



CLASS NOTES

Preserving the Harvest

Instructor:

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Food Storage Guide

Keep foods fresh, even before you preserve <https://www.piercecountywa.gov/FoodWaste>

Practicing proper food safety is a must:

- Wash your hands
- Clean work surface area
- Be sure cutting boards and knives are clean
- Follow trusted recipes

Freezing

Time	Costly	Eco-friendly	Storage Length
★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	8-12 months at its best
IDEAL FOR:			
Depending on what you want to do with it later, great for all kinds of vegetables and fruits; with more effort can be done with herbs			
Quality: ★ ★ ★ ★ ★			
Storage: freezer space			

Great for:

- ❖ any sized batch
- ❖ keeping nutrients
- ❖ keeping flavor
- ❖ keeping textures

Containers:

- Durable and leakproof
- Moisture vapor resistant
- Not brittle in freezing temperatures
- Can be labeled
- Lock out air

Fruits

- To prep them: rinse fruit in water, remove/trim any green, bruising or insect damaged areas. Then peel, pit, and slice/cut fruit as desired.
- Methods
 - Dry pack – produce placed in container once processed

- Sugar pack – sprinkle sugar on fruits (strawberries, peaches) and allow natural juice to extract prior to freezing
- Syrup pack – create a syrup with sugar and water/fruit juice. Add fruit to syrup before freezing. This method is used for fruit to be used for a dessert.

Vegetables

- To prep them: wash, peel, trim/remove damaged areas, cut into desired pieces
- Tip: Vegetables with high water content do not freeze/defrost well – lettuce, celery, tomatoes
- Tip: Blanching is needed to control bacterial growth, preserve flavor, color and texture

Blanching – boiling method

1. Bring a pot of water to rolling boil.
2. Boil vegetable for the recommended time per recipe you are using.
3. Shock vegetables in ice water to stop the cooking process.
4. Allow vegetables to cool completely before freezing.

Blanching times – from Ball®

Vegetable	Time
Asparagus	1 ½ – 3 minutes
Beans (green or yellow wax)	3 minutes
Beets	1 hour, until tender
Broccoli or Cauliflower	3 – 4 minutes
Carrots	Cut 3 minutes Whole 5 minutes
Corn	Ears 5 – 6 minutes, cool, drain, cut off cob
Okra	Small pods 3 mins Large 5 mins

Vegetable	Time
Parsnips, Turnips, Rutabagas	3 minutes
Potatoes	3 – 5 minutes
Pumpkin	Steam or bake until soft, cool, peel, slice or mash
Peas (green or garden)	2 minutes
Peas (snow or sugar snap)	2 minutes
Summer Squash (zucchini, yellow)	3 minutes
Winter Squash (acorn, butternut, spaghetti)	Steam or bake just until tender, scoop pulp, puree

Herbs

- **Bare** - left on the stem (rosemary, dill, thyme, bay chives, or sage) can be spread in a single layer and placed in the freezer, then stored in airtight container
- **Freeze in Water** - long-term storage (mint, parsley, cilantro) freeze in ice cubes trays. Pack the ice cube trays with chopped or whole-leaf herbs, cover them with water and freeze. Once frozen, cubes can be transferred into an airtight container for easy, single-serve access.
- **Freeze in Olive Oil or Butter** – same as water directions except combine about a cup of fresh herbs with 1/4 cup of olive oil or melted butter in a food processor or pour over in ice cube tray.

Reminders

- Check that freezer temperature is at 0° F
- Allow foods to freeze completely before stacking them

- Label product, date it was frozen

Dehydrating

Time	Costly	Eco-friendly	Storage Length
★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	3 months – 1 year
IDEAL FOR:			
Herbs, fruits and vegetables			
Quality: ★ ★ ★ ★ ★			
Storage: in clear containers anywhere out of light, in darkened containers on the counter, no freezer space needed, compact			

Dehydrating Methods

Sun-drying

- Can take several days
- Consistent direct sunlight, minimum temperature of 86 degrees

