

# Preserving the Harvest



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# Three Main Methods

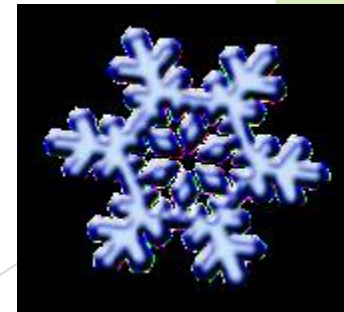
- ▶ Freezing
- ▶ Dehydrating
- ▶ Canning

# Freezing



# Freezing

- ▶ Preserves freshness, flavor, texture and nutrients.
- ▶ Slows down enzyme activity.
- ▶ Retards growth of micro-organisms.



# Preventing Discoloration

Caused by Enzymes

- ▶ In *fruits* causes browning and loss of vitamin C.
- ▶ Pretreatment with ascorbic acid solution.



# Blanching

- ▶ Most *vegetables* will need to be blanched, or briefly cooked before freezing.
- ▶ Prevents loss of color, flavor and nutrients.
- ▶ Destroys microorganisms on surface.



# Packaging

- ▶ Airtight, moisture and vapor resistant.
- ▶ Durable and leak proof.
- ▶ Resistant to cracking and brittleness at low temperatures.
- ▶ Protect from off flavors and odors.
- ▶ Easy to seal and label.



# Packaging

## Good choices:

- ▶ sealable, rigid
- ▶ flexible plastic bags
- ▶ laminated freezer paper



## Unsuitable:

- re-used plastic dairy containers
- waxed paper
- paper or cardboard cartons



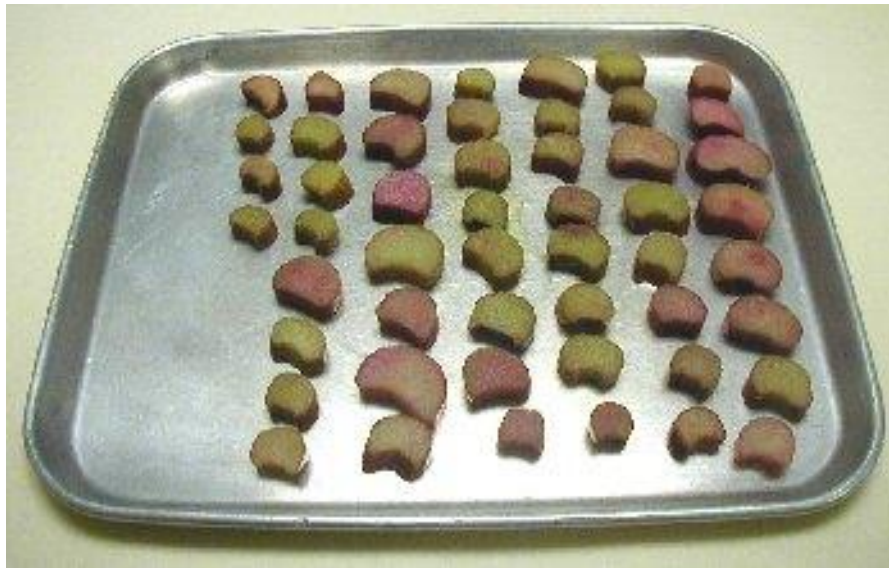


# Freezing Fruit

- ▶ Syrup pack – light to heavy
- ▶ Sugar pack – sugar sprinkled over fruit draws out juice
- ▶ Unsweetened – water, fruit juice or nonnutritive sweeteners
- ▶ Tray pack – best for small fruits and berries

# Tray Pack

- ▶ Place small whole fruit, cut fruit or berries in a single layer on a shallow tray and freeze 4-6 hours; remove and place in container leaving no headspace.



# Dehydrating



# Dehydrating

- ▶ Preserves by removing moisture so that microorganisms cannot grow and spoil the food.
- ▶ Dehydrated foods take less storage space than frozen or canned.
- ▶ Flavors become much more concentrated.



# Methods

- ▶ Dehydrator — control of warm temperature, low humidity and air circulation.
- ▶ Oven — may be successful depending on unit.
- ▶ Sun/Solar — *NOT RECOMMENDED.*



# Pre-Treatment

- ▶ Pre-treating fruits with lemon juice or ascorbic acid solution and blanching vegetables helps maintain color and quality.
- ▶ Destroys microorganisms.
- ▶ Improves safety and quality throughout drying and storage.





