to the extent necessary to protect the produce against contamination.
2. All persons shall wash hands thoroughly in an adequate hand washing facility to protect against undesirable microorganisms. Hands should be washed prior to starting work, after visiting the toilet, using a handkerchief, smoking, eating, handling soiled articles, handling money, etc.
  - a. Wash hands properly from elbow to hand, interior and palm and back of the hand, and in between fingers.
  - b. Use clean and fresh potable water for the washing of hands.
  - c. Use soap with bactericidal properties to remove microbes from hands.
3. Employees with long hair shall maintain the hair tied to avoid any contact with the produce.

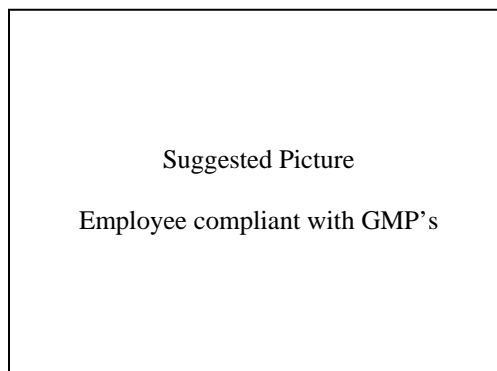


Fig. X. Proper clothing and product handling are but two of the issues addressed during Fresh Kist Produce, LLC.' employee educational

4. No employee known to be a carrier or exhibiting symptoms of an infectious disease (nausea, diarrhea, fever, etc.) shall be allowed to harvest Fresh Kist Produce, LLC. products.
5. Any rashes, open cuts or sores on hands must be covered with a sanitary dressing and a latex/vinyl glove. If wound is not stopped from bleeding, the employee is advised to inform his/her supervisor.
6. All persons shall maintain adequate personal cleanliness. This includes daily bathing, hair washing at least twice a week, daily changing of clothing and maintaining clean hands and fingernails.
7. All persons shall wear outer garments suitable to the operation in a manner that protects against the contamination of food.
  - a. Avoid loose clothing that might become in contact with the produce while performing the job duties.
  - b. Avoid dirty clothing (oil, grease) that may contaminate the produce.
8. All persons shall remove all jewelry and other objects that might fall into the produce or equipment causing potential contamination.

## B. SANITARY PRACTICES

1. Adequate and properly stocked toilet and hand washing facilities must be provided for all employees handling Fresh Kist Produce, LLC. product at all times during work hours.
  - a. Toilet and hand washing facilities will be built of a material that allows proper cleaning, designed for good ventilation, and constructed to ensure privacy (interior lock device).
  - b. Sanitary facilities will be provided for men and for women independently and in adequate number. When the number of employees is more than 5, one toilet per each 20 men and one toilet per each 20 women is required in the field.
  - c. Sanitary facilities will be provided with clean and fresh potable water, bactericidal soap, toilet paper, and single-use towels.
2. Toilet and hand washing facilities shall be located within reasonable proximity (1/4 of a mile, CFR 41) and accessible to all field workers handling Fresh Kist Produce, LLC. products.
3. All field workers who harvest Fresh Kist Produce, LLC. produce must wash their hands with potable water and soap prior to their starting work, before and after every break, and before leaving the fields.
4. All field workers harvesting Fresh Kist Produce, LLC. produce must wash their hands with soap after every toilet use.
  - a. Potable water (hot when available) must be used for hand washing.
  - b. Bactericidal soap must be used when washing hands.
  - c. Hands will be dried with single-use towels. Towels will be disposed off immediately.
5. Eating, chewing gum, drinking beverages, etc. will be confined to break areas where Fresh Kist Produce, LLC. produce, equipment and utensils are not exposed to contamination.

**Table 3. Employee Education & Training Log**

<b>FRESH KIST PRODUCE, LLC.</b>	
<b>EMPLOYEE EDUCATION AND TRAINING LOG HARVESTING CREWS</b>	
<b>Date:</b> <b>Trainer:</b> <b>The following employees were present:</b>	<b>Topics:</b> <b>Materials:</b>
1	21
2	22
3	23
4	24
6	25
6	26
7	27
8	28
9	29
10	30
11	31
12	32
13	33
14	34
15	35
16	36
17	37
18	38
19	39
20	40

**SECTION C**  
**TABLE OF CONTENTS**

	<b>Page</b>
<b>Sanitation Standard Operating Procedures</b>	<b>1</b>
Field Harvesting Mobile Packing Units	1

# SANITATION STANDARD OPERATING PROCEDURES

## Field Harvesting Mobile Packing Units

### Safety Precautions:

1. Always wear appropriate protective clothing whenever handling cleaning and/or sanitizing products.
2. Ensure that the equipment is locked out to a zero mechanical state prior to beginning work or cleaning. Unplug any electrical service cords.
3. Follow the chemical label instructions. Do not mix chemicals without appropriate supervisor authorization.
4. Wear goggles when using high-pressure water.

### **Chemicals required for cleaning and sanitation of the mobile packing units.**

Category	Type	Formulation
Rinse	Potable Water	
Cleaner	Foaming Degreaser Detergent	Per Label Instructions
Sanitizer		Per Label Instructions

### Recommended Cleaning Procedure:

#### DAILY

- Remove any accumulated produce by dry cleaning.
- Using high-pressure water ONLY, rinse entire unit to remove any soil buildup.
- Apply cleaner to entire unit's area. Scrub areas with a brush as needed.
- Rinse the unit.
- Apply sanitizer solution, especially to the food contact surfaces.
- Allow to air dry.

If there is soil build-up observed on clean equipment prior to use then equipment should be rinsed again before use.

Note: Brushes and any other cleaning utensils used to clean the mobile packing units must be identified for this use and stored separately from brushes, or any other cleaning utensils used to clean bathrooms, drains, floors, etc.

