

How to Preserve Apples



Did You Know?

- Although it is believed that apples were first grown in the Far East and Orient, apple trees were also grown and prized by the people of ancient Rome.
- The Romans took apple seeds with them when they conquered England and eventually the immigrating English brought apples, trees, and seeds to American soil.
- Today, the USA is the principal producer of apples in the world.

Selection

Apples are a favorite fruit of many people for eating out of hand, in fresh salads, or in a wide variety of cooked products. When shopping, look for fruit free of blemishes and breaks in the skin since these can encourage spoilage and decay. Also make sure you are “in season” for optimal quality. Most apples ripen in September/October. If you buy apples during the summer, chances are they are last year’s stock that has been stored over the past several months.

Yields

Generally, apples are more economical when purchased by the bushel than when purchased in small quantities. Typically, a bushel of apples weights 42-48 pounds. Other useful weights and measures are:

- One pound of apples equals approximately: four small apples; three medium apples; or two large apples.
- Two medium apples are needed to yield 1 cup grated apples.
- Allow 2 pounds of apples for one 9-inch pie.
- One pound of apples will yield 3 cups diced apples or 2 3/4 cups of pared and sliced apples.
- One bushel of apples will yield 18-20 quarts of apple slices.

Pre-Treatment

Pre-treatments prevent fruits from darkening. Many light-colored fruits, such as apples, darken rapidly when cut and exposed to air. If not pre-treated, these fruits will continue to darken during the preservation process. Some of the most common pre-treatments are explained below:

Ascorbic Acid (vitamin C)

This mixed with water helps prevent fruit from browning. Ascorbic acid is available in the powdered or tablet form from drugstores or grocery stores. One teaspoon of ascorbic acid is equal to 3,000 mg of ascorbic acid in tablet form (or six 500 mg tablets). Fillers in the tablets may result in white flecks, but they are not harmful.

Directions for use:

Mix 1 teaspoon of powdered ascorbic acid (or six tablets, crushed) in 2 cups water. Place the fruit in the solution for 3 to 5 minutes. Remove fruit, drain well. After this solution is used (two batches of fruit), add more ascorbic acid to mixture.

Ascorbic Acid Mixtures

These commercial mixtures contain ascorbic acid and sugar and are sold for use on fresh fruits and in canning or freezing. They are more expensive and not as concentrated as using pure ascorbic acid, but are easier to find. Follow manufacturers instructions on label.

Fruit Juice Dip

A fruit juice that is high in vitamin C can also be used as a pretreatment, though it is not as effective as pure ascorbic acid. Juices high in vitamin C include orange, lemon, pineapple, grape, and cranberry. Each juice adds its own color and flavor to the fruit.

Directions for use:

Place enough juice to cover the fruit in a bowl. Add cut fruit. Soak 3 to 5 minutes, remove fruit, drain well. This solution may be used twice before being replaced.

Honey Dip

Many store-bought dried fruits have been dipped in a honey solution. A similar dip can be made at home. Honey dipped fruit is much higher in calories.

Directions for use:

Mix 1/2 cup sugar with 1 1/2 cups boiling water. Add 1/2 cup honey. Place fruit in dip and soak 3 to 5 minutes. Remove fruit, drain well.

Citric Acid

Citric acid is not a good substitute for ascorbic acid.

Sodium Bisulfite

Sodium bisulfite is very effective in the control of enzymatic browning; however, it can bring on an asthma attack in people with asthma. Use only if you know the apples will not be eaten by anyone with asthma. It can be obtained by special order through a pharmacy.

Directions for use

Mix 1 tablespoon USP or reagent grade sodium bisulfite per gallon of water or 3/4 teaspoon per quart of water. Soak fruit 5 minutes. Drain; rins

Syrup Solutions

To make syrup, dissolve sugar in lukewarm water, mixing until the solution is clear. The following table provides the relative amounts of sugar to use for different types of syrup.

Syrup type	For small batches of syrup		For large batches of syrup (7 qt canning size)	
	Cups sugar	Cups water	Cups sugar	Cups water
Light (20%)	1 1/2	5 3/4	2 1/4	9
Medium (30%)	2 1/4	5 1/4	3 3/4	8 1/4
Heavy (40%)	3 1/4	5	5 1/4	7 3/4

Light syrup provides fewer calories and is appropriate for very sweet apples. Heavy syrup results in a firmer apple slice and is best with tart apples.

