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Nevada Processed Food Guide: Frozen Produce



Holly Gatzke, Extension Educator, University of Nevada Cooperative Extension
Karin Allen, Food Quality and Entrepreneurship Specialist, Utah State University Extension
Tara West, Writing Consultant
Molly Roemer, Writing Consultant

Local produce growers may have extra produce during peak times or produce that is not premium enough in quality to sell to chefs and farmers markets. Freezing can provide alternative uses for produce and a way to hold produce for future value-added production or to sell as frozen products later in the year when prices rise because the produce is not in season. Knowing what is required to sell frozen produce can be confusing. This document is a brief guide that outlines the resources and topics that should be considered to freeze fruits and vegetables for future use as value-added products for sale in Nevada.

Introduction

The rising consumer demand for easy to prepare vegetables and fruits from known sources provides opportunities for sales of frozen produce by Nevada farmers and food entrepreneurs. Farmers can face challenges using produce that is high-quality but not premium enough for fresh sales due to blemishes or being too ripe to get to market. During peak seasons, higher production can result in the decrease in price as well as challenges in finding markets for the large increase in produce. Preparing and freezing produce in a ready-to-use form provides alternative markets for produce. This publication will outline the process by which farmers and food entrepreneurs can safely produce frozen vegetables and fruits for use in value-added products and for getting approval to sell them. The following

checklist outlines the considerations that should be addressed to process frozen produce for sale and are discussed in this document.



Frozen Fruit and Vegetable Production Checklist

- Understand regulations and other health authority requirements.
- Develop a relationship with the local health authority to learn permitting requirements for food processing.
- Register as a food-processing facility with the Food and Drug Administration (FDA).
- Find food ingredients.
 - Approved sources
 - Harvest and postharvest handling
 - Selecting, storage and preparation
 - Shelf life
- Develop processing system.
 - Processing in a permitted kitchen
 - Complete food-safety training
 - Cleaning and sanitizing food contact areas
 - Monitoring of freezing equipment
 - Procedures to ensure food safety (Critical Control Points) and quality
 - Proper handwashing techniques
- Select packaging for frozen fruit and vegetable products.
- Create a label following federal labeling guidelines.
- Submit recipes, product plans and proposed labels for registration to the State or county.
- Address business license requirements.

Frozen Produce

Freezing cleaned and cut produce can be a way to make use of lower grade or excess produce on local farms. Freezing adds a longer shelf life to the produce and allows cash flow to continue into the slow growing seasons. Frozen produce can be cut and packaged and sold as a convenient product for consumers. Produce can be frozen for future processing of vegetables into dishes or fruit into jams, pies, etc. To gain the advantages of selling



frozen produce, the processing of the produce will have to be approved by the local health authority.

Food-processing Laws

Frozen vegetables and fruit products must be produced for sale in accordance with state or local health regulations for food processing in a permitted kitchen. This product does not fall under the Nevada Cottage Food or Craft Food laws. Food processors have the responsibility of being familiar with state and federal food-processing laws, watching for future revisions, and ensuring laws are being followed. The best way to achieve this is to create and maintain a positive relationship with your local health department personnel.

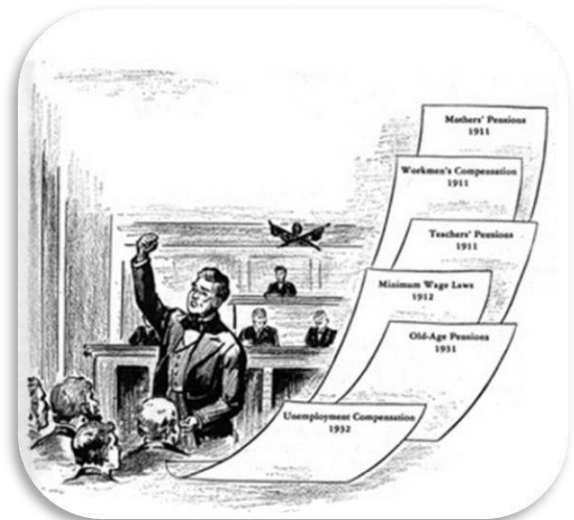
Nevada Administrative Code (NAC) 446.955 outlines the guidelines for a food-processing establishment. All food manufactured within the state of Nevada falls within the regulations outlined in NRS 446, and food processors should become familiar with NRS 446 requirements at: <https://www.leg.state.nv.us/NRS/NRS-446.html>.