## **SECTION D**

### **TABLE OF CONTENTS**

	<b>Page</b>
<b>Standard Operating Procedures</b>	<b>1</b>
<b>Administration</b>	
SOP # 01-01 Creating a Standard Operating Procedure	1
SOP # 01-02 SOP Format	2
SOP # 01-03 Revision of a SOP	3
<b>Site Selection</b>	
SOP # 02-01 Considerations Made Prior to Lease or Purchase of Farm Ground	4
<b>Adjacent Land Use</b>	
SOP # 03-01 Animal Husbandry	5
SOP # 03-02 Concerns Associated with Flooding or Breached Containment Systems	6
SOP # 03-03 Pesticide Drift	7
SOP # 03-04 Stored Organic Fertilizers (Manure Raw or Composted)	8
SOP # 03-05 Application of Organic Fertilizers (Animal based manure or municipal waste or sludge)	9
SOP # 03-06 Industrial Use of Adjacent or Nearby Land	10
<b>Fertilizer Usage</b>	
SOP # 04-01 Selection and Application of Animal Waste Based Soil Amendments	11
SOP # 04-02 Use of Municipal Waste or Sludge as Soil Amendments	12
SOP # 04-03 Use of Mineral Fertilizers for Crop Nutrients	13
SOP # 04-04 Application Procedure for Fertilizers and Organic Soil Amendments	14
SOP # 04-05 Use of Industrial Waste as a Soil Additive	15
<b>Water Usage</b>	
SOP # 05-01 Microbiological Contamination of Water	16
SOP # 05-02 Chemical Contamination of Water	18
<b>Pest Control Measures and the Use of Agricultural Chemicals</b>	
SOP # 06-01 Residual Pesticide Monitoring of Produce	20
<b>Pesticide Monitoring</b>	
SOP # 07-01 Guidelines for 3 <sup>rd</sup> Party Residue Sampling Protocol	21
<b>Harvesting</b>	

SOP # 08-01 Packaging Storage	22
SOP # 08-02 Worker Hygiene	24
SOP # 08-03 Field Sanitation	26
SOP # 08-04 Field to Cooler Shipping	28

## SOP # 01-01

### ADMINISTRATION

#### Creating a Standard Operating Procedure

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Provide general guidelines to ensure consistency in the design and development of Standard Operating Procedures (SOP).

- a) Select the category (e.g., Site Selection, Adjacent Land Use, Water Usage, etc.) in which the SOP will be created.
- b) Utilizing the format outlined in SOP # 01-02 “SOP Format”, create the initial draft of the SOP, do not assign a SOP number.
- c) Submit this draft to (*reviewing departments to be named*) for initial review and comment.
- d) Consolidate and incorporate all comments. Provide reasoning for the non-inclusion or revision of any comment.
- e) Request a SOP number from (*department responsible for assigning SOP numbers*).
- f) Submit second draft for review and comment.
- g) Incorporate final comments and submit to (*authorizing department*) for approval signatures.
- h) Issue approved SOP to all affected departments.

Note: The departments or individuals that will review and authorize SOP should be formalized and substituted for the *bolded and italicized* sections in step c, e and g above.

**SOP # 01-02**

**ADMINISTRATION**

**SOP Format**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Ensuring consistency in the layout and appearance of all SOP.

The following format shall be utilized for all Sanitation Standard Operating Procedures. No deviations or revisions to this format shall be made without approval using SOP # 01-03 "Revision of an SOP".

**SOP # XX-XX**

**(SOP CATEGORY)**

**SOP Title**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

A description of the purpose or issue that this SOP will address should be directly related to the SOP title.

**Concern:**

Describe the specific concern to be addressed by this SOP (this will not normally apply to administrative SOP).

**Contaminate introduction:**

Based upon the specific issues and concerns, list all of the ways that the subject contaminates could be introduced. For example;

- a) Land previously used as a municipal waste site.
- b) Land previously used for disposal of bio-solids, incinerator waste, etc.

**Preventative or corrective measures:**

List all measures required to prevent growing of produce on contaminated ground. For example;

- a) Avoid purchase or lease of ground previously used for questionable practices.

## SOP # 01-03

### ADMINISTRATION

#### Revision of a SOP

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

To provide a formalized revision process for Standard Operating Procedures (SOP).

Initiation of the revision process. Fresh Kist Produce, LLC.'s growers are encouraged to comment on the content of the SOP. The SOP is considered a "living" document. The document will evolve over time to address changing consumer concern. In addition it is assumed that the document's appropriateness and pertinence will be improved as the grower suggestions are incorporated.

1. Fresh Kist Produce, LLC.'s growers can submit their suggestions for altering the SOP by:

- a) e-mail to: Fresh Kist Produce, LLC.@primuslabs.com
- b) FAX attention Julian: (805) 922-2462
- c) Mail attention Julian

PrimusLabs.com  
2810 Industrial Parkway  
Santa Maria, CA 93455

- d) Internet through Primus' web site at <http://www.primuslabs.com>

1. Adopted suggestions will be incorporated into the SOP and/or Food Safety Policy under the following format:

- a) Legibly and in **RED** ink, mark up the SOP to be revised with the required changes.
- b) Submit the revision draft to (*reviewing departments to be named*) for initial review and comment.
- c) Consolidate and incorporate all comments. Provide reasoning for the non-inclusion or revision of any comment.
- d) Submit the second revision draft for review and comment.
- e) Incorporate final comments and submit to (*authorizing department*) for approval signatures.
- f) Issue approved SOP to all affected departments.

Note: The departments or individuals that will review and authorize SOPs should be formalized and substituted for the *bolded italicized* sections in steps b and e above.

