



2017

# THE ALMOND CONFERENCE

THE ALMOND FOOD SAFETY PLAN: TEACHING EXAMPLE FOR  
FSMA PREVENTIVE CONTROLS

Room 314 | December 5 2017



# CEUs – New Process

## Certified Crop Advisor (CCA)

- Sign in and out of each session you attend.
- Pickup verification sheet at conclusion of each session.
- *Repeat this process for each session, and each day you wish to receive credits.*

## Pest Control Advisor (PCA), Qualified Applicator (QA), Private Applicator (PA)

- Pickup scantron at the start of the day at first session you attend; complete form.
- Sign in and out of each session you attend.
- Pickup verification sheet at conclusion of each session.
- Turn in your scantron at the end of the day at the last session you attend.

*Sign in sheets and verification sheets are located at the back of each session room.*

# AGENDA

- **Tim Birmingham**, Almond Board of California



A close-up photograph of several green almonds on a branch, surrounded by vibrant green leaves. The background is softly blurred, showing more of the orchard. The lighting is natural, highlighting the texture of the almond skins and the veins on the leaves.

# The Almond Food Safety Plan

Teaching Example for FSMA Preventive Controls

# Presentation Overview

- Compliance Periods Reminder
- Basic Elements in the Food Safety Plan
- Highlights of an Almond Food Safety Plan – For Teaching Purposes Only!
  - Focus on Hazard Analysis and Process Preventive Controls
  - We won't be identifying all potential hazards or associated Preventive Controls
  - Will be walking through the basic elements only focusing on the decision making steps you will employ in the development of your plan

This session is intended to be interactive. There is a lot of expertise in this room. Please feel free to stop me at any time to provide input, offer alternative approaches, or ask questions!!!

# Preventive Controls for Human Food – The Time is Now!

| <b>Handlers or Non-farm Huller/Shellers</b>   | <b>Large Businesses</b><br>>500 employees | <b>Midsize Businesses</b><br><500 employees | <b>Very Small Businesses</b><br>as noted below  |
|---|---|---|---|
| <p><b>Preventive Controls (PC) for Human Food</b></p> <p>This rule applies to almond handlers or huller/shellers not considered a primary or secondary activities farm. Under Preventive Controls, you are required to conduct a hazard analysis and implement a food safety plan*; additional requirements exist around supply chain controls.</p> <p>*Almond Board of California has created model almond food safety plans to be used as a resource. Contact Tim Birmingham, director, Quality Assurance &amp; Industry Services, <a href="mailto:tbirmingham@almondboard.com">tbirmingham@almondboard.com</a></p> | <p><b>Sept. 19, 2016</b></p>              | <p><b>Sept. 18, 2017</b></p>                | <p><b>Sept. 17, 2018</b></p> <p>&lt;\$1 million in sales + market value of food manufactured/processed/packed/held without sale</p> |
| <p>Compliance date extended by two years for facilities solely engaged in packing and/or holding activities on raw agricultural commodities (RACs) and/or nut hulls and shells or facilities that meet the definition for a secondary activities farm (except for the majority of ownership requirement).</p>   |   |   |   |

# Contents of the Food Safety Plan

- Required

- Hazard Analysis
- Preventive Controls (PC)
  - Process
  - Food Allergen
  - Sanitation
  - Supply Chain
  - Recall Plan
- Procedures for monitoring, corrective actions and verification for those hazards requiring a PC
- Need to Validate Process Controls

- Useful

- Facility overview and food safety team descriptions
- Product(s) description
- Flow diagram
- Process Description

# Required Elements of The Food Safety Plan

## 1. Hazard Analysis

- Written analysis identifying reasonably foreseeable biological, physical, and chemical hazards
- Determine if Preventive Controls are required
- Must include an evaluation of environmental pathogens when a RTE food is exposed to environment prior to packaging and packaged produce is not treated after packaging

## 2. Preventive Controls (PC's)

- Required if HA identifies a need for control
  - Could be: Process controls; allergen controls; sanitation controls; supply-chain controls; others
- Not required when identified hazard requiring a PC is controlled by another entity later in the distribution chain if:
  - Disclose that food has not been processed to control an identified hazard
  - Obtain written assurances that the hazard will be controlled later in the food chain

## 3. Recall Plan

- Written procedures that describe steps related to:
  - Directly notify the direct consignees of the food being recalled
  - Notify the public when appropriate to protect public health
  - Conduct effectiveness checks to verify that the recall is carried out; and
  - Appropriately dispose of recalled food

