



Produce Preservation Program

Canning • Freezing • Drying • Harvesting • Cold Storage

Facilitator Guide

BRITISH COLUMBIA

BCFood Processors ASSOCIATION

The Produce Preservation Program Facilitator Guide is designed to provide basic reference material for workshop participants both within the workshop itself and when applying the techniques within the home environment. Canning and preserving, as is true of any other kind of cooking, carry risks. While we have attempted to provide some general safety steps, we cannot guarantee the safety and quality of the end product. Therefore, please follow the basic guidelines very carefully, and if there is any confusion about the ingredients or the process, please consult an up-to-date Canada government source for clarification. The author, sponsor, and funder of the Produce Preservation Program assume no responsibility for damages associated with the use of this Guide.

Thank you to Bernardin for their support of this program.

OVERALL GOAL

The overall goal of the Produce Preservation workshop is to introduce produce preservation methods and tools, and develop the trainee's competence in preserving garden produce using a variety of preservation techniques while maintaining quality control and food safety.

Learning Objectives

As a result of attending this workshop, participants will be able to:

1. Identify food preservation techniques applicable to the produce grown through the PAI program.
2. Choose food preservation technique/s suitable for their specific location, typical produce grown, and available resources such as equipment, electrical services, etc.
3. Identify the equipment and supplies required for the food preservation technique to be used.
4. Safely apply canning techniques demonstrated and practiced in the workshop.
5. Identify appropriate foods for freezing and apply specific techniques for freezing as a preservation method.
6. Apply the process for drying foods using a dehydration preservation method.
7. Preserve produce using a storage box.
8. Understand safety techniques applicable to food preservation preparation, equipment cleaning and sterilizing, sanitizing, and risks of bacteria.
9. List the signs of spoilage of preserved foods and avoid the risk of botulism or other health considerations.
10. Maintain the quality of the preserved food by correctly applying the preservation process demonstrated and practiced in the workshop.

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Methodology

The design and delivery of the workshop will be based on adult learning techniques and methods specific to the target audience. The in-class learning will be activity based with facilitator demonstrations, and participants actually performing the preservation techniques and receiving immediate feedback from the instructor. All classes will be "hands-on" and experiential. Learning will be supported through the use of participant workbooks, slides, videos, and open discussions.

Required Resources

The 3-day workshop will require the following resources, supplies and/or equipment to deliver the content identified in the curriculum and chosen methodology.

WORKSHOP LOCATION

- Commercial kitchen large enough for participants to observe facilitator demonstrating preservation techniques
  - » Sufficient counter space and electrical outlets to demonstrate canning/freezing techniques.
  - » Equipment for demonstrating preservation techniques
    - Two large stock pots (Dutch oven size - clear top)
  - » Sufficient stoves/hot plates to allow one per each small group of 3 to 4 students
  - » Freezer
  - » Cutting boards
  - » Large wooden/stainless steel spoons
  - » Dish detergent, tea towels, dish clothes
  - » Cookie sheets/trays for oven drying
- Location should also include either outdoor area or inside area large enough to demonstrate packing produce in a storage box
- Large tables and chairs for participants (15 participants recommended as maximum)
  - » 3 - 4 participants per table to allow for practical application
- A/V equipment
  - » Screen, LCD projector, TV/DVD player, internet access (option)

PARTICIPANT MATERIALS

- Participant Workbook including note paper
- Slides
- Book: Bernadin Guide to Home Preserving
- Bernadin Home Canning Starter Kit
- Food Safety DVD & Jar Openers
- Aprons
- Latex gloves
- Certificates
- Name Tags/Labels

Instructors Resource Kit

- Facilitator's Guide
  - Reference materials & books
- Learning Aids
  - Food Safety DVD; Bernardin Making Strawberry Jam video
- Participant Workbook
- PPT Slides/Overheads
- Water Canning Kit
- Pressure Canner/Cooker
- Electric Dehydrator
- Ice cream buckets for washing produce – one per table
- Produce & supplies sufficient for planned preservation demonstrations & practice
  Note: The following list could change if produce specific to your community is used for the demonstrations & practice.
  - Fruits sufficient for canning jam – demonstration + small groups (Strawberry)
  - Package of Fruit Fresh to display commercial method of preventing the browning of fruit
  - Jam pectin packages – more than one type to demonstrate differences in taste, level of sugar. i.e. Full/low/no sugar varieties
  - Scones/English muffins for tasting jams Note: Option is to make fresh bannock
  - Pears or other available fruit for canning a jar of fruit
  - Blueberries for making jam and tray/dehydrator drying
  - Tomatoes for canning (one jar per student) and oven drying (one tray)
  - Beets, pickles or carrots to demonstrate pickling technique
    - One jar/package pickling spices
  - Batches of carrots with tops to demonstrate pickling, drying, storing of root vegetable
  - Herbs to demonstrate freezing of herbs and drying of herbs
  - White Vinegar
  - Lemon juice
  - Cinnamon sticks & cloves
  - 5 kg bag of sugar
  - Sugar substitute sample product
  - Bags of ice for blanching

  - Vegetables, as per chosen recipe and available produce, to can salsa – one large batch sufficient to produce one jar of salsa for each student.
    - Onions, green peppers, jalapeno peppers, garlic cloves, cans of tomato paste, one batch cilantro, cumin
  - Corn tortillas to demonstrate making dipping chip
  - Commercial tortillas, salted & unsalted, for tasting salsa
  - Apples sufficient to produce one small freezer bag of apples for each student, one bag of sliced dried apple strips for each student, and base for fruit leather.
  - Fruits sufficient for making freezer jam – demonstration + small groups (Mixed berries)
  - Freezer jam pectin – more than one type to demonstrate differences in taste, level of sugar.
- Samples of dried vegetables; variety of canned produce
- Storage box
- Key equipment required for demonstrations
  - Steamer
  - Jelly bag
  - Potato masher
  - Funnel
  - Samples of commercial jam pectin packages
  - Sample freezer containers, rigid & soft sided (3 per person)
    - Previously used plastic containers as samples – option to purchasing new containers
  - Sample canning jars including bands & lids
  - Sample storage bags i.e. Burlap bags, net bags, "Stay Fresh" bags
  - Newspaper for wrapping vegetables to be stored
  - Felt pens for labeling of canning lids and freezer bags
  - Cutting boards – two per small group
  - Small knife for each participant

Program Overview

DAY 1

Facilitator & Participant Introductions
Workshop Overview
Introduction: Home Food Preservation
Preservation Principles

Food Safety

Preventing Food Spoilage
Food Safety

Harvesting Garden Produce

Home Canning

Introduction: Home Canning
Canning High Acid Foods
Step by Step
Canning Equipment
Mason Jars & Lid Preparation
Raw Pack & Blanching
Preparing Produce for Processing
Hot Packs
After Processing
Storing Home Canned Produce

Day One Wrap-Up

DAY 2

Opening and Set-Up
Review Session 1
Introduce Day Two Agenda

Home Canning *Continued*

Making Jams & Jellies
Canning Low Acid Foods
Step by Step
Home Canning Wrap-Up

Drying

Introduction: Drying Foods
Produce Suitable for Drying
Drying Methods
Sun Drying
Oven Drying
Dehydrating
Preparing Fruit for Drying
Determining Dryness
Conditioning
Packaging & Storage
Making & Storing Fruit Leathers
Step by Step

Day Two Wrap-Up

DAY 3

Opening & Set-Up
Taste Test of Jams
Introduce Day Three Agenda
Taste Test of Fruit Leathers

Freezing Fruits & Vegetables

Introduction: Freezing Fruits & Vegetables
Making Freezer Jam
Freezer Containers
Labels
Methods: Freezing Fruits & Vegetables
Sugar Pack
Artificial Sweeteners
Dry Pack
Tray Pack
Freezing Herbs
Freezing Pointers
Safe Thawing
Lunch: Taste Test of Frozen Meal

Cold Storage

Introduction: Cold Storage
Preparation of Produce for Cold Storage
Selecting Produce
Timing
Outdoor Cold Storage
Stack Method
Trash Can Method
Indoor Cold Storage
Building a Root Cellar
Preparation of Produce for Cold Storage
Packing
Packing Materials
Storing Root Vegetables

Program Summary & Wrap-Up

Day 1

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Set-Up		
	SET-UP two canners, ½ full of water, on heat before the class begins. Get boiling – keep simmering to sterilize jars. PUT 2-3 pots of water on to boil for blanching. Put 2-3 ice cream buckets full of ice water in fridge (if room). Prepare one pot with syrup for pears. Place 2 cutting boards & knifes on each table	• Two canners • 2-3 large stock pots • 2-3 ice cream buckets • Medium size pot • Knifes • Cutting boards
Introduction		
Title Slide	**INTRODUCE** yourself **REVIEW** workshop goals, general expectations, and housekeeping, e.g. washrooms, break times, emergency exit, lunch room etc.	• Facilitator Guide & Slides[1] • Participant Manual[2] • Flipchart & pens • Masking tape
Program Overview	**STATE:** We're going to learn about different ways to preserve foods at home. **REVIEW** workshop agenda, methodology	
	DISTRIBUTE participant materials (Workbook, Bernardin book, slides, aprons, Food Safety DVD, etc.)	
	PARTICIPANT INTRODUCTIONS Interactive but respectful participant introductions. • Place participants in pairs to introduce themselves » Where they are from? » What kinds of preserving have they done – experience in preserving – types of preserving?	
	DETERMINE participant expectations of program. • What questions do they have about home preserving? • What do they want to learn? » List on flipchart. Post as reference for wrap-up of program.	