Oven-drying

- Minimum of 8 hours

Air-drying

- Well-ventilated indoor space

Electric dehydrator

- Small kitchen appliance. Cost can range \$50 to \$300+
- Minimum of 6 hours

Sun drying

- Works well for fruits
- Pretreating fruits is a must
- Dry during hot, dry, breezy day. Minimum temperature of 86 degrees.
- Use food safe screens, up off the ground
- Sun-dried foods need to be pasteurized
 - Place in freezer for 48 hours
 - Place in oven at 160 degrees for 30 minutes

Oven Drying

- Takes longer due to no air circulation
- Set oven to 140 degrees
- Leave door oven propped open 2 to 4 inches.
- Place fan near open door

Hang Drying

- Common for herbs and hot peppers
- String a bundle of herbs or pepper together and suspend until dry

Electric dehydrator

Produces best quality and dries uniformly
Small appliance with electric heating element and fan

Read and follow manufacturer's recommendation

Shopping for an electric dehydrator:

- Double wall construction of metal or high-grade plastic
- Enclosed heating element and thermostat (85 to 160° F)
- UL seal of approval
- Regulation dial and timer

Horizontal vs Vertical

Vertical units – fan and heating element located on the base. If drying different foods, may mix flavors.

Horizontal units – fan and heat elements are located on the side or back. Reduces flavor mixtures.

Pre-treatment for fruits:

Ascorbic acid dip	Salt solution	Syrup blanching
<ul style="list-style-type: none"> • $\frac{1}{2}$ teaspoon ascorbic acid or 500mg vitamin C tablet (crushed) for 1 quart water • Stir until dissolved • Place fruit in mixture for 5 minutes 	<ul style="list-style-type: none"> • 2 to 4 teaspoon salt for 1 gallon water • Soak for 2 to 5 minutes 	<ul style="list-style-type: none"> • Prepare sugar syrup, 1 part sugar to 2 parts water, bring to boil • Once sugar is dissolved, add fruit and simmer for 5 minutes • Will create a candied coating once dried

*keeping foods cut to the same size will ensure even drying – keeping pieces to no thicker than $\frac{1}{4}$ " is best

Pre-treatment for vegetables: (see blanching above in Freezing section)

Checking – how do you know when it's done?

- Fruits should be dried to 20% moisture
- Dried fruit shouldn't show visible moisture or be able to squeeze moisture. If folded in half, it will not stick to itself.
- Vegetables should be dried to 10% moisture
- Dried vegetables should feel brittle

Conditioning

- Place dried fruit in a plastic bag or jar for several days. If condensation occurs, place fruit back in dehydrator.

Storage

- Dried fruits can be stored for about 1 year at 60 degrees, 6 months at 80 degrees.
- Dried vegetables stored for about 6 months at 60 degrees, 3 months at 80 degrees

Canning

Time	Costly	Eco-friendly	Storage Length
★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	Up to 3 years
IDEAL FOR:			
Fruits and vegetables			
Quality: ★ ★ ★ ★ ★			
Storage: best out of light in a cooler place, sturdy shelves, do not stack jars on top of each other			

Safety first:

- Foods **must** be properly prepared and processed using the correct method and amount of time
- Use proper equipment
- Follow reputable sources (who have scientifically tested recipes and canning methods)
- Follow tried & tested recipes correctly
- All is important to prevent forming of *C. botulinum*, the cause of botulism

***Small electric pressure cookers – are **not** recommended for canning. Some models have “canning” functions. Studies prove they are not safe for proper canning. Pressure cooker does not equal pressure canner.