# Elements of The Food Safety Plan

## 4. Monitoring (PC's)

- Facility must have written procedures, including frequency they are to be performed, for monitoring the preventive controls
- Monitoring must be documented in records subject to verification

## 5. Corrective Actions (PC's)

- Facility must establish and implement written corrective action procedures to
  - Identify and correct a problem with implementation of a preventive control
  - When necessary, reduce the likelihood that the problem will recur
  - Ensure affected food is evaluated for safety
  - Ensure adulterated food is prevented from entering into commerce

## 6. Verification (PC's)

- Verification of implementation and effectiveness includes, as appropriate to the facility, the food and the nature of the preventive control
  - Calibration
  - Product testing for a pathogen or appropriate indicator or other hazard
  - Environmental monitoring if an environmental hazard requiring a preventive control is identified
  - Review of records



## Model Food Safety Plan for Whole Brownskin Almonds

# Company Overview (Optional – But Highly Recommended)

- Background information on the company and operations
  - Company overview and location
    - Food Safety Team
      - Will include a Preventive Controls Qualified Individual responsible for overseeing development and implementation of the Food Safety Plan
      - Good to have multiple PCQI trained individuals
  - Product(s) Description
    - Includes packaging, intended use/customers, packaging, storage & distribution, etc.
  - Flow Diagram(s)
  - Process Description
- Our Example
  - Freedom Nut Company
  - Whole Brownskin Almonds

Product: Whole Brownskin Almonds  
 Plant Name: Freedom Nut Company  
 Address: 123 Orchard Way, USA

Page: 2 of 13  
 Issue Date: 5/24/16  
 Supersedes: NONE



## Company Overview

The example company is an off-farm almond handler that receives hulled and shelled almond kernels. The company sizes, sorts, and packs almonds in bulk. The company ships raw (un-pasteurized) product to Direct Verifiable Users, and to customers outside of North America. The company uses off-site custom pasteurization services for shipment to non-DV Users in North America. The company is subjected to annual audits of their Handler Treatment Plan.

Production activities including receipt of incoming product occurs 7 days a week, across three 8-hour production shifts. The company does not engage in any manufacturing (e.g. blanching, roasting, dicing, etc.).

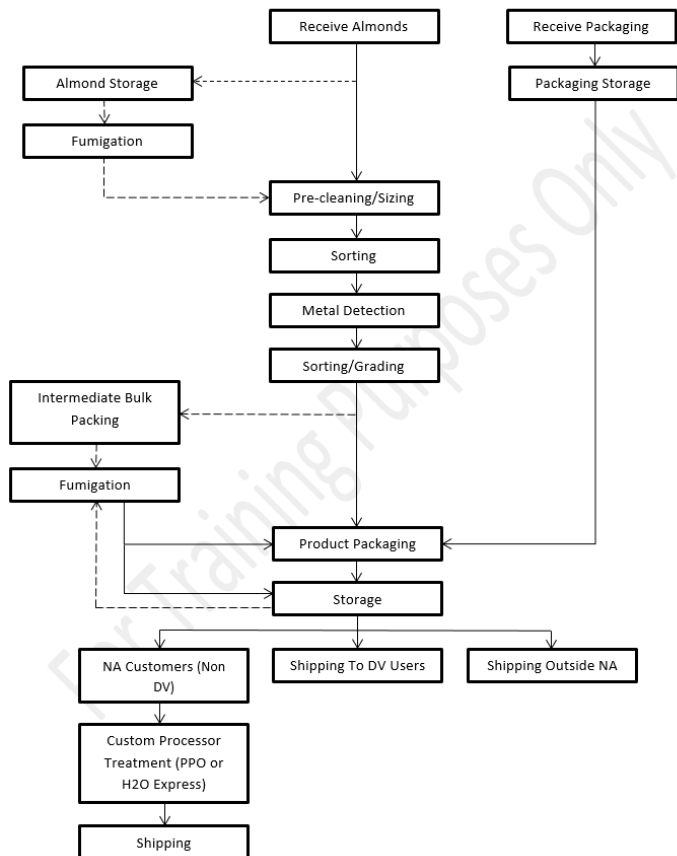
This food Safety Plan covers production of whole brownskin almonds that are sold without a pathogen reduction step to DV Users in North America, and pasteurized (via third party Custom Processor) to customers within the U.S., Canada and Mexico, as well as unpasteurized almonds that are sold to Direct Verifiable Users. This plan also covers labelling of unpasteurized almonds destined for the North American or export markets.