[1] *The Facilitator Guide and Slides are applicable to all topics covered within the workshop*

[2] *The Participant Manual is applicable to all topics covered within the workshop*

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Introduction: Home Food Preservation		
Introduction: Home Food Preservation	**PROVIDE BASIC DEFINITION & COMMON METHODS** of the various produce preservation techniques applicable to the produce grown through the PAI gardens, and other easily accessible purchased produce. **DISPLAY** various preserved products. **REFER** to the products on display as you describe the various methods	Samples of preserved products – using each of the four methods covered in the workshop
Preventing Food Spoilage	**STATE**: Preservation refers to all methods that stop or slow the decomposition and spoilage of food. Food preservation involves stabilizing the condition of the food & preventing spoilage by inactivating enzymes, destroying microorganisms; preventing oxidation. Common methods/ preservation principles are: • Applying low temperature » This inhibits the activity of enzymes and micro-organisms that ripen food by freezing, refrigeration, storage in root cellars (Note: This method does NOT destroy organisms, they can reactivate at room temperature) • Applying high temperature » This method destroys the enzymes and microorganisms, by cooking and/or canning • Removing moisture » Enzymes and microorganisms cannot act without moisture. Methods include drying, dehydrating, and freezing. • Excluding air » Enzymes and most microorganisms cannot act without air. Methods include canning, sealing the surface of the food, using a vacuum pack for freezing. • Adding preservatives » The most common substances used are sugar, salt, and vinegar, which in sufficient concentrations will destroy microorganisms. Methods include jam and jelly making, salting, pickling, smoking	
	SUMMARIZE importance of food safety	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Food Safety Review		
Food Safety	**ASK:** How many of you had time to complete the online Caring About Food Safety Program assigned as pre-work for this workshop? Who has FOODSAFE Level 1 Certificate? **INTRODUCE** the concept of food related illnesses and how caring about food safety will assist in preventing these illnesses. **REVIEW** & explain the topics listed on the slide to introduce the importance of caring about food safety when applying the preservation techniques covered in these workshop modules. **ASK** participants to give one example for each bullet on slide. • Personal Cleanliness » Refer to aprons » Describe proper hand washing (sing Happy Birthday) • Preparing Foods » Show disposable cutting board • Separating Foods (cross-contamination) • Thawing Foods » Danger zone 4-60° C » Fridge 4° C or below » Freezer – 18° C or below » Reheating - 74° C • Cooking Foods » Show thermometer • Cleaning & Sanitizing » Show sanitizing solution (5ml bleach per liter) **EMPHASIZE** the importance of cleaning and sanitizing tools, equipment, and surfaces as they are preserving foods.	Refer to www.foodsafe.ca Refer to *"Caring About Food Safety"* DVD provided as part of participant package and pre-workshop online training program completed. **Note:** Training located at www.foodsafety.gov.bc.ca Optional: Show DVD "Caring About Food Safety" & use as discussion tool. • Aprons • Hand washing soap • Sanitizing solution in spray bottle • Food thermometer • Disposable cutting board for use with meat, fish, poultry
Harvesting Garden Produce		
Harvesting Garden Produce	**ASK:** What are the common fruits and/or vegetables that you harvest in your gardens? Show up in bulk quantities through other means i.e. grocery stores, farm market? **ASK:** What are you doing now to preserve these fruits & vegetables? Discuss options for harvesting & preserving the fruits and vegetables brought forward by participants. **ACTIVITY:** If insufficient discussion or types of fruits/ vegetables, hand out cards with picture or name of one fruits or vegetable on each card. Person who gets the card has to tell the group how to harvest. They refer to workbook for ideas.	Participant Guide: Harvesting Chart Cards with picture or name of one fruits or vegetable on each card. Choose those fruits/ vegetables common to gardens grown/ easily accessible in your community.

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Home Canning Basics		
Home Canning	**INTRODUCE** home canning as one of the four major food preservation techniques. • Why can foods? • How canning preserves foods **COMMENT** on risks to home canning including bacteria (Botulism) & how to avoid these risks	• **BOOK:** Bernardin Guide to Home Preserving
Canning High Acid Foods	**EXPLAIN** that one of two types of foods (high acid foods versus low acid foods) and the associated home canning method (hot water canner). • Cover advantages/disadvantages of this process • Explain when they should choose this process • Explain how to determine if fruit/vegetable is a high acid food **ACTIVITY**: Place empty hot water canner at the front of the room. Hand out cards with the name of one fruits/ vegetables on the cards. Have them place card into the hot water canner at the front of the room if they think this fruit/vegetable should be processed using a hot water canner. Once participants have completed this task, pull cards out of the canner and comment on whether they identified the correct produce for this process. If not, comment on why not.	• Hot water canner • Cards with picture or name of one fruit or vegetable on each card. Include a variety of low and high acid foods.
High Acid Foods – Step by Step	**REVIEW & EXPLAIN** the steps to be followed when canning high acid foods » **Note:** Some of the following slides will go into further detail	• **BOOK:** Bernardin Guide to Home Preserving page 6.
Canning Equipment	**DISTRIBUTE** Bernardin home canning kit • Go through items inside the box and explain purpose • Suggest they keep packing material for the trip home – pack produce filled jars without breakage	• Bernardin home canning kit
Mason Jar & Lid Preparation	**DEMONSTRATION** • Display & talk about the similarities/differences between different types of canning jars i.e. Mason jars versus non-Mason jars • Ensure group understands what jars should be used/ avoided i.e. Used jars from commercial products (peanut butter) • Display & talk about the variety of canning lids available i.e. examples of different sizes & different brands	• Variety of canning jars – Mason and non-Mason • Variety of packages/styles of canning bands & lids • Pre-prepared canners on stove/burners • One jar + lid + jar seal for each participant from Bernardin kit

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Home Canning Basics		
Mason Jar & Lid Preparation	**DESCRIBE** steps to cleaning & sanitizing jars and lids • Jar cleaning & preparation • Sterilization of empty jars • Lid selection, preparation, and use » Show lid – explain softening of seal compound **ACTIVITY:** Have each participant take one jar from his/her kit and place in pre-prepared canner to keep hot. Label lid with name and put into hot water – also prepared before class started	
1st Method for Packing Produce Preparing Produce for Packing	**DEFINE & EXPLAIN** the raw pack method of packing produce for home canning purposes. **DEMONSTRATE** preparing produce (tomatoes) for raw pack. Show the "squish" method of packing tomatoes • Explain head space • Explain why lemon juice is added & salt is optional • Clean top edge, add prepared lid, ring » Finger tip tight **REFER** to Bernardin book and ask participants to determine how much processing time is required for this process? **EXPLAIN** why.	• Bernardin text page 52 • Ingredients » 2-3 tomatoes » Lemon juice » Salt • Measuring spoons
	PARTICIPANT PRACTICE Participants practice raw pack using tomatoes as per facilitator demonstration. Each participant prepares & processes one jar and takes this jar home. • Jar placed in hot water canner with boiling water – set up on stove earlier in the morning • Time for 85 minutes.	• Bernardin text page 52 • Ingredients » 2-3 tomatoes per participant » Lemon juice » Salt • Measuring spoons • Jars
	DEBRIEF canning tomatoes – raw pack with no liquid.	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Home Canning Basics		
Preparing Produce for Packing/ Blanching	Demonstrate water and steam blanching (tomato) and explain when they should blanch before canning fruits/ vegetables.	• Bernardin text page 50 • Tomato for demonstrating blanching techniques • Pot for blanching • Wire basket or mesh bag • Towels
2nd Method for Packing Produce	**DEFINE & EXPLAIN** the hot pack method of packing produce for home canning purposes. • **EXPLAIN** that raw pack can also be done with adding a hot liquid in which case it is called a hot pack. **DEMONSTRATE** preparing produce (pears) for hot pack.	• Pears (3-4) • Sugar • Fruit fresh • Cutting board • Paring knife • Mixing bowl • Measuring spoons • Measuring cups
	PARTICIPANT PRACTICE – COOPERATIVE ACTIVITY Participants practice hot pack using pears. As a cooperative activity, make one large or two 500ml jars **ASSIGN** each group (4) to do one of the steps • Jar placed in hot water canner with boiling water – set up on stove earlier in the morning	• Bernardin text page 52 • Ingredients » 2-3 tomatoes per participant » Lemon juice » Salt • Measuring spoons • Jars
Lunch Break		

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Home Canning Continued		
2nd Method for Packing Produce	**EXPLAIN** that another version of a hot pack is to have a cooked and hot mixture going into a hot, sanitized jar. Tell the group that they will be preparing salsa as a cooperative activity and at the end they will each have one jar of salsa to take home. Note: Make 1 ½ salsa recipe from Bernardin book. **PARTICIPANT PRACTICE – COOPERATIVE ACTIVITY** • Each participant puts one jar in boiling water to sanitize and one lid in boiling water • Assign pairs (6 partners) to prepare one of the ingredients • Each pair prepares a different ingredient • Put all ingredients into a large pot, bring to a boil and simmer (30 minutes)	• Bernardin text pages 58 - 61 • Approximately 20 tomatoes • 2 green peppers • one bunch cilantro • 3-4 yellow onions • 12 jalapenos • 1 garlic bulb • vinegar • cumin • 1 pkg. Bernardin Salsa Mix to show • Cutting boards, paring knives. Chef's knives • Measuring cups, measuring spoons • Large pot - dutch oven size
Health Break		

