January, 2024

Church Brothers, LLC- Preventative Controls Overview of Value-Added Fresh Produce Items

Introduction

From time to time we get requests for information on our process, standard operating procedures, and other aspects of our program. This document is intended to describe our Quality Assurance process for minimally processed value-added vegetables with a focus on food safety and current industry standards.

Process Overview

"Minimally processed" fresh produce is prepared and handled to maintain their fresh nature while providing convenience to the user. These are the main types of value-added products: whole leaf items, cut/sliced/shred items and veggie florets . Whole leaf items may be just the leaves themselves or the leaves remaining after coring or trimming the whole heads. The cut/sliced/shred items involve further size reduction from the original leaves and finally the cut veggies. Producing minimally processed products involves, inspection, washing, rinsing, de-watering through vibratory shaking and/or centrifugal spin "drying" or air blower. Once excess water is removed the product is packaged in product-specific modified atmosphere packaging.

Because of the nature of minimally processed vegetables there is no true "kill" step as in cooking or sterilizing, therefore the emphasis at each step is "cleaning with chilled and sanitizer water " as well as "submergence and agitation", thru our automated chlorine wash systems, including food safety fundamentals such as Good Manufacturing Practices (GMP) and HACCP programs. The following overview describes the specific details and highlights of the preventative controls components of the process.

In addition, we are often asked about the use of preservatives (No preservatives, such as sulfites are used in our process). The key to maintaining good shelf life of our products includes the raw materials condition, washing and cleaning of the product, temperature control, and packaging methods.

The process overview will provide brief details of our food safety preventative controls and process steps to insure quality and food safe products in the following areas:

Farm To Receiving

- LGMA Signatory
- GAP, GHP
- GFSI Compliant (Global Food Safety Initiative)
- PTI Compliant (Produce Traceability Initiative), GTIN

- All Boxes have Trace-Back Coding
- Continuous Third-Party Auditing
- Continual training of harvest crew employees
- Pre-Season, Pre-harvest & Daily Harvest Risk Assessments
- Product-specific pre-harvest Pathogen testing
- Online Access to Raw ProductTest Results and Food Safety Documentation
- Additional program assessment byLighthouse Food Safety & Quality

At The Processing Facility

- GFSI Processing Plant
- Advanced Processing Lines
- Product Specific packaging
- Annual Sanitary design assessment expert
- Continuous Process Monitoring

- Temperature
- Advanced Muti-wash systems
- Wash System CCPs on primary and secondary
- Using Smart Wash for CCP1 free chlorine and pH controls
- In-house Sanitation team led by CFS certified and seasoned Sanitation Director
- 3rd Party Environmental Swabbing
- Additional Seasonal 3rd party conducted Swabathon in addition to rigorous environmental monitoring programs (EMP)

- In-line continuous dryers
- Product-specific finished-product pathogen testing

Standard Operating Procedures

For each process step, one or more written operating procedures have evolved over time and emphasize food safety, quality, and efficiency. As part of GFSI standards, everything we do must have a documented procedure, verification, and monitoring programs.

Process Approval and Certification

All Church Brothers, LLC processing and cooling facilities are assessed and audited by approved 3rd party auditors and customer designated representatives,
The processing facilities follows the Global Food Safety Initiatives (GFSI) guidelines through PrimusGFS *that includes annually assessment* and by Commercial Food Sanitation (CFS) for Hygienic designs and standards of operation.

In addition to this we have numerous other 2nd and 3rd party assessments conducted throughout the year. Some examples of these "3rd" party auditing groups and typical frequency are as follows:

- CA State License for Food Processing
- Federally Registered Facility (FDA)
- Subject to FDA unannounced inspections (usually annually, including FSMA preventative control assessment)
- Military Inspections- annually
- GFSI audit- annually by Primus GFS
- Kosher Certification- annually
- Customer specific audits- approx. 10 or more per season per facility

Raw Material & Growing

Our raw material is grown, harvested and handle in accordance with the currently published produce rule standards as well as going beyond to address California Leafy Green Marketing Agreement standards, and our internal and customer-driven industry-leading standards. In all areas of Agricultural Water, Working Hygiene and Training, and Soil Amendments, we meet or exceed FSMA and current industry best practices. Under LGMA, trained USDA-CDFA inspectors audit our growers.