Freezing

General Guidelines

- Select full-flavored apples that are crisp and firm, not mealy in texture. Wash, peel and core. Slice medium apples into twelfths, large apples into sixteenths.
- Freeze apples before they lose their freshness. If the fruits can't be frozen immediately, refrigerate them.
- Work with small quantities, enough for only a few containers at a time, to prevent loss of quality and nutrients.
- When preparing fruit for freezing, do not use galvanized, copper, or iron equipment. Compounds in the fruit could react with the metals forming off-colors, off-flavors, or even harmful compounds. Applesauce held in a galvanized container can cause zinc poisoning.

Types of Packs for Freezing

There are several ways to pack fruits for freezing: syrup pack, sugar pack, dry pack, or unsweetened pack. Syrup pack is preferred for apples to be used for uncooked desserts or fruit cocktail. Sugar or dry pack is good for pies. Individual quick frozen is a good method when small portions are used periodically.

Syrup Pack

Chill syrup before using. Then, use just enough cold syrup to cover the prepared fruit after it has been placed in the container (about 1/2 to 2/3 cup of syrup per pint). The proportions for small batches shown in the previous table will provide an adequate amount. Hint: To keep the fruit submerged in the syrup, add a small piece of crumpled parchment paper or other water resistant wrapping material on top, and press fruit down into the syrup before sealing the container.

Sugar Pack

Sprinkle sugar over the fruit and mix gently until the juice is drawn out and the sugar dissolved.

Dry Pack

Simply pack the cleaned fruit into a container, seal, and freeze.

Individual Quick Frozen

Spread apple slices on a cookie sheet. Sprinkle with ascorbic acid mixture. Place in freezer. When frozen, transfer to a plastic bag. Press out as much air as possible and return to freezer.

General Procedure

Peel and slice apples. Use preferred pre-treatment and drain if appropriate. Choose a type of pack and follow instructions above. Leave appropriate head space: 1/2 inch for dry packs, 1 inch for syrup packs in a freezer-safe container. Label. Spread packages in freezer so they will freeze as rapidly as possible.

Canning

As with all preservation methods, select firm ripe fruit that is free of blemishes for optimum results. Adding syrup to canned fruit helps to retain its flavor, color, and shape. It does not prevent spoilage of these foods.

Applesauce

An average of 21 pounds of apples yields 7 quarts or an average of 13 1/2 pounds yields 9 pints.

Select apples that are sweet, juicy, and crisp. For a tart flavor, add 1 to 2 pounds of tart apples to each 3 pounds of sweeter fruit. Jonagold, Golden Delicious, Gala, Mutsu and Fuji varieties are scored as well liked in applesauce.

Wash, peel, core and slice apples. If desired, slice into ascorbic acid solution to prevent discoloration. Place drained slices in an 8 to 10 quart pot. Add 1/2 cup water. Stirring occasionally to prevent burning, heat quickly until tender (5 to 20 minutes, depending on maturity and variety). Press through sieve or food mill, puree in a food processor 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 desired. Reheat sauce to boiling. Stir thoroughly and be sure that mixture is uniformly boiling hot. Fill jars with hot sauce, leaving 1/2-inch headspace. Adjust lids and process.

Style of Pack	Altitude	0-1,000 ft	1,001-3,000 ft	3,001-6,000 ft	Above 6,000 ft
Hot	Pints	15 min	20 min	20 min	25 min
Hot	Quarts	20 min	25 min	30 min	35 min

Note: Cinnamon or other spices may be added during the final 5 minutes of cooking time prior to putting sauce into jars.

Apple Butter

Yield: 8-9 pints

- 8 lbs apples
- 2 cups cider
- 2 cups vinegar
- 2 1/4 cups white sugar
- 2 1/4 cups packed brown sugar
- 2 tbsp ground cinnamon
- 1 tbsp ground cloves

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 -5- the butter is cooked adequately is to spoon a small quantity onto a plate. When a film of liquid does not separate around the edges of the butter, it is ready for canning. Fill hot into jars, leaving 1/4 inch headspace. Adjust lids and process in a boiling water canner.