## Product Description

|  |   |
|--|---|
| Product Name(s)  | Whole Brownskin Almonds   |
| Product Description, including important food safety characteristics | Whole Brownskin Almonds; <6 % Moisture  |
| Ingredients  | Almonds   |
| Packaging Used   | Plastic unlined 50 Lb cardboard cartons, 2200 pound plastic lined totes   |
| Intended Use   | This product is intended for use as an ingredient in manufactured products, or incorporation as an ingredient in a RTE product. |
| Intended Consumers   | General Public  |
| Shelf Life   | Approx. 2 years under ambient conditions  |
| Labeling Information   | Unpasteurized product must be labeled as such   |
| Storage and Distribution   | Dry, ambient  |
| Approved:  | Date:   |
| Signature: <i>Guy Safety</i>   |   |
| Print Name: Guy Safety, QA Manager                                   | 5/24/16   |

## Flow Diagram



## Process Description

### Ingredient and Packaging Receiving

Almonds are produced by contracted growers following GAP and are harvested under dry weather without wet or rainfall exposure. Shelled kernels are delivered by growers' contracted hullers and shellers who followed cGMP. The shelled almonds are inspected by USDA inspectors and plant QC personnel for moisture and grades. Packaging materials are purchased from reputable suppliers that comply with internationally recognized food safety and quality systems. Suppliers provide guarantee letter for not using recycled material to cardboard containers.

- **Receiving Packaging**
- **Receiving Almonds**

### Storage

- **Fumigation:** Incoming almonds after USDA inspection are fumigated with phosphine following labeling requirement to ensure that any potential insect eggs are eliminated, and then transferred to a storage room.
- **Packaging Material Storage:** All corrugated boxes, totes and liners are stored in the dry storage room in packaging area.
- **Almond Storage:** After fumigation, almonds are stored in dry storage room at a temperature of less than 65°F with humidity controlled below 65%RH.
- **Packaged Almonds:** After packing, almonds are stored in a finished products warehouse at a temperature of less than 65°F with humidity controlled below 65%RH.

### Sizing, Sorting, Grading

- **Pre-cleaning/Sizing:** Gravity table and/or other electronic sorter may be utilized to remove foreign materials and insect damaged kernels prior to sizing. Almond kernels are sized into 7 to 8 chutes through screen with a series of round holes of different diameters. Kernel sizes are defined as counts of whole kernels in one ounce weight.
- **Vibratory Sifter:** a vibratory sifter with a screen with 8"/64 inch in diameter is installed in feeding line prior to sorting to remove small debris from incoming almonds. It should be frequently checked and cleaned to ensure no blockage of round holes.
- **Electronic Sorting:** a color sorter and an X-ray sorter are installed inline to remove foreign materials and defects including serious and other defects. The sorting equipment should be frequently cleaned to ensure consistent sorting efficiency. The sorting effectiveness will also be verified a set frequency

## Hazard Analysis (Required)

- Hazard – Refers only to conditions or contaminants in the food that has the potential to cause injury or illness
  - Includes any biological, chemical (including radiological), or physical agent that has the potential to cause injury or illness
  - Includes those that are known to be or has the potential to be associated with the facility or the food
  - How a hazard is addressed in a Food Safety Plan depends on both the likelihood of occurrence in the absence of its control and the severity of the illness or injury that would result if the food is consumed
- Hazard analysis definition – The process of collecting and evaluating information on the hazards and conditions leading to their presence to decide which are significant for food safety and therefore must be addressed in the HACCP or Food Safety Plan

Good News: If you have a HACCP plan, you have already done a Hazard Analysis

# How to Conduct a Hazard Analysis

- List the process steps and ingredients
- Identify known or reasonably foreseeable (i.e., potential) food safety hazards
  - Useful to do this for each step of the process
- Determine if the hazard requires preventive control
  - Based on severity and probability in the absence of control
- Justify the decision
  - Very important – not all identified potential hazards need control if you can provide justification
  - Utilize industry data and scientific studies as appropriate
- Identify preventive controls for the significant hazards

# Hazard Analysis Process

- A sequence of steps is followed for each ingredient/process step identified in flow chart and process description

| (1)<br>Ingredient /<br>Processing<br>Step | (2)<br>Identify potential food<br>safety hazards<br>introduced, controlled<br>or enhanced at this<br>step | (3)<br>Do any<br>potential<br>food<br>safety<br>hazards<br>require a<br>PC? |    | (4)<br>Justify your decision for column 3 | (5)<br>What preventive<br>control measure(s)<br>can be applied to<br>significantly minimize<br>or prevent the food<br>safety hazard?<br>Process including<br>CCPs, Allergen,<br>Sanitation, Supply-<br>chain, other PC | (6)<br>Is the<br>preventive<br>control<br>applied at<br>this step? |    |
|---|---|---|----|---|--|--|----|
|   |   | Yes   | No |   |  | Yes  | No |
|   |   |   |    |   |  |  |    |

