Selected Sections of a Food Safety Plan

Teaching Example

Food Safety Plan

for

Fresh Blueberries

Developed by: **P. Emerald,** Operations Manager, PCQI

Approved by: A. Jewel, Owner

Date: 6/1/2017

This work was partially supported by Food Safety Outreach Project grant no. 2015-70020-24397 the USDA National Institute of Food and Agriculture.  Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture

This food safety plan teaching example was developed by a group of industry, academic, and government subject matter experts assembled by the United Fresh Produce Association, who worked from draft models originally developed by the Southern Training, Education, Extension, Outreach, and Technical Assistance Center to Enhance Produce Safety based at the University of Florida.

The information in this example is for training purposes only and does not represent any specific operation. Processing steps may have been omitted or combined to facilitate its use for class exercises. **It is not complete and contains both required and optional information.** Because development of a Food Safety Plan is site specific, it is highly unlikely that this plan can be used in a specific facility without significant modification. Conditions and specifications used (e.g., validation information) are for illustrative purposes only and may not represent actual process conditions.

Table of Contents

 **Page**

Company Overview 3

Plant Layout 3

Product Description, Distribution, Consumers and Intended Use 4

Flow Diagram 5

Process Description 6

Hazard Analysis 7

Process Preventive Control 11

Supply-chain Preventive Control 12

## Company Overview

Berry Town is only operational seasonally from March – May with approximately 100 full time and seasonal employees. For those twelve weeks, Berry Town runs 7 days a week with two production shifts, plus daily sanitation at the end of the second shift. Berry Town packs blueberries from their company-owned farm (Berry Farm), but a majority of berries are sourced from several regional growers, some of which are not subject to the Produce Safety rule because of size. No berries are imported. Each year the number of growers supplying fruit to Berry Town can differ, however all growers are approved by reviewing the previous season’s audit and any compliance records before the season begins. Each grower is audited annually by a qualified auditor from Berry Town QA to verify implementation of the Produce Safety rule requirements and Berry Town’s supplemental requirements. This off-farm facility, built in 1975, has approximately 15,000 sq. ft. of cooling and packing space and uses two packing lines. Blueberries are brought into the facility in reusable plastic bins stacked on pallets. The blueberries are cooled with forced air and stored in the cooler until ready for packing. Blueberries are dry packed (no product-water contact) into single use plastic clamshells and then placed into cardboard boxes called flats. Each clamshell has a lot code printed on it identifying the farm it came from and the date packed. All non-produce materials are sourced from approved suppliers which provide Letters of Guarantee. Packing materials are stored seasonally in sealed tractor trailer containers on property. Facility and equipment are generally dry cleaned (alcohol wipes); when needed, spot washing of equipment surfaces is done using sodium hypochlorite (according to label direction) and dried with single use paper towels. Bins are brushed clean and visually inspected before re-use; if needed, bins are manually washed and sanitized in a designated area separate from the pack area. Workers follow standard GMPs, such as washing hands, wearing hair and beard nets and aprons. A pest control program is in place to prevent pest entry and pest harborage.

**Plant Layout**



|  |
| --- |
| Product Description, Distribution, Consumers and Intended Use |
| **Product Name** | Blueberries |
| **Product Description, including Important Food Safety Characteristics** | Ready to eat, fresh blueberries |
| **Ingredients** | Blueberries |
| **Packaging Used** | 6 oz. and pint single time use clamshells, cardboard flats |
| **Intended Use** | Retail and food service |
| **Intended Consumers** | General public |
| **Allergens** | No allergens are used in this facility |
| **Labeling Instructions** | Keep refrigerated (for quality), wash before using |
| **Other Labeling (as applicable)** | Lot Code on clamshell and on case |
| **Storage and Distribution** | Refrigerated (33-36°F, for quality) storage and distribution recommended; ambient storage and display at retail and foodservice is common |

Receive packaging

Receive bulk blueberries

Forced Air Cooler

Cooler Storage

Rework

Color, Size & Soft Sorting

Culls diverted to juice processing

Grading Line

Dry Storage

Packing

Metal Detection

Case/Code Palletize

Cold Storage

Shipping

Verified by: P. Emerald Date: May 28, 2017

**Process Description**

**Receive bulk blueberries.** Fresh blueberries arrive in clean, well-maintained field bins. The berries are off loaded. The blueberries are inspected for quality specifications and pulp temperature upon arrival. Bulk goods report is cross checked with approved supplier list and lot number is matched to the pallet tag.

