



# PRESERVE IT FRESH, PRESERVE IT SAFE APPLES

When preserving fresh foods at home, follow proper procedures to prevent foodborne illness. These safety-tested methods can be used to freeze and can apples.

**Always wash your hands before preparing any recipe.**

## Freezing

Freezer appliance manuals offer guidelines for the maximum amount that can be frozen at one time to maintain quality — usually 2 to 3 pounds of food for each cubic foot of freezer space.

Syrup pack is preferred for apples to be used for uncooked desserts or fruit cocktail. A sugar or dry pack is good for pie making. Select full-flavored apples that are crisp and firm, not mealy in texture. Wash, peel, and core. Slice the medium apples into twelfths, the large ones into sixteenths.

*For a syrup pack:* Use a chilled 40 percent syrup. Dissolve  $2\frac{3}{4}$  cups of sugar in 4 cups of lukewarm water, mixing until the solution is clear. Chill.

To prevent browning, add  $\frac{1}{2}$  teaspoon (1500 mg) of ascorbic acid to each quart of syrup. Slice the apples into the syrup in a container starting with a  $\frac{1}{2}$  cup of syrup for each pint of apples. Fill pint- or quart-size freezer bags to a level of 3 to 4 inches from the tops, add the syrup if needed to cover the apples, squeeze out the air, seal, and label.

*For a sugar pack:* To prevent darkening, dissolve  $\frac{1}{2}$  teaspoon (1500 mg) of ascorbic acid in 3 tablespoons of water. Sprinkle over the fruit. Mix  $\frac{1}{2}$  cup of sugar with 1 quart ( $1\frac{1}{4}$  pounds) of fruit. Fill freezer bags to a level of 3 to 4 inches from the tops, squeeze out the air, seal, and label.

*For a dry/tray pack:* Follow the directions for a sugar pack, omitting the sugar. Treated apple slices can also be frozen first on a tray and then packed into containers as soon as they are frozen.

## Dehydrating

For information on dehydrating fruit or fruit leathers, see <https://www.rrc.k-state.edu/preservation/drying.html> for resources.

## Preparing Jars and Lids

For all canning recipes processed less than 10 minutes, wash and sterilize jars by placing them inside a boiling water canner and cover with water. Boil jars for at least 10 minutes and keep them hot.

Preheating is not required for standard metal lids. Always wash lids in hot, soapy water before use. If using reusable plastic lid systems with rubber rings, follow the manufacturer's directions.

## Canning

To learn more about canning, see *How-to Guide to Water Bath Canning and Steam Canning* (MF3241) and *How-to Guide to Pressure Canning* (MF3242).

## Apple Butter

Use Jonathan, Winesap, Stayman, Golden Delicious, MacIntosh, or other cooking varieties. This recipe may be canned in half-pint or pint jars.

*Yield:* About 8 to 9 pints

- 8 pounds apples
- 2 cups apple cider
- 2 cups cider vinegar (5% acidity)
- $2\frac{1}{4}$  cups white sugar
- $2\frac{1}{4}$  cups packed brown sugar
- 2 tablespoons ground cinnamon
- 1 tablespoon ground cloves

Rinse, remove stems, quarter, and core fruit. Cook slowly in cider and vinegar until soft. Press the 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 the steam for 2 minutes. It is done if the butter remains mounded on the spoon. Another way to determine when the butter is cooked adequately 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 half-pint or pint jars with hot product, leaving ¼-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Apple Butter

Serving size: 1 tablespoon — 20 calories, 0 g fat, 5 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 4 g sugar

## Apple Jelly

*Yield:* 4 or 5 half-pints

- 4 cups apple juice (about 3 pounds of apples and 3 cups of water) or purchased 100% apple juice
- 2 tablespoons lemon juice, optional
- 3 cups sugar

*To prepare juice:* Select about one-fourth slightly under ripe apples and three-fourths fully ripe apples. Sort, rinse, and remove stems and blossom ends; do not peel or core. Cut the apples into small pieces. Add water, cover, and bring to a boil on high heat.

Reduce heat and simmer for 20 to 25 minutes or until apples are soft. Extract juice through a damp jelly bag or four layers of cheesecloth. Avoid squeezing pulp to obtain clear juice.

