

# Preserving Apples

## Selecting Apples

Pies & Baking	Juice & Cider	Sauce & Butter	Canning	Freezing	Dehydrating
Ambrosia, Braeburn, Cameo, Cortland, Empire, Golden Delicious, Granny Smith, Gravenstein, Honeycrisp, Jazz, Jonagold, Jonathan, Pink Lady	Ambrosia, Cameo, Gala, Golden Delicious, GoldRush, Fuji, Granny Smith, Honeycrisp, Jazz, Jonagold, Pink Lady	Ambrosia, Braeburn, Empire, Fuji, Cameo, Gala, Golden Delicious, Granny Smith, Gravenstein, Honeycrisp, Jazz, Jonagold, Jonathan, Pink Lady, Rome Beauty, Stayman, McIntosh, Winesap	Golden Delicious, Granny Smith, Jonathan, McIntosh, Braeburn	Ambrosia, Cameo, Empire, Fuji, Gala, Golden Delicious, Honeycrisp, Jazz, Jonathan, Stayman, McIntosh, Granny Smith, Gravenstein, Jonathan, Pink Lady, Rome Beauty	Gala, Fuji, Honeycrisp, Granny Smith, Empire, Cortland

### Apple Yield

<b>Bushel:</b> 42-48 pounds, 18-20 quarts apple slices	<b>4-quart basket:</b> hold 5 pounds of apples
<b>1 pound:</b> 4 small apples, 3 medium apples, 2 large apples	<b>1 pound:</b> 3 cups diced apples or 2 3/4 cups pared and sliced apples
<b>2 medium apples:</b> 1 cup grated apples	<b>9-inch Pie:</b> 5-7 medium apples

## Kitchen Safety & Home Canning

Begin with a clean kitchen and equipment. Anytime we begin working in the kitchen, wash hands, pull long hair back, and avoid canning or preserving when sick. Clean equipment, utensils, and kitchen workspace, sanitize when necessary.



**Cleaning** is removing visible dirt or debris. **Sanitizing** is reducing microorganisms down to a safe level. **Sterilizing** is killing all microorganisms.

## Preparing Apples

Wash apple with plenty of water and a brush if needed. Remove the stem and leaves. No soap is needed. The Food and Drug Administration advises against using fruit and vegetable washes. Once rinsed, cut away any bruised or damaged areas of the apples

## Peeling Apples

When using equipment, make sure it's clean and sanitized. Some equipment is easier than others for processing large quantities of apples. Produce peelers and paring knives are easy to use, portable, and dishwasher safe. Apple peeler/corers process the fruit quickly, be careful of sharp metal spikes, and get ready to use some muscle turning the handle. Follow the equipment directions carefully.

### ***Interesting fact about apples:***

*The stem area and blossom end of apples are the most difficult to clean.*

*When processing, equipment will peel around these areas, or core so you are not cutting those areas, opening the fruit up to possible contamination.*

## Prevent Browning

Apples, when cut and exposed to air, darken quickly. Although browned apples are harmless, they lose their crisp texture. Below are recommendations for pretreatment to prevent browning:

**Ascorbic Acid (Vitamin C):** Available in powder or tablet form and typically found with other food preservation supplies in the grocery store or a drug store. One teaspoon powdered form is 3,000 mg or six-500 mg tablets. White specks in the tablets are harmless.

**How to Use:** Mix 1 teaspoon powder (6 crushed tablets) in 2 cups water. Place fruit in for 3-5 minutes. Remove and drain. After used for two batches of fruit, add more acid.

### **Easy Equivalent:** ½ teaspoon

ascorbic acid=3 crushed 500-mg. Vitamin C tablets=3 teaspoons Fruit-Fresh®= 1 ½ teaspoons citric acid=3 teaspoons lemon juice. UC Davis, 2007

**Ascorbic Acid Mixture (Vitamin C):** Contain ascorbic acid and sugar. Used for fresh fruit for canning and freezing.

**How to Use:** Follow the manufacturer's instructions

**Honey Dip:** Fruit can be sold dipped in a honey solution. This method adds extra calories to the fruit.

**How to Use:** Mix ½ cup sugar with 1 ½ cup boiling water. Add ½ cup of honey. Let the fruit soak in solution for 3-5 minutes. Remove and drain.

**Fruit Juice Dip:** Using a fruit juice high in vitamin C such as orange, grape, cranberry, pineapple, lime, or lemon juice can also slow down browning. Different juices will add different colors and flavors to apples. **Tip:** Mix 3 tablespoons lemon juice: 1-quart water

**How to Use:** Add enough juice to cover apples. Soak 3-5minutes. Remove and drain.

Additional Method: Using **Sodium Bisulfate:** Add ¾ tsp per quart water. Soak 5 minutes. DO NOT USE IF CONSUMERS HAVE ASTHMA

## Step-by-Step for Preservation

Use a tested recipe from National Center for Home Food Preservation, So Easy to Preserve cookbook or website, or the United States Department of Agriculture (USDA) Canning Guide.