**Receive packaging, Dry storage.** Food grade packaging materials such as clamshells, cardboard flats and labels are received from approved suppliers, inspected on receipt and stored in the dry storage area. Suppliers provide a Certificate of Conformance that the packaging materials meet food safety and regulatory requirements.

**Forced air cooler, Cooler storage.** Bulk blueberries are placed in the forced air cooler to bring the internal pulp temperature down to 34°F. A clean tarp is draped over the pallet to aid in the cooling process. Cooled berries are moved to Cooler Storage until ready for sorting.

**Color, size and soft sorting.** Bins of blueberries are manually dumped into a metal hopper which moves blueberries through a series of optical and mechanical sorters that remove fruit which does not meet size, color and firmness standards. Leaves, stems, and extraneous materials are also removed at this point. Rejected fruit is caught in designated containers and discarded or collected for processing for juice.

**Grading line.** Blueberries continue on a moving belt which conveys the berries toward weigh cups for packaging. As the blueberries are conveyed on the belt, workers visually inspect the blueberries for defects and manually remove blueberries with defects that the mechanical sorters may have missed. Defective fruit is discarded or collected for processing for juice.

**Packing.** Blueberries are conveyed from the grading line to weigh cups, which dispense the proper amount of blueberries to the clamshells. Labels are mechanically affixed and clamshells are placed in flats by workers. The label carries a lot code that is traceable to the lot code(s) of the bulk blueberries packed, including any rework.

**Metal Detection.** Flats pass through a functioning metal detector calibrated to 2 mm ferrous, 2.5 mm nonferrous and 3.5 mm stainless steel. Clamshells of rejected flats are passed through a second metal detector individually. If rejected again, blueberries in clamshell are manually examined for metal and discarded. If clamshell passes the second metal detection, it is placed in a flat with the same lot code.

**Case/Code/ Palletize.** Flats are palletized and pallet tag affixed.

**Cold storage.** Pallets are stored in the cooler at 33-36°F or transferred to warehouse for storage until ready for shipping.

**Rework.** Blueberries that are reworked for various non-food safety reasons (e.g., customer specification) are collected in plastic totes or in clam shells and either cold stored short term or directly added to the beginning of the sorting line.

**Shipping.** Product is shipped to the customer in clean, well-maintained, refrigerated (33-36°F) trucks (customer or third party).

**Hazard Analysis**

Hazard identification (column 2) considers those that may be present in the food because the hazard occurs naturally, the hazard may be unintentionally introduced, or the hazard may be intentionally introduced for economic gain.

B = Biological hazards including bacteria, viruses, parasites, and environmental pathogens

C = Chemical hazards, including radiological hazards, food allergens, substances such as pesticides and drug residues, natural toxins, decomposition, and unapproved food or color additives

P = Physical hazards include potentially harmful extraneous matter that may cause choking, injury or other adverse health effects

| (1)Ingredient/ Processing Step | (2)Identify potential food safety hazards introduced, controlled or enhanced at this step | (3) Do any potential food safety hazards require a preventive control? | (4)Justify your decision for column 3*Based on severity and likelihood of occurrence*  | (5) 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 preventive control* | (6)Is the preventive control applied at this step? |
| --- | --- | --- | --- | --- | --- |
| Yes | No | Yes | No |
| Receive bulk blueberries | B | Human pathogens such as *Salmonella* and Hepatitis A | X |  | Blueberries have been known to be contaminated with microbial pathogens | Supply-chain Preventive Control\*: All berries are sourced from farms following the Produce Safety rule and Berry Town’s supplemental requirements | X |  |
| C | Pesticides and other crop protection chemicals |  | X | Unlikely as only US regional growers are used. Pesticide monitoring data indicate that US growers are largely in compliance with pesticide residue limits |  |  |  |
| P | Birdshot and other metal in berries | X |  | Metal (birdshot) is sometimes found in intact berries | Process Preventive Control: Metal detection |  | X |
| Receive packaging | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Dry Storage | B | None |  |  |  |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
|

|  |
| --- |
| \* Note: Because this packinghouse is not a “receiving facility” (manufacturer/processor) but only packs and holds produce, it is not required by FDA to have a supply-chain ‎program. |