## SOP # 02-01

### SITE SELECTION

#### Considerations Made Prior to Lease or Purchase of Farm Ground

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

The purchase or lease of new ground for the purpose of growing produce intended for human consumption.

**Concern:**

Crop contamination resulting from growing in soils microbiologically or chemically tainted<sup>2</sup>.

**Contaminate introduction:**

- a) Land previously used for intense or concentrated animal husbandry practices (e.g. feed lot, “hog hotel”, animal waste holding area, or similar agricultural function).
- b) Land previously used for disposal of bio-solids, incinerator waste, or related municipal or industrial waste.
- c) Land previously used as a municipal waste site.
- d) Land previously used by owner or tenant for disposal of industrial chemicals, etc.

**Preventative or corrective measures:**

- a) Avoid purchase or lease of ground previously used for questionable practices.
- b) Ideally, land should be purchased or leased that has previously been successfully utilized for growing produce for human consumption without incidence.
- c) For land without a history of growing produce for human consumption, a title search should be conducted. Emphasis should be placed on identifying past owners or tenants that may have disposed of chemical or biological waste.
- d) If a title search is not available, interviews of local residents, governmental officials or real estate agents are advised.
- e) If past owners or tenants are suspected of disposing questionable materials, an environmental specialist should be consulted.
- f) If past owners or tenants are suspected of using the ground for the disposal of questionable materials, soil analyses for suspected contaminants should be conducted.

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<sup>2</sup> Laws regarding previously contaminated ground are covered under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly referred to as “Superfund”.

# SOP # 03-01

## ADJACENT LAND USE

### Animal Husbandry

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Use of adjacent grounds or nearby farms for animal husbandry or rendering (e.g. grazing, housing, feeding, slaughtering, etc.).

**Concern:**

Microbial contamination resulting from fecal matter, sick or dead animals (e.g. *E. coli* O157:H7 in cattle or dairy cows, *Salmonella* in fowl, etc.).

**Contaminate introduction:**

- a) Movement of animals from pasture, feed lot, etc. to adjacent growing area.
- b) Ground sloping toward the crop contaminated by runoff resulting from rains.
- c) Ground sloping toward the crop contaminated by leaking settling ponds, etc.
- d) Movements of manure resulting from wind.
- e) Application of manure on adjacent growing areas.
- f) Contamination from decaying carcasses.

**Preventative or corrective measures:**

Survey land adjacent to the ranch for animal husbandry and document findings.

- a) Animal movement should be restricted with proper fencing or other physical barriers.
- b) Rain induced runoff of animal waste should be diverted by trenching or similar land preparation.
- c) Manure should not be stored in adjacent fields. If manure is stored in close proximity to growing crops storage measures should be utilized that prevent contamination.
- d) Leaking animal waste should be diverted by trenching or similar land preparation.
- e) Manure applications should be timed to avoid conflicts with growing schedules in adjacent fields.
- f) Monitoring for diseased or dead animals and a procedure for quick removal and disposal of the carcasses.

**References:**

- 1. Integrated Animal Waste Management. Chapter 2, pp. 13-22. November 1996 by Council for Agricultural Science and Technology
- 2. Manure Storage developed by the Engineering Practices subcommittee of the ASAE Agricultural Sanitation and Waste Management Committee. Revised October 1991

## SOP # 03-02

### ADJACENT LAND USE

#### Concerns Associated with Flooding or Breached Containment Systems

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

For farms located on flood planes or utilizing surface waters.

**Concern:**

Crops directly exposed to microbiologically or chemically contaminated floodwaters or utilizing adulterated irrigation waters (e.g. municipal waste, water treatment facility, refinery, storage facility, etc.).

**Contaminate introduction:**

- a) Flooding or related irregular movement of river or surface waters onto agricultural ground (e.g. Salinas River and Pajaro River flooding in California in 1995).
- b) Adulteration of surface waters resulting from breach in a containment system (e.g. hog waste settling pond breach in North Carolina in 199?) or soil saturated by excessive animal waste, etc.
- c) Contamination of well waters resulting from defective casing, improper chemical disposal, etc.

**Preventative or corrective measures:**

Assess possible upstream or irrigation contamination sources. Sample and analyze flood or irrigation waters for microbial or chemical contamination.

- a) Microbiologically and chemically contaminated crops should not be sold in the fresh market<sup>3</sup>.
- b) Surface waters should be treated using an approved material (i.e. chlorination, ozonation, etc.). Chemical contaminants should be removed using a charcoal filtration or appropriate mitigation system.
- c) Well waters should be treated using an approved material (i.e. chlorination, ozonation, etc.). Chemical contaminants should be removed using a charcoal filtration or appropriate mitigation system.

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3. Under limited situations, sale of produce exposed to contaminated floodwaters should be restricted to buyers that will process the produce with a microbial kill step (i.e. a processing procedure that results in a minimum of a 5 log reduction in microbial levels).

# SOP # 03-03

## ADJACENT LAND USE

### Pesticide Drift

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Drift of pesticides from adjacent grounds.

**Concern:**

The drifted pesticide does not have a registration, tolerance or an action level associated with the commodity subjected to the drift or the drift results in a residue level that exceeds the United States Environmental Agency's tolerance.

**Contaminate introduction:**

- a) Appropriate buffer zone is not utilized between crops or between application and non-targeted crop.
- b) Applicator applies under windy conditions.
- c) The carrier is applied under excessive pressure or with an inappropriate (i.e. inordinately small orifice) nozzle.

**Preventative or corrective measures:**

All suspected incidences of drift should be reported to management. Sampling of the commodity should be performed prior to harvest and tested to confirm or refute the reported incidence. Crops containing non-registered pesticides or pesticide residues at volatile levels should be destroyed. Monitoring for residues should continue until levels have degraded to a non-detectable level.