*To make jelly:* Measure apple juice into a saucepan. Add lemon juice and sugar and stir well. Boil over high heat, stirring constantly, to 8°F above the boiling point of water or until the jelly mixture sheets from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterilized jars, leaving ¼-inch headspace. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove

jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Apple Jelly

Serving size: 1 tablespoon — 30 calories, 0 g fat, 8 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 8 g sugar

## Apple Juice

Good quality apple juice is made from a blend of varieties. For best results, buy fresh juice from a local cider maker within 24 hours after it has been pressed.

Refrigerate juice for 24 to 48 hours. Without mixing, carefully pour off the clear liquid and discard sediment. Strain clear liquid through a paper coffee filter or double layers of damp cheesecloth. Heat quickly, stirring occasionally, until juice begins to boil. Fill immediately into hot, sterile pint, quart, or half-gallon jars, leaving ¼-inch headspace. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Apple Juice

Serving size: 8 fluid ounces — 129 calories, 0 g fat, 30 g carbohydrate, 0 g protein, 0 g fiber, 25 mg sodium, 30 g sugar

## Apple Pie Filling

Each canned quart makes one 8- to 9-inch pie. Fillings may be used as toppings on desserts or pastries. Clear Jel® is a starch modified to produce excellent sauce consistency even after fillings are canned and baked. Other cooking starches are not recommended as they break down, causing a runny sauce consistency. (Clear Jel® is available from bulk food stores or on the Internet.)

Because the variety of fruit may alter the flavor of the fruit pie, make a single quart, make a pie, and serve it. Then adjust sugar and spices to suit your personal preference. The amount of lemon juice should not be altered, because it aids in ensuring the safety and storage stability of the fillings. If the filling is too tart, add more sugar to taste. (See Apple Pie Filling chart on page 4 for ingredient amounts.)

Use firm, crisp apples; Stayman, Golden Delicious, Rome, and other cooking varieties are suitable. If apples lack tartness, use an additional ¼ cup of lemon juice for each 6 quarts of slices.

## Apple Pie Filling

Ingredient	Quantities of ingredients needed for:	
	1 quart	7 quarts
<b>Blanched, sliced fresh apples</b>	3½ cups	6 quarts
<b>Granulated sugar</b>	¾ cup + 2 tablespoons	5½ cups
<b>Clear Jel®</b>	¼ cup	1½ cups
<b>Cinnamon</b>	½ teaspoon	1 tablespoon
<b>Cold water</b>	½ cup	2½ cups
<b>Apple juice</b>	¾ cup	5 cups
<b>Bottled lemon juice</b>	2 tablespoons	¾ cup
<b>Nutmeg (optional)</b>	⅛ teaspoon	1 teaspoon
<b>Yellow food coloring (optional)</b>	1 drop	7 drops

Rinse, peel, and core apples. Cut apples into slices, ½-inch wide, and place them in water containing ascorbic acid to prevent browning. Use 1 teaspoon of ascorbic acid crystals or six 500 mg vitamin C tablets (crushed) in 1 gallon of water. Blanch apples by placing 6 cups at a time in 1 gallon of boiling water. Boil each batch 1 minute after the water returns to a boil. Drain fruit and keep hot in a covered bowl or pot. Combine sugar, Clear Jel®, and cinnamon in a large kettle with water and apple juice. If desired, food coloring and nutmeg may be added. Stir and cook on a medium high heat until mixture thickens and begins to bubble. Add lemon juice and boil 1 minute, stirring constantly. Fold in drained apple slices immediately and fill hot pint or quart jars with the mixture without delay, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process immediately according to directions in Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Apple Pie Filling

Serving size: ½ cup — 100 calories, 0 g fat, 25 g carbohydrate, 0 g protein, 1 g fiber, 5 mg sodium, 22 g sugar

## Applesauce

An average of 21 pounds is needed per canner load of 7 quarts; an average of 13½ pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds and yields 14 to 19 quarts of sauce — an average of 3 pounds per quart. 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.

Rinse, peel, and core apples. Slice apples into water containing ascorbic acid to prevent browning. Use 1 teaspoon of ascorbic acid crystals or six 500 mg vitamin C tablets (crushed) in 1 gallon of water. Place drained slices in an 8- to 10-quart pot. Add ½ cup of water. Stirring occasionally to prevent burning, heat quickly until tender (5 to 20 minutes, depending on the maturity and variety).