Processing times at different altitudes for Apple Butter in a BOILING WATER canner				
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above 6,000 ft
Hot	Half-pints or pints	5 min*	10 min	15 min
Hot	Quarts	10 min	15 min	20 min

***Note:** When processing time is less than 10 minutes, jars need to be sterilized prior to filling.

Apple Juice

- 24 pounds apples (approx. 1/2 bushel)
- 2 quarts water

Wash apples; drain. Remove stem and blossom ends. Chop apples and place in a large sauce pot. Add water and cook until tender, stirring to prevent sticking. Strain through a damp jelly bag or several layers of cheesecloth. Heat juice just to a boil. Ladle hot juice into hot jars, leaving 1/4-inch headspace. Adjust two-piece caps and process in a boiling water canner. Yield: about 6 quarts.

Processing times at different altitudes for Apple Juice in a BOILING WATER canner				
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above 6,000 ft
Hot	Half-pints or pints	5 min*	10 min	15 min
Hot	Quarts	10 min	15 min	20 min

***Note:** When processing time is less than 10 minutes, jars need to be sterilized prior to filling.

Apples, Sliced

Approximately 19 pounds of apples yields 7 quarts. An average of 12-1/4 pounds yields 9 pints. Wash, peel, and core apples. To prevent discoloration, pre-treat with ascorbic acid (see previous section). Raw pack canning yields poor quality product; therefore instructions are for hot pack only. Place drained slices in large saucepan and add 1 pint water or light to medium syrup per 5 pounds of sliced apples. Boil 5 minutes stirring occasionally to prevent burning. Fill jars with hot slices and hot syrup or water, leaving 1/2-inch headspace. Adjust lids and process in a boiling water-bath canner.

Processing times at different altitudes for Sliced Apples in a BOILING WATER canner				
Jar Size	0-1,000 ft	1,001-3,000 ft	3,001-6,000 ft	Above 6,000 ft
Pints or Quarts	20 min	25 min	30 min	35 min

Apple Pie Filling

Yield: 7 quarts

- 2 1/2 cups cold water
- 6 quarts blanched, sliced apples
- 5 1/2 cups sugar
- 1 1/2 cups Clear Jel®
- 5 cups apple juice
- 7 drops yellow food coloring (optional)
- 1 tbsp cinnamon
- 1 tsp nutmeg (optional)
- 3/4 cup bottled lemon juice

Use firm, crisp apples. If apples lack tartness, use an additional 1/4 cup bottled lemon juice for each 6 quarts of sliced apples.

Wash, peel, and core apples. Cut apples into slices, 1/2 inch wide. Pre-treat to prevent browning of fruit. Drain well. To blanch the fruit, place 6 cups at a time in 1 gallon of boiling water. Boil each batch for 1 minute after the water returns to a boil. Remove fruit from blanch water, but keep the hot fruit in a covered bowl or pot while the Clear Jel® mixture is prepared. Combine sugar, Clear Jel®, cinnamon and nutmeg in a large saucepot with water, apple juice and food coloring. Stir and cook on medium high heat until mixture thickens and begins to bubble. Add lemon juice to the boiling mixture and boil 1 minute, stirring constantly. Immediately fold in drained apple slices and fill hot jars with hot mixture. Leave 1-inch headspace. Remove air bubbles. Wipe jar rims. Adjust lids and process immediately for 25 minutes (pints or quarts) in a boiling water-bath canner.

Processing times at different altitudes for Apple Pie Filling in a BOILING WATER canner					
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 or Quarts	25 min	30 min	35 min	40 min

Pickling

Sweet Apple Relish

- 4 lbs apples, peeled, cored and sliced thin
- 1 1/4 cups white vinegar
- 1 cup sugar
- 1/2 cup light corn syrup
- 2/3 cup water
- 1 1/2 tsp whole cloves
- 2 sticks cinnamon (3 inch pieces) broken up
- 1 tsp whole allspice

Immerse apples in a solution of 1/2 teaspoon ascorbic acid and 2 quarts water to prevent browning. Combine all ingredients except apples and bring to a boil. Drain apples and add to mixture. Simmer 3 minutes, stirring occasionally.

Pack fruit into hot jars, leaving 1/2 inch headspace. Fill jars 1/2 inch from top with boiling hot mixture. Remove air bubbles. Wipe jar rims. Adjust lids. Process in a boiling water bath.