We understand that for food safety and quality the key to value-added products is raw material. Our process starts with USDA #1 select raw material. In fact, USDA #1 is not specific enough for our process so, in addition we utilize our own specifications to address quality attributes such as size, colors, weight, harvesting practices, etc.

All products must have a raw material specification. Raw materials specifications must address measurable attributes such as size, weight, defects, and handling steps such as post-harvest handling and cooling guidelines.

Good Agricultural Practices (GAP's)

The GAP- Program has been designed to minimize the microbial food safety hazards. All harvesters wear hairnets and gloves. Harvest equipment and other utensils used for harvesting are made of sanitary material to assist in sanitizing on a regular basis. In addition, an inspection list is used to conduct random inspections of the harvesting crews and equipment. This inspection program includes rating of findings as well as a fining system. The field Food Safety Team continuously conducts GAP audits to assure our growers, harvesters are complying with GAP and GHP policies set in place to minimize the risk of contamination. Our raw material managers are continually reviewing the conditions of the fields to assist in our product selection process.

Microbial Testing

All agricultural water is tested for E. *coli /* Coliform throughout the season. Additionally, we have product specific pre-harvest pathogen testing on the following items:

- Spring Mix
- Spinach
- Romaine
- Iceberg
- Cilantro
- Cabbage

Harvesting

Prior to harvesting a field assessment for general surrounding conditions, animal intrusion, field cleanliness, and foreign matter such as insects is conducted before harvesting any particular lot, if animal intrusion is detect it triggers a risk assessment and mitigation control involving buffer zones. If high insect pressure is present in the particular lot to be harvested the lot will not be used and be bypassed to harvest another selected lot that does not have the risk pressure. Typically climate changes such as warmer weather, rain, dry climates can cause an influx of insect pressure to occur, our raw product team is aware of these vectors and communicates to the processing facility for precautionary measures to insect pressure in raw material. Some harvesting equipment have air blower systems that help minimize insects from entering in the raw material.

Good Manufacturing Practices (GMP's)

Church Brothers, LLC facilities/operations and work practices were developed according to 21CFR 110 117.180 and Current Good Manufacturing Practice in Manufacturing, Packing or Holding Human Food These FDA regulations cover the design, maintenance and sanitary operation of our facilities, equipment, processes, storage areas and distribution practices. The current Good Manufacturing Practice (GMP) requirements are retained and reviewed in our Food Safety and Quality Systems Manual.

Coding

All bins and totes for transporting the raw material are coded with the field, lot, harvesting crew, and date and time of harvest. This information is used for tracking purposes.

Raw Material Inspection

Each lot of raw material is inspected as it arrives. Military sampling techniques have been implemented based on lot size. The focus of the inspections is cleanliness, specification requirements, temperature, and overall quality.

Processing - Cold Chain

The Cold Chain is very important to maintain the quality of the product. Temperature affects the respiration rate of the product. This in-turn changes the ratio of oxygen and carbon dioxide. If this ratio is maintained within appropriate tolerances for the particular product, then the deterioration rate of the product slows down. Also please see "Packaging" for other information on maintaining shelf life. Continuous monitoring of the temperature is conducted throughout the Receiving, Storage, Processing, Washing, Packaging, and the initial point of Shipment, we maintain these temperatures at <40 F. From Harvest to Receipt, we aggressively manage "Cut to Cool" times as a Key Performance Indicator. Upon request, further temperature monitoring can be conducted through shipping to the end user. We strongly recommend that the finished product temperature be maintained at <38 F.

Hazard Analysis Critical Control Point Program (HACCP)

Our entire process program has been designed around a 7-step development process. Two points within the process have been identified as critical points in the process that have the strongest impact on food safety. CCP1- (Biological) Free Chlorine Levels & pH levels and CCP2- (Physical) Metal Detection, this program undergoes at least annual verification by many third party food safety and GMP auditing firms. Weekly Food Safety KPI report is published and reviewed by the team and a quarterly HACCP meeting is held in accordance with our internal program as well as many 3rd party audit schemes.

Trimming

When the product enters the plant, it enters our state-of-the-art processing facility. The product is brought from the field and processed within the "Age to Use" (ATU) guideline. Trimming takes place in a processing ready to eat (RTE) zone that is separate from the finished product ZONE, if it has not already occurred in the field. Inspectors are placed at intervals along the process to ensure high quality. Plastic containers are used wherever possible and all produce contact surfaces are stainless steel or other approved sanitary materials. During trimming, outer "dirty" leaves are removed. Any foreign objects can be eliminated at this point. Incoming product quality is evaluated on every load by trained Quality Assurance technicians.