## Canning

When canning, use a safe method. This does not include; a pressure cooker or Instant Pot, microwave, oven, slow cooker, dishwasher, the sun, or any other creative way. Stick to the science, be safe when preserving at home. Use a boiling-water bath canner or a pressure canner. For apples, 19 pounds will yield 7 quarts. 12-1/4 pounds yield 9 pints.

**Boiling Water Bath Canning:** Uses pot of boiling water (212°F). Used for acid foods (fruits, jams, jellies, tomatoes & figs with acid added, pickled products & fermented products)

**Pressure Canning:** Uses pressure canner (at least 240°F). May be dial or weighted gauge. Used for low-acid foods (meats, vegetables, broth, dried beans & mixed products).

## Cooking and canning apples

Use a mixture of sweet and tart apples. Some recipes like apple butter require cooking or pressing through a food-mill. Apples can be added to salsa. Like peach apple salsa and spice up a meal or snack. Enjoy pickling through preserving apple relish & chutneys (never alter the recipe amounts of vinegar, food, or water). Apple jelly can be made without pectin, a natural gelling ingredient.

Pectin gives plants their structure. Sort, wash, and remove stem and blossom ends; do not peel or core (this where we see the natural pectin at work, pectin resides in the peel and cores).

Apple jelly requires sterilized jars because it's processed in a water bath canner for less than 10 minutes. Always check, for headspace when canning

### Headspace:

**¼-inch:** Apple butter, apple jelly, apple marmalade, apple preserves and conservers

**½-inch:** Apple slices and applesauce

**1-inch:** Apple pie filling

## Applesauce

Pretreat, boil with ½ cup water, and press apples through a food-mill or skip for the chunky sauce. Applesauce can be packed without sugar.

## Troubleshooting with Applesauce

There are many problems you can encounter with canning applesauce. Air is the biggest enemy; 25% of an apple itself is air. Remove air by cooking. Browning, siphonage, and mold are some of the most common problems we have when canning applesauce. That **browning** is caused by cut apples being exposed to air.

Occasionally, the top of canned applesauce turns brown, this is caused by not heating the sauce enough to stop the browning, and there is enough oxygen in the headspace. Also, when air bubbles are not removed from the sauce, this can also happen and why it's important to go around the jar with a bubble freer tool or plastic knife to remove the bubbles. Aside from cooking

### How much do I need to make?

- 21 pounds of apples=7 quarts
- 13 ½ pounds of apples=9 pints

properly, and having enough headspace, some recipes call for lemon juice or ascorbic acid to preserve color and add acidity. Headspace is important to allow room for the food to expand. Having a ruler or a headspace tool is great to keep close by when canning to make sure you have enough headspace. Because we are talking about a variety of canning different apple products, we just wanted to review headspace.

## Freezing

Freezing is one of the least expensive ways to prevent the loss of quality fruit. Select full-flavored apples that are crisp and firm, not mealy in texture.

6 Apples=1-Quart of Apple

Peel, core, slice apples into 12<sup>ths</sup> or sixteenths for large apples. Treat for browning, use ascorbic acid, a fruit juice dip, or other practices discussed.

### Headspace:

½ inch for dry pack  
1 inch for syrup pack

### Freezing Methods:

**Syrup pack**-Sugar syrups can be made by dissolving sugar in water completely and then pouring it completely around and over fruit in the packed container. Slice apples directly into syrup in container, starting with 1/2 cup syrup to a pint container. To prevent browning, add 1/2 teaspoon (1500 mg) ascorbic acid to each quart of syrup, ascorbic acid mixture, or lemon juice. Slice apples directly into syrup in container, starting with 1/2 cup syrup to a pint container. For Containers: Press fruit down in containers and add enough syrup to cover leaving 1 inch of headspace. Place a small piece of crumpled water-resistant paper on top to hold fruit down. Seal and freeze.

**Sugar pack** -To make sugar packs, simply sprinkle sugar over the fruit and mix gently until the juice is drawn out and the sugar dissolved.

**Dry pack**-Follow directions for sugar packing but omit sugar. Treated apple slices can also be frozen first on a tray and then packed into containers as soon as they are frozen. Pack apples into freezer bags and press air out, label, seal, and freeze.