List step including receiving

List all potential hazards for each step

Provide reasoning around decisions, particularly if a hazard was identified and does not need to be controlled

Only used when "Yes" in column 3

# Hazard Analysis Process

- Freedom Nut Company Process Steps
  - Identified 13 main process steps when building flow chart and process description
- 1. List each process in step 1

|   |
|---|
| (1)<br>Ingredient /<br>Processing<br>Step |
| Receiving<br>ingredients -<br>Almonds     |
| Receive<br>Packaging                      |
| Almond<br>Storage                         |
| Packaging<br>Storage                      |
| Fumigation                                |
| Pre-cleaning,<br>sizing, Sorting          |
| Metal<br>Detection                        |

# Hazard Analysis Process

- Freedom Nut Company Process Steps
    - Identified 13 main process steps when building flow chart and process description
- List each process in step 1
  - Identify potential hazards

| (1)<br>Ingredient /<br>Processing<br>Step | (2)<br>Identify potential food<br>safety hazards<br>introduced, controlled<br>or enhanced at this<br>step |
|---|---|
| Receiving<br>ingredients -<br>Almonds     | B Vegetative<br>pathogens such as<br><i>Salmonella</i>  |
|   | C Pesticides  |
|   | C Aflatoxin   |
|   | P Foreign material<br>(e.g., stones,<br>sticks, glass,<br>metal etc.)                                     |
| Receive<br>Packaging                      | B None  |
|   | C None  |
|   | P None  |
| Almond<br>Storage                         | B None  |
|   | C None  |
|   | P None  |
| Packaging<br>Storage                      | B None  |
|   | C None  |
|   | P None  |
| Fumigation                                | B Insect Control  |
|   | C Phosphine   |
|   | P None  |
| Pre-cleaning,<br>sizing, Sorting          | B None  |
|   | C Aflatoxin   |
|   | P Foreign Material  |
| Metal<br>Detection                        | B None  |
|   | C None  |
|   | P Metal Pieces  |



Identify potential biological, chemical, physical (and radiological hazards if any) for each step – even if they won't be controlled

# Hazard Analysis Process

- Freedom Nut Company Process Steps
    - Identified 13 main process steps when building flow chart and process description
- List each process in step 1
  - Identify potential hazards
  - Determine if the hazard needs a preventive control

| (1)<br>Ingredient /<br>Processing<br>Step | (2)<br>Identify potential food<br>safety hazards<br>introduced, controlled<br>or enhanced at this<br>step | (3)<br>Do any<br>potential<br>food<br>safety<br>hazards<br>require a<br>PC? |    |
|---|---|---|----|
|   |   | Yes   | No |
| Receiving<br>ingredients -<br>Almonds     | B Vegetative<br>pathogens such as<br><i>Salmonella</i>  | X   |    |
|   | C Pesticides  |   | X  |
|   | C Aflatoxin   | X   |    |
|   | P Foreign material<br>(e.g., stones,<br>sticks, glass,<br>metal etc.)                                     | X   |    |
| Receive<br>Packaging                      | B None  |   |    |
|   | C None  |   |    |
|   | P None  |   |    |
| Almond<br>Storage                         | B None  |   |    |
|   | C None  |   |    |
|   | P None  |   |    |
| Packaging<br>Storage                      | B None  |   |    |
|   | C None  |   |    |
|   | P None  |   |    |
| Fumigation                                | B Insect Control  |   | X  |
|   | C Phosphine   |   | X  |
|   | P None  |   |    |
| Pre-cleaning,<br>sizing, Sorting          | B None  |   |    |
|   | C Aflatoxin   | X   |    |
|   | P Foreign Material  | X   |    |
| Metal<br>Detection                        | B None  |   |    |
|   | C None  |   |    |
|   | P Metal Pieces  | X   |    |