Washing

The objective of a produce wash system is to cool the product, reduce the incoming microbiological level, and control cross-contamination. Our multi-stage wash systems maintain temperatures between 34-38°F. This method has been proven to be effective. The movement of water through the bubble wash tanks in combination with the agitation of the water jets helps to remove any foreign objects such as insects or excess dirt from the field. Various screens and traps are also used to help in this process. The foreign object collection points are monitored hourly. The use of chlorinated water is a standard approach to product sanitizing because of its consistent effectiveness. Free chlorine range for processing is greater than or equal to 10 ppm. In addition, maintaining pH levels are very important during the sanitation process of the product and targets are managed from 6.0 -7.0 pH. These chlorine and pH levels are monitored automatically and manually verified with titration procedure throughout each shift.

Drying

Excess post wash water removal is accomplished through the use of centrifuge baskets, air blower or other effective means to achieve a low residual moisture level in the finished product. Dryer speeds and times are monitored and managed daily and adjusted as needed weekly, depending upon the type and usage.

Packaging

A micro-breathing multi-layered film is used to achieve maximum shelf life. This type of packaging is also called Modified Atmosphere Packaging (MAP). MAP is used to adjust the ratio of oxygen, nitrogen, and carbon dioxide in the finished product package. By adjusting these gases, adjustments can be made to the respiration rate of the fresh-cut produce. This change is related to the shelf life of the product. Please see “Cold Chain” for other information on maintaining shelf life. Final oxygen level is checked every hour. Package integrity is critical for quality product and a leak in a bag drastically affects shelf life performance. The packaged finished product is checked for seal integrity using a vacuum chamber every product changeover and or every 15 to 30 minutes during the production run.

Bag Weights

The majority of our products run on Vertical Form, Fill and Seal Scale/Packaging machines. A combination of scales weighs the product within a very small margin of error into the bag. For further verification, finished product weight checks are conducted every half-hour and every product changeover.

Metal Detectors & Foreign Material Controls

Our processing lines utilize a combination of metal detectors and advanced Optical Sorter technology to address the risk of foreign material controls. All products pass through a foreign material detection point, which are calibrated using a range of known standards as specified by customers and/or third party auditing specifications. Stainless steel (5.0mm), non-magnetic (3.5mm) and ferrous millimeter (3.0mm) standards are used. The detectors are checked every hour and a half.

Finished Product Coding & Traceability

All finished product containers are coded with the plant, manufacturing date, line and shift. This allows us to track product through the process flow. The finished product master cartons are also labeled with the plant, manufacture date, line shift information. From this code information we can identify farm, grower, harvest crew, cooling logs, processing data, shipping data, etc. within 2 hours or less.

Use By
MM/DD/YY
D JJJ-CB123456-LL-S
HH:MM

Sanitation

Principally good sanitation and temperature management controls microbial growth on minimally processed products. Sanitation of all equipment occurs daily. At the end of production, the entire processing plant is washed down in a multi-stepped rinse, wash, rinse, and sanitize process. Cleaning is verified through the use of on the spot Adenine Tri- Phosphate Bioluminescent analysis (ATP). Other environmental swabbing is conducted several times per week to assist in monitoring the effectiveness of cleaning. Both in-house tests for ATP's and outside laboratory testing are conducted for our environmental.

Tote and Bin Washing & Inspection

All raw material plastic containers are run through a bin/tote wash process that sprays chlorinated water then rinsed prior to re-using for harvest. At various points from the field to post-processing the bins and totes are inspected and removed for damage or other potential conditions that may be a risk to the process.

Audits

Monthly internal audits are conducted in-house. These audits are designed around the protocol for several third party, customer, and regulatory requirements and our own continuous improvement programs.

Training

Every employee undergoes a thorough training session covering all aspects of food safety. In the field Good Agricultural Practices (GAPs) and Good Harvesting Practices (GHP) are covered and in the facility Good Manufacturing Practices (GMPs), HACCP, and Product Quality are the focal points for the training program. The training is updated on a routine basis. Daily verification of this training is conducted as part of the daily in-house audits, and management supervision. A disciplinary program can also use to stress the importance of these programs and the seriousness that we take with regards to maintaining a high level of food safety and quality.