## Tips for Freezing Applesauce and Pie Filling

### Applesauce

- Improve the color of the applesauce by adding ascorbic acid, lemon juice, or commercial mixes.
- Cool sauce completely before freezing. After cooking the sauce, cool the sauce fast by placing pot in a sink of cold ice water, stirring, and changing the water quickly.
- Wipe down the lid to keep the sauce tightly sealed. If anything is left on the edge, that could loosen the seal.
- Headspace: ½ inch for pint containers & 1 inch for quart containers

## Pie Filling

- Use tapioca or modified food starch for more stability in freezing compared to flour & cornstarch
- Save space by freezing the filling in a foil lined pie pan; when frozen, fold the edges of the foil over the filling, remove from the pan, place in a plastic freezer bag and return to the freezer. The pie pan is then free for other uses.
  - When ready to use the frozen filling, place the pan-shaped frozen filling into a pastry lined pan and bake as usual allowing extra time (about 20-25 minutes extra) for the fruit to heat through. This method also works for freezing pie filling in a casserole for use as a crisp or cobbler.

## **Drying**

Oven drying can take up to 25 hours to dry adequately. In the microwave fruit does not dry evenly and can easily scorch and burn. Apples are a good candidate for sun drying in the correct environment, but you need a minimum of 85F and humidity less than 60%. In Illinois sun drying is not recommended.

- Select mature, firm apples such as gala, honeycrisp, granny smith or fuji apples.
- Wash well. Pare, if desired, and core. Apples can be dehydrated in rings, ¼ to ½ -inch thick slices, quartered, or in eighths. Unpeeled apples dry faster.
- **Pretreat** in ascorbic acid or an antidarkening/antimicrobial solution for 10 minutes. Remove from the solution and drain well.
  - The sodium bisulfite or sulfite dips are the most effective against browning for long term storage of dried apples but cannot be used for persons with asthma.
  - Blanching apples or ascorbic acid dips are useful for short term storage.

You can choose not to pretreat, but the apples will continue to brown during and after drying and may affect flavor and vitamins in the fruit.
- **Condition apples after drying.** Apples should have a water content of around 20% when dried. Since not all pieces will have the same amount of moisture, we condition the fruit by placing the cool and dried fruit in a jar, seal the container, and shake daily for 7-10 days. If condensation develops, return the fruit to the dehydrator for further drying.
- **Storage:** Keep in a cool, dry place. Best quality within a year, for longer storage-place dried apples in a freezer-safe bag or container and will keep up for best quality up to 2 years.

### **How to Dry:**

- Arrange apples in single layers on trays. Dry until soft, pliable, and leathery; no moist area in center when cut.
- General recommendations for drying are dehydrating at 140°F for 6-12 hours. Follow manufacturer's instructions.
- Test for dryness: fold pieces in half and they shouldn't stick to itself.

Applesauce can be dried by itself or in combination with other fruit purees to make fruit leather. Dehydrated fruits are great snacks, can be chopped and used in breads & salads. You can also reconstitute dried apples by boiling and soaking.

## Apple Cider

One bushel of apples makes 3 gallons of cider. Cider is a good use for lower quality apples. Apples don't have to be flawless, but, are to be free from spoilage (spoilage will cause cider to ferment). Signs of spoilage can be a grainy, soft interior and wrinkled skin along with discoloration and bruising mold on the bottom. Apples can be contaminated by bacteria from soil, water, and animal sources, or from lack of sanitation during preparation or processing of from human sources during or after harvest, right up to the point of eating. Always wash your apples. Use a tested recipe—heat cider to at least 160 degrees to kill bacteria that could be present. Unpasteurized, or fresh, cider may contain bacteria that cause illness, such as *E. coli* or *Salmonella*. Store heat-treated cider in the refrigerator and use within 5 days. Cider can be frozen.

## Apple Cider Vinegar

Cider is best made in the fall and winter months when apples have more sugar. **Do not use homemade apple cider vinegar for home canning.** Homemade vinegar does not have the same controlled acidity as store-bought.

- For cider: Crush the fruit to get an apple pulp and strain off the juice. Use a press or cheesecloth for straining.
- Adding yeast to activate fermentation is **not essential** but will speed up the process. Bread yeasts are not recommended. Special cultivated yeasts are available for this purpose at wine-making shops and biological labs.
- To make a starter, crumble one cake of yeast into one quart of cider.
  - 1 Yeast Cake= 5 gallons of cider; double the recipe proportionately when making more.

**For making alcohol and acetic acid:** Pour all of the cider into one or more containers to about three-fourth full; do not close the lids on the containers. Stir the mixtures daily. Keep the containers away from direct sunlight and maintain the temperature at 60 to 80 degrees F. Full fermentation will take about 3 to 4 weeks. Near the end of this period, you should notice a vinegar-like smell. Taste samples daily until the desired strength is reached. While vinegar is fermenting, a jelly-like layer forms called the "mother of vinegar."