# Hazard Analysis Process

- Freedom Nut Company Process Steps
    - Identified 13 main process steps when building flow chart and process description
- List each process in step 1
  - Identify potential hazards
  - Determine if the hazard needs a preventive control
  - Provide justification for decision

| (1)<br>Ingredient / Processing Step | (2)<br>Identify potential food safety hazards introduced, controlled or enhanced at this step | (3)<br>Do any potential food safety hazards require a PC? |    | (4)<br>Justify your decision for column 3   |
|-------------------------------------|---|---|----|---|
|                                     |   | Yes   | No |   |
| Receiving ingredients - Almonds     | B Vegetative pathogens such as <i>Salmonella</i>  | X   |    | 9 years of almond industry survey data show low levels of <i>Salmonella</i> contamination at ≈ 1%. This hazard will be controlled by DV Users, or Custom Processors |
|                                     | C Pesticides  |   | X  | Current regulations require strict adherence & monitor use of pesticides  |
|                                     | C Aflatoxin   | X   |    | Aflatoxin contamination has been associated with almonds. Studies show a correlation between insect damage and high levels of aflatoxin.                            |
|                                     | P Foreign material (e.g., stones, sticks, glass, metal etc.)                                  | X   |    | Unavoidable foreign material is associated with growing and harvesting nuts.  |
| Receive Packaging                   | B None  |   |    |   |
|                                     | C None  |   |    |   |
|                                     | P None  |   |    |   |
| Almond Storage                      | B None  |   |    |   |
|                                     | C None  |   |    |   |
|                                     | P None  |   |    |   |
| Packaging Storage                   | B None  |   |    |   |
|                                     | C None  |   |    |   |
|                                     | P None  |   |    |   |
| Fumigation                          | B Insect Control  |   | X  | Insect control at this point is a quality issue and not a food safety issue   |
|                                     | C Phosphine   |   | X  | Phosphine fumigant use is per EPA approved application rates and does not present a food safety risk.   |
|                                     | P None  |   |    |   |
| Pre-cleaning, sizing, Sorting       | B None  |   |    |   |
|                                     | C Aflatoxin   | X   |    | Aflatoxin potential in almonds  |
|                                     | P Foreign Material  | X   |    | Sorting is necessary for removing foreign material that may be present.   |
| Metal Detection                     | B None  |   |    |   |
|                                     | C None  |   |    |   |
|                                     | P Metal Pieces  | X   |    | Metal may be present in the almonds.  |

Back up your decisions in an appendix

# Hazard Analysis Process

- Freedom Nut Company Process Steps
    - Identified 13 main process steps when building flow chart and process description
- List each process in step 1
  - Identify potential hazards
  - Determine if the hazard needs a preventive control
  - Provide justification for decision
  - Describe the Preventive Control (If you answered “Yes” in number 3 above)

| (1)<br>Ingredient / Processing Step | (2)<br>Identify potential food safety hazards introduced, controlled or enhanced at this step | (3)<br>Do any potential food safety hazards require a PC? |    | (4)<br>Justify your decision for column 3   | (5)<br>What preventive control measure(s) can be applied to significantly minimize or prevent the food safety hazard? Process including CCPs, Allergen, Sanitation, Supply-chain, other PC |
|-------------------------------------|---|---|----|---|--|
|                                     |   | Yes   | No |   |  |
| Receiving ingredients - Almonds     | B Vegetative pathogens such as <i>Salmonella</i>  | X   |    | 9 years of almond industry survey data show low levels of <i>Salmonella</i> contamination at ≈ 1%. This hazard will be controlled by DV Users, or Custom Processors | Process PC: Subsequent Pasteurization at Custom Processor, Written Assurance by DV or export   |
|                                     | C Pesticides  |   | X  | Current regulations require strict adherence & monitor use of pesticides  |  |
|                                     | C Aflatoxin   | X   |    | Aflatoxin contamination has been associated with almonds. Studies show a correlation between insect damage and high levels of aflatoxin.                            | Process PC: Subsequent aflatoxin testing prior to shipping   |
|                                     | P Foreign material (e.g., stones, sticks, glass, metal etc.)                                  | X   |    | Unavoidable foreign material is associated with growing and harvesting nuts.  | Process PC: Subsequent Sorting & detection   |
| Receive Packaging                   | B None  |   |    |   |  |
|                                     | C None  |   |    |   |  |
|                                     | P None  |   |    |   |  |
| Almond Storage                      | B None  |   |    |   |  |
|                                     | C None  |   |    |   |  |
|                                     | P None  |   |    |   |  |
| Packaging Storage                   | B None  |   |    |   |  |
|                                     | C None  |   |    |   |  |
|                                     | P None  |   |    |   |  |
| Fumigation                          | B Insect Control  |   | X  | Insect control at this point is a quality issue and not a food safety issue   |  |
|                                     | C Phosphine   |   | X  | Phosphine fumigant use is per EPA approved application rates and does not present a food safety risk.   |  |
|                                     | P None  |   |    |   |  |
| Pre-cleaning, sizing, Sorting       | B None  |   |    |   |  |
|                                     | C Aflatoxin   | X   |    | Aflatoxin potential in almonds  | Process PC   |
|                                     | P Foreign Material  | X   |    | Sorting is necessary for removing foreign material that may be present.   | Process PC   |
| Metal Detection                     | B None  |   |    |   |  |
|                                     | C None  |   |    |   |  |
|                                     | P Metal Pieces  | X   |    | Metal may be present in the almonds.  | Process PC   |