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 ⅓ cup of sugar per quart of sauce. Taste and add more, if preferred. Reheat sauce to boiling.

Fill hot jars with hot sauce, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to directions in Table 2 or in a pressure canner following guidelines in Table 3. Turn off heat and remove canner lid. If pressure canning, let the canner depressurize naturally, then remove lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Applesauce, no sugar added

Serving size: ½ cup — 50 calories, 0 g fat, 14 g carbohydrate, 0 g protein, 1 g fiber, 2 mg sodium, 11 g sugar

## Apples – Sliced Rings

An average of 19 pounds is needed per canner load of 7 quarts; an average of 12¼ pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds

**Table 1. Measures of water and sugar in preparing and using syrups**

Syrup type	Approximate percent of sugar	For 9-pint load or 4 quart load		For 7-quart load	
		Cups of water	Cups of sugar	Cups of water	Cups of sugar
<b>Very light</b>	10	6½	¾	10½	1¼
<b>Light</b>	20	5¾	1½	9	2¼
<b>Medium</b>	30	5¼	2¼	8¼	3¾

and yields 16 to 19 quarts — an average of 2¾ pounds per quart. Select apples that are juicy, crispy, and preferably both sweet and tart.

Rinse, peel, and core apples. To prevent discoloration, slice apples into water containing ascorbic acid. Use 1 teaspoon of ascorbic acid crystals or six 500 mg vitamin C tablets (crushed) in 1 gallon of water.

Raw packs make poor quality products. Place drained slices in a large saucepan and add 1 pint of water or very light, light, or medium syrup per 5 pounds of sliced apples. Use Table 1 to make the syrup. Boil for 5 minutes, stirring occasionally to prevent burning.

Fill hot jars with hot slices and hot syrup or water, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to Table 2 or pressure canner according to Table 3. Turn off heat and remove canner lid. If pressure canning, let the canner depressurize naturally, then remove lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Sliced Apples, in water

Serving size: ½ cup — 60 calories, 0 g fat, 15 g carbohydrate, 0 g protein, 2 g fiber, 0 mg sodium, 12 g sugar

## Spiced Apple Rings

*Yield:* About 8 to 9 pints

- 12 pounds firm tart apples (maximum diameter is 2½ inches)
- 12 cups sugar
- 6 cups water
- 1¼ cups white vinegar (5% acidity)
- 3 tablespoons whole cloves
- ¾ cup red hot cinnamon candies, or
  - 8 cinnamon sticks and
  - 1 teaspoon red food coloring (optional)

Rinse, peel, and slice apples. Immediately cut crosswise into ½-inch slices, remove core area with a melon baller. Immerse in an ascorbic acid solution. Use 1 teaspoon of ascorbic acid crystals or six 500 mg vitamin C tablets (crushed) in 1 gallon of water.

To make a flavored syrup, combine sugar, water, vinegar, cloves, cinnamon candies or cinnamon sticks, and food coloring in a 6-quart saucepan. Stir, heat to

boil, and simmer for 3 minutes. Drain apples, add to the hot syrup, and cook for 5 minutes.

Fill hot jars (preferably wide-mouth) with apple rings and hot flavored syrup, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Spiced Apple Rings

Serving size: ½ cup — 180 calories, 0 g fat, 46 g carbohydrate, 0 g protein, 2 g fiber, 0 mg sodium, 44 g sugar

## Spiced Crabapples

*Yield:* About 9 pints

- 5 pounds crabapples
- 4½ cups apple vinegar (5% acidity)
- 3¾ cups water
- 7½ cups sugar
- 4 teaspoons whole cloves
- 4 sticks cinnamon
- Six ½-inch cubes of fresh ginger root

Remove blossom petals and rinse crabapples, but leave stems attached. Puncture the skin of each crabapple four times with an ice pick or toothpick. Mix vinegar, water, and sugar, and bring to a boil. Add spices tied in a spice bag or cheesecloth.

Using a blancher basket or sieve, immerse one-third of the crabapples at a time in the boiling vinegar/syrup solution for 2 minutes. Place cooked crabapples and spice bag in a clean 1- or 2-gallon crock and add the hot syrup. Cover and let stand overnight. Remove spice bag; drain syrup into a large saucepan and reheat to boiling.