**Filter:** After the vinegar is fermented to a desired strength, filter the liquid through several layers of fine cheesecloth or filter paper such as coffee filters. Filtering removes the mother of vinegar, preventing further fermentation or spoilage of the product.

### Apple Quality for Preservation

Capture the flavor of the season with fresh apples from the orchard, farmers market, local stores or your own apple tree. High quality apples can be used for canning slices, freezing, pies, apple chips and dehydrated slices. Lower quality can be apples where bruises or spots were removed. They can be processed into applesauce, butter, leather, salsa and relish, chutney, jellies.

### Three steps for making vinegar

1. Make or purchasing cider
2. Make alcohol & acetic acid
3. Filter

**Save the Mother:** Store the mother in a small amount of the newly made apple cider vinegar and stored in a food-safe closed container at room temperature.

**Storing Vinegar:** Store vinegar in separate capped containers out of direct sunlight. Stored vinegar will stay in excellent condition indefinitely if it is pasteurized.

Pasteurizing vinegar: Heat the vinegar to at least 140°F to pasteurize and do not exceed 160°F. Use a food thermometer to ensure the correct temperature is met.

Sterilize the bottles the vinegar is going to be stored in and let cool before adding the vinegar. .

## Storage

Apples are ethylene producers, meaning they can cause other fruit and vegetables to go bad faster if stored together. Store apples in a crisper drawer by themselves or without other fruit at room temperature.

Preservation Method	For Best Quality
At Room Temperature	1-2 weeks
In the Refrigerator	1-2 months
Frozen Apple Pie Filling	6-8 months
Frozen Applesauce	8-10 months
Frozen Apple Slices	8-12 months
Dehydrated Apples	1 year
Dehydrated Frozen Apples	2 years
Fruit Leather	1 year
Canned Apples	1 year
Apple Cider Vinegar	Indefinitely if pasteurized

## References:

Address, Elizabeth L. *Apples are Peaking; Choose the Best Preservation Method*. National Center for Home Food Preservation, 2016. <https://nchfp.uga.edu/tips/fall/apples.html>

Colorado State University Cooperative Extension. Drying Fruits.

[https://nchfp.uga.edu/how/dry/csu\\_dry\\_fruits.pdf](https://nchfp.uga.edu/how/dry/csu_dry_fruits.pdf)Garden-Robinson, Julie. *From Orchard to Table: Apples*, North Dakota State University Extension, 2017, [www.ag.ndsu.edu/publications/food-nutrition/from-orchard-to-table-apples/fn1847.pdf](http://www.ag.ndsu.edu/publications/food-nutrition/from-orchard-to-table-apples/fn1847.pdf).

Harris, Linda J, et al. *Apples: Safe Methods to Store, Preserve, and Enjoy*. University of California, 2007, [homeorchard.ucdavis.edu/8229.pdf](http://homeorchard.ucdavis.edu/8229.pdf).

Hirsch, Diane W. *Dehydrate Some Local Apples: Preserve the Flavor*. University of Connecticut Extension, 2016. <https://blog.extension.uconn.edu/2016/12/08/dehydrate-some-local-apples-preserve-the-flavor/>

Nicholas, Christine. Et al. Making Cider Vinegar at Home. Ohio State University Extension. 2009. [https://ucfoodsafety.ucdavis.edu/sites/g/files/dgvnzk7366/files/inline-files/192135\\_0.pdf](https://ucfoodsafety.ucdavis.edu/sites/g/files/dgvnzk7366/files/inline-files/192135_0.pdf)

U.S. Apple Association, 2020. [usapple.org](http://usapple.org).

Washington Apple Commission, 2020. [Bestapples.com](http://Bestapples.com)

Warmund, Michele. *Apple Cultivars and Their Uses*. University of Missouri Extension. 2002. <https://extension2.missouri.edu/g6022>

Zepp, Martha. Et al. *Let's Preserve: Apples*. Pennsylvania State University. 2019. <https://extension.psu.edu/lets-preserve-apples>

*Fill Your Pantry: Preserving Apples Program Developed by Susan Glassman, MS, Ed., Lisa Peterson, MS Nutrition and Wellness Educators, July 2020*

# Apples Recipes

## Harvest Time Apple Relish

**Yield:** About 7 to 8-pint jars

Source: National Center for Home Food Preservation

8 pounds apples (crisp cooking variety such as Honey Crisp, Cameo, or Pink Lady)	8 pieces stick cinnamon (3 inches each)
3 cups distilled white vinegar (5%)	1 tablespoon ground allspice
2½ cups sugar	4 teaspoons ground ginger
2 cups water	4 tablespoons (¼ cup) finely chopped red Serrano pepper (about 4-6 peppers as purchased)
2 teaspoons ground cloves	