# Hazard Analysis Process

- Freedom Nut Company Process Steps
    - Identified 13 main process steps when building flow chart and process description
- List each process in step 1
  - Identify potential hazards
  - Determine if the hazard needs a preventive control
  - Provide justification for decision
  - Describe the Preventive Control (If you answered “Yes” in number 3 above)
  - Determine if the PC is applied at this step

| (1)<br>Ingredient / Processing Step | (2)<br>Identify potential food safety hazards introduced, controlled or enhanced at this step | (3)<br>Do any potential food safety hazards require a PC? |    | (4)<br>Justify your decision for column 3   | (5)<br>What preventive control measure(s) can be applied to significantly minimize or prevent the food safety hazard?<br>Process including CCPs, Allergen, Sanitation, Supply-chain, other PC | (6)<br>Is the preventive control applied at this step? |    |
|-------------------------------------|---|---|----|---|---|--|----|
|                                     |   | Yes   | No |   |   | Yes  | No |
| Receiving ingredients - Almonds     | B Vegetative pathogens such as <i>Salmonella</i>  | X   |    | 9 years of almond industry survey data show low levels of <i>Salmonella</i> contamination at ≈ 1%. This hazard will be controlled by DV Users, or Custom Processors | Process PC: Subsequent Pasteurization at Custom Processor, Written Assurance by DV or export  |  | X  |
|                                     | C Pesticides  |   | X  | Current regulations require strict adherence & monitor use of pesticides  |   |  |    |
|                                     | C Aflatoxin   | X   |    | Aflatoxin contamination has been associated with almonds. Studies show a correlation between insect damage and high levels of aflatoxin.                            | Process PC: Subsequent aflatoxin testing prior to shipping  |  | X  |
|                                     | P Foreign material (e.g., stones, sticks, glass, metal etc.)                                  | X   |    | Unavoidable foreign material is associated with growing and harvesting nuts.  | Process PC: Subsequent Sorting & detection  |  | X  |
| Receive Packaging                   | B None  |   |    |   |   |  |    |
|                                     | C None  |   |    |   |   |  |    |
|                                     | P None  |   |    |   |   |  |    |
| Almond Storage                      | B None  |   |    |   |   |  |    |
|                                     | C None  |   |    |   |   |  |    |
|                                     | P None  |   |    |   |   |  |    |
| Packaging Storage                   | B None  |   |    |   |   |  |    |
|                                     | C None  |   |    |   |   |  |    |
|                                     | P None  |   |    |   |   |  |    |
| Fumigation                          | B Insect Control  |   | X  | Insect control at this point is a quality issue and not a food safety issue   |   |  |    |
|                                     | C Phosphine   |   | X  | Phosphine fumigant use is per EPA approved application rates and does not present a food safety risk.   |   |  |    |
|                                     | P None  |   |    |   |   |  |    |
| Pre-cleaning, sizing, Sorting       | B None  |   |    |   |   |  |    |
|                                     | C Aflatoxin   | X   |    | Aflatoxin potential in almonds  | Process PC  |  | X  |
|                                     | P Foreign Material  | X   |    | Sorting is necessary for removing foreign material that may be present.   | Process PC  |  | X  |
| Metal Detection                     | B None  |   |    |   |   |  |    |
|                                     | C None  |   |    |   |   |  |    |
|                                     | P Metal Pieces  | X   |    | Metal may be present in the almonds.  | Process PC  | X  |    |