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Home Canning Continued		
2nd Method for Packing Produce	**EXPLAIN** that while salsa is simmering, you will demonstrate another version of a hot pack. This is to have both the food and the liquid hot. **INTRODUCE** techniques and recipes for pickling & fermenting produce using the canning process. **DEMONSTRATE** making pickled beets • Have each participant put a jar in the canner to sanitize and lid in hot water • Demonstrate making pickling solution and spice bag – make in a big communal pot • Recipe from Bernardin book **EXPLAIN** why beets done this way can be done in a hot water bath canner **INDIVIDUAL ACTIVITY** • Peel & slice (quarter) beets and fill individual jars • Fill individual jars with salsa • Add to hot water canner – boiling water • Process for 30 minutes **NOTE:** Depending on time available demonstrate other ways to do pickles or other produce other pickling methods as per Bernardin recipes • Fermentation **ASK:** What high acid fruits and/or vegetables are you growing in your gardens that you could either raw/hot pack or pickle for hot water bath canning?	• Bernardin text pages 58 - 61 • Approximately 20 tomatoes • 2 green peppers • one bunch cilantro • 3-4 yellow onions • 12 jalapenos • 1 garlic bulb • vinegar • cumin • 1 pkg. Bernardin Salsa Mix to show • Cutting boards, paring knives. Chef's knives • Measuring cups, measuring spoons • Large pot - dutch oven size
After Processing	**SUMMARIZE** the day's content and review trouble shooting while the jars are processing. • Advantages and disadvantages of hot water bath canning • High acid foods • Raw pack versus hot pack **REMOVE** jars – demonstrate correct way to remove jars.	• Bernardin text page 135
Day One Wrap-Up		
	DISPLAY different types of "chips" (salted and unsalted) and sample salsa made earlier. If time allows, make fresh chips in the oven by cutting up tortilla chips. Demonstrate this method. **DISCUSS** health and nutritional impact of salted versus unsalted chips. **SUMMARIZE** day-one content • Respond to questions regarding day one content **BRIEFLY INTRODUCE** day-two content	

Day 2

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Home Canning Basics Continued		
Opening & Set-Up		
	SET-UP two canners, ½ full of water, on heat before the class begins. Get boiling – keep simmering to sterilize jars. **PUT** large pots of water on to boil for applesauce (1/2 inch of water, boiling) **PLACE** ice cream bucket of water on each table for washing apples	
	WELCOME participants back to Day 2 **REVIEW** workshop agenda, methodology and housekeeping for day two.	
After Processing	**REVIEW** how to test seals by checking the seals of food products processed the previous day • **EXPLAIN** 3 ways to check seals & what to do if jars don't seal	• Processed produce from day one - Tomatoes, pears, salsa, beets
Storing Home Canned Produce	**REVIEW** how/where to store **LABEL** products	• Permanent marker for labeling
Making Jams & Jellies	**INTRODUCE** topic of Jam/Jelly making using the canning process **EXPLAIN** pectin – natural versus commercial **SHOW** examples of different market forms of pectin (different brands, granular versus liquid form) **EXPLAIN** importance of reading directions	• Samples of different market forms of pectin

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Home Canning Basics Continued		
PRACTICE: Making Jam	**DEMONSTRATE** making cooked jam using "light" recipe – cooked jam **PARTICIPANT PRACTICE – MAKING JAM** • DIVIDE class into 3-4 groups • Explain options i.e. no pectin (long cook) – recipe pages 22-23; pectin full sugar (granular & liquid) – recipe pages 22-23; Light – page 24; light with sugar substitute • Each group will make a different type of blueberry (or other fruit) jam » Bernardin no sugar with the lowest amount of sugar (1 ½ cup) » Bernardin no sugar with the maximum amount of sugar (3 cup) » Certo light » Bernardin with Splenda • Prepare jars and lids • Prepare fruit according to package directions • Remove from heat, skim • Fill jars, add lid & process as per recipe directions • Note: Extra jam goes into a container and into the fridge for tasting on morning of Day 3	• Bernardin text pages 22-24 • Small jar and lids for each participant • 20 cups blueberries • 3 Bernardin no sugar pectin • One Certo light • Sugar • Apple juice • Splenda • 8 mixing bowls • 4 mashers • 4 large saucepans/pots • Measuring spoon sets • Measuring cup sets • Large metal spoons • Ladles • Extra containers
	EXPLAIN the benefit of using a no sugar mix. i.e. Nutrition and health benefits.	
	SUMMARIZE making jam by showing the Bernardin video on making strawberry jam • Ask participants to pick up the mistake	• TV & projector with speaker system • Bernardin video on Making Strawberry Jam in the Bernardin Canning Kit
	SHOW how to prepare fruit for jelly • Emphasize crushing one layer at a time • Add ½ cup water and cook for 5 minutes – put into jelly bag • **EXPLAIN** options i.e. no pectin; with pectin; full sugar, light, with sugar substitute **NOTE:** If time permits, make one batch of jelly	• 4 cups of berries • Mixing bowl • Masher • Large sauce pan • Jelly bag • One package Bernardin no sugar pectin if you actually demonstrate making the jelly
	ASK: What fruits are you growing in your gardens, picking wild, or able to purchase in bulk that you could use to make jams or jellies? **REFER** participants to the Bernardin book and ask them to locate recipes for the fruits they have identified.	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Health Break		
Canning Low Acid Foods	**EXPLAIN** that one of two types of foods (high acid foods versus low acid foods) and the associated home canning method (Pressure canner). • Cover advantages/disadvantages of this process • Explain when they should choose this process • Explain how to determine if fruit/vegetable is a low acid food **DISPLAY** pressure canner and explain what to look for when purchasing a pressure canner **ACTIVITY:** Place empty pressure canner at the front of the room. Hand out cards with the name of one fruits/ vegetables on the cards. Have them place card into the pressure canner at the front of the room if they think this fruit/vegetable should be processed using a pressure canner. Once participants have completed this task, pull cards out of the canner and comment on whether they identified the correct produce for this process. If not, comment on why not.	• Pressure canner • Cards with picture or name of one fruit or vegetable on each card. Include a variety of low and high acid foods.
Low Acid Foods – Step by Step	**REVIEW & EXPLAIN** the steps to be followed when canning low acid foods » **Note:** Some of the following slides will go into further detail	• BOOK: Bernardin Guide to Home Preserving page 7.
Low Acid Foods – Step by Step	**DEMONSTRATE** preparing vegetable (tomatoes or beets used earlier) for pressure canning. • Explain what is different about preparing these same produce for pressure canning versus hot water bath canning **REFER** to Bernardin book and ask participants to determine how much processing time is required for this process? **EXPLAIN** why.	• Bernardin text recipes on pages 106 and 109 • Ingredients » 2-3 tomatoes » 5-6 beets » Lemon juice » Salt • Measuring spoons
	PARTICIPANT PRACTICE Participants practice hot/raw pack using tomatoes/beets as per facilitator demonstration. Each participant prepares & processes one jar and takes this jar home. • Jar placed in pressure canner with boiling water • Process as per chosen recipe	
	ASK: What low acid fruits/vegetables are you growing in your gardens, picking wild, or able to purchase in bulk that you could process in the pressure canner? **REFER** participants to the Bernardin book and ask them to locate recipes for the fruits/vegetables they have identified. Have them look for recipes that process the produce as a single food and as a combination of produce. i.e. Relish, Chutneys	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Home Canning Basics Continued		
	SUMMARIZE topic of pressure canning • Answer participant questions	
	PRESENT ideas for preventing spoilage when canning foods • Identifying spoiled canned food • When not to eat canned food	• Photos/samples of spoiled canned foods
	WRAP-UP topic of home canning by covering methods of preserving high quality end product and maintaining color and flavour when canning foods • Cooling jars • Storing canned food/jars • Trouble shooting • Respond to questions regarding home canning content	
Lunch Break		

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Opening & Set-Up		
	BEFORE the class begins • **PREHEAT** oven to 225° for tomatoes • **SET-UP** dehydrator **PUT** large pots of water on to boil for applesauce (1/2 inch of water, boiling) Place ice cream bucket of water on each table for washing apples **DISPLAY** a variety of dried produce – include different types of nutritional levels and/or healthy versus unhealthy ingredients	
Produce Preservation Technique: Drying		
Drying Foods	**INTRODUCE** the concept of drying food. Drying is one of the oldest methods of preserving food for later use. It can either be an alternative to canning and freezing or complement these methods. Drying food is simple, safe and easy to learn.	• Participant Guide pages 16 - 37
How Drying Preserves Foods	**EXPLAIN** how drying preserves foods • Drying removes the moisture from the food so that bacteria, yeasts and moulds cannot grow and spoil the food. It also slows down the action of enzymes. • When drying food, don't keep temperatures too low or too high. Temperatures too low may result in the growth of bacteria on the food. Temperatures too high will result in the food being cooked instead of dried. Food that is under-dried will spoil, and food that is over-dried will lose its flavour and nutritive value.	• Variety of dried food on display
Produce Suitable for Drying	**REVIEW** fruits and vegetables most suitable for drying by referring to charts included in Participant Workbook	• Participant Guide pages 24 & 32
Drying Methods	**STATE** that there are four methods of drying produce. » Sun Drying » Oven Drying » Electric Dehydrating » On-the-Vine Drying	• Participant Guide pages 18 - 22, & 34
Sun Drying	**EXPLAIN** that BC's wet weather makes sun drying one of the least effective methods of drying fruits and/or vegetables • Outside (wind and sun) • Must have 30°C temperature or higher or else it needs to be pasteurized • Display trays that could be used as a sun dryer. • Comment that traditional method is using a canvas sheet for berries	• Participant Guide page 19