Residents of Carson City, Douglas County, Washoe County and Clark County with food-processing questions should contact:

- Carson City Health and Human Services, 775-887-2190 for Carson and Douglas www.gethealthycarsoncity.org
- Washoe County Health District, 775-328-2400 for Washoe County www.washoecounty.us/health
- Southern Nevada Health District, 702-759-0588 for Clark County www.southernnevadahealthdistrict.org

Residents of other counties can obtain food-processing information on the State of Nevada's Division of Public and Behavioral Health website, http://dphh.nv.gov/Reg/Food/Food_Establishments/Home/.

If you are running a food-processing facility, it must be registered with the Food and Drug Administration (FDA): See http://www.fda.gov/Food/GuidanceRegulation/Food_FacilityRegistration/default.htm [fda.gov]. Facilities must renew their registration every two years. There is NO COST to do this through the FDA. Go directly to the FDA website, because there are some companies that can be mistaken as the FDA but will charge fees.



Food Safety Is for Everyone

Food manufacturers should strive to provide safe food products to consumers. The State requires food processors to put into place procedures ensuring food safety. If a product becomes contaminated, the manufacturer faces legal and financial responsibility. When proper food-safety procedures are followed, they help to prevent the spread of foodborne illness, protecting consumers and manufacturers. Food-safety procedures also align with food quality.

The FDA considers frozen produce a low-risk product. Freezing produce on a small scale can be a simple process compared to the products described in FDA regulations, which are aligned for big businesses with complex processing. The Division of Public and Behavioral Health requirements are also aligned for large restaurant systems. As a result, it may be difficult for small processors to determine what is needed for this processing to address regulations. Just as any restaurant or large-scale food manufacturer needs to follow food-safety regulations, small-scale food processors must implement food-safety practices and understand the importance of food-safety. It is best to work with your local health department officials to learn what they require and to use their expertise in food safety to create a processing system that consistently produces quality, safe products. The recommendations contained in the FDA document “Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards of Fresh-cut Fruits and Vegetables” could also be followed when preparing fresh fruit and vegetables to be frozen. This document is available on the FDA website at: <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ProducePlantProducts/ucm064458.htm>.

An important action is to identify the Critical Control Points (CCPs) of the product you are producing. The FDA states that a CCP is a “step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level” (12/2013). CCP steps eliminate or mostly destroy the bacteria and involve heating or biocidal rinses (bleach rinses and blanching in this case). A Control Point (CP) is a

step that keeps the microbial population controlled (in this case, refrigeration, freezing and washing). By following the federal and State standard by establishing CCPs, processors can reduce the possibility of spreading foodborne illness.

For frozen produce, the CCPs are the proper sanitization of the whole fruit or vegetable before cutting and peeling, and blanching the cut product in boiling water. Other important control points that should be monitored include freezing of the food to 0 degrees Fahrenheit within 24 hours and maintaining the temperature of the frozen food.



Complete Food-safety Training

The State requires that at all times at least one person in the processing kitchen has food-safety training that is approved by the local health authorities. The State of Nevada Department of Health and Human Services has a list of accepted food-safety courses on its website. To find the most recent list of food-safety courses, enter “food-safety courses” on search bar on the website, <http://dhhs.nv.gov/>.



General Frozen Fruits and Vegetables Processing Plan		
1	Inspect fruits and vegetables as they arrive in the facility for quality and cull any unacceptable produce. Document in the records and on the containers (if not already labeled) the source and date. – CP	Date received:
2	Keep a cleaning log documenting: floors, countertops, machinery, around the sinks, storage area and facility	
3	Wash hands before handling food.	
4	a. Rub outside of fruits and vegetables under running water. b. Discard any that are spoiled or have mold. c. Throw away bugs, leaves, stems or other foreign materials. d. Sanitize raw commodities (those not purchased at retail stores) with a biocide, such as a dilute bleach solution (50–200ppm chlorine), then rinse again in running water (21CFR§173.315). – CCP	
5	Trim produce, drain excess water and chill produce to 41° F.	
6	Wash hands again and put on gloves.	
7	Wash and sanitize the food-preparation and food-contact surfaces with a 50–100ppm chlorine solution.	
8	If needed, remove seeds and stem scars, and chop/peel/grate produce.	
9	Blanch briefly by immersing produce in boiling water. – CCP Shock the blanched product in an ice-water bath to lower its temperature.	or Blanching is not necessary for produce that is delicate or retains its color, such as berries, zucchini or thinner-skinned tomatoes and sweet peppers. Rinse cut produce in cool running water. – CP
10	Place measured weight of cut pieces into packaging that allows oxygen flow and label with date and batch number. Freeze to 0° F or lower. – CP	or Spread out on trays or shallow pans. Freeze to 0° F or lower. – CP Place measured weight of cut pieces into packaging that allows oxygen flow and label with date and batch number.
11	Wash and sanitize work area.	
12	Document the product in the tracking records.	
13	Monitor and track to document that storage and transportation temperatures remain at 0° F or lower. – CP	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>CCP – Critical Control Point CP – Control Point</p> </div>