# Types of Preventive Controls (For Hazards needing control)

- Process Preventive Controls
  - Controls which include parameters and usually limits (maximum or minimum values) associated with the control of a hazard – CCP's
  - Process PC's require documentation, monitoring and corrective actions
  - An example of a Process PC's is pathogen destruction via pasteurization processes (time and temperature)
- Allergen Preventive Controls
  - Typically will require controls to control allergen cross only contamination when there is risk of contamination of non-allergen products with an allergen
  - Some facilities can effectively control allergens with Good manufacturing practices rather than as an Allergen Preventive Control
- Sanitation Preventive Controls
  - Specific sanitation practices used to significantly minimize or prevent hazards such as environmental pathogens and biological hazards from employees.
  - Pathogen Environmental Monitoring may be used to verify efficacy of Sanitation Preventive Controls
- Supply Chain Preventive Controls
  - A preventive control for a hazard in a raw material or other ingredient controlled before its receipt

# Process Preventive Controls

- Similar to hazard analysis, build out using a sequence of steps

| Process Control(s) | Hazard(s) | Critical Limits | Monitoring |     |           |     | Corrective Action | Verification Activities | Records |
|--------------------|-----------|-----------------|------------|-----|-----------|-----|-------------------|-------------------------|---------|
|                    |           |                 | What       | How | Frequency | Who |                   |                         |         |

# Process Preventive Controls Examples

| Process Control(s)  | Hazard(s)  | Critical Limits   | Monitoring  |  |                                  |                         | Corrective Action  | Verification Activities   | Records   |
|---|------------|---|---|--|----------------------------------|-------------------------|--|---|---|
|   |            |   | What  | How  | Frequency                        | Who                     |  |   |   |
| Insect Damage Removal via electronic/hand sorting                         | Aflatoxin  | <1% Insect Damage   | % insect damage; Sorter settings; Throughput; etc.                | Physical grading of 500 grams of product and logging results | Every 15 minutes                 | QA technician           | Segregate/hold product exceeding 1% serious defects. Sample and submit for aflatoxin testing. Release only if aflatoxin levels <10ppb Total. | Sorting equipment calibrated every 3 months; Conveyor speed /throughput checked weekly; QA Manager reviews and initials records daily. QA Manager reviews and initials records daily. | Sorting logs; QC Quality Report; Outgoing grade certificates; aflatoxin COA (for all lots exceeding 1% serious defects); Calibration records              |
| *1Pathogen Destruction via Continuous Steam process at a Custom Processor | Salmonella | Time: 60 Seconds; Temperature: 212°F; Incoming nut Temp: 60°F | Review conveyor speed log, temperature chart and incoming nut log | Speed Log; Continuous circular chart; Incoming nut Log       | At start up and every 30 minutes | Pasteurization Operator | Segregate and reprocess  | Calibrate temperature probes/chart recorder every 3 months; Daily speed check; Production/QA manager daily review   | Pasteurization Log; Temperature Chart; Conveyor Speed Log; Calibration records; <b>Pasteurization Certificate supplied by Custom Processor to Handler</b> |

# Allergen Preventive Controls

- Build out using sequence of steps

| Process Control | Hazard(s) | Critical Limits   | Monitoring                   |   |   |                    | Corrective Action   | Verification   | Records                     |
|-----------------|-----------|---|------------------------------|---|---|--------------------|---|--|-----------------------------|
|                 |           |   | What                         | How   | Frequency                                   | Who                |   |  |                             |
| *2Allergen      | Almonds   | Allergen concern of almonds must be made known to buyers; | Company Allergen Statement;  | Buyer sign acknowledgment letter;                       | At first contracting time then once a year; | Sales Manager;     | Hold shipment if no signed allergen acknowledgement letter available; | Review once a year by QA manager;                                    | Company Allergen Statement; |
|                 |           | All product packaging clearly labeled as "Almonds"        | Packaging check for labeling | Physical review of package materials prior to packaging | Every lot at startup and every hour         | Packaging Operator | Segregate/label packing   | Every lot physically inspected for proper labeling prior to shipping | Buyers' signed letters;     |

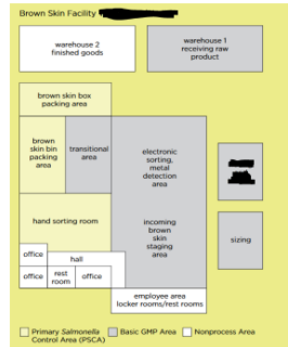
# Sanitation Preventive Controls

- Can build out in chart like previous controls or describe in narrative format
- Should Describe
  - Purpose
  - Procedures
  - Monitoring Practices
  - Corrective Actions
  - Verification Activities

## Sanitation Preventive Controls

### Hygienic Zoning/Environmental Monitoring

**Purpose:** Hygienic zoning and employee sanitation principles are applied to minimize the potential spread of pathogens throughout the production area and/or prevent resident populations of pathogenic microorganisms. All products handled and packed at this facility are unpasteurized.