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Drying		
Method: Oven Drying	**REVIEW & EXPLAIN** oven drying method **PARTICIPANT PRACTICE** Participants practice preparing oven dried tomatoes as per facilitator demonstration. Each participant prepares & processes sufficient tomato slices to take one small bag home. • Work in pairs • Slice tomatoes lengthwise • Spread on a cookie sheet • Brush with vinegar, sprinkle with sugar • Bake one hour then turn over, bake another 1 ½ hours • Cool • Explain that these slices should be used in one week or frozen	• Participant Guide page 21 recipe • 1-2 plum tomatoes per participant • Balsamic vinegar • Sugar • Ovens – need more than one • Cutting boards • Chef's knives • Pastry brushes
	ASK: What other vegetables do you think you could oven dry using this same process? **REFER** participants to the chart provided in Participant Guide that lists fruits and vegetables appropriate for drying. **CONFIRM** correct answers and provide ideas for additional produce for oven drying.	• Participant Guide pages 24 & 32
Dehydrating: Step-by-Step	**REVIEW & EXPLAIN** electric dehydrating method **DISPLAY** electric dehydrator and what to look for when purchasing a dehydrator • Review different types of dehydrators based on air flow • Watch the temperature – too high and produce will become hard on the outside but moist on the inside and therefore subject to mold **EXPLAIN** how to prepare fruits for drying using a dehydrator. **EXPLAIN** pre-conditioning for those fruits that require it. • Pre-treating fruit: ascorbic acid, sulfering, fruit juice **DEMONSTRATE** the preparation of apple slices for drying. **Note:** Other produce suitable for drying could be used. **PARTICIPANT PRACTICE** • Conduct the "apple peel challenge" – who can get the longest peel! • Core apples • Cut thin slices • Dip in lemon juice to prevent oxidation • Place prepared apple slices on dehydrator trays » Explain that they could also dry these slices in an oven	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Drying		
	ASK: What other fruits do you think you could dry using a dehydrator? **REFER** participants to the chart provided in Participant Guide that lists fruits and vegetables appropriate for drying. **CONFIRM** correct answers and provide ideas for additional fruit and/or methods for dehydrating fruit using an electric dehydrator.	• Participant Guide pages 24 & 32
Dehydrating: Step-by-Step	**EXPLAIN** how to prepare vegetables for drying using a dehydrator. Relate back to similarities/dissimilarities with drying fruits. Also relate back to blanching techniques covered in home canning module. **EXPLAIN** pre-conditioning for those vegetables that require it. **DEMONSTRATE** the preparation of carrots for drying. Note: Other produce suitable for drying could be used. **PARTICIPANT PRACTICE** • Cut thin slices • Place prepared carrot slices on dehydrator trays • Explain that they could also dry these slices in an oven **PLACE** trays of apple slices and carrot slices into the dehydrator. Ask participants to identify time required for drying as per recipe in Participant Guide. • Process	• One carrot per participant • One paring knife per person • Cutting board and chef's knives • Dehydrator trays
	ASK: What vegetables that you grow in your gardens do you think you could dry using this method and a dehydrator? **REFER** participants to the chart provided in Participant Guide that lists fruits and vegetables appropriate for drying. **CONFIRM** correct answers and provide ideas for additional vegetables and/or methods for dehydrating fruit using an electric dehydrator. Provide examples of what vegetables you have dried in the past. • What worked best? • What did not work?	• Participant Guide pages 24 & 32

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Drying		
Determining Dryness	**EXPLAIN** how to test for and determine dryness. Explain the differences between determining dryness of fruits versus vegetables. To test foods for dryness, remove a few pieces and let cool to room temperature. You will know your food is dried when you touch it. Dried fruits should be leathery and pliable with no pockets of moisture. If you are testing fruit, you can tear a piece in half. If you see moisture beads along the tear, it is not dry enough. Vegetables should also be tough but can also be crisp. **SHOW** brittleness of vegetable by demonstrating a sample dried vegetable. **RELATE** to food safety. Foods should be dry enough to prevent microbial growth and subsequent spoilage.	• Participant Guide page 28 • Samples of dried fruit and vegetables
Conditioning	**STATE:** Conditioning is to let moisture level equalize. One week in a glass jar. SHOW picture page 21 in Bernardin book.	• Bernardin Book page 21.
Packaging & Storage	**EXPLAIN** that dried foods are susceptible to insect contamination and moisture re-absorption and must be properly packaged and stored immediately. First, cool completely. Warm food causes sweating which could provide enough moisture for mould to grow. Store dried foods in clean, dry home canning jars, plastic freezer containers with tight-fitting lids or in plastic freezer bags. Vacuum packaging is also a good option. SHOW picture on page 123 (vacuum packaging). Make sure your containers are insect proof. Pack foods in amounts that can be used all at once. Each time a package is re-opened, the food is exposed to air and moisture that can lower the quality of the food and result in spoilage. **STORE** dried food in cool, dry, dark areas. Recommended storage times for dried foods range from 4 months to 1 year. Because food quality is affected by heat, the storage temperature helps determine the length of storage, the higher the temperature, the shorter the storage time. Most dried fruits can be stored for 1-year at15°C, 6 months at 26°C. Vegetables have about half the shelf life of fruits. **EXPLAIN** safety aspects of packaging & storing dried produce. Foods that are packaged seemingly "bone dry" can spoil if moisture is reabsorbed during storage. Check dried foods frequently during storage to see if they are still dry. Glass containers are excellent for storage because any moisture that collects on the inside can be seen easily. Foods affected by moisture, but not spoiled, should be used immediately or re-dried and repackaged. Moldy foods should be discarded.	• Bernardin Book page 123.
Health Break		

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Drying		
Making Fruit Leathers: Step-by-Step	**EXPLAIN** that any fruit or vegetable or combination of fruits can be made into leathers. Leathers are an excellent way to use slightly overripe fruits, which have more flavour than just-ripe fruit. Leathers can be made from purees of raw or cooked fruits. You can add water or juice to the blender to get a mixture that is thin enough to pour. **REVIEW** list of fruits suitable for leathering.	• Participant Guide pages 30-31
Making Fruit Leathers: Step-by-Step	**DEMONSTRATE** making applesauce as a puree for making apple leather. • Wash, peel, and quarter apples • Remove stem and blossom end • Put in pot with as little water as possible and cook until soft • Explain why so sugar is added at this stage (osmosis) **PUT** applesauce through Chinois strainer when it is soft. **REVIEW** all the ways of preserving this applesauce i.e. Canning, freezing, making into apple butter, drying.	• 6-8 apples
Making Fruit Leathers: Step-by-Step	**DISTRIBUTE** One cup of applesauce and a different fruit to each group to add to apple puree to make different fruit leather. Enough to make sufficient pureed fruit for one tray (fruit leather) for each group. Following the process on the slide and on page 39 of the participant guide, **EXPLAIN** and **DEMONSTRATE** the process for making fruit leathers. Participants to choose sweetener from sugar, corn syrup or honey choices. Once fruit leather is prepared by each group, place on dehydrator tray to place in second dehydrator or oven. **SAMPLE** variety of fruit leather on health break – day 3.	• Variety of fruits i.e. Strawberries, blueberries • Ascorbic acid crystals or lemon juice • Sugar, corn syrup and honey • Blender • Double boiler • Dehydrator tray for each group • Plastic wrap • 2nd Dehydrator • Oven
	REVIEW On-the-Vine drying and "paper bag" drying of herbs. **DISPLAY** paper bag with herbs. **ASK:** What vegetables or herbs do you either grow in your garden or pick wild could you dry using the on-the-vine method of drying or could you hang to dry?	• Paper bag with dried herbs. • Sample dried vegetables dried on-the-vine.
Day Two Wrap-Up		
	SUMMARIZE produce preservation method: Drying • Trouble Shooting • Respond to questions regarding drying content	• Trouble shooting Q & A

Day 3

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Opening & Set-Up		
	REVIEW topics and methodology for Day 3. **SAMPLE** variety of jams produced in home canning session. Place containers of jams for the taste test and have participants sample jams either using purchased English muffins or cook Bannock as "bread". ASK a participant to cook the Bannock. **ASK** participants to provide preference for type of jam sampled. Discuss application of nutrition and health of family members to type of pectin/sugar content for making jam.	
Produce Preservation Technique: Freezing		
Produce Preservation: Freezing Fruits & Vegetables	**INTRODUCE** freezing as a preservation technique. Freezing is one of the easiest and fastest methods of preserving produce.	• Participant Guide pages 38 - 61
Freezing Fruits & Vegetables	**EXPLAIN** that freezing maintains the natural colour, fresh flavour and high nutritive value of fresh produce. It is important to bring produce to the frozen state quickly. It is important to remember that freezing does not sterilize foods. The cold slows the growth of microorganisms and chemical changes that affect the quality of food or cause it to spoil. When done properly, fruits and vegetables are more like fresh than when preserved in any other fashion. **ASK:** What fruits and/or vegetables have you frozen in the past?	
	DEMONSTRATE making freezer jam using the process on the slide and the Bumble Berry Freezer Jam recipe on page 17 of the Bernardin book. **DIRECT** participants to participate in a cooperative activity of producing a freezer jam. Provide each group with a card that identifies what part of the process they need to complete and the different directions of what to do. i.e. A berry to crush, sugar to measure, etc. **FOLLOW** this process • Crush 4 cups of berries – one cup of each berry • Combine freezer jam pectin and sugar in large pot • Add crushed berries, stir 3 minutes • Ladle into freezer containers – rigid sides • Let stand 30 minutes then sample at morning health break **ASK:** What combination of fruits do you have access to in order to create a bumbleberry freezer jam? **EXPLAIN** that they could also use these same combinations to make a pie filling that could be frozen for future use. Note: Fruits whole not crushed.	• Bernardin Book page 17 • 4 cups berries (4 different kinds – 1 cup each - crushed) • One package Bernardin Freezer Jam pectin • Sugar • 5 mixing bowls • 4 mashers • Measuring spoons/cups • Large pot • Small 125ml rigid containers – one for each participant • Bread/crackers for sampling

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Freezer Containers Labels	**DISPLAY & COMMENT** on flexible versus rigid containers for freezing jams and other types of produce. Explain when to use what type of container. **REVIEW** what to mark on containers and why it is important to include all the information on the container.	• Sample containers – purchased and used.
	DEMONSTRATE removing fruit leather fro dehydrator/ oven, wrapping & storage. **CONDUCT** taste test of different versions of apple fruit leather & discuss preferences.	
Health Break		
Methods: Freezing Fruits & Vegetables	EXPLAIN that there are four methods to prepare fruits and vegetables for freezing and that you will be reviewing each of these methods. 1. Sugar pack 2. Syrup pack 3. Dry pack 4. Tray pack	• Participant Guide pages 42, 43
Practice: Sugar Pack (Fruits)	**REVIEW & EXPLAIN** the process for doing a sugar pack using apples as the sample produce. **EXPLAIN** what to do when preparing large amounts of apples. Use brine or cold water to prevent browning. The quick method of freezing apple slices or other fruit is to put apple slices directly into a freezer bag and toss with 1 ml of asorbic acid mixed with 15 ml of cold water, then 15 ml sugar. Remove air – two methods of either straw or water bath. Seal bag & label. **PRACTICE:** Each participant peels, quarters, cores, slices one apple to do one bag of apple slices. They follow the sugar pack method demonstrated. **EXPLAIN** that they should pack freezer containers with the quantity of fruit/vegetable that they will use in future recipes. **ASK:** What other fruits that you grow or purchase in bulk would taste good using this sugar pack method?	• 1 apple per person • Small freezer bags • Sugar • Fruit fresh • Cutting boards • Paring knives – one per person • Straws
	DESCRIBE how to prepare a syrup pack versus a sugar pack. If time allows, demonstrate preparing a syrup pack and when to use this method. i.e. What fruits does this work best with?	
Artificial Sweeteners	**EXPLAIN** the difference between using sugar versus an artificial sweetener for the sugar pack or syrup freezing method.	

