



FOOD PRESERVATION SERIES

Apples

Michigan-grown apples are available most of the year.
The peak harvest is August through October.

RECOMMENDED VARIETIES

Varieties recommended for baking and cooking include: Jonathan, Empire, Ida Red, McIntosh and Golden Delicious. Varieties best eaten fresh are Red Delicious, Golden Delicious, Honey Crisp and Braeburn.

YIELD

1 pound of apples	3 medium-sized apples. 4 cups peeled, cored slices.
2 ½ to 3 pounds	2 pints frozen apple slices.
2 ½ to 3 pounds	2 pints canned (slices or apple sauce).
13 ½ pounds	canner load of 9 pints.
21 pounds	canner load of 7 quarts.
1 bushel (48 pounds)	14-19 quarts sauce

Note : Plan on 6 to 8 medium-sized apples for a 9-inch pie.

FOOD SAFETY TIPS

Store apples in the refrigerator in a plastic bag with holes poked for ventilation, or in the crisper drawer to help retain moisture.

A bushel of apples can be stored in a covered styro-foam box in a cool place such as a garage, porch or shed, preferably at temperatures between 32 and 40 o F.

Separate apples from other foods so they do not pick up "off" flavors.

Properly stored apples will keep up to a month. Check them often and remove any apples that are beginning to rot.

Store processed or canned apple products in a cool, dry area.

HOW TO STORE

Do not use apples that are bruised or damaged, or have dropped to the ground, to avoid patulin. Patulin is a toxin produced by certain species of molds which may grow in fruits like apples and pears with brown rot. Drops may also be a source of E. coli contamination. Also avoid using apples sold at gasoline stations because these may have been transported by trucks loading chemicals or fertilizers.

Purchase apples that are not bruised or damaged. Bag fresh apples separate from meat, poultry and seafood products

When storing in the refrigerator, keep apples away from raw meat so that meat juices do not contaminate them.

Wash hands before and after handling fresh produce.

Wash apples thoroughly under cool, running water before eating or preparing. Do not use soap or detergent. If necessary, use a clean, produce brush to scrub off dirt or soil. Dry with paper or cloth towel.

Use a separate cutting board for fruits, and keep away from raw meat, poultry and seafood

Follow standardized procedures recommended by the United States Department of Agriculture for home canning.

QUICK AND EASY SERVING TIPS

Eat a whole apple or serve as apple wedges for a low-calorie snack.

Serve apple slices sprinkled with cinnamon as a dessert; spread with peanut butter, or serve with a dip such as vanilla yogurt.

Add chopped apples to tuna or chicken salad, vegetable and fruit salads, oatmeal or cereals

Try grated or chopped apples in meatloaf or meatballs, breads or stuffing, pancakes or quick bread batters.

To prevent cut apples from browning, dip them in a mixture of lemon juice and water (1 tablespoon lemon juice in 1 cup water).

RECIPE

2 cups diced apples
1 cup diced celery
1/2 cup raisins
1/2 cup nuts
2 Tablespoons salad dressing or mayonnaise
1 Tablespoon orange juice

1. Mix orange juice with salad dressing or mayonnaise.

2. Toss apples, celery, raisins and nuts with the dressing mixture.

Serving Size: 1/2 cup Yield: 8 servings

Nutritional Analysis: 110 calories; 6 g fat; 0 mg cholesterol; 45 mg sodium; 2 g fiber

HOW TO PRESERVE

FREEZING APPLES

For better quality, apple slices need to be treated to prevent darkening or discoloration prior to freezing or canning.

How To Prevent Discoloration

Keep cut apple slices in a solution of ascorbic acid and cold water. Ascorbic acid can be purchased in several forms:

Pure powdered form : Seasonally available among canning supplies in supermarkets. Use 1 teaspoon per gallon of water as a treatment solution.

Vitamin C tablets : Buy 500-milligram tablets; crush and dissolve six tablets per gallon of water as a treatment solution.

Commercially prepared mixes of ascorbic and citric acid : Seasonally available among canning supplies in supermarkets.

Citric acid powder : Sold in supermarkets, but it is less effective in controlling discoloration. Be sure to follow the manufacturer's directions.

Ascorbic Acid Mixture : Available in local supermarkets are EVER-FRESH[®] and FRUIT FRESH[®] fruit protectors. To pretreat fruit, dissolve 3 tablespoons of either mixture in 2 quarts (8 cups) cold water and soak the fruit. To use the ascorbic acid mixture when freezing apples with sugar, dissolve 1 tablespoon in 3 tablespoons cold water in a large bowl. Add fruit and sugar and allow to stand for 15 minutes before packing in freezer containers.

Frozen Sliced Apples

Select apples recommended for cooking that are crisp and firm, not mealy in texture. Wash, peel and core. Slice medium apples into twelfths and large apples into sixteenths, and drop immediately into ascorbic acid solution. Drain apples before packing. Pack in one of the following ways.

Syrup pack : Use 50 percent syrup (1 cup water to 1 cup sugar). For better quality, add 1 1/2 teaspoon ascorbic acid to each quart of syrup. Slice apples directly into cold syrup in a container, starting with 1/2 cup syrup to a pint container. Press fruit down in containers and add enough syrup to cover. Leave 1/2 inch headspace. Seal, label, date and freeze.

Sugar pack : Evenly sprinkle 1 1/2 cup sugar over each quart (1 1/2 pounds) of apple slices, and stir. Pack apples into containers and press down, leaving 1/2 inch headspace. Seal, label, date and freeze.