Fill hot pint jars with crabapples and hot syrup, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to directions in Table 1. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Spiced Crabapples

Serving size: ½ cup — 190 calories, 0 g fat, 49 g carbohydrate, 0 g protein, 1 g fiber, 0 mg sodium, 37 g sugar

## Crabapple Jelly Without Added Pectin

*Yield:* About 5 or 6 half-pint jars

- 4 cups crabapple juice (about 3 pounds of crabapples and 3 cups water)
- 4 cups sugar

*To prepare juice:* Select firm, crisp crabapples, about ¼ firm ripe and ¾ fully ripe. Sort, rinse, and remove stem and blossom ends; do not pare or core. Cut crabapples into small pieces. Add water, cover, and bring to boil on high heat. Stir to prevent scorching. Reduce heat and simmer for 20 to 25 minutes, or until crabapples are soft. Do not overcook; excess boiling will destroy the pectin, flavor, and color. When fruit is tender, pour everything through a double layer of dampened cheesecloth or a damp jelly bag. Suspend the bag over a bowl or pan, using a stand or colander to hold the bag. Drain the juice without pressing or squeezing, which will cause cloudy jelly. If a fruit press is used, the juice should be restrained through a jelly bag.

*To prepare jelly:* Measure juice into saucepot. Add sugar and stir well. Boil over high heat until temperature measures 8°F above the boiling point of water (220°F at sea level), or the jelly mixture sheets from a metal spoon. Remove from heat; skim foam quickly. Pour hot jelly immediately into hot, sterile jars, leaving ¼-inch headspace. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to directions in Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Crabapple Jelly

Serving size: 1 tablespoon — 25 calories, 0 g fat, 6 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 5 g sugar

## Reduced Sugar Apple Butter

*Yield:* About 4 to 5 half-pint jars.

- 4 pounds apples
- 1 cup apple cider
- ½ cup Splenda®
- 1 tablespoon ground cinnamon
- ¼ teaspoon ground cloves
- ½ teaspoon ground allspice

Rinse apples well and remove stems. Cut apples into quarters or eighths and remove cores.

Combine unpeeled apples and cider in 8-quart saucepan. Cook slowly and stir occasionally to prevent sticking. Cook until apples are very soft (falling apart).

Position a food mill or strainer securely over a large bowl. Press cooked apples with cider through the food mill or strainer to make a pulp. Be sure to collect all the pulp that comes through the food mill or strainer; for example, scrape any pulp clinging under the food mill into the bowl.

Combine pulp with Splenda® and spices in an 8-quart saucepan. Simmer over low heat, stirring frequently. To test for doneness, spoon a small quantity onto a clean plate; when the butter mounds on the plate without liquid separating around the edge of the butter, it is ready for processing. Another test for doneness is to remove a spoonful of cooked butter away from steam for 2 minutes. It is done if the butter remains mounded on the spoon.

Fill hot apple butter into clean hot jars, leaving ¼-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to directions in Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Reduced Sugar Apple Butter

Serving size: 1 tablespoon — 10 calories, 0 g fat, 2 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 2 g sugar

## Harvest Time Apple Relish

*Yield:* About 7 to 8 pint jars

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

*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.

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.

Rinse peppers and remove stem ends; trim to remove seeds then finely chop.

Combine vinegar, sugar, water, cloves, cinnamon sticks, allspice, ginger and red pepper. Heat while stirring to dissolve sugar; bring to a boil.

Drain apples and add to hot syrup. Bring back to a boil. Boil gently 5 minutes, stirring occasionally, until apples are mostly translucent. Turn off heat. Remove cinnamon sticks from relish mixture and place one piece in each jar.

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 jar rims. Apply lids and rings fingertip-tight. Process in a boiling water canner or steam canner according to the guidelines in Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes.

Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Harvest Time Apple Relish

Serving size: 1 tablespoon — 10 calories, 0 g fat, 3 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 2 g sugar

## Apple Marmalade

without added pectin

Yield: About 6 or 7 half-pint jars

- 8 cups thinly sliced apples (about 3 pounds)
- 1 orange
- 1½ cups water
- 5 cups sugar
- 2 tablespoons bottled lemon juice

Select tart apples. Rinse, pare, quarter, and core the apples. Slice thin. Rinse the orange and quarter the orange, remove any seeds, and slice very thin.