# How to Use

- ▶ Snacks – fruits, fruit leathers, zucchini chips
- ▶ Seasonings – herbs, onions
- ▶ Rehydrate – tomato sauce
- ▶ Jerkies – use CSU recommended methods for safety

# Canning





# Canning

- ▶ Foods placed in jars and heated to a temperature that destroys microorganisms and inactivates enzymes.
- ▶ Heating and later cooling forms a vacuum seal which prevents further spoilage during storage.

# Two Methods of Canning- Depends on pH

## ▶ Water Bath Canner

- ▶ Used with acid foods:  
4.6 or lower.
- ▶ Fruits, pickles, jams, jellies
- ▶ Tomatoes need to be acidified



## ▶ Pressure Canner

- ▶ Used for neutral or low acid  
>4.6
- ▶ Meats, poultry, fish, milk, vegetables



# Preventing Botulism

## ▶ Home Canned Foods

- ▶ Spores won't germinate in acid foods (pH < 4.6).
- ▶ Spores are killed when heated long enough at a specific temperature.
- ▶ USDA recommends 240°F at sea level for canned low-acid foods.
- ▶ Pressure canner must be used for all low-acid foods.

# Processes *NOT* Recommended

- ▶ Open kettle canning - temperatures obtained are not high enough to destroy all spoilage and food poisoning organisms that may be in the food.
- ▶ Paraffin or wax seals – allows mold to contaminate and grow into product; mycotoxins shown to cause cancer in animals.



# Processes *NOT* Recommended



- ▶ Steam canners – processing times have not been adequately researched for safety in our elevation.
- ▶ Oven, microwave, dishwasher processing – do not prevent risks of spoilage organisms.
- ▶ Glass and zinc caps used with flat rubber rings – often fail to seal properly.



# Getting Started

1. Review tested recipe and instructions
2. Plan time for canning
3. Select fresh ingredients
4. Assemble equipment






# 1. Review Tested Recipes and Instructions

- ▶ Select only up-to-date tested recipes!
- ▶ Get instructions from reliable source.
- ▶ *Use caution – there is a lot of misinformation on the internet as well as untested and potentially unsafe recommendations*



## 2. Plan Time for Canning


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- ▶ Estimate time required for your canning project:
    - ▶ Uninterrupted time required for preparation, waiting for water to boil, processing and cool down can be several hours
  - ▶ Canning takes more time and energy than other preservation methods
  - ▶ Time spent planning and preparing will make canning day go more smoothly and more enjoyable







### 3. Select Fresh Ingredients

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- ▶ Can fruits and vegetables at peak of quality – within hours of harvest.
  - ▶ Rinse fruits and vegetables – don't soak. Peel if appropriate.
  - ▶ Fresh meat and poultry from healthy animals should be chilled and canned immediately.
  - ▶ Ice seafood after harvest and can within two days.

# 4. Assemble Equipment

- ▶ Pressure canner
- ▶ Water bath canner or large pot with lid
- ▶ Jars and lids
- ▶ Jar lifter
- ▶ Lid wand
- ▶ Bubble freer
- ▶ Funnel
- ▶ Timer





# Altitude Adjustment for Water Bath Canning

Increase the processing time:

- ▶ Processing time at sea level minutes or less:
  - ▶ Increase the processing time 1 minute for each 1,000 feet above sea level
- ▶ Processing time at sea level more than 20 minutes:
  - ▶ Increase by 2 minutes per 1,000 feet



## Altitude Adjustment for Pressure Canning

- **Dial Gauge Canners:**

- At sea level use 10 lbs. psi and at altitude increase psi by  $\frac{1}{2}$  lb. for every 1,000 ft. e.g. 12  $\frac{1}{2}$  lbs. at 5,000 ft.

- **Weighted Gauge Canners:**

- Use the 15 lb. weight for all altitudes above 1,000 ft.



# Food Preservation Resources

- ▶ CSU Extension Website - publications
- ▶ Ball Blue Book , Complete Book of Preserving (1994 or current)
- ▶ So Easy to Preserve
- ▶ USDA Complete Guide to Home Canning (1994)
- ▶ National Center for Home Food Preservation: [www.uga.edu/nchfp](http://www.uga.edu/nchfp)
- ▶ Preserve Smart – phone app



# Questions????

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