Unsweetened pack : Follow directions for sugar pack, but omit the sugar.

Syrup pack is preferred for apples to be used for fruit cocktail or uncooked desserts. Apples packed

in sugar or frozen unsweetened are better for pie making.

Frozen Apple Sauce

Select apple varieties that are recommended for cooking. Wash apples, peel if desired, core, slice and place in a saucepan. To each quart of apple slices, add 1 and 1/3 cup water and 1/4 teaspoon ascorbic acid. Cook over medium heat until tender. Cool and strain, if necessary. If desired, sweeten to taste with about 1/4 cup sugar for each quart (2 pounds) of sauce. Pack into containers, leaving 1/2 inch headspace. Seal, label, date and freeze. For best quality, use frozen apple slices or sauce within 8 to 12 months.

Freeze no more than one quart (2 to 3 pounds) of food per cubic foot of freezer capacity. One cubic foot will hold 30 quarts of food.

CANNING APPLES

Sliced Apples

Select apples that are juicy and crisp, preferably a mixture of both sweet and tart varieties. Wash, peel and core apples. To prevent discoloration, slice apples into water containing ascorbic acid. Raw-packed apples make poor quality products. Place drained apples in a large saucepan and add 2 cups water of very light, light or medium syrup (Table 1) per 5 pounds of sliced apples. Boil 5 minutes, stirring occasionally to prevent scorching. Fill clean, hot canning jars with hot slices and hot syrup or water, leaving 1/2 inch headspace. Remove air bubbles and wipe jar rims. Seal, label, date and freeze. Process in a boiling-water or pressure canner following recommended process times (Tables 2 - 4).

Syrup : Measure and mix quantities of sugar and water necessary to make the desired syrup consistency (Table 1) . Bring sugar and water mixture to a boil and pour over fruit in jars.

Table 1. Amount of Water and Sugar to make Syrup

Syrup Type	Approx. Sugar (%)	For 9-Pt Load*		For 7-Qt Load	
		Cups Water	Cups Sugar	Cups Water	Cups Sugar
Very light	10	6 1/2	3/4	10 1/2	1 1/4
Light	20	5 3/4	1 1/2	9	2 1/4
Medium	30	5 1/4	2 1/4	8 1/4	3 3/4
Heavy	40	5	3 1/4	7 3/4	5 1/4

*This amount is also adequate for a 4-quart load.

Table 2. Recommended process time for **Apples Slices**, in a boiling-water canner.

Style of Pack	Jar Size	Process Time (min*) at Altitudes of			
		0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints or Quarts	20 min	25	30	35

Table 3. Process Times for **Apples, sliced** in a Dial-Gauge Pressure Canner.

Style of Pack	Jar Size	Process Time (min)	Canner Pressure (PSI*) at Altitudes of			
			0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints or Quarts	8	6	7	8	9

Table 4. Process Times for **Apples, sliced** in a Weighted-Gauge Pressure Canner.

Style of Pack	Jar Size	Process Time (min*)	Canner Pressure (PSI*) at Altitudes of	
			0 - 1,000 ft	Above 1,000 ft
Hot	Pints or Quarts	8	5	10

*PSI – Pounds per square inch
min - minutes

Apple Sauce

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. Wash, peel and core apples. If desired, slice into water containing ascorbic acid to prevent browning. Place drained slices in an 8- to 10-quart saucepan. Add 1 ½ cup water per 10 pounds of apples slices. Heat quickly until tender (5 to 20 minutes, depending on maturity and variety), stirring occasionally to prevent scorching. Press apples through a sieve or food mill, or puree with a blender or a food processor. If you prefer chunk-style sauce, skip the pressing step. The sauce may be packed without sugar. If desired, add 1/8 cup of sugar per quart of sauce, adding more if preferred. Reheat the sauce to boiling. Fill clean, hot canning jars with the hot applesauce. Remove air bubbles and wipe jar rims. Seal, label and process using a general boiling-canner or general pressure canner, following recommended times (Tables 5- 7)

Table 7. Process Times for Applesauce in a Weighted-Gauge Pressure Canner.

Style of Pack	Jar Size	Process Time (Min)	Canner Pressure (PSI*) at Altitudes of	
			0 – 1,000 ft	Above 1,000 ft
Hot	Pints	8	5 lb	10 lb
	Quarts	10	5	10

*PSI – Pound per Square Inch
 Source: National Center for Home Preservation
<http://www.uga.edu/nchfp/index.html>

FURTHER INFORMATION

Food Domain Website
<http://fooddomain.msu.edu/>

Food Stamp Nutrition Connection
http://recipefinder.nal.usda.gov/index.php?mode=display&rec_id=433

National Center for Home Preservation
<http://www.uga.edu/nchfp/index.html>

“So Easy to Preserve” 5th ed. 2006. Cooperative Extension Service, The University of Georgia, Athens.
<http://www.uga.edu/setp/>

Safe Handling of Raw Produce and Fresh-Squeezed Fruit and Vegetable Juices
<http://www.cfsan.fda.gov/~dms/prodsafe.html>

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Table 5. Recommended process time for Applesauce in a boiling-water canner.

Style of Pack	Jar Size	Process Time (min) at Altitudes of			
		0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	15 min	20	20	25
	Quarts	20	25	30	35

Table 6. Process Times for Applesauce in a Dial-Gauge Pressure Canner.

Style of Pack	Jar Size	Process Time (Min)	Canner Pressure (PSI*) at Altitudes of			
			0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints	8	6 lb	7 lb	8 lb	9 lb
	Quarts	10	6	7	8	9

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