Where Can You Get Ingredients?

Purchase produce and other food ingredients from approved sources only. Approved sources include:

- produce from local certified farms (a list of certified farms can be found on the Nevada Department of Agriculture website under the link “certified producers statewide”),
- products approved by the department of health, and
- products sold by licensed distributors and stores.

It is important to know where food ingredients come from and whether the supplier follows food-safety protocol. Licensed suppliers comply with state and federal regulations in order to maintain their licenses. These processes ensure to customers that their food products are safe. Recalls of food products due to safety issues often occur for ingredients due to contamination, missed labeling of allergen ingredients, or contamination by pathogens or debris. By tracking the ingredients used, you will be able to determine if your product contains the dangerous recalled ingredients, or if your product is safe.

Varieties of produce vary on how they hold their quality through the freezing process and varieties selected for fresh eating are not necessarily the best frozen.

Certified farmers may use their own produce and should follow proper harvest and postharvest handling techniques. According to Appropriate Technology Transfer for Rural Areas (ATTRA), food safety begins in the field (2000). Since quality cannot be improved after harvest, fruits and vegetables should be harvested at peak quality. Crops should be as free as possible from bruises, decay, skin breaks, rot and other deterioration, as these provide entrance opportunities for bacteria. Produce should be harvested during the coolest time of the day, kept shaded while in the field, and cooled to optimum storage temperatures within minutes of picking to retain quality. New regulations are coming to farm handling of produce through the Food Safety Modernization Act (FSMA), [http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm\[fda.gov\]](http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm[fda.gov]). The Nevada Department of

Agriculture will be providing trainings 2017-2019 on what is required.

ATTRA states that “temperature is the single most important factor in maintaining quality after harvest,” and promptly refrigerating produce will help prevent: further ripening or softening, moisture loss and wilting, spoilage due to bacteria, and undesirable growth (2000). The temperature in cold storage areas being used should remain as constant as possible in order to be effective. These storage areas should be well insulated and allow for air circulation. It is important to ensure the proper function of all thermometers, thermostats and manual temperature controls and to utilize high-quality equipment wherever possible.



Locate a Commercial Kitchen for Food Preparation

The production of frozen produce for sale requires processing in a commercial kitchen. A commercial kitchen is an inspected kitchen certified by the local health department. Before investing in a kitchen, you may want to gain experience by renting existing kitchen space or hire a co-packer to make your product. A co-packer is a company with permitting

for processing that is willing to produce your product for you. Look for a co-packer that has the capability and experience to make your product. There are very few co-packers in Nevada. If a co-packer is not available for outsourcing, consider renting a certified kitchen. It is recommended to rent a kitchen space rather than building your own facility to gain experience and to figure out equipment and layout needs and preferences. Larger cities may have incubator or community kitchens available for rent by the hour. Sometimes a local certified kitchen in a senior center, school facility or restaurant can be rented in smaller communities. Make sure that the kitchen is or can become approved for processing your products by discussing this with the local health inspector and building department.

Preparing Your Workspace

Commercial kitchens are subject to inspection by local health authorities and have lists outlining cleaning protocols for users to follow when utilizing the space. Be sure to follow the rules of the commercial kitchen being used in order to help maintain licensing requirements. Additionally, having a washed and sanitized workspace is integral to preventing the spread of allergens, contaminants and foodborne illness. Keep kitchen surfaces, such as countertops, utensils, cutting boards and appliances, clean by washing with a cleanser such as hot soapy water, rinsing, and sanitizing using an approved sanitizer. Unscented, 6–8.25% bleach is a common sanitizing agent and should be between 50 to 100ppm, and not 200ppm, chlorine. Add 1 tablespoon of bleach per 1 gallon water. The concentration of bleach and other sanitizing solutions should be checked regularly using test strips (available from restaurant supply stores). If the test strips show chlorine levels above 100ppm, add a pint of water. The pH of the water impacts the chlorine levels, so test strips should be used to ensure proper concentrations of sanitizer are used.