 |
| Forced Air Cooler | B | Pathogens from environment and tarp |  | X | Dry operation. Not reasonably likely to occur with GMPs |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Cooler Storage | B | Environmental pathogens |  | X | Dry operation. Not reasonably likely to occur with GMPs |  |  |  |
| C | Ammonia from refrigeration |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| P | None  |  |  |  |  |  |  |
| Color, Size & Soft Sorting | B | Environmental pathogens |  | X | Dry operation. Not reasonably likely to occur with GMPs |  |  |  |
| C | Excessive cleaning and sanitizing chemicals, machine lubricant |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| P | Metal fragments from equipment |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| Grading Line | B | Human pathogens from insanitary handling or conditions, environmental pathogens |  | X | Transfer of microbial pathogens due to handling and environmental pathogens are not hazards requiring a preventive control due to the dry nature of the operation and GMPs |  |  |  |
| C | Excessive cleaning and sanitizing chemicals, machine lubricant |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| P | None |  |  |  |  |  |  |
| Packing | B | Environmental pathogens |  | X | Dry operation. Not reasonably likely to occur with GMPs |  |  |  |
| C | Excessive cleaning and sanitizing chemicals, machine lubricant |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| P | Metal fragments from equipment |  | X | Not reasonably likely to occur with GMPs |  |  |  |
| Metal Detection | B | None |  | X |  |  |  |  |
| C | None |  | X |  |  |  |  |
| P | Metal  | X |  | Metal in blueberries can be detected and removed at this step |  | X |  |
| Case/Code Palletize | B | None |  |  |  |  |  |  |
| C | None |   |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Cold Storage | B | Environmental pathogens |  | X | Product is largely protected. Not reasonably likely to occur with GMPs |  |  |  |
| B | Growth of pathogens if temperature abused |  | X | Blueberries are stored cold for quality, not food safety |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Rework | B | Human pathogens from insanitary handling or conditions, Environmental pathogens |  | X | Dry operation. Not reasonably likely to occur with GMPs |  |  |  |
| C | None |  |  |  |  |  |  |
| P | None |  |  |  |  |  |  |
| Shipping | B | Pathogens from shipping containers |  | X | Product is largely protected. Not reasonably likely to occur with GMPs |  |  |  |
| C | Excess cleaning chemicals from truck cleaning |   | X | Product is largely protected. Not reasonably likely to occur with GMPs |  |  |  |
| P | None |  |  |  |  |  |  |

**Process Preventive Control**

| **Process Control(s)** | **Hazard(s)** | **Parameter Limits** | **Monitoring** | **Corrective Action** | **Verification**  | **Records** |
| --- | --- | --- | --- | --- | --- | --- |
| **What** | **How** | **Frequency** | **Who** |
| Metal detection | Undetected metal because of non-functioning metal detector | In-line metal detector functioning (detection and rejection) and calibrated to 2 mm ferrous, 2.5 mm nonferrous and 3.5 mm stainless steel1 | Metal detector functioning and calibrated | Check with calibrated ferrous, non-ferrous and stainless steel cards  | At start of shift, hourly thereafter and at the end of the shift | Packaging line operator | Hold and rerun, through functioning metal detector, flats to last good check. Repair/calibrate metal detector. | QA Technician observes performance of calibration check weekly and initials monitoring record. Food Safety/QA Manager reviews and initials monitoring, corrective action reports and calibration check records within 7 days | Monitoring (calibration check) records. Corrective action reports. Validation report. |

1 Specific values are used for illustrative purposes only.  Actual values may vary depending on process conditions and equipment

**Supply-chain Preventive Control\***

|  |  |
| --- | --- |
| **Raw material or other ingredient** | Blueberries |
| **Hazard requiring a supply-chain-applied control** | Human pathogens such as *Salmonella* and Hepatitis A |
| **Receiving Procedures** | For each shipment received, the receiving clerk verifies the berries are from an approved supplier and records the shipment in the incoming goods log |
| **Preventive controls applied by the supplier** | Blueberries are produced in accordance with Produce Safety rule and Berry Town’s supplemental requirements |
| **Identification of supplier verification procedure(s)** | Annual Berry Town auditTemporary approval procedure for blueberries from suppliers without a Berry Town audit  |
| **Verification procedure** | Annual audit by a Berry Town qualified auditor PCQI or designee review of* incoming goods log (within 7 days)
* annual audit report and corrective actions
* food safety records for temporarily approved suppliers (before receipt of blueberries)
 |
| **Records** | Approved supplier list; incoming goods log; annual audit report and corrective actions; food safety records for temporarily approved suppliers |

\* Note: Because this packinghouse is not a “receiving facility” (manufacturer/processor) but only packs and holds produce, it is not required by FDA to have a supply-chain ‎program.