**Caution:** Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

### Procedure:

1. Wash and rinse pint or half-pint canning jars; keep hot until ready to fill. Prepare lids and ring bands according to manufacturer's directions.
2. Rinse apples well, peel if desired (for best quality), and core. Immerse prepared apples in a solution of 1 teaspoon ascorbic acid and 4 quarts of water to prevent browning. Coarsely shred with food processor or dice by hand and return to ascorbic acid bath as you work.
3. Rinse peppers and remove stem ends; trim to remove seeds and then finely chop.
4. Combine vinegar, sugar, water, cloves, cinnamon sticks, allspice, ginger and red pepper. Heat while stirring to dissolve sugar; bring to a boil.
5. Drain apples and add to hot syrup. Bring back to a boil. Boil gently, stirring occasionally, about 5 minutes or until apples are mostly translucent. Turn off heat. Remove cinnamon sticks from relish mixture and place one piece in each jar.
6. Fill hot fruit with syrup into hot jars, leaving ½-inch headspace, making sure fruit is completely covered with syrup. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened, clean paper towel. Apply and adjust prepared canning lids.
7. Process in a boiling water canner according to the recommendations in Table 1. Let cool, undisturbed, 12 to 24 hours and check for seals.

Recommended process time for pickling in a boiling water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0 - 1,000 ft.	1,001 - 6,000 ft.	Above 6,000 ft.
Hot	Pints or Half-pint Jars	10 mins	15 mins	20 mins

*Notes: Peeling apples is preferred for quality. Refrigerate any leftover relish from filling jars and enjoy freshly made! Refrigerate the canned relish once jars are opened for use.*



**Apple Butter****Yield:** About 8 to 9 pints

Source: National Center for Home Food Preservation

Use Jonathan, Winesap, Stayman, Golden Delicious, Macintosh, or other tasty apple varieties for good results.

8lbs apples	2¼ cups packed brown sugar
2 cups apple cider	2 tbsp ground cinnamon
2 cups vinegar	1 tbsp ground cloves
2¼ cups white sugar	

Please read [Using Boiling Water Canners](#) before beginning. If this is your first time canning, it is recommended that you read [Principles of Home Canning](#).

**Procedure:** Wash, remove stems, quarter and core fruit. Cook slowly in cider and vinegar until soft. Press fruit through a colander, food mill, or strainer. Cook fruit pulp with sugar and spices, stirring frequently. To test for doneness, remove a spoonful and hold it away from steam for 2 minutes. It is done if the butter remains mounded on the spoon. Another way to determine when the butter is cooked is to spoon a small quantity onto a plate. When a rim of liquid does not separate around the edge of the butter, it is ready for canning. Fill hot into sterile half-pint or pint jars, leaving ¼-inch headspace. Quart jars need not be pre-sterilized.

Recommended process time for pickling in a boiling water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0 - 1,000 ft.	1,001 - 6,000 ft.	Above 6,000 ft.
Hot	Half-pints of Pints	5 min	10 min	15 min
Hot	Quarts	10 mins	15 mins	20 mins

**Apple Chutney**

Yield: About 6 pints

Source: National Center for Home Food Preservation

4 quarts (16 cups) pared, cored, chopped tart apples (about 10 medium)	4 cups light brown sugar
1 cup chopped onions	3 tablespoons mustard seed
1 cup chopped sweet red bell peppers (about 1 medium)	2 tablespoons ground ginger
2 teaspoons seeded and finely chopped red Serrano pepper (about 2 to 4 peppers)	2 teaspoons ground allspice
12 ounces seedless golden raisins	2 teaspoons canning salt
	1 clove garlic, crushed
	4 cups apple cider vinegar (5%)

**Caution:** Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

**Procedure:**

1. Wash and rinse pint or half-pint canning jars; keep hot until ready to fill. Prepare lids and ring bands according to manufacturer's directions.
2. Combine all prepared ingredients in a large stockpot; bring to a boil. Reduce heat and simmer until thickened, about 45 minutes. As mixture thickens, stir frequently to prevent sticking.
3. Fill hot chutney into hot jars, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Apply and adjust prepared canning lids.
4. Process in a boiling water canner according to the recommendation below. Let cool, undisturbed, 12 to 24 hours and check for seals.