**Frequency:** During Production

**Who:** Employees and other individuals entering primary *Salmonella* control areas (PSCA), and basic GMP areas.

**Procedure:** Employees entering the (PSCA) and basic GMP areas must:

1. Take a clean, blue smock from the rack outside the production area (incoming brown skin staging area) and put them on. Smocks must cover outer clothing.
2. Take blue shoe covers from the box by the entry and put them on over shoes.
3. Take a hairnet from the box by the entry and put it on. Ensure that all loose hair is captured. Men with facial hair should also apply beard nets.
4. Wash hands just before entering the area, following posted procedures.
5. When exiting the production area, deposit smocks, shoe covers and hair nets in the receptacles provided. Do not reuse disposable items after entering uncontrolled areas.

Training Model [For](#) Exercise after Chapter 11: Sanitation Preventive Controls

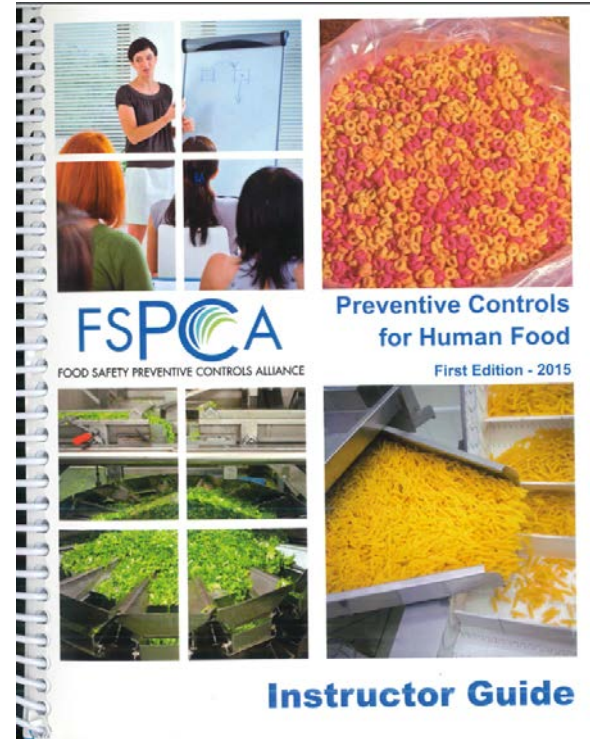
# Recall Plan

- Required when a hazard analysis identifies a hazard requiring a preventive control
- Must be written
- Must describe steps to take and assign responsibility to:
  - Notify direct customers and consignees
  - Notify the public, when appropriate
  - Conduct effectiveness checks
  - Execute disposition of the food involved



# Preventive Controls- Steps to Get Started

1. Make sure to have a Qualified Individual on Staff or Readily Available
  - FSPCA PC Training Available
2. Ensure employees have education and training necessary for safe food production applicable to their job
3. Update Good Manufacturing Practices (GMP's) 21 CFR Part 117
4. Develop Food Safety Plan
  - Overseen by a Qualified Individual
  - Additional plan examples available through FSPCA
5. Implement!



A close-up photograph of a glass of almond milk on the left, which is out of focus, and a glass jar filled with almonds on the right, which is in sharp focus. The background is a warm, golden-yellow color. A small red square is visible in the top-left corner.

**Thank – You!**

[tbirmingham@almondboard.com](mailto:tbirmingham@almondboard.com)

# CEUs – New Process

## Certified Crop Advisor (CCA)

- Sign in and out of each session you attend.
- Pickup verification sheet at conclusion of each session.
- *Repeat this process for each session, and each day you wish to receive credits.*

## Pest Control Advisor (PCA), Qualified Applicator (QA), Private Applicator (PA)

- Pickup scantron at the start of the day at first session you attend; complete form.
- Sign in and out of each session you attend.
- Pickup verification sheet at conclusion of each session.
- Turn in your scantron at the end of the day at the last session you attend.

*Sign in sheets and verification sheets are located at the back of each session room.*

# What's Next

## Tuesday, December 5 at 1:45 p.m.

- Produce Safety Rule for Farms: How to Comply and What About the Grower Exemption? – Room 314
- Repositioning Plant-Based Protein – Room 306-307
- Common Errors in Orchard Set Up– Room 308-309
- The Science and Practice of Intentional Recharge in Almond Orchards – Room 312-313



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