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Practice: Dry Pack	**REVIEW & EXPLAIN** the process for doing a dry pack using carrots as the sample produce. **REVIEW** regular blanching and demonstrate steam blanching. EXPLAIN what to do when blanching carrots in preparation for freezing. **PRACTICE:** Each participant washes, peels, and cuts carrots into size best for his/her family and future use. Steam blanch carrots (See page 18 for length of blanching time: 3-4 minutes if cut). Immerse in cold water. Pack into freezer bag. Label. **ASK:** What vegetables that you grow or purchase in bulk could be combined to create a mix of vegetables for future use?	• 2 carrots per person • Vegetable peelers • French knife and cutting board • Steamer • Salad spinner • Ice water • Small freezer bags
Practice: Tray Pack	**REVIEW & EXPLAIN** the process for doing a tray pack using berries as the sample produce. **TELL** participants the advantage of using a tray pack method is that they can more easily remove produce from the freezer bag, as they do not "clump" together. Refer to frozen vegetables or fruits they may have purchased in the past. **DEMONSTRATE** what to do when preparing berries for the tray pack method. **EXPLAIN** that they should pack freezer containers with the quantity of fruit/vegetable that they will use in future recipes. **ASK:** When would it be beneficial to use the tray pack method for other fruits/vegetables that you grow, pick wild, or purchase in bulk?	• Participant Guide pages 43 & 51 • Sample frozen berries prepared by the tray pack method • Tray
Freezing Herbs	**REVIEW & DEMONSTRATE** two methods of freezing herbs	• Herbs for freezing (Left over from salsa) • Salad spinner • Kettle of boiling water • Ice cube trays • Cutting board & chef's knife • Freezer container

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Freezing Pointers	Quickly **REVIEW** Pointers to freezing	• Participant Guide
Safe Thawing	**INTRODUCE** safe thawing techniques • Refrigerator • Cold water • Microwave **REINFORCE** the importance of food safety. Explain that most spoilage from frozen foods is poor preparation of the food for freezing. These include air/water in the packaging, poor blanching. Provide pointers on how to avoid these problems.	• Participant Guide page 59
	SUMMARIZE produce preservation method: Freezing • Trouble shooting • Respond to questions regarding freezing content	• Trouble shooting Q & A • Participant Guide page 60

Lunch Break

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Cold Storage		
Produce Preservation: Cold Storage	**STATE** that you will cover the final food preservation method – that of cold storage. State that this is a way of saving fruits/vegetables without processing required. **COMMENT:** If you have a storage area that will keep foods cool without freezing you can store some fruits (apples, grapefruit, grapes and pears) and vegetables (shell beans, beets, cabbages, carrots, cauliflower, celery, kohlrabi, onions, peppers, potatoes, pumpkins, winter squash and green tomatoes) without processing. The advantage of a cold room or root cellar is that you have room to store and inspect produce regularly.	• Participant guide pages 62-75
Introduction to Cold Storage	**INTRODUCE & EXPLAIN** advantages and factors controlling shelf life of produce selected for this cold storage method of produce preservation. **INTRODUCE AND EXPLAIN** general guidelines for cold storage preservation techniques **STATE:** Cold storage reduces the rate of aging in fresh foods and also slows down the growth of contaminating micro-organisms. The purpose of storing fruits and vegetables in a cold store is to extend their life beyond the harvest season. Factors that control the shelf-life of fresh produce in cold storage include the: • Type & variety of food • Part of the produce selected • Condition of the produce • Temperature • Relative humidity of the storage atmosphere • Composition of the storage atmosphere	
Preparation of Produce for Cold Storage	**HAND OUT** cards with the name of fruits/vegetables on each. Direct participants to refer to his/her Participant Guide and identify whether the fruit/vegetable on the card is appropriate for cold storage and if so, how that produce should be wrapped and/or stored. They will explain this to the rest of the group.	• Pictures/names of fruits and vegetables on cards
Outdoor Cold Storage: Stack Method	**ASSIGN** one table this topic and ask them to refer to the Participant Guide. They will explain to the rest of the group what this method is and how to go about using this method. **REVIEW** Stack Method after presentation – if necessary. Note: Produce left in the garden rather than removed to other locations. i.e. Harvest when needed. **ASK:** Has anyone ever used this method or a version of this method? How did it work?	• Participant Guide

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Cold Storage		
Outdoor Cold Storage Trash Can Method	**ASSIGN** one table this topic and ask them to refer to the Participant Guide. They will explain to the rest of the group what this method is and how to go about using this method. **REVIEW** Trash Can Method after presentation – if necessary. **OPTIONAL:** Demonstrate how to pack the trash can with a variety of root vegetables (best choice of vegetables for this method) to display how to pack using straw, then explain how to bury outdoors. **ASK:** Has anyone ever used this method or a version of this method? How did it work?	• Participant Guide • Trash Can • Sample of root vegetables • Straw
Building a Root Cellar	**ASK:** Does anyone currently have a root cellar? How does it work? **CHOOSE** a variety of videos on building a root cellar and show variety of options to participants. HAND OUT building directions from eHOW website.	• Video from YouTube on building a root cellar • eHow directions on building a root cellar
Lunch Break		
Preparation of Produce for Cold Storage	**REVIEW** preparation of produce for indoor cold storage • Selecting produce • Packing • Packing materials **REVIEW** packing/storing in cold room/storage room of fruits/vegetables commonly grown by your group. Concentrate on how to store produce within a root cellar/ cold storage room. Choose common fruits/vegetables grown in gardens within chart on Participant Guide pages 64 - 66 and demonstrate. • Burlap bags/onion bags • Cardboard box • Hanging - Onions/garlic without tops removed	• Participant Guide pages 64 - 66
Storing Root Vegetables	**DISPLAY** a sample storage box that they could add to either a root cellar or cold storage room. **PARTICIPANT PRACTICE** **PROVIDE** a variety of root vegetables and packing materials to the group. **REFER** them to the participant guide and have them, as a group, correctly wrap the produce and pack within this storage box using the packing materials provided. Tell them to explain to you how produce should be packed within this box and where/how the box should be stored. Note: Include some vegetables/fruits that should not be packed in this storage box with the root vegetables.	• Storage Box • Variety of root vegetables • Small amount of other vegetables/fruits » Cabbage » Beets » Apples » Carrots • Packing materials such as sand, sawdust • Newspapers

Slide	Directions/Points To Make	Resources/Equipment/ Supplies
Produce Preservation Technique: Cold Storage		
	ASK: How long should you store vegetables and fruits in cold storage or a root cellar? Get answers then briefly comment on cold storage temperatures and the relation to food safety	• Participant Guide pages 73-74
	SUMMARIZE produce preservation method: Cold Storage • Trouble shooting • Respond to questions regarding cold storage content	• Trouble shooting Q & A
Wrap-up		
Summary & Wrap-Up	**REVIEW** the produce preservation methods identified in the workshop and assist participants in choosing those methods most suitable to their specific location and produce. • Produce • Equipment • Available resources/electrical • Nutrition • Spoilage	
	REVIEW & MATCH original participant expectations to content covered **CONDUCT** round robin. **REQUEST** participants to identify what they learned that they can apply to the garden produce they grow or acquire through picking wild or purchasing.	• List of participant expectations
	DISTRIBUTE certificates	• Certificates

Appendix: Trainer Tips, Techniques & Background Information

Advance Preparation

I. Decide on the format of your workshop

Number of days

The Facilitator's Guide is based on three full days but you may find in your community it is more appropriate to do shorter workshops in context. You may do half day or single day workshops depending on the need in your community and the availability of participants. For example, when berries are plentiful, you might do a workshop on all the ways that berries can be preserved (e.g., canning, freezing, jam/jelly, fruit leather); when fish and vegetables are available you might do a workshop on pressure canning; in late fall when harvesting just before the frost you might do a workshop on cold storage, etc.

"Hands – On" or Demonstration

Whenever possible hands-on participation by the people registered for the workshop is preferred. However this may be inhibited by the facilities that are available. If it is going to be mostly demonstration, then the amount of time that people will sit and listen is a factor in deciding the number of days of the workshop. Even in workshops that are mostly demonstration, every effort should be made to involve the participants.

II. Develop a workshop plan

Using the model in the Facilitator's Guide develop an outline of your workshop, first do a program overview and then do a more elaborate plan with the headings, Topic, Directions/ Points to Make, Resources/Equipment/Supplies.

Consider the three main parts of a workshop

1. INTRODUCTION/OPENING

Consider adding the following in the introduction/opening of your workshop.

- Introduce leaders and participants
- Icebreaker or a getting to know you activity
- Activity that accesses participants' knowledge and experience with preserving methods
- Make participants aware of the objectives of the workshop
- Establish organizational routines/procedures

2. BODY OF THE WORKSHOP

The body of the workshop should include the following.