Recommended process time for pickling in a boiling water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0 - 1,000 ft.	1,001 - 6,000 ft.	Above 6,000 ft.
Hot	Pints	10 mins	15 mins	20 mins

**Peach Apple Salsa**

Yield: 7 pints

Source: National Center for Home Food Preservation

6 cups (2 ¼ pounds) chopped Roma tomatoes (about 3 pounds tomatoes as purchased)	2 cups chopped granny smith apples (about 2 large apples as purchased)
2 ½ cups diced yellow onions (about 1 pound or 2 large as purchased)	4 Tablespoons mixed pickling spice
2 cups chopped green bell peppers (about 1-1/2 large pepper as purchased)	1 Tablespoon canning salt
10 cups (3 ½ pounds) chopped hard, unripe peaches (about 9 medium peaches or 4 ½ pounds as purchased)	2 Teaspoons crushed red pepper flakes
	3 ¾ cups (1 ½ pound) packed light brown sugar
	2 ¼ cups cider vinegar (5%)

**Procedure:**

1. Wash hands with soap and water. Wash and rinse pint canning jars; keep hot until ready to use. Prepare lids according to manufacturer's directions.
2. Place pickling spice on a clean, double-layered, 6-inch-square piece of 100% cheesecloth. Bring corners together and tie with a clean string. (Or use a purchased muslin spice bag).
3. Wash and peel tomatoes (place washed tomatoes in boiling water for 1 minute, immediately place in cold water, and slip off skins). Chop into ½-inch pieces. Peel wash and dice onions into ¼-inch pieces. Wash, core, and seed bell peppers; chop into ¼-inch pieces. Combine chopped tomatoes, onions and peppers in an 8- or 10- quart Dutch oven or saucepot.
4. Wash, peel and pit peaches; cut into halves and soak for 10 minutes in an ascorbic acid solution (1500 mg in half gallon water). Wash, peel and core apples; cut into halves and soak for 10 minutes in ascorbic acid solution. Quickly chop peaches and apples into ½-inch cubes to prevent browning. Add chopped peaches and apples to the saucepot with the vegetables.
5. Add the pickling spice bag to the saucepot; stir in the salt, red pepper flakes, brown sugar and vinegar. Bring to boiling, stirring gently to mix ingredients. Reduce heat and simmer 30 minutes, stirring occasionally. Remove spice bag from pan and discard.
6. With a slotted spoon, fill salsa solids into hot, clean pint jars, leaving 1¼-inch headspace (about ¾ pound solids in each jar). Cover with cooking liquid, leaving ½-inch headspace.
7. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened, clean paper towel; apply two-piece metal canning lids.
8. Process in a boiling water canner according to the recommendations below. Let cool, undisturbed, 12 to 24 hours and check for seals

Recommended process time for pickling in a boiling water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0 - 1,000 ft.	1,001 - 6,000 ft.	Above 6,000 ft.
Hot	Pints	15 mins	20 mins	25 mins

**Note:** Please read Using Boiling Water Canners before beginning. If this is your first-time canning, it is recommended that you read Principles of Home Canning.

**Applesauce**

**Yield:** 5-6 cups

Source: National Center for Home Preservation

21 pounds of apples per canner load of 7 quarts  
13.5 pounds per canner load of 9 pints  
Bushel=48 pounds and 14 to 19 quarts of sauce

**Procedure:**

1. Wash, peel, and core apples. If desired, slice apples into water containing ascorbic acid to prevent browning. Placed drained slices in an 8- to 10-quart pot. Add ½ cup water. Stirring occasionally to prevent burning, heat quickly until tender (5 to 20 minutes, depending on maturity and variety).
2. Press through a sieve or food mill or skip the pressing step if you prefer chunk-style sauce. Sauce may be packed without sugar. If desired, add 1/8 cup sugar per quart of sauce. Taste and add more, if preferred
- 3.. Reheat sauce to boiling. Fill jars with hot sauce, leaving ½-inch headspace. Adjust lids and process.

Recommended process time for applesauce in a boiling water canner.					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft.	1,001 - 3,000 ft.	3,001-6,000 ft.	Above 6,000 ft.
Hot	Pints	15 mins	20 mins	20 mins	25 mins
	Quarts	20	25 mins	30 mins	35 mins

Recommended process time for applesauce in a dial gauge canner.						
		Process Time at Altitudes of				
Style of Pack	Jar Size	Process time (min)	0 - 2,000 ft.	2,001 - 4,000 ft.	4,001-6000 ft	6,001-8,000 ft.
Hot	Pints	8	6 lb	7 lb	8 lb	9 lb
	Quarts	10	6	7	8	9

Recommended process time for applesauce in a weighted gauge canner.				
Style of Pack	Jar Size	Process time (min)	0-1,000 ft	Above 1,000 ft
Hot	Pints	8	5 lb	10 lb
	Quarts	10	5	10

**Note:** Please read Using Boiling Water Canners before beginning. If this is your first-time canning, it is recommended that you read Principles of Home Canning.