- a) Microbiologically and chemically contaminated crops should not be sold in the fresh market<sup>4</sup>.
- b) Use of buffer zones should be used whenever possible.
- c) All pesticide applications should be applied while wind speed, including gusts, is low enough to avoid drift. Maximum allowable wind speeds will vary depending on the means of application (i.e. aerial, ground, electrostatic, etc.).
- d) Applicator SOPs should clearly define appropriate application technology including nozzle type & pressure for a specific application. Use of adjuvant with known efficacy as a drift retardant.

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<sup>4</sup> Under limited situations, sale of produce exposed to contaminated floodwaters should be restricted to buyers that will process the produce with a microbial kill step (i.e. a processing procedure that results in a minimum of a 5 log reduction in microbial levels).

- e) Waters should be treated using an approved material (i.e. chlorination, ozonation, etc.). Chemical contaminants should be removed using a charcoal filtration or appropriate mitigation system.

## SOP # 03-04

### ADJACENT LAND USE

#### Stored Organic Fertilizers (Manure Raw or Composted)

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Use of adjacent grounds or nearby farms for composting or storage of animal waste.

**Concern:**

Microbial contamination (e.g. *Escherichia coli* O157:H7 in cattle or dairy cows, *Salmonella* in fowl, hog cholera from swine waste, etc.) in crops in adjacent fields or irrigation waters (surface or wells).

**Contaminate introduction:**

- a) Movement of animal waste attributable to wind.
- b) Retainer breaches resulting in surface water contamination.
- c) Ground water contamination resulting from permeable soils or breached well casings.
- d) Ground sloping toward the crop contaminated by runoff resulting from rains.
- g) Ground sloping toward the crop contaminated by leaking settling ponds, etc.

**Preventative or corrective measures:**

Survey adjacent grounds for animal waste storage or composting operations.

- a) Cover stored animal waste with plastic tarps or comparable materials.
- b) Maintain the integrity of the retainer system or develop a trench system to divert contact.
- c) Utilize plastic, concrete or bentonite clay liners to control infiltration.
- d) Rain induced runoff on animal waste should be diverted by trenching or similar land preparation.
- g) Leaking from animal waste should be diverted by trenching or similar land preparation.

**References:**

Integrated Animal Waste Management. pp. 23-33, 36. November 1996 by Council for Agricultural Science and Technology

## SOP # 03-05

## ADJACENT LAND USE

### Application of Organic Fertilizers (Animal based manure or bio-solids)

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Use of adjacent grounds or nearby farms for animal husbandry or rendering (e.g. grazing, housing, feeding, slaughtering, etc.).

**Concern:**

Microbial contamination resulting from fecal matter, sick or dead animals (e.g. *E. coli* O157:H7 in cattle or dairy cows, *Salmonella* in fowl, etc.).

**Contaminate introduction:**

Drift from organic fertilizer (manure or bio-solids) applications made in adjacent fields.

**Preventative or corrective measures:**

- a) All organic fertilizers should be composted<sup>5</sup> prior to use.
- b) Stage of growth of adjacent crops should be considered prior to the decision to apply organic fertilizers.
- c) Time applications prior to emergence of crops in adjacent fields.
- d) After crop emergence, restrict applications to soil incorporation of liquefied manure.

**References:**

Integrated Animal Waste Management. pp. 46. November 1996 by Council for Agricultural Science and Technology

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<sup>5</sup> Compost records should be requested from suppliers and reviewed for compliance with Sections 40502, 43020 and 43021 of the California Public Resources Code. Waste must be maintained at 131°F or higher for a minimum of three days, while windrows are turned a minimum of five times. Microbial test of compost must yield *E. coli* levels less than 1,000 MPN/gram and *Salmonella* less than three MPN/4 grams.

**SOP # 03-06**

**ADJACENT LAND USE**

**Industrial Use of Adjacent or Nearby Land**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Use of adjacent grounds for manufacturing or related activity that might entail the use of toxic chemicals (e.g. metal plating, mining, plastics manufacturing, chemical synthesis or formulation, etc.).

**Concern:**

Chemical contamination resulting from air emissions or tainted waters used for irrigation.

**Contaminate introduction:**

Movement by air or water from source site to growing area.

**Preventative or corrective measures:**

- a) Within the “Superfund Amendments and Reauthorization Act” (SARA) passed in 1986 is the Community Right-To-Know provision. This provision requires firms to inform the public of the use of hazardous materials. Should you suspect that a local firm is a possible source of contamination, SARA provides a mechanism for forcing disclosure. Should the concern be validated, the Resource Conservation and Recovery Act (RCRA) of 1976 provides a mechanism for “citizen suites”. In combination, SARA and RCRA provide growers a mechanism for protecting their ground from contamination resulting from private or government activities.
- b) An analysis of any soils or waters suspected of being contaminated should be conducted.
- c) If soils or irrigation waters are contaminated, a local environmental engineering firm should be retained to assist in designing and implementing remediation measures.

**References:**

Hazardous Waste Management 1994. by LaGrega, Michael D., et. el. published by The Environmental Resource Management Group and McGraw-Hill, Inc. pp. 9, 43-49, 55.

## SOP # 04-01

### FERTILIZER USAGE

#### Selection and Application of Animal Waste Based Soil Amendments

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Choices of material used for maintaining soil organic matter levels, resultant soil aggregation, soil nutrient levels, plant vigor, yield and related properties.

**Concern:**

Crop contamination resulting from human pathogens.

**Contaminate introduction:**

- a) Direct contact of manure with the crop resulting in fecal contamination and possible exposure to human pathogens.
- b) Introduction of pathogens into or on soils for possible future contamination of the crop.