Equipment:

- Boiling water bath canner with rack (appropriate stove top/burner)
- Pressure canner with rack
- Measuring equipment
- Ladle
- Funnel
- Jar lifter
- Lid lifter
- Timer
- Plus food and food prep materials
- Canning jars
 - Use only standard, home-canning jars
 - Do not reuse commercial jars (spaghetti sauce, jams, jelly, mustard jars)
 - Always check jars for chips and cracks before using
- Lids and Rings
 - Lids must be new if metal
 - Rings can be reused if not bent or rusted

Water Bath Canning or Steam Canner

vs

Pressure Canning

Temps – 212° F *(make adjustments for high altitude)*

240 – 250° F

Acidic foods: most fruits, jams, jellies

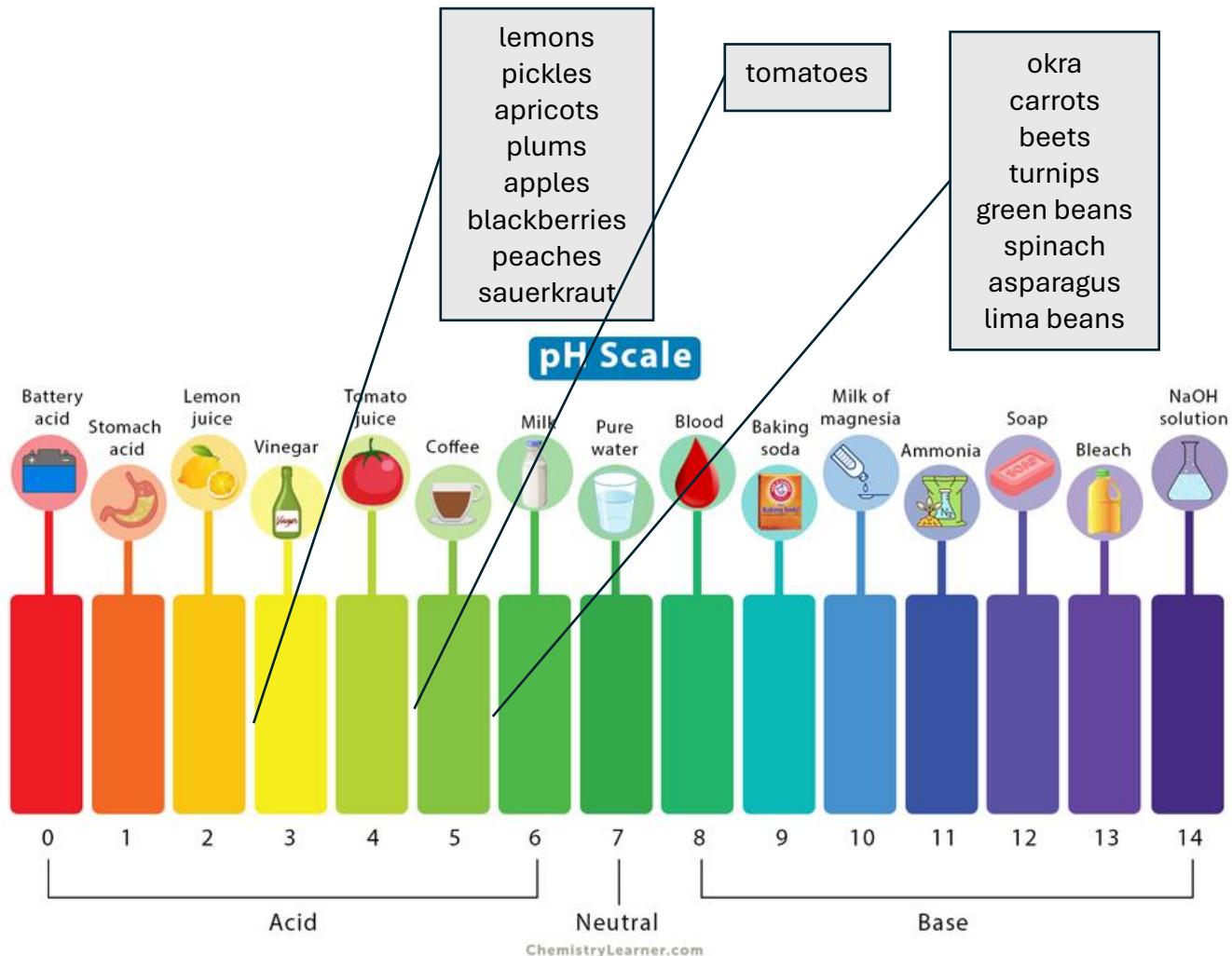
Low acid foods: vegetables, meats, fish, soups, stocks