## Questions throughout the Webinar

### **1. Do I have to peel apples before making applesauce or apple butter?**

*There are recipes for easy-no-peel types of applesauce, but they are not canned. Those recipes are for refrigerator or freezer storage. When canning applesauce and apple butter, our tested recipes are for peeled apples. By leaving the peel on the apple, that could alter the processing time, affecting food safety. With that, yes, we recommend you peel apples for applesauce or apple butter when canning.*

### **2. Why should people with asthma not use sodium bisulfide? Sulfite can cause an asthma reaction.**

*The National Center for Home and Food Preservation recommends for long-term storage of dried fruit, sulfuring or using a sulfite dip are the best pretreatments. However, sulfites found in the food after either of these treatments have been found to cause asthmatic reactions in a small portion of the asthmatic population. Thus, some people may want to use the alternative shorter-term pretreatments.*

### **3. Why do you add the sugar to the honey dip? What is its purpose?**

*The recommendation from The National Center for Home and Food Preservation is to mix 1/2 cup sugar with 1 1/2 cups boiling water. Cool to lukewarm and add 1/2 cup honey. Place fruit in dip and soak 3 to 5 minutes. Remove, drain well and place on dryer trays.*

### **4. Do you have to peel apples to freeze them?**

*When leaving the skin on the apple, it's recommended by University of Nebraska to tray freeze the apple slices, like a dry pack. Slice apples to desired thickness and treat for browning. Freeze apples on a single layer on a metal baking tray until frozen. Transfer to a freezer bag and measure out for recipes. Frozen apples are best in cooked apple dishes. Use within 8 months for best quality.*

**5. What happens if you can apples with skin on? I know the pectin is valuable health-wise?**

*The pectin is found in skins and cores. With canning, we don't recommend leaving the skin on apples. It would change processing times and can affect food safety. Apples with skins can be processed but stored in the freezer or refrigerator.*

**6. Can stevia be used as sweetener?** *Stevia is heat stable and is safe to use for canning. But, remember that the texture and flavor would be different when compared to canning in a light sugar syrup. Oregon State University published that you could try to can using cooking liquid or in water and then upon opening, sweeten with a sugar substitute. Penn State was referenced saying that "stevia-based sweeteners are heat stable and may be used in canning fruit."*

**7. Can you add cinnamon to the sugar pack?**

*We recommend following the recipe and adding spices after thawing and before cooking.*

**8. How much sugar is added per quart for syrup pack?** *USDA Canning Guide recommends a medium syrup (30%) for sweet apples and a (40%) heavy syrup for tart apples. Most recipes are for nine pints and seven quarts. You add ½ or 2/3 cup of your desired heaviness of syrup per pint, so you'd add 1 cup of syrup per quart. If you want a heavy (40% sugar) syrup pack, a small batch of syrup is 2 ¾ cup sugar to 4 cups of water for 5-1/3 cups syrup.*

**9. Where can I take my canner pressure gauge to have it tested?**

*Many county Extension offices test dial gauges as a service to their residents. Call your local Extension office to schedule an appointment or to find out about testing events in your area.*

**10. Can you make apple butter safely in the crockpot and then process?** *You can make apple butter safely in the slow cooker; however, these recipes are for storing in the refrigerator or freezer. Use a tested recipe for canning and follow directions carefully.*

**11. Is it OK to freeze apples (for pie) with their skins on? I use skins in my fresh apple pies. Yes. See our response in question 4.**

**12. Can i just cook the apples low and slow till they break down if you don't have a colander, mixer, or strainer for apple butter?**

*The apple butter recipes we used were tested and included straining or processing through a food-mill. This was to achieve the proper consistency for canning. When changing the consistency of apple pieces, the processing time may be different, this could affect food safety. Therefore, we recommend if not following the recipe, to refrigerate or freeze the product.*

**13. What happens if a five-minute processing time goes longer? For example, if you have jelly that you process for 10 minutes so not having to sterilize jars**

*Always follow a recipe exactly, especially with processing time. Over-processing may reduce the quality of the product and cause the pectin in the jelly or jam to breakdown leading to a runny undesirable product. Consider sterilizing jars in the boiling water bath while preparing the jam or jelly ingredients to save time.*

**14. I noticed a lot of recipes call for 1 packet of pectin. Are all the packets you can buy the same size?**

*Recipes often recommend a standard commercial packet or box of pectin, which is typically 1.75 oz., but double check if the recipe indicates if powdered or liquid pectin is needed. They are not interchangeable. Some commercial companies, such as Ball® also sell pectin in bulk. For determining how much pectin to add if not using a standardized box of pectin, I'd suggest visiting <https://www.freshpreserving.com/pectin-calculator>.*

**15. Are liquid and powder pectin interchangeable? Which is better?**

*No. The recipes are specific for type of pectin used. Liquid pectin is used for cooked fruit and sugar mixtures after cooking, while powdered is added to fruit that is unheated.*