**Preventative or corrective measures:**

- a) Use of **raw** manure is prohibited, only manure **composted**<sup>6</sup> under approved protocols should be utilized.
- b) Plot and field records should identify all compost applications by supplier identification (e.g. lot number, etc.)
- c) Manure suppliers should be selected with emphasis on verifiable compliance with approved composting practices.
- d) Source material (i.e. percentage of animal, vegetable, etc.) of composted material should be supplied and files maintained.
- e) Periodic review of compost supplier's records including temperature logs, turn frequency and microbial testing should be conducted and recorded.
- f) Selection of a compost supplier should be contingent on the firm's ability to supply documentation in a timely fashion.
- g) Application of composted manure should be made prior to planting annual or biennial crops. Application of composted manure to perennials should be conducted during the plants dormant period and incorporated into the soil immediately after application

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6 In the state of California Sections 40502, 43020, and 43021 of the Public Resource Code Sections address minimum composting procedures. The guidelines call for the compost to be maintained at 131°F for a minimum of fifteen days and turned no less than five times. The microbiological testing results should yield *E. coli* levels of less than 1,000 MPN/gram and *Salmonella* levels of less than three MPN /4 grams of compost.

## SOP # 04-02

### FERTILIZER USAGE

#### Use of Bio-solids as Soil Amendments

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Choice of material used for maintaining soil organic matter levels and resultant soil aggregation and related properties.

**Concern:**

Crop contamination resulting from human pathogens.

**Contaminate introduction:**

- a) Direct contact of bio-solids with the crop resulting in fecal contamination and possible exposure to human pathogens.
- b) Contamination of irrigation waters or other waters utilized in the production of crops.
- c) Introduction of pathogens into or on soils for possible future contamination of the crop.

**Preventative or corrective measures:**

- a) All bio-solids should be composted and comply with the EPA's classification A<sup>7</sup>.
- b) Plot and field records should identify all compost applications by supplier identification (e.g. lot number, etc.)
- c) List of approved bio-solid suppliers should be limited to those firms demonstrating consistent compliance with EPA guidelines.
- d) Application for bio-solids sourced from unapproved suppliers should be prohibited.
- e) Supplier's records should be audited periodically.
- f) Care should be taken to avoid water contamination from stored bio-solids. Bio-solids should never be stored within 30 ft. of a well or open water system.
- g) Bio-solids should be applied to soils prior to planting.
- h) Bio-solids should be incorporated into the soil during application.

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<sup>7</sup> 40 CFR 03.32 The EPA developed guidelines (policy) regarding the procedural requirements for the treatment (composting) of bio-solids approved for use as a soil amendment. Those guidelines specify that compost can be used as a soil amendment in agricultural setting when the bio-solids are maintained at 131°F for a minimum of 15 days with at least five turns. A second procedure allows the bio-solids to be approved for agricultural uses if a microbial test is conducted on the final compost and *E. coli* levels are less than 1,000 MPN (Most Probable Number) / gram of compost and *Salmonella* levels are less than three MPN / 4 grams of compost.

**SOP # 04-03**

**FERTILIZER USAGE**

**Use of Mineral Fertilizers for Crop Nutrients**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Choice of material used for maintaining crop vitality, vigor and productivity.

**Concern:**

Crop contamination resulting from chemical contamination.

**Contaminate introduction:**

Direct contact of manure with the crop resulting in heavy metal<sup>8</sup>, isotope contamination or related contaminants associated with mineral fertilizers.

**Preventative or corrective measures:**

- a) All mineral fertilizers should meet state<sup>9</sup> guidelines regulating purity and content.
- b) A review of the manufacture's or distributor's Materials Safety Data Sheets (MSDS)
- c) Plot and field records should identify all mineral fertilizer applications by supplier identification (e.g. lot number, etc.).
- d) Farming operations should develop a protocol for developing an approved supplier list.
- e) Application of mineral fertilizers should be limited to material sourced from approved suppliers.
- f) Supplier's records should be audited periodically.

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8 California Department of Food and Agriculture's Heavy Metal Assessment Project 1997 and The Washington League of Food Processors

9 State of California's Fertilizer Materials Act

**SOP # 04-04**

**FERTILIZER USAGE**

**Application Procedure for Fertilizers and Organic Soil Amendments**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Even after selection of appropriate manure and/or mineral fertilizer application procedures, they should still comply with good agricultural practices.

**Concern:**

Direct exposure of the edible portion of the product with manure or mineral fertilizers.

**Contaminate introduction:**

- a) Manure applications made during growing season.
- b) Mineral fertilizers applied during harvest and in a manner that allows direct contact with the crop.

**Preventative or corrective measures:**

- a) Manure applications restricted to applications made prior to planting.
- b) All manure applications are soil incorporated immediately to facilitate rapid incorporation into soil organic matter (i.e. fulvic acid, humic acid, humin, etc.) and breakdown.
- c) Application and dispersal mechanisms should provide relatively even applications.
- d) Planting beds are covered with plastic, reducing soil and plant contact.
- e) Mineral fertilizers applied during the season are applied through the drip irrigation system.

**SOP # 04-05**

**FERTILIZER USAGE**

**Use of Industrial Waste as a Soil Additive**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Choice of material used for maintaining crop vitality, vigor and productivity.

**Concern:**

Crop contamination resulting from chemical or microbial contamination.

**Contaminate introduction:**

Direct contact of industrial waste with the crop resulting in microbial, heavy metal<sup>10</sup>, isotope contamination or related contaminants associated with industrial waste.

**Preventative or corrective measures:**

- a) The State of California does not regulate products provided free of charge to growers or materials growers charge a fee for receiving. Application of non-regulated soil amendments is discouraged.

