

MSU Extension Publication Archive

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Using, Storing, and Preserving Apples
Michigan State University Extension Service
Sandra L. Andrews, Food Science and Human Nutrition
Was E1879 Apples Food Preservation Series
Issued June 1998
4 pages

The PDF file was provided courtesy of the Michigan State University Library

Scroll down to view the publication.



APPLES

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

NUTRITION INFORMATION

A medium apple with skin has:

- 81 Calories.
- 0 grams fat.
- 4 grams fiber.

Apples are a good source of vitamin C. A food is a good source of a nutrient if a serving provides 10 to 19 percent of the Daily Value for that nutrient.

Nutrient information is based on the USDA nutrient composition database.

COMMON APPLE TYPES & USES

Name	fresh	baking	cooking
Jonathan	X	X	X
Empire	X	X	X
Ida Red	X	X	X
McIntosh	X	X	X
Red Delicious	X		
Golden Delicious	X	X	

HOW TO BUY



- Choose apples that feel firm. They should not have bruises or rotten spots.
- Handle apples gently. Bumps and bruises cause dark spots.

HOW TO STORE

Store apples in the refrigerator in a plastic bag with holes poked in it 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, preferably between 32 and 40 degrees F, such as a garage, porch or shed.

Store apples separately from other foods so they don't 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.

YIELD

1 pound of apples equals about:

- 3 medium-sized apples.
- 4 cups peeled, cored slices.

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

2 1/2 to 3 pounds equal 2 pints frozen apple slices.

2 1/2 to 3 pounds equal 2 pints canned (slices or applesauce).

12 1/4 pounds equal a canner load of 9 pints.

19 pounds equal a canner load of 7 quarts.

1 bushel is about 48 pounds.

FOOD SAFETY TIPS

Keep apples away from raw meat so that meat juices do not contaminate them.

Scrub apples with a vegetable brush using cool running water before eating or preparing.

QUICK AND EASY SERVING TIPS

- Serve raw as a snack.
- Serve apple slices sprinkled with cinnamon as a dessert or spread with peanut butter or eat with a dip such as vanilla yogurt.
- Add chopped apples to tuna or chicken salad, vegetable salads, oatmeal or cold cereal, pancakes or quick bread batters.
- Try grated apples in meatloaf or meatballs or mixed with peanut butter in a sandwich.
- To prevent cut apples from browning, dip them in a mixture of lemon juice and water (1 tablespoon lemon juice in 1 cup water).

RECIPES

Baked Apples

- 4 large apples
- 1/4 cup honey
- 1/2 cup water
- 1 teaspoon grated lemon or orange peel

Preheat oven to 375 degrees F. Scrub and core apples and place in baking dish. Combine the honey with the water and grated peel. Pour over apples and bake, covered, for 30 minutes, basting two to three times. Uncover, baste again and bake 15 minutes longer or until tender. Makes 4 servings.

This is an official 5 A Day recipe. Official recipes of the 5 A