- What preservation methods to cover
- What foods products you will use and the appropriate recipes
- Whenever possible, choose foods that are currently growing in your garden plots
- Conduct as many activities as possible that involve the participants – "hands-on"
- Build in time for tasting and socializing
- Build in time for questions, discussion and sharing experiences

3. CONCLUSION

Consider how you will sum up and evaluate the workshop.

III. Gather all the Resources/Equipment/Supplies required to implement your plan

Do as much advanced preparation as possible and consider the following.

- Tab the Bernardin Guide to Home Preserving for quick reference
- Tab the Facilitator's Guide for ready reference
- Prepare the information cards for activities that require them
- Determine what equipment and utensils are available at the workshop location and what you will need to purchase, bring from home or ask participants to bring
- Make a list of groceries that will need to be purchased and determine when you will get them

Day 1

Set-Up / Organization is the key to a successful workshop

- Organize the room and the seating. An open U format is desirable with participants sitting on the outside so no one has their back to others; make sure everyone can see the demonstrations and the slides
- Determine working areas for the "hands-on" activities. Clear, clean and sanitize if necessary.
- Set out equipment and supplies so they are easily accessible.
- Set up a display of preserved food products.
- Put name tags and workshops materials at each seating space.
- Check your projector and get the slides teed up and ready to go.
- Prepare Flip Chart Papers – one with "K" at the top for recording what participants already know about preserving; one with "W" at the top for recording what participants want to know or learn. Do all the set-up listed [you don't want to waste time later waiting for water to boil, etc.].
- Be ready to welcome participants as they arrive.

Introduction

- Consider involving participants in the decision making – e.g., when would they like breaks, lunch, etc.
- Even though you are working with adults, you may find it useful to go through some simple guidelines for participation, e.g., hand up if you have a question/answer, respectful behaviour, e.g., don't talk when someone or the facilitator is talking.
- Have a signal for attention – bell, clink a glass, etc.

Introduction: Produce Preservation

- Many of the preservation methods use a combination of food preservation principles, for example, making jam involves application of high temperatures, addition of a preservative, and removing the air.
- Enzymes are proteins that catalyze (i.e., increase the rates of) chemical reactions, in fruits and vegetables they increase the rate of ripening causing over ripening and food spoilage if not controlled.
- The most common micro-organisms are moulds, yeasts and bacteria.
- Oxidation is a chemical reaction that occurs with oxygen (air). In certain fruits and vegetables this causes browning.
- All food preservation methods are aimed at either destroying or controlling: enzyme reactions, microbial growth, and browning.

Food Safety Review

- If possible, consider taking Food Safe Level 1, a BC Ministry of Advanced Education Certificate Program for food handlers. It is offered on-line and face to face classes are available in many communities.
- Food safety practices are aimed at prevention of foodborne illnesses caused by micro-organisms or microbes that cause disease (pathogens): bacteria; viruses; parasites; protozoa (e.g., Giardia lambli, commonly known as beaver fever); fungi (mould and yeast).
- Personal food safety practices include: wearing aprons; tying hair back or wearing a hair net; hand washing or wearing gloves; not touching mouth, hair; avoiding food preparation when ill, etc.

Food Safety Review

- Consider demonstrating proper hand washing (sing or hum Happy Birthday all the way through twice)
- Proper food handling practices related to preservation include: thorough washing of fruits and vegetables; proper processing techniques, including temperature and timing; proper storage; proper thawing of frozen food
- Explain the DANGER ZONE 4°C (40°F) - 60°C (140°F) – the temperature at which bacteria multiply rapidly – keep food out of this temperature range
- Avoiding cross contamination is especially important (give some examples, wash and sanitize cutting boards and knives before using again)
- Demonstrate making sanitizing solution – 5-6 ml bleach for 1000ml or 1 liter of water

Harvesting Garden Produce

- The intent of this section is to review how and when garden vegetables and fruit should be harvested by having participants find the information about specific fruits and vegetables in their manuals
- Give each participant the name of a fruit or vegetable and explain that they have to find out 3 things to report
  - When this fruit or vegetable is usually harvested
  - How it is usually stored & how long will it keep
  - What preservation method/s can be used for this fruit or vegetable
  - See the Appendix 1 for a list of fruits and vegetables that can be photocopied for this activity OR find pictures of fruits and vegetables to use instead

Produce Preservation Technique: Home Canning Basics

- Acid foods – all fruits and tomatoes; pickles [Salsa is OK because it has a high proportion of tomatoes (acid) and vinegar (acid); Vegetarian Antipasta is OK as it has vinegar and pickles as ingredients; relishes and chutneys also OK because of acid content]
- Low acid foods – all vegetables, meats, fish, poultry and combination foods like soups, stews, spaghetti sauce
- Acid foods – can be processed in a water bath canner [Note: a large pot, e.g., a dutch oven or stock pot can be used provided a rack is inserted to keep the jars off the bottom, there is room for 1 – 2" of water above the top of the jars, and there is a lid]
- For the activity – put two canners (water bath canner and pressure canner) on display and give each participant a card with a different food and have them put them in the canner they think should be used. See Appendix 2 for a list of foods and answer key.
- Mason Jar trivia - were invented and patented by John Landis Mason, a Philadelphia tinsmith in 1858
- Lids are placed in warm water to soften the sealing compound and facilitate formation of a vacuum seal – check manufacturer's directions for the temperature of the water and the length of time – must use a new lid each time, jar and rings can be re-used for years
- Blanching – the process of immersing fruits and vegetables in boiling water for a certain length of time then immediately transferring to ice cold water – the purpose is to a) sterilize the fruit or vegetable, b) inactivate the surface enzymes, and in some cases c) remove the skin or peel (e.g., tomatoes & peaches)
- Amount of lemon juice for raw pack tomatoes will vary depending on the size of the jar.
  Check recipe in Bernardin book.

Produce Preservation Technique: Home Canning Basics

- Hot pack pears cooperative activity – divide the class into groups to each prepare a portion of the recipe – See Appendix 3 for the cards that outline the various assignments. This will produce one quart jar or two 500 ml jars.
- Remind participants that processing must reach a rolling boil before timing begins. Once the time is complete and heat turned off, leave jars in the canner for 5 minutes then remove without tilting to a draft free area (you can use old towels on a counter for this). Jars should remain undisturbed for 24 hours before checking the seals, washing, labelling and storing.

Lunch Break

At the beginning of the lunch break put the beets on to boil so they will be cooked and cooled in time for the pickled beet section later in the afternoon. Leave a couple of inches of tops and most of the root end so that they don't lose too much colour while cooking. Wash before cooking.

Home Canning Continued

Pickled Beet Activity - each person will make their own jar of pickled beets so you will need to calculate about how much acid mixture to make – do just one communal pot – recipe p. 77 Bernardin book

- Demonstrate making a spice bag with a piece of cheese cloth and string – use the sweet spiced pickled beets mixture
- If you have left over beets – they can be shredded and frozen or refrigerated and used the next day to make Borcht OR you can save them for pressure canning or drying

Day One Wrap-Up

- While the salsa and beets are processing review the pros and cons of canning (e.g., pros, low cost storage, cons, initial cost of the jars)
  - » If there is left over salsa have a sampling session with different types of corn chips
  - » You could demonstrate how to make your own low fat/low salt corn chips with corn tortilla – cut or tear into wedges and back in the oven until crisp
- Clean up

Day 2

Produce Preservation Technique: Home Canning Basics

Set up

- Do all the set up listed in Facilitator's Guide
- Demonstrate 3 ways to check seals – lid concave, sound when tapped with a spoon ("ping" not "thud") and if they are really brave turn the jar over without the ring.
- Have sugar bin and apple juice ready for the jam making
- Make a display of the various commercial pectin products

Cooked Jams And Jellies

Jams and jellies require the exact proportions of the following 4 ingredients in order to set:

- Fruit and/or fruit juice
- Sugar
- Acid
- Pectin – naturally occurring in the fruit or a commercial pectin that is added

Many people choose to use a commercial pectin for these reasons:

- Greater success in having the jam or jelly set
- Shorter cooking time so it is faster to make
- Because of the shorter cooking time more of the fresh fruit flavour is retained
- Because of the shorter cooking time there is less caramelization (browning) of the sugar therefore better colour
- Commercial pectin is available for full, low sugar, and sugar substitute jam and jelly making
- Commercial pectin is available in crystal and liquid form

Directions for using commercial pectin vary between manufacturers and between crystal and liquid form so it is very important to read the directions.

Jam Making Comparison Activity

For the activity have several different packages of commercial pectin and assign each group (of 3-4) a different package and a different amount of sugar to make. There should be enough jam for one jar per person in the group for processing and some left over to put in plastic container and labelled for taste testing in the morning of the next day.

- All jams should be processed. The old fashioned wax seal doesn't prevent air from getting into the jam and thus mould develops
- Once the jars are processing and clean up is done then show how to extract the juice to make jelly.

Extracting juice for jelly making - show different types of jelly bags and other things that can used for jelly bags (unbleached cotton, clean panty hose, J-cloths), remember the jelly bags should be wet so that they don't absorb the juice. Ideally once the cooked fruit is placed in the bag it should be allowed to drip, if the bag is pressed your jelly might be a bit cloudy. Often the jelly made with low sugar commercial pectin is also slightly cloudy and is sometimes described as "frosted" jelly. Doesn't affect the taste at all.

Health Break

- If you didn't sample the salsa in day 1 you could have it as a snack today

Pressure Canning – Low Acid Food

- Explain the two types of pressure canners – Dial Gauge Pressure Canner and Weighted Gauge Pressure Canner (see p. 7-9 Bernardin Book)
- Explain safe use of pressure canner – must check safety valve, must check the rubber gasket if a weighted gauge canner, exhaust canner, and be monitored carefully adjusting the heat to maintain the pressure throughout the processing time. Timing starts once the recommended pressure is reached. Pressure must return to zero and then wait 2 more minutes before opening. Open with lid facing away to prevent steam burns.
- Review what foods are low-acid – all vegetables except tomatoes, all meat, fish and poultry, all combination foods, e.g., soups, stews, chili. You can also process tomatoes in a pressure canner, in which case you wouldn't need to add the lemon juice

Pressure Canning Activity – have participants prepare a small jar of a low-acid product to process in the pressure canner

- » This can vary depending on what is available – e.g., green beans, beets, squash
- » Demonstrate how to load a pressure canner, how much water is used (usually about 2 inches but check manufacturer's directions), how to exhaust the canner.