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<sup>10</sup> California Department of Food and Agriculture's Heavy Metal Assessment Project 1997 and The Washington League of Food Processors

# SOP 05-01

## WATER USAGE

### Microbiological Contamination of Water

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Use of water as a carrier for pesticides, fertilizers or other plant protection or growing aids.  
Water used for irrigation, for rinsing crops, frost protection, etc.

**Concern:**

Water can be a vector for microbes including human pathogens (e.g. *E. coli*, cholera, *Salmonella*, etc.).

**Contaminate introduction:**

Though the level of the water's contamination is assumed to be important, the level of risk that tainted waters pose in production agriculture is poorly understood.

**Preventative measures (microbial monitoring):**

Fresh Kist Produce, LLC. utilizes a water monitoring system as part of its preventative strategy.

a) WELLS (CLOSED)

- Frequency. Sample collected is to be accomplished prior to each harvest season and continued annually.
- Location. If a filtering system is present, samples are to be taken after the water passes through the filtering system. If a filtering system is not present, then the sample should be taken at the well head. If a filtering system is not present and a sample cannot be taken at the well head, then a sample can be taken at some point beyond the well head.
- Results. The samples will initially be analyzed for *E. coli*, as indicator of fecal contamination. If contaminated the grower will take immediate action to correct the problem. Additional analyses will be conducted on a daily basis until the contamination issue has been addressed and negative analytical results have been produced.
- Retest. Water source will be sampled and re-tested after corrective measures have been implemented to confirm their effectiveness.

b) OPEN WATER SOURCES

- Frequency. Sample collection is to be accomplished prior to the beginning of each harvest season and continued at least on a quarterly basis (if surface water is used at all).
- Location. If filtering systems are present, samples are to be taken after the water passes through the filter system. If a filtering system is not present, the sample should be taken at the water source. If a filtering system is not present and a sample cannot be taken at the water source, a sample can be taken at some point beyond the booster pump.
- Results. The samples are to be analyzed for *E. coli*, if there is a positive detection of this microorganism, the grower will implement corrective action. Additional analyses will be conducted on a daily basis until the contamination issue has been addressed and negative analytical results have been produced.
- Retest. Water source will be sampled and re-tested after corrective measures have been implemented to confirm their effectiveness.

### **Corrective measures:**

The number of possible causes of water contamination can be numerous. Addressing a specific cause will at times require creativity and flexibility. Fresh Kist Produce, LLC. offers the following suggestions as possible mitigation measures, knowing that in most cases growers will be the best source for providing specific solutions. Please keep in mind the following: corrective measures must be effective, provide on going prevention and confirmed as efficacious.

- a) For a well tainted by a microorganism, where the cause of contamination results from a single isolated atypical or non-repetitive event (i.e. flooding,) a possible corrective measure would be “shocking” the well with chlorine<sup>11</sup>.
- b) If a breach in the well’s casing has resulted in the well being more susceptible to contamination then the casing should be repaired or an alternative water source should be found.
- c) If the water source can not be treated and is suspected or confirmed to be contaminated an alternative (i.e. different well, etc.) should be used.
- d) For water sources that are contaminated and where alternative water supplies are not available an automatic chlorination system is a possible mitigation measure.
- e) For open water sources, due to the difficulty in controlling “upstream” activities, a strict program of monitoring to restrict human and animal access to the water source within the growers’ property lines should be implemented.
- f) Sprinkler irrigation:

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<sup>11</sup> In the United States chlorine is a commonly the material of choice for treating waters to kill or eliminate many microbes. Some microbes in certain stages of development are not impacted by chlorine (i.e. Cryptosporidium, etc.). Strictly adhere to the restrictions and guidelines specified on the label.

## SOP 05-02

### WATER USAGE

#### Chemical Contamination of Water

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

**Issue:**

Use of water as a carrier for pesticides, fertilizers or other plant protection or growing aids. Water used for irrigation, for rinsing crops, frost protection, etc.

**Concern:**

Water can be a carrier for chemicals including pesticides, fertilizers, etc.

**Contaminate introduction:**

Though the level of the water's contamination is assumed to be important, the importance of the risk that tainted waters pose is poorly understood, as tainted waters represent a potential source of contamination of crops.

**Preventative or corrective measures:**

The number of possible causes of water contamination can be numerous. Addressing a specific cause will at times require creativity and flexibility. Fresh Kist Produce, LLC. offers the following suggestions as possible mitigation measures, knowing that in most cases growers will be the best source for providing specific solutions. Please keep in mind the following:

**corrective measures must be effective and provide ongoing prevention.**

- a) For a well tainted by a chemical where the cause of contamination results from a single isolated atypical or non-repetitive event (i.e. back siphoned pesticide application applied through an irrigation system) after removal of contaminated soil, pumping the well dry repetitively and testing for residual chemical is advised<sup>12</sup>. The use of filtration (i.e. activated carbon) system that is designed to remove the chemical would provide added insurance.
- b) Irrigation systems should utilize check valves. Position the check valves to prevent well or other water source contamination from agricultural chemicals introduced through the irrigation system. Check valves should be tested periodically to assure they are in working order.
- c) The addition, mixing and disposal of all agricultural chemicals should be done as prescribed by local, state and federal laws, regulations and guidelines. Care should be taken to avoid well contamination by any agricultural chemical (i.e. agricultural chemical additions, mixing, flushing spray tanks, cleaning equipment, etc.). All agricultural chemical additions, dilutions, etc. should be prohibited within 30 feet of the well head.

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<sup>12</sup> Growers are encouraged to obtain the assistance of an environmental engineer or equivalent professional specific advice.

- d) Soils exposed to excessively high concentrations of pesticides (i.e. accidental spill of a concentrated product) should be removed and disposed of properly.
- e) A sample of water should be taken and analyzed from all wells suspected of being contaminated. Waters that may pose a risk of contaminating crops should not be used until the effectiveness of the mitigation measures has been verified through analyses.