Acid added: pickled foods, tomatoes, figs, rhubarb

TIPS:

- Consider the size of the jars when choosing size of canner
- Consider your stove top and where the sink is with hot water bath canner
- Can get a plug-in burner, not glass top

Consider pH:



Packing methods

- Raw pack / Cold pack
 - Raw foods placed in jar
 - Pack full and firm without smushing
 - Boiling liquid poured over raw foods prior to processing
- Hot pack
 - Food is prepared and cooked in liquid before adding to jars for processing

Preparing and filling jars:

1. "Sterilize" jars first (dishwasher, boiling beforehand, clean)
2. Warm lids and rings in pot of water
3. Fill jars by raw or heat pack method

4. Fill to proper headspace
 - the space in jar from top of jar to top of liquid/food inside jar, per recipe
 - CAUTION: too little may cause bubbling out during processing, too much may prevent a proper sealing
5. Remove air bubble after checking headspace (burp it!)
6. Wipe jar rims with clean damp cloth or paper towel with a little vinegar
7. Place new lid and twist ring until finger tight

Canning the jars in hot water bath:

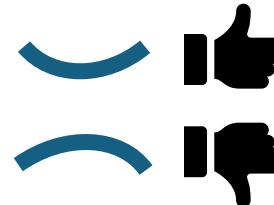
1. Fill rack, be sure all jars enter the water at the same time
2. Leave airspace & water covering top of jars, per recipe
3. Cover while boiling

Canning the jars in pressure canner:

1. Same as above
2. When cover, lock the lid
3. Vent
4. Achieve correct pressure for recipe
5. Turn off heat and depressurize

After canning (either method):

1. Remove with tool
2. Set on towel on surface
3. **Do not** retighten lids after processing jars
4. **Do not** push the center of the lid down (yet)!
5. Let cool, usually over night
6. Check the seal. As jars cool, the contents in the jar contract, pulling the self-sealing lid firmly against the jar to form a high vacuum
7. Pop! as the lid seals



If seal failed, reprocess with a new lid **within 24 hours** or place in fridge for use within a couple days (if pickles, up to 30 days).

Storing

- Label and date, journal
- Store in clean, cool, dark, dry space
- Do not stack jars on top of each other



Pickling by water bath canning

- Same equipment as regular canning
- Vinegar must be at least 5% acidity
- Fresh dill heads – summer only
- They need time to “pickle”, 30 days
- **Do not** change the water:vinegar ratios
- Follow recipe closely as pH of vegetables, fruits and herbs are different
- Dried herbs have different pH than fresh herbs

- Pickling Salt (or kosher) only
- Mindful of the corrosive power of salt!
- Remove rings when storing to prevent rust

Jams and Jellies

- So many great recipes, including low-sugar options
- Measurement conversions, be aware (cups to pints, etc.)
- Different pectins, blueberries are naturally high in pectin

Signs of Spoilage for all types of canning – CAUTION!

- If the lids have come lose, toss
- Swollen packaging, lids
- Things turning black/brown/grey

Other methods of preservation we don't have time to cover:

- Fermentation
- Curing and smoking
- Refrigerator pickles
- Freeze drying

Resources

- Ball
- Pamona
- Center for Food Preservation Arts (local) <https://preservefoods.blogspot.com/>
- National Center for Food Preservation <https://nchfp.uga.edu/>
- USDA
- University Extensions (WSU in WA), other educational institutions
 - WSU Lewis County – Master Food Preservers program
<https://extension.wsu.edu/lewis/mfp/resources/> &
Benton-Franklin Counties <https://extension.wsu.edu/benton-franklin/health/homefoodpreservation/>

Books

- Ball Blue Book: Guide to Preserving
- The All New Ball Book of Canning and Preserving
- Ball Complete Book of Home Preserving
- Preserving with Pamona's Pectin

Wrap up

- Always label each food item with what it is and when preserved
- Keep notes about:
 - which recipes you used, which you liked
 - how much you need to buy and when
 - How much it *actually* yielded