Heat water and sugar until sugar is dissolved. Add the lemon juice and fruit. Boil rapidly, stirring constantly, to 9 degrees F above the boiling point of water, or until the mixture thickens. Remove from heat; skim foam.

Fill hot marmalade immediately into hot, sterile jars, leaving ¼-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims. Apply lids

**Table 2. Recommended processing times in a water bath canner or steam canner**

Product	Jar size	Hot-pack processing times in minutes at different elevations (in feet)		
		0-1,000	1,001-3000	3,001-6,000
Apple butter	Half-pints or pints	5	10	10
Apple jelly	Half-pints or pints	5	10	10
Apple juice	Pints or quarts	5	10	10
	Half-gallons	10	15	15
Apple pie filling	Pints or quarts	25	30	35
Applesauce	Pints	15	20	20
	Quarts	20	25	30
Sliced apples	Pints or quarts	20	25	30
Spiced apple rings	Half-pints or pints	10	15	15
Spiced crab apples	Pints	20	25	30
Crabapple jelly	Half-pints or pints	5	10	10
Reduced-sugar apple butter	Half-pints or pints	15	20	20
Harvest Time Apple Relish	Half-pints or pints	10	15	15
Apple Marmalade	Half-pints	5	10	10

and rings fingertip-tight. Process in a boiling water canner or steam canner according to directions in Table 2. Turn off heat and remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, date, and store.

*Nutrition:* Apple Marmalade

Serving size: 1 tablespoon — 35 calories, 0 g fat, 9 g carbohydrate, 0 g protein, 0 g fiber, 0 mg sodium, 9 g sugar

## Problems and Solutions

### 1. After canning apples, why do they float?

The fruit is lighter than the sugar syrup. Use firm, ripe fruit. Use the hot pack method to remove air from the fruit. Use a light or medium syrup instead of a heavy syrup. Pack fruit as close as possible and release trapped air before applying the lid.

### 2. Can apples be canned without sugar?

Yes. Sugar is added to improve flavor, help stabilize color, and retain the shape of the fruit. It is not added as a preservative.

### 3. How can I reduce the amount of foaming in jelly?

Add ½ teaspoon butter or margarine to the fruit mixture before boiling.

### 4. Can a food processor or blender be used to prepare apple sauce or butter?

A food mill or sieve are better choices because they do not incorporate a lot of excess air. Mechanical methods, such as a food processor, blender or immersion blender, will add excess air which will get trapped in the fruit puree and can increase problems with discoloration and siphoning. Learn more at <https://extension.psu.edu/troubleshooting-problems-when-canning-applesauce>.

### 5. What are some steps to prevent oozing in canned pie filling?

When canning pie filling, sometimes the pie filling expands and oozes out the top of the jar after removing the jars from the canner. Some prevention tips include:

- Prepare the fruit carefully, such as completely thawing frozen fruit and blanching fresh fruit. This helps remove air from inside the fruit.
- Remove air bubbles before applying the lid and ring.
- Reduce the amount of ClearJel® to ¾ the amount stated in the recipe. For example, if the recipe states 1 ½ cups of ClearJel, use 1 cup plus 2 tablespoons. Do not use regular cornstarch or flour when canning pie filling as these thickeners give poor quality results.
- Do not double recipes.
- Leave at least 1-inch headspace. It is acceptable to leave 1 ¼ inch headspace in this case.
- Keep the filling hot and have a hot canner ready to go.
- After processing, leave the jars in the water bath canner for 10 minutes. If using a steam canner, remove the jars after processing time has ended.

### 6. Is it safe to can apples, or other fruit, without sugar?

Yes. Sugar is added to improve flavor, help stabilize color, and retain the shape of the fruit. It is not added as a preservative.

**Table 3. Recommended hot-pack processing times in a pressure canner**

Product	Jar Size	Process Time (min.)	Canner gauge pressure at different elevations (in feet)			
			Dial gauge		Weighted gauge	
			0-2,000	2,001-4,000	1-1,000	Above 1,000
Sliced Apples	Pints or Quarts	8	6	7	5	10
Applesauce	Pints	8	6	7	5	10
	Quarts	10	6	7	5	10

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and the National Center for Home Food Preservation, <https://nchfp.uga.edu>.

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