## SOP 06-01

# PEST CONTROL MEASURES AND THE USE OF AGRICULTURAL CHEMICALS

## Residual Pesticide Monitoring of Produce

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

### Issue:

Fresh Kist Produce, LLC. encourages and promotes the use of integrated pest control procedures. Where crop protection requires the use of agricultural chemicals Fresh Kist Produce, LLC. requires strict adherence to all local, state and federal laws and regulations.

### Concern:

Crop exposure to illegal pesticide residues.

### Contaminate introduction:

There are three main causes for the presence of non-registered pesticides or volatile levels of approved pesticides:

- a) drift from adjacent fields
- b) contamination from improperly cleaned tanks and
- c) application of non-registered product

### Contaminate Introduction:

There are three main causes for the presence of non-registered pesticides or volatile levels of approved pesticides:

- a) drift from adjacent fields
- b) contamination from improperly cleaned tanks
- c) application of non-registered product

### Preventative or corrective measures:

Implement effective program to ensure products are not exposed to illegal pesticides and do not contain pesticide residues, which exceed legal tolerances. This would include:

- a) Adoption of Integrated Pest Management programs and evaluation of alternative crop management practices in relation to pesticide usage
- b) Only employees under the supervision of licensed or certified pest control operators meeting local regulatory requirements for registration, certification or licensing may apply pesticides.
- c) If contract pest control operators are utilized, the supplier or co-packer should be aware of the types and amounts of pesticides used and must accompany the pest control operator on the premises at least quarterly to confirm that label directions and proper practices are being followed.

## SOP # 07-01

# PESTICIDE MONITORING

## Guidelines and 3<sup>rd</sup> Party Residue Sampling Protocol

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

### Issue:

Sampling for residue analysis on produce will be conducted prior to harvesting the affected crop.

### Concern:

The independent laboratory, PrimusLabs.com, will randomly sample affected crops and analyze for pesticide residues.

### Sampling Procedures:

- a) Representative samples (pre-harvest or dock) of product should be taken and submitted to a certified laboratory for pesticide residue analysis.
- b) Product should not be shipped until informed by laboratory that product is within U.S. legal pesticide tolerances

### Preventative or corrective measures:

If an over tolerance problem is found the following actions should be taken:

- a) The laboratory should re-test the sample to confirm their original results using sub-samples held by the laboratory.
- b) If the field is not harvested, another sample should be taken and submitted for pesticide residue analysis. Multiple samples may be taken from defined sectors of the field to indicate if a drift problem exists.

If an illegal tolerance problem is found the following actions should be taken:

- a) The laboratory should re-test the sample to confirm their original results using sub-samples held by the laboratory.
- b) If the presence of illegal residues is confirmed, all products should be recovered and destroyed.

**SOP # 08-01**

**HARVESTING**

## Packaging Storage

First approval by: \_\_\_\_\_ Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_ Effective Date: \_\_\_\_\_

### Issue:

Food contamination from improperly stored containers or packaging materials

### Concern:

Packaging can be a source of food contamination if stored improperly in areas where insects, birds, rodents, or foreign objects could come in contact with packaging material. Proper steps must be taken to maintain packaging materials in a safe, clean and orderly storage area to prevent contamination.

### Contaminate introduction:

- a) Contamination from birds, rodents, insects or other animals when containers are held overnight unprotected in the field.
- b) Rodent contamination when packaging materials is stored on the ground in growers shed.
- c) Containers stored in portable toilets.
- d) Pesticides or cleaning solutions stored in the same area as packaging materials.
- e) Containers stored in warehouse not having a pest control program.
- f) Empty containers left uncovered on trucks on the way to the field.
- g) Containers not properly cleaned prior to use for food storage.

### Preventative or corrective measures:

The following steps must be followed to ensure that packaging materials are handled, or stored in such a manner as to assure a safe, wholesome and unadulterated product.

- a) Containers and all packaging materials held overnight in the field should be kept directly off the ground and covered with plastic tarp to reduce the chance of contamination from birds or other animals.
- b) Partial boxes of containers should be sealed shut when not in use.
- c) All packaging materials and containers held in growers shed and in the warehouse should be stored off the ground and covered to prevent contamination.
- d) Rodent control program should be maintained in grower's shed and in the warehouse, preferably by a licensed structural pest control operator. Rodent traps indoors and bait stations outdoors must be maintained on a scheduled basis.
- e) Monitoring for the presence of fecal or any other types of contamination inside the warehouse should be done on a regular basis.
- f) Pesticides or cleaning solutions should not be stored in the same location with the packaging materials.
- g) Packaging materials with evidence of fecal or urine contamination by animals must be destroyed.
- h) Packaging materials with evidence of any unknown residue must be destroyed.
- i) Picking containers should be cleaned regularly with any food grade disinfectants such as quaternary ammonium compound.

- j) Picking containers should be properly stored after use to minimize animal contamination.
- k) Empty containers and packaging supplies should be tied down and covered when transported on trucks to the fields.

**References:**

Code of Federal Regulations (CFR), 21 Part 110.80

## SOP # 08-02

### HARVESTING

#### Worker Hygiene

First approval by: \_\_\_\_\_

Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_

Effective Date: \_\_\_\_\_

**Issue:**

Potential food contamination by an employees actions, hygiene, health, or habits.

**Concern:**

All persons working in direct contact with food, food-contact surfaces, and food-packaging materials must follow proper food-handling techniques and food protection principles. Failure to follow these principles may lead to contamination of food resulting in adulterated product and/or food borne illnesses.