Do not use smelly dishcloths, towels or sponges, as this is a sign of potential bacterial growth. Dishcloths and towels should be laundered on site often using bleach in the hot cycle of the washing machine. Follow NAC 446.371 to .377 for guidance. Utensils and cookware should be washed in hot soapy water,

rinsed in clean water, and sanitized using an approved sanitizer or 171-degree Fahrenheit water. Alternately, these items can be cleaned using a commercial dishwasher. Follow NAC 446.301 to .333 for manual and mechanical guidance on dishwashing. Be sure to follow manufacturer instructions, as settings can vary.

Work surfaces and cutting boards should be cleaned when working with different ingredients (such as working on carrots then switching to tomatoes). Always use a clean cutting board and wash, rinse and sanitize it after use. To disinfect a cutting board, a fresh solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water may be used.



Freezing and Refrigeration Equipment

The freezing process can be done in regular freezer packaging or loose on trays, or in blast or tunnel freezers. The Institute for Agriculture and Trade Policy (2012) study found that agencies and businesses that purchased the faster-freezing blast and tunnel freezers struggled to have enough business during slow production seasons to cover the capital costs. For small businesses it was economical to produce frozen products in regular freezers that were used in other ways throughout the year. Faster freezing does create a higher-quality frozen product, so it is best to have a freezer that can cool the product as quickly as possible and has the capacity to spread the product in thin layers.

Refrigeration equipment, including refrigerators or walk-in coolers, freezers, trays/liners, utensils or any

other equipment, should be clean and in proper working order. Be sure to follow manufacturer guidelines for maintenance of refrigerators, coolers and freezers. Since temperatures at or below 40 degrees Fahrenheit can prevent dangerous microbes from growing in the fresh produce, and freezing below zero degrees Fahrenheit keeps the frozen products safe, the refrigeration and freezing units will have to be monitored to make sure they are maintaining a proper temperature. Refrigerator and freezer temperatures should be monitored and recorded periodically during processing, but at least twice daily.



Frozen produce is considered nonperishable (assuming it stays frozen). It usually carries a “Best-if-used-by” date. It can be tested for shelf life, but there are tables that give general ranges that are good references, including:

- fruit: 18-24 months at zero degrees Fahrenheit, and
- vegetables: 12-18 months at zero degrees Fahrenheit (the exception to this is bell peppers, only 6 months at 0 degrees Fahrenheit).

Handwashing

Gloves should be worn for food handling. Proper handwashing prevents many food contamination problems and should be taught to all involved in food handling. The following handwashing steps are useful to put into practice:

How to Wash Your Hands:	
<ol style="list-style-type: none"> 1. Rinse hands under clean running water. 2. Apply soap. 3. Rub hands vigorously for 20 seconds, removing dirt from under fingernails, surfaces of hands, and exposed portions of arms. 	<ol style="list-style-type: none"> 4. Rinse hand thoroughly under clean running water. 5. Dry hands thoroughly with single-use disposable towels or electric hand dryer. 6. If possible, use a towel to turn off the faucet.
Wash Hands Before You...	Wash Hands After You...
<ul style="list-style-type: none"> • Handle or prepare food 	<ul style="list-style-type: none"> • Prepare food • Touch raw food, especially meats • Switch food preparation tasks • Touch raw eggs • Use the restroom • Cough or sneeze • Handle dirty dishes or garbage • Pet animals • Smoke • Use the phone • Touch hair, face, body or other people • Touch a sore or cut

Cutting Produce

Fresh, raw produce should be cleaned with an FDA-recommended biocidal wash before peeling in order to prevent dirt and bacteria from transferring from the peeler or knife onto the fruit or vegetable. A common biocidal wash can be made using unscented bleach. The wash solution should contain 50–100ppm chlorine (about 1 tablespoon bleach per gallon of water), and have a pH between 6.0 and 7.5.