Lunch Break

- Before class begins PREHEAT oven to 225° for tomatoes
- SET-UP dehydrator and screens for outdoor drying
- Create DISPLAY of a variety of dried produce
- Place ice cream buckets of water on each table for washing apples
- Place roma tomatoes and apples for the drying activities out for easy access
- Put one pot on with 8-10 apples washed, stemmed and quartered with 1 cm of water on to simmer to make applesauce for fruit leather later in the day – if apples are really watery you may have to pour off a bit of the liquid during cooking

Produce Preservation Technique: Drying

- Sun drying is one of the oldest preservation techniques but it is not that feasible in BC except in the South Okanagan and the Upper Fraser Canyon, and only in the hottest days of summer as the temperature – outdoor dried food often needs to be pasteurized to kill any insect infestation – put in the oven at 175° F (80° C) for 15 minutes
- Oven drying is not energy efficient and some ovens cannot be set at the low temperature recommended
- Commercial dehydrators are more efficient – the temperature regulator should be checked periodically (run it for one hour at a selected temperature with shallow dish of vegetable oil then use a candy thermometer to check the temperature to see if it matches the setting)
- On the vine drying is common for beans – leave the pods on the plant until they are dried then remove the beans from the pod – lay on newspaper for several days to be sure that the beans are dried all the way through then store.

Activity – make oven dried tomatoes – remind participants that the recipe says "cut lengthwise" – you may have to demonstrate

- Tomatoes prepared this way are not fully dried - that is why they have to be stored in a refrigerator or freezer
- They are good on pizza and Bruschetta – you might consider making a simple pizza with a tortilla or Bruschetta as an end of the day snack OR save the tomatoes and make them for lunch next day (See Appendix 5)
- There are two types of commercial dehydrators – the difference is the air flow – horizontal or vertical

Produce Preservation Technique: Drying

Drying Fruit

Activity – dried apple slices in a commercial dehydrator – you can have two "contests" 1) who can get the longest peel and 2) who can be the fastest to get the core out with a pairing knife – apples should be sliced crosswise so they have a hole in the middle like a doughnut – it is important to keep them the same thickness otherwise the thin ones will be over dried and the thick ones underdried

- There are different ways of pre-treating e.g., blanching, dipping in a syrup, dipping in lemon juice or ascorbic acid solution, treating with sulfur – for apples it is usually lemon juice or sulfur to maintain the colour and reduce oxidation (browning) BUT you can also do them without any pre-treatment
- Place on dehydrator trays – don't crowd as air circulation is important
- Follow the temperature and time recommendations of the manufacturer – apple slices can take up to 12 hours so take this into consideration (e.g., can you leave the drier on overnight at the workshop location? will you need to take the dehydrator home with you to run it overnight? will you put in on during the class and then turn it off overnight and turn it one again the next morning?)
- You have to remove 80% of the moisture – to test, either taste, or you can pinch fruit together and it shouldn't stick together

Drying Vegetables

Activity – dried vegetables in a commercial dehydrator – the facilitator's guide suggests carrots but you can use any vegetable that is available in your gardens

- Note that some vegetables have to be blanched (e.g., beans, broccoli, peas, squash) and some don't (e.g., corn, garlic, onions, peppers) and beets have to be fully cooked
- Similar to fruits it is important that the vegetables be same size and thickness otherwise you won't get even drying
- For most vegetables you need to remove 95% of the water
- A test for doneness is that the vegetables are brittle

Fruit Leather

- Demonstrate how to put the cooked apple mixture through a chinois strainer to make applesauce without having to peel and core the apples
- Explain that the applesauce can be preserved in various ways (frozen, canned, etc.) but for fruit leather it will be the base
- They can make apple fruit leather with the applesauce (that was why you watched the water level during cooking) provided it is quite thick
- They can use apples sauce as a base and mix it with other fruit that has been prepared – berries just need to be pureed in a blender, other fruit such as peaches, pears, plums, have to be peeled, pitted or cored, steamed until soft and then pureed in a blender
- Try to get participants to not add sweetener – to try it first without added sugar to see how sweet the fruits are and how drying concentrates the natural sweetness

Day Two Wrap-Up

- Begin the dehydrating process review the pros and cons of dehydrating (e.g., pros, low cost storage, cons, initial cost of the dehydrator)
- Clean up

Day 3

Set-Up

- Make arrangements for someone in the class to come in early to make bannock OR purchase English Muffins or Croissants or Scones
- On a table set up samples of the jams made in Day 2 – label each
- Put all the ingredients and utensils for freezer jam on a tray ready for use (5 mixing bowls, 4 potato mashers, 4 different berries, sugar bin, Bernardin Freezer Jam, plastic freezer containers)
- Get all the ingredients and utensils for freezing apples together (one apple per person, cutting boards, paring knives, Fruit Fresh, sugar, freezer bags, straws)
- Get all the ingredients and utensils for freezing carrot demonstration (carrots, steamer for blanching, ice water)
- Get all the ingredients and utensils for freezing herbs (cutting board, chef's knife, salad spinner, ice cube tray, boiling water, freezer bag)

Opening Activity – Sampling Jams

- Have participants put small amounts of each jam in order on a plate (you could list the descriptions of the jam on the board or on a flip chart for their reference)
  - » Then have them pick up the bannock or other quickbread for sampling
- Consider having coffee available

Opening Activity – Debriefing Dehydrating

- Have participants examine their products from the dehydrator
- Demonstrate conditioning – put the apple slices in a jar with a lid – the purpose of conditioning is to ensure that the remaining moisture in the slices is evenly distributed – they stay in the jar for 1 week and then are repackaged in small containers or plastic bags for storage
- Have participants test one of the carrots – they should shatter when stuck with a heavy object
- Demonstrate how to cut and roll the fruit leather in plastic wrap – have a taste test just before health break

Produce Preservation Technique: Freezing

Making Freezer Jam

- Divide into 5 groups – give 4 groups 1 cup of different berries to crush and have the last group measure the sugar
- Glass jars designed for freezer jam are significantly thicker that normal glass jars and are designed not to shatter if dropped in the freezer. Plastic containers are recommended over normal glass jars.

Health Break

- Have participants sample freezer jam and compare with cooked jams
- Have participants sample fruit leather. You could have some commercial fruit leather for comparison and examination of ingredients.

Produce Preservation Technique: Freezing

Freezing Fruit

- You can tailor this section to what fruits are available in your community – all the methods can be used with any fruit – ascorbic acid (Fruit Fresh) or lemon juice only need to be used on those fruits that brown easily (e.g. apples, peaches, pears)
- If the fruit is going to be used for a specific recipe then recommend to participants that it be measured before putting into freezer containers/bags (e.g., if apple slices are going to be used for apple crisp and your recipe calls for 4 cups of apple slices then measure 4 cups into a bag and label accordingly)

Freezing Vegetables

- You can also tailor this section to what vegetables are available in your community (in the spring it could be asparagus, in summer peas and green beans, in the fall carrots, pumpkin puree, etc.)

Freezing Herbs

- The boiling water in the ice cube method creates an infusion that will give more flavour to the product when it is used

Lunch Break

Produce Preservation Technique: Cold Storage

- Preparation of Produce for Cold Storage Activity – fruits and vegetable cards are in Appendix 6

Health Break

- Sample freezer jam that is now set and put the rest in the freezer

Produce Preservation Technique: Cold Storage

Storing Root Vegetables

If your location has internet connection they you can show various U-tube videos that show (note: you will need speakers for your computer). Examples include:

Building a barrel root cellar (like the trash can method) http://www.youtube.com/watch?v=7LQ6HgCwm2M&feature=related

Building a root cellar from a shipping container http://www.youtube.com/watch?v=7LQ6HgCwm2M&feature=related

Making a root cellar from an old fridge http://www.youtube.com/watch?v=aLM6rWmQxic&feature=related

- In advance of your workshop explore the neighbourhood for possibilities of a field trip to a root cellar

Wrap-Up

- Have participants give you feedback or fill in an evaluation form so you can report on your workshop and make any modifications for the next time you offer it

Appendix 1 - Preserving Fruits and Vegetables

Apples	Strawberries	Beans
Onions	Potatoes	Garlic
Huckleberries	Carrots	Plums
Crabapples	Broccoli	Beets
Zucchini	Pumpkin	Peaches

Appendix 2 – Low and High Acid Foods

Dill Pickles	Peaches	Salmon
Beef Stew	Tomatoes	Strawberry Jam
Blueberries	Carrots	Plums
Baked Beans	Pears	Sauerkraut
Vegetable Soup	Peas	Chicken or Grouse

Answer Key

Dill Pickles - Low Acid	Peaches - Acid	Salmon - Low Acid
Beef Stew - Low Acid	Tomatoes - Acid	Strawberry Jam - Acid
Blueberries - Acid	Carrots - Low Acid	Plums - Acid
Baked Beans - Low Acid	Pears - Acid	Sauerkraut - Acid
Vegetable Soup - Low Acid	Peas - Low Acid	Chicken or Grouse - Low Acid

Appendix 3 – Canning Pears Collaborative Activity

Prepare the Pears

- Refer to p. 41 Bernardin Book

Prepare ½ Recipe of Light Syrup

- Refer to p. 39 Bernardin Book

Prepare ½ Recipe of Colour Protection Solution

- Refer to p. 38 Bernardin Book

Prepare the Jar and Lid

- Refer to p. 10 Bernardin Book

Appendix 4 – Salsa Collaborative Activity

Blanch, peel, seed and coarsely chop tomatoes to make 10 ½ cups

Peel and chop onions to make 3 cups

Chop green pepper to make 1 ½ cups

Peel and mince 5 cloves of garlic

Remove seeds and finely chop 12 jalapeno pepper

- Wear gloves!!!!!