Processing times at different altitudes for Sweet Apple Relish in a BOILING WATER canner				
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above 6,000 ft
Hot	Half-pints or pints	5 min*	10 min	15 min

Hot	Quarts	10 min	15 min	20 min
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***Note:** When processing time is less than 10 minutes, jars need to be sterilized prior to filling.

Apple Chutney

- 2 quarts chopped, cored, pared tart apples (about 10 medium)
- 1 cup chopped onion
- 1 cup chopped sweet red bell peppers (about 2)
- 2 hot red peppers, seeded and chopped
- 1 1/2 lbs seedless raisins
- 4 cups brown sugar
- 3 tbsp mustard seed
- 2 tbsp ground ginger
- 2 tsp ground allspice
- 2 tsp salt
- 1 clove garlic, crushed
- 1 quart vinegar

Combine all ingredients, simmer until thick, about 1 hour and 15 minutes. As mixture thickens, stir frequently to prevent sticking. Pour boiling hot chutney into hot jars leaving 1/2 inch headspace. Remove air bubbles. Wipe jar rims. Adjust lids. Process in a boiling water bath

Processing times at different altitudes for Sweet Apple Chutney in a BOILING WATER canner				
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above 6,000 ft
Hot	Half-pints or pints	5 min*	10 min	15 min
Hot	Quarts	10 min	15 min	20 min

***Note:** When processing time is less than 10 minutes, jars need to be sterilized prior to filling.

Jelly

Apple Jelly

- 4 cups apple juice (about 3 pounds tart apples and 3 cups water)
- 2 tbsp lemon juice (optional)
- 3 cups sugar

To Prepare Juice

Select one-fourth slightly under-ripe and three-fourths fully-ripe apples. Wash apples; remove stem and blossom ends; do not peel or core. Cut apples into small pieces. Add water; cover; bring to a boil over high heat. Reduce heat; simmer 20 to 25 minutes or until apples are soft. Strain juice through a damp jelly bag or several layers of cheesecloth.

To Make Jelly

Put apple juice in a large saucepot. Add lemon juice and sugar, stirring to dissolve sugar. Boil over high heat, stirring constantly, to 8 degrees F above the boiling point of water at your altitude or until jelly mixture sheets from a spoon. (To check boiling point at your -8- altitude, bring a small pan of water to a boil and note the temperature.) Remove from

heat. Skim foam if necessary. Ladle hot jelly into hot, sterilized jars, leaving 1/4 inch headspace. Adjust two-piece caps. Process in a boiling water-bath canner. Yield: about 4 half-pints

Processing Times at different altitudes for Apple Jelly in a BOILING WATER canner				
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above 6,000 ft
Hot	Half-pints or pints	5 min*	10 min	15 min

Drying

General guidelines: As is true for freezing and canning, pre-treating apples before drying them will result in a final product with better color retention. Apples are best treated by dipping briefly in a pre-treatment solution.

Choose any tart, firm-textured apple. Wash, peel and core apples. Cut into 1/4-1/2 inch slices or rings. Apple slices can be sprinkled with cinnamon or powders such as flavored gelatin or Kool Aid. Dry at 130° to 135° F until pliable. Use as a snack or in baked goods, such as pies, cobblers, or crisps.

Storage

Store fresh apples in a cool, dark, and dry place until you are ready to use them. Apples continue to ripen after they have been picked. Keeping them cool retards this process. Leaving apples at room temperature decreases quality rapidly.

Frozen apples held at 0 degrees F or below can be held for 18 months. For canned apples, applesauce and pie fillings, the storage temperature has a major effect on the storage time. Quality is best if not held for more than 48 months at 40° F or 24 months at 70° F, or 12 months at 90° F.

Nutritional Value

Apples are low in sodium and a good source of fiber.

1 Cup	Calories	Fiber	Calcium (mg)	Iron (mg)	Potassium (mg)	Sodium (mg)	Vitamin C (mg)	Vitamin A (IU)	Vitamin E (mg)
Raw, sliced	53	1.4	6	0.08	99	0	4.4	42	0.06
Canned, sweetened	137	3.5	8	0.47	139	6	0.8	104	0.43
Frozen, unsweetened	83	3.3	7	0.31	133	5	0.2	58	-
Dried	207	7.5	11	1.2	384	74	1.3	48	2.15
Apple Juice	218	0.2	17	0.92	295	7	2.2	2	0.02

References

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