Whole, uncut produce should be left in contact with this wash for one to two minutes, then rinsed in clear running water. The chlorine concentration should be checked periodically using a test strip, and a new wash solution should be made if it begins to lose its strength. It is recommended to chill washed produce to 41 degrees Fahrenheit before peeling and cutting. Once produce has been cut into pieces, it should be rinsed in cool, running water. If the produce discolors after cutting, then dip it in a solution of ascorbic acid (vitamin C), lemon or lime juice to prevent color change, but be sure to add the product you use to the ingredient list.

The FDA recommends that environmental testing (such as surface swabs, drains and nonmunicipal water) be conducted on a regular basis, and that products be routinely monitored for the following bacteria:

- *Listeria* – really important to test because it grows at refrigeration temperatures. *Listeria* caused the outbreak in cantaloupe several years ago that bankrupted the grower.
- *Salmonella* – becoming more common in fruits and vegetables in recent years. Refrigeration is a good control of *Salmonella*, but if food is left out for four hours or more in the dangerous temperature range (41–135 degrees Fahrenheit), it can be an issue.
- *E. coli* – not as prevalent but needs to be monitored.
- Any other bacteria that are known to be associated with a specific fruit or vegetable. Talk to a microbiologist, food scientist or crop specialist to identify these.

The FDA doesn't approve, accredit or certify food-testing laboratories. They do provide a list of methods that a food-testing lab should use to ensure consistent procedures are being used across the country:

<http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/default.htm>[fda.gov]. Look for a food lab that lists one of these FDA method references as an indicator of potentially providing valid testing results.

Packaging Considerations

Packaging serves several purposes for food products. It:

- provides a barrier against dirt and debris,
- protects from damage and pests,
- prevents loss of moisture,
- allows for safer handling during transport and sale, and
- can motivate customers to purchase the product.

Packaging must be durable in order to protect food items from contamination during transport, display, sale and purchase by consumers and “should be designed to prevent physical damage to produce” (ATTRA, 2000). The desirability of the fruit or vegetable being sold can be highlighted with a professional label, which is a strong marketing tool that entices consumers to purchase the product.

Processors should consider the following when selecting packaging:

- product requirements (protection from freezer burn and durability to cold),
- design, and
- cost and availability.



Packaging should be suitable for the specific product it contains. There are several different types of packaging, including flexible (plastic bags), semi-flexible and rigid. The materials used to make the

packaging vary as well (including plant fibers, paper, glass and plastics).

Vacuum and reduced-atmosphere or modified-atmosphere packaging (MAP) is allowable for frozen foods and keeps the product looking nice. The products must be frozen immediately after packaging, since MAP and vacuum packaging can be higher risk due to Clostridium botulinum growth. Breathable packaging may be a good option. Plastic bags closed with a twist tie and breathe holes are examples of packaging that is obviously breathable. If unsure whether packaging is considered reduced-oxygen or modified-atmosphere packaging, contact the manufacturer and ask about the oxygen transmission rate and a certificate of assurance. If there is any number above 100cc O²/m²/24 hours for oxygen transmission, the packaging is not considered to be reduced-oxygen or modified-atmosphere packaging.

Processors should consider the availability and pricing of packaging for their product. Avoid choosing a package design that is being discontinued or does not serve to protect the product. If the packaging is too expensive, the margin for profit will decrease. For further packaging information, please see the resource section of this document found on Page 13.

Labeling Requirements and Considerations

The State requires commercial food products to be labeled following federal guidelines that can be found at:

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm2006828.htm>. The label of your product needs to be sent in with the State registration. When creating food product labels, it is important to keep the label as clear and accurate as possible. Approved health claims can be made on the label, but the FDA has specific rules about when and how they can be used, and the FDA expects that the labeling will be correct. To learn what is considered a health claim, review the following link on the FDA website: <http://www.fda.gov/Food/GuidanceRegulation/Guid>

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064916.htm>.

A nutrition labeling exemption may be available to small businesses that do not have a nutritional or health claim. These companies may not have to file a notice or may be able to file for an exemption, depending on sales of that product and number of employees. Check the FDA website for how your product applies at:

<http://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/labelingnutrition/ucm2006867.htm>.

Labels can be made in house on specialty printers or ordered from printer companies. The choice will depend upon volume, cost and convenience.

The label minimum requirements are:

- name of product,
- weight/volume,
- list of ingredients,
- care of product (such as keep frozen), and
- contact information leading back to the processor (such as website, physical address, etc.)

Herbed Winter Squash

Ingredients: Winter squash, sea salt and spice

Keep frozen.

Veg by George

100 Goodie Road, Caliente, NV 89008
775-726-XXXX

There are specifics in format and design required for labels. The Food and Drug Administration has a food-labeling guide available online that outlines federal labeling requirements:

www.fda.gov/FoodLabelingGuide. To get started on designing a label, it may be easier to mimic the lettering size and placement of required information in labels on similar products being sold.

Remember to make a professional label, as many consumers buy based on the product's look. Run it past others with keen judgment in the area. Ensure the product has a lot number on it. You may consider adding Quick Response (QR) and bar scan codes to service target markets. Most stores insist on them, and smartphones have apps to use the information. These codes often have fees to gain and maintain them.

Food allergen listing is critical for the safety of consumers and must be considered when creating a label for your food product. Major food allergens include:

- milk,
- eggs,
- fish,
- crustacean or bivalve shellfish,
- any ingredient that contains protein derived from any one of the above ingredients or additives
- tree nuts,
- wheat,
- peanuts, and
- soybeans.

Food allergens are a major cause of food product recalls due to contamination in an ingredient or during processing. Be mindful that products used within your product may undergo ingredient changes. Each new batch of a product used as an ingredient should be examined for changes in its ingredient list, and any changes must be reflected in your product's ingredient list. Closely follow the guidelines pertaining to food labeling. Indicate if any allergens have been processed in the facility that you are using.

Companies need to be careful about how "Fresh" is used on labels for frozen fruits and vegetables. The FDA has specific requirements for how this word can be used:

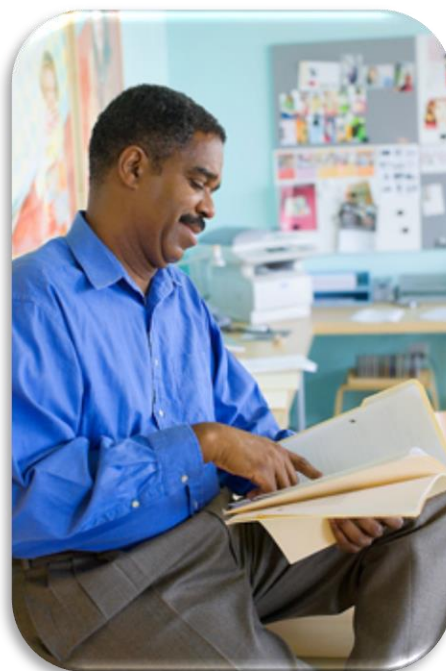
- *Fresh* can only be used for produce that is not frozen or heat-treated.
- *Freshly frozen*, *fresh frozen* and *frozen fresh* can be used on produce that is frozen from a fresh state. These terms cannot be used if the produce is old or overripe before it is frozen. It is

acceptable to use this wording on frozen produce that has been blanched.

Product Traceability

Knowing where ingredients come from allows food processors to know where sources of possible contamination originate if there were to be a complaint about a food product. Commercial operations are required to develop detailed documentation and records for each product produced and sold. When state and federal regulations are followed, these records detail how, where and when products were produced, as well as standard operating procedures followed at the facility (such as food handling, hygiene, facility, etc.). Create a document that outlines the in-house handling of ingredients, including the lot number, the date they enter the kitchen, how they are cared for (refrigeration, etc.). See the ingredient log on the following page.

Each food product created should have a detailed paper trail for all ingredients contained in it, as shown in the production report table on the next page. A paper trail should also be created that documents the distribution of products to purchasers. If an ingredient is tainted, these details allow for the origin to be found and any purchasers to be alerted. Ensure that you create log sheets that satisfy your health department needs.



Ingredient Log							
Arrival Date and Time	Ingredient	Quantity	Company	Lot #	Quality Inspect (Initials)	Arrival Temperature (°F)	Refrigeration Time
3/8/16 8:25 am	Sea Salt	5 lb	Nilon Salts	87-0980	<i>JK</i>	N/A	
10/8/16 8:50 am	Italian Spice	2 lb	McCormick	0900876	<i>JK</i>	N/A	
17/8/16 9:40 am	Winter squash	80 lb	farm	Field #10	<i>EG</i>	50	10:15 am

Date:	18/8/2016	Production Report			
Product Processed	Ingredient	Quantity	Source Company	Lot #	
Herbed Winter Squash	Winter squash	60 lb	Farm	Field #10	
	Sea Salt	10 oz	Nilon Salts	87-0980	
	Italian Spice	9 oz	McCormick	09-00876	
Time in Freezer				2:20 pm	
Cleaning Log:	Floors, countertops, equipment, sinks, perimeter checked, storage area, facility			<i>JK</i>	
Signature:	<i>Jessica Kyle</i>				

Storage, Transport and Sales

The handling of the fresh produce before freezing is important for quality and food safety. Produce should be transported and stored in containers that are disposable (cardboard) or able to be repeatedly cleaned and sanitized (produce tubs). Cut fruits and vegetables should be refrigerated at 41 degrees Fahrenheit or below. Fresh fruits should be stored separately from fresh vegetables, as some fruits give off ethylene gas and can cause vegetables to spoil. Fruits may also absorb undesirable flavors from vegetables. Never put meat, dairy, shellfish or other high-risk foods above the produce in the cooler, as cross contamination can easily occur if the high-risk foods leak onto the produce. Ideally, cut fruit will be stored in a separate cooler from all other food items.

Frozen fruits and vegetables are best stored at minus 10 degrees Fahrenheit for a longer shelf life, but they can be stored at zero degrees Fahrenheit. The process by which the produce is transported from the cooler to a mobile cooler unit to market is an important Control Point (CP) and should be included in the production plan. Logs of the temperature at each point in storage and transport should be kept. The refrigeration unit should have an automatically controlled cooling system and a temperature monitoring system.

The space needed for storage of dry ingredients, refrigeration and freezing is often underestimated in startup companies. Calculate the amount of space needed for the incoming ingredients and outgoing product during peak production periods and be sure to have space available.

Registration of Food Product with State

Once recipes and safe processing procedures have been developed and product labels have been created, it is time to submit everything to the State. Differing procedures will correspond with the differing food products and their food-safety situation. All label reviews, regardless of the product, cost \$83. After receiving your application, the health department will send back a formal response indicating the areas that need to be addressed to gain approval. Discuss the changes needed with the health department and reply. Contact the health department at any time for further clarity.

Business

Often new business owners become so passionate about their product that the needed business activities of marketing, distribution, accounting and paperwork get neglected. Take time to set up simple systems and ensure that someone has designated time to address these tasks. Help in developing the business can be found with a local business counselor or online at:

[https://www.sba.gov/category/navigation-structure/starting-managing-business.](https://www.sba.gov/category/navigation-structure/starting-managing-business)

Marketing and distribution are essential to the business because customers must know about your product and have access to it before sales can occur. The business plan, budgeting and accounting become essential to determine where the business is successful or where it needs improvement. The city, county and state licenses; state and federal registrations; and insurance required for the business must be kept up and considered as part of the budget. Without all of these key tasks occurring, a business will fail. Future fact sheets will be coming on these topics.

Resources

Packaging

North Carolina State University – Packaging Requirements for Fresh Fruits and Vegetables
www.bae.ncsu.edu/programs/extension/publicat/postharv/ag-414-8.

Finding a Co-Packer, Part 1,
<http://www.bbfdirect.com/f/t/working-with-co-packers-finding-co-packer--q8p3>.

Finding a Co-Packer, Part 2,
<http://www.bbfdirect.com/f/t/using-co-packers-as-part-a-successful--qzJj>.

Postharvest Handling

North Carolina State University – Postharvest Handling and Cooling of Fresh Fruits, Vegetables and Flowers for Small Farms,
<http://content.ces.ncsu.edu/part-3-handling-postharvest-handling-and-cooling-of-fresh-fruits-vegetables-and-flowers-for-sma.pdf>.

ATTRA – Postharvest Handling of Fruits and Vegetables,
<http://www.wnc.edu/files/departments/ce/sci/postharvesthandling.pdf>.

HACCP and CCPs

FDA – HACCP Principles and Application Guidelines,
<http://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006801.htm>.

Southern Nevada Health District – Food Establishment Resource Library – Hazard Analysis and Critical Control Point (HACCP) Plan,
<http://southernnevadahealthdistrict.org/ferl/haccp.php>.

Small Business

Nevada Food Business Resource,
<http://nevadafoodbusiness.com/>.

Nevada Small Business Development Center,
<http://nsbdc.org/>.

References

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