Wash and finely chop cilantro to make ¾ cup

- Measure 1 cup tomato paste
- 1 cup vinegar
- ¾ tsp. ground cumin
- 1 Tbsp. Tabasco or other hot sauce (optional)

Appendix 5 – Possible Recipes for Oven Dried Tomatoes

TOMATO BRUSCHETTA

Ingredients:

- 3 cups chopped tomatoes
- 4 cloves of garlic
- ¼ cup fresh basil
- I tbsp white wine vinegar
- 2 tbsp extra-virgin olive oil
- ½ tsp salt
- ½ tsp pepper
- ½ cup grated Asiago cheese
- 1 baguette

Equipment Required:

- Cutting board
- Bread knife
- Sharp chef's knife
- Garlic press, if available
- Spoon
- Baking pan
- Basting Brush
- Measuring spoons
- Mixing bowl
- Cheese grater

Steps for preparation:

1. In a mixing bowl, combine the following prepared ingredients. Mix well:
   - Chopped basil
   - Diced tomatoes
   - Minced garlic
   - Vinegar, oil, salt, pepper
   - ¼ cup of cheese
2. Slice the baguette
3. Lay flat on baking pan and brush with olive oil
4. Broil on one side until lightly toasted
5. Spoon tomato mixture onto bruschetta slices
6. Top with remainder of cheese
7. Broil until cheese is melted
8. Serve

TOMATO PIZZA

Ingredients:

- 1 or 2 flour tortillas (whole wheat is good)
- 5-6 oven dried tomatoes
- 375 ml 1 ½ c. mozzarella cheese, sliced
- 3 - 4 leaves fresh basil (chopped)
- 3 - 4 leaves fresh oregano (chopped)
- 3 - 4 leaves fresh parsley (chopped)
- 15 ml 1 Tbsp. olive oil
- Salt, Pepper, and Garlic powder, to taste
- Optional – thinly sliced green pepper, onions or mushrooms

Steps for preparation:

1. Preheat oven to 425° F.
2. Place the flour tortilla on a baking sheet.
3. Place oven dried tomatoes in a single layer on top of the tortilla (if using green pepper and onions place them in a single layer on top)
4. Place the sliced mozzarella cheese on top of the tomatoes, also in a single layer.
5. Sprinkle the chopped herbs over the top.
6. Drizzle olive oil evenly over the entire pizza.
7. Season with salt, pepper and a dash of garlic powder.
8. Bake for 10 to 15 minutes until cheese is bubbly.

Appendix 6 - Preparation of Produce for Cold Storage

Apples	Beets	Eggplant
Dried Beans	Potatoes	Turnip
Cabbage	Carrots	Plums
Garlic	Onions	Tomatoes
Pears	Pumpkin	Cucumber

Produce Handling Guidelines

BRITISH COLUMBIA
The Best Place on Earth

HEART & STROKE FOUNDATION OF BC & YUKON
Finding answers. For life.

Product	Perishability	Recommended Humidity (%)	Recommended Temperature (Celcius)	Sensitive to Chilling Injury	Ethylene Sensitivity
Apple	High	90 - 95	0°		PRODUCER
Apricot	High	90 - 95	0°		PRODUCER SENSITIVE
Artichokes	High	95 - 100	2°		
Asparagus	Very High	95 - 100	0 - 2°	YES	SENSITIVE
Avocado (HARD)	High	90 - 95	10°	YES	SENSITIVE
Avocado (RIPE)	High	90 - 95	7°	YES	PRODUCER
Banana (GREEN)	High	90 - 95	13 - 15°	YES	SENSITIVE
Banana (RIPE)	High	90 - 95	13 - 15°	YES	PRODUCER
Basil	High	95 - 100	10°	YES	SENSITIVE
Beans	Very High	95 - 98	4 - 7°	YES	SENSITIVE
Beet	High	95 - 100	0°		
Bell Pepper	High	95 - 98	7°	YES	
Blackberry	Very High	90 - 95	0°		
Blueberry	Very High	90 - 95	0°		
Bok Choy	Very High	95 - 100	0°		SENSITIVE
Broccoli/Broccolini	Very High	95 - 100	0°		SENSITIVE
Brussels Sprouts	High	95 - 100	0°		SENSITIVE
Cabbage	High	95 - 100	0°		SENSITIVE
Cantaloupe	High	85 - 90	2 - 5°	YES	PRODUCER SENSITIVE
Carrots	High	95 - 98	0°		SENSITIVE
Cauliflower	High	95 - 98	0°		SENSITIVE
Celery	High	98 - 100	2°		SENSITIVE
Cherry	Very High	90 - 95	0°		
Chillies (FRESH)	Very High	90 - 95	8°	YES	SENSITIVE
Coconut	Low	90	2°		
Corn	Very High	95 - 100	2°		
Cucumber	High	95 - 98	8°	YES	SENSITIVE
Eggplant	High	90 - 95	10°	YES	SENSITIVE
Fennel	High	90 - 95	0 - 2°		
Garlic	Low	60 - 70	0 - 4°		
Ginger	Low	65	6°	YES	
Grape	High	90 - 95	0°	YES	
Grapefruit	High	85 - 90	10°	YES	
Herbs (NOT BASIL)	High	95 - 100	3°		SENSITIVE
Honeydew	High	85 - 90	7 - 10°	YES	PRODUCER SENSITIVE

Product	Perishability	Recommended Humidity (%)	Recommended Temperature (Celcius)	Sensitive to Chilling Injury	Ethylene Sensitivity
Kiwi Fruit	High	90 - 95	0°		PRODUCER
Leeks	High	95 - 98	0°		SENSITIVE
Lemon	High	85 - 90	8°	YES	SENSITIVE
Lettuce (GREEN, ARUGULA, ICEBERG, ETC.)	Very High	95 - 98	1°		SENSITIVE
Lime	High	85 - 90	12°	YES	SENSITIVE
Lychee	High	95 - 100	5°	YES	SENSITIVE
Mango (GREEN)	High	90 - 95	13°	YES	SENSITIVE
Mushrooms	Very High	95 - 98	2°		
Nectarine/Peach	High	90 - 95	0°		PRODUCER SENSITIVE
Onions	Low	60 - 70	0°		
Orange/Mandarin	High	85 - 95	5°	YES	SENSITIVE
Papaya (GREEN)	High	90 - 95	12°	YES	PRODUCER
Parsnip /Turnip	High	95 - 100	0°		
Pear	High	90 - 95	0°		PRODUCER SENSITIVE
Peas	Very High	95 - 100	0°		SENSITIVE
Pineapple	High	85 - 90	10°	YES	
Plum	High	90 - 95	0°		PRODUCER SENSITIVE
Pomegranate	Low	90 - 95	5 - 8°		
Potato	Low	85 - 90	7° - 10°	YES	SENSITIVE
Pumpkin	Low	85 - 90	13°	YES	
Radish	Very High	95 - 100	0°		
Raspberry	Very High	90 - 95	0°		
Rhubarb	High	95 - 100	2°		SENSITIVE
Shallots/Spring Onions	High	95 - 100	0°		
Snow Peas/Snap Peas	Very High	95 - 98	0°		SENSITIVE
Spinach	Very High	98 - 100	0°		SENSITIVE
Sprouts (ALFALFA & BEAN)	Very High	95 - 100	2°		
Squash (HARD SHELL INCL. ACORN & BUTTERNUT)	Low	60	13°	YES	
Squash (SOFT SHELL INCL. SPAGHETTI & PATTY PAN)	High	95	5 - 10°	YES	SENSITIVE (MODERATELY)
Strawberry	Very High	95 - 100	0°		
Sweet Potato	Low	85 - 90	13 - 16°	YES	SENSITIVE
Tomato (GREEN)	High	90 - 95	13°	YES	SENSITIVE
Tomato (RIPE)	High	90 - 95	7°	YES	PRODUCER
Watermelon	High	85 - 90	10°	YES	SENSITIVE
Zucchini	Very High	95 - 98	7°	YES	SENSITIVE

IMPORTANT INFORMATION: Please note that while all reasonable care has been taken in preparing this produce handling guide, The Heart and Stroke Foundation and The Ministry of Health Services accept no liability resulting from the interpretation or use of the information set out in this guide. Storage conditions listed are for transit and short term storage. Where long term storage is anticipated other conditions may be more appropriate, especially for products indicated as sensitive to chilling injury. Specific information not included in this guide should be sought for long term storage. For some products which are often handled at an immature stage, separate storage conditions are listed for ripe and unripe produce. Storage conditions listed are for short term storage, and these conditions are not always appropriate for product ripening. Specific information not included in this guide should be sought for optimum ripening conditions. Optimum storage conditions can vary between varieties, intended market outlet can be influenced by pre-harvest conditions. Temperatures listed are product, not air temperatures. For additional copies of this wall chart, please contact 1-888-HSF-INFO.

KEY TO PRODUCT PERISHABILITY

VERY HIGH — HIGH — MODERATE — LOW

PERISHABILITY refers to the expected life of a product once it has been harvested. The quality of a product with high perishability will degrade more quickly than the quality of a product with low perishability.

HUMIDITY is the ideal humidity at which to transport and store specific produce items. Generally, those items that are susceptible to mold should be stored at lower humidity, whereas those susceptible to wilt should be stored at higher humidity.

TEMPERATURE is the ideal temperature at which to transport and store specific produce items.

CHILLING INJURY occurs when produce is transported or stored below its recommended temperature, resulting in a decrease in quality and shelf life. It is not the same as freezing injury, as chilling injury can affect produce at temperatures well above 0°C.

ETHYLENE is a natural plant hormone that accelerates the ripening of fruits and vegetables. Produce quality quickly deteriorates when overripe. Produce that is sensitive to ethylene should not be stored next to produce that produces ethylene.