**Contaminate introduction:**

- a) Poor hand washing technique after eating, using toilet facilities, smoking, and any time when the hands may have become soiled or contaminated.
- b) Improper hair restraints allowing hair to contaminate product.
- c) Wearing soiled outer garments.
- d) Not keeping gloves in sanitary condition.
- e) Eating, drinking, smoking in areas where food or food ingredients are exposed.
- f) Wearing jewelry that may fall into food, equipment or containers.
- g) Wearing excessive cosmetics, perfume or medicines applied to the skin.
- h) Persons with open lesions, boils, sores, infected wounds or other illnesses that may contaminate food or food contacted surfaces.

**Preventative or corrective measures:**

All reasonable measures should be taken to assure the following:

- a) Wash hands thoroughly and dry with single use disposable towels (sanitize hands to prevent contamination by undesirable microorganism). Wash in an adequate hand washing facility before starting work, after each absence from the workstation and any other time when the hands may have become soiled or contaminated.
- b) Wear in an effective manner, hairnets, headbands, caps, beard covers, or other hair restraints as appropriate to the application.
- c) Wear clean outer garments that are appropriate to the operation so that it protects against contamination of food, food-contact surfaces, or food packaging materials.
- d) If gloves are used in food handling, keep them in a clean, sanitary and intact condition. They should be of an impermeable material.

- e) Do not store clothing or other personal belongings in areas where food is present or where equipment or utensils are washed.
- f) Remove all jewelry and other objects that might fall into food, equipment or containers. If hand jewelry cannot be removed, gloves made of an impermeable material (rubber or latex) should be worn.
- g) Take other necessary precautions to protect against contamination of food, food-contact surfaces, or food packaging materials with microorganisms or foreign substances by controlling perspiration and not wearing excessive cosmetics, perfumes, chemicals, or medicines applied to the skin.
- h) All food handlers and supervisors should receive appropriate training in proper food-handling techniques and food protection principles. They should be made aware of the dangers of poor personal hygiene and unsanitary practices.

**References:**

Code of Federal Regulations (CFR), 21 Part 110.5 “Current Good Manufacturing Practice”

**SOP # 08-03**

**HARVESTING**

## Field Sanitation

First approval by: \_\_\_\_\_

Revision No.: \_\_\_\_\_

Second approval by: \_\_\_\_\_

Effective Date: \_\_\_\_\_

### Issue:

Potential food contamination by an employees actions, hygiene, health, or habits.

### Concern:

All persons working in direct contact with food, food-contact surfaces, and food-packaging materials must follow proper food-handling techniques and food protection principles. Failure to follow these principles may lead to contamination of food resulting in adulterated product and/or food borne illnesses.

### Contaminate introduction:

- a) Inadequate hand washing facilities for use after utilizing toilet facilities and at any time when the hands may have become soiled or contaminated.
- b) Improperly maintained handwashing facilities.
- c) Improperly maintained toilet facilities.
- d) Inadequate trash disposal.

### Preventative or corrective measures:

All reasonable measures should be taken to assure the following:

- a) The employees must wash their hands thoroughly before starting work, after using the toilet facilities or at any time when the hands may have become soiled or contaminated.
- b) There should be a toilet facility for every twenty (20) employees of each gender. If the total number of field workers is less than five (5), then a single coed toilet facility may be utilized if it can be locked from the inside.
- c) Each toilet facility must have toilet paper in a proper holder.
- d) Each toilet facility must be kept in a clean and sanitary condition.
- e) Each toilet facility must have a current cleaning check sheet indicating each time the facility has been cleaned.
- f) The toilet facilities shall be located within one-quarter mile or 5 minutes from the employees, whichever is shorter.
- g) The handwashing facility must have sufficient water available for use, and the water supply shall be labeled "This water for handwashing purposes only" in a language understood by the workers.
- h) The handwashing facility must have soap in a proper dispenser.
- i) The handwashing facility must be supplied with single use disposable towels in a proper holder.
- j) The handwashing facility shall have a receptacle capable of keeping the trash contained.
- k) Each toilet/handwashing facility shall have a supplies check sheet available indicating date checked and when supplies have been refilled.
- l) If possible, portable toilet facilities should be cleaned and serviced away from the field.
- m) When serviced by septic trucks near the field, all steps shall be taken to minimize the likelihood of crop contamination in the event of leakage or a spill.

**References:**

Code of Federal Regulations (CFR), 21 Part 110 “Current Good Manufacturing Practice”

**SOP # 08-04**

**HARVESTING**

**Field to Cooler Shipping**

**First approval by:** \_\_\_\_\_ **Revision No.:** \_\_\_\_\_

**Second approval by:** \_\_\_\_\_ **Effective Date:** \_\_\_\_\_

**Issue:**

Contamination from transport vehicles utilized for alternative operations.

**Concern:**

Chemical, microbial or physical contamination resulting from exposure to materials concurrently being transported with crops or from residues from previously transported materials.

**Contaminate introduction:**

- a) Chemical contamination resulting from chemicals (i.e. pesticides, detergents, sanitizers, mineral fertilizers, etc.) either transported with the crops or prior to shipping the produce.
- b) Microbial contamination resulting from the transport of animals, manure, portable toilets, portable toilet components, etc. either transported with the crops or prior to shipping the crop.
- c) Microbial contamination resulting from the exposure of the vehicle to contaminated waters (during washing, etc.).
- d) Microbial or chemical contamination resulting from contaminated (fouled bathrooms, prior work in animal husbandry operations, etc.) worker (loader, etc.) clothing (shoe, etc.).
- e) Physical contamination resulting from the transport of wood mulch, nails, metal and metal filings, etc. either transported with the produce or prior to the shipping the crop.

**Preventative or corrective measures:**

- a) Produce will not be loaded onto trucks if visible or obvious contamination has occurred/will occur.