**16. How can you tell if a recipe is "scientifically tested"? Is there a certain phrase that is used? I see many recipes online but have never seen one that says it is scientifically tested.**

*Scientifically tested recipes are those from the United States Department of Agriculture (USDA Guide to Home Canning), University Cooperative Extension's throughout the United States, The National Center for Home Food Preservation, and So Easy to Preserve-6<sup>th</sup> Edition from Georgia Cooperative Extension. Some commercial canning companies also provide scientifically tested recipes. It's incredibly important to use preservation recipes from trusted sources rather than ones we find on the internet, Pinterest, or other social media as the recipes have been tested for many different factors to prevent potentially deadly bacteria from forming.*

**17. If there are air bubbles in the jars after processing, is the final product still safe to eat?**

*As long as the jar is properly sealed and processed, and the bubbles aren't moving inside the jar after processing the product is still safe.*

**18. Why use a plastic knife as opposed to a clean table knife?**

*Using a clean table knife on a glass jar may scratch, crack, or weaken the jar.*

**19. I recently bought stainless steel lids, one piece, with a silicone ring. I'm not doing any canning. Any issues with using those lids for things you put in the refrigerator or freezer?**

*Since you aren't using them for canning, they should be fine for storage in the refrigerator or freezer but check with the manufacturer. From what I've read the silicon rings on the jars are safe for freezing. Typically, the packaging the lids come in indicates if it is recommended for freezing.*

**20. I know I should store jars without rings but how often should I pull down jars to check lids?**

*Canned foods are good for one year for best quality when stored in a cool, dark place. Examine as often as desired. Look for signs of spoilage such as leaking, rising air bubbles inside the jar, unnatural color, or foul smell. If you see the lid is swollen, this is a sign of yeast or spoilage bacteria producing gas. Discard immediately.*



**21. Can you over-dry apples in a dehydrator?**

*Apples that are held at too high of a temperature can scorch. That's why it's important to maintain a constant temperature between 120°F and 140°F. It's better to over-dry than under-dry. If it's your first time using a dehydrator check on the apples occasionally. Apples should be pliable, and not stick together when folded. Remember in round dehydrators the rack on the bottom or closest to the heat will dry faster than the top.*

**22. Are you able to recommend any non-plastic dehydrators?**

*There are many different types of dehydrators, including vertical and horizontal air flow, and have many different features. Read more about what to look for in a dehydrator from the National Center for Home Food Preservation: <https://nchfp.uga.edu/how/dry/dehydrator.html>*

**23. A popular cooking show from the early 2010's recommends a box fan with clean furnace air filters stacked and bungee corded to it with the food to be dried enclosed inside of the furnace filters. . . is this safe to do?** *The only scientifically tested and recommended methods for drying food are using an electric dehydrator, oven drying, sun drying (in the correct conditions), air drying, or microwave drying which is especially good for drying herbs and leafy vegetables.*

**24. If I want to use my oven and it only goes to 170 as its lowest temp, how much time would I use to dehydrate apples?**

*If the oven doesn't go down to a low enough temperature, you risk cooking and scorching the apples rather than drying. If the oven has a keep warm option, this may work for drying but use an oven thermometer to check the temperature of the oven to see if it goes down to around 150-140°F*

**25. How do I keep the jam, jelly, or whatever from rising up and staining the empty/headspace portion of the jar? It seems to spit up even after I wipe it down, remove air bubbles. Etc.**

*We recommend that after you bring the jelly or jam to a boil, you remove from heat and pour hot jelly immediately in to hot, sterile jars. As reliable recipes recommend. Be sure to remove from heat after boiling, this will prevent the splattering and you from getting burned from the mixture.*

**26. Why would I want to keep canned apples from browning? It seems like most cooked apples look brown anyway**

*You don't have to pretreat apples for safety if you do not desire.*

**27. You mentioned grape juice for preventing browning, would that discolor? Or is it the soaking time short enough, so that doesn't happen?**

*You would probably see some color change with the apples, as well as flavor, but works in a pinch to prevent enzymatic browning due to its acidic nature. You could use white grape juice to prevent the color change.*

**28. Some apples do not seem to brown; is that because they are GMOs?**

*There is a genetically engineered apple recently approved by the USDA and FDA called the Artic® Apple or the non-browning apple, that does not brown when it is cut into.*

**29. I didn't understand the difference between fresh apple juice and apple cider.**

*Cider is raw apple juice that has not undergone filtration process to remove coarse particles of pulp or sediment.*

**30. What exactly is the mother of vinegar? The mother of the vinegar is a jelly-like layer that forms naturally during the vinegar fermentation process. It's a mix of yeast and bacteria. The mother counts as a probiotic, but it's importance to health has not been supported by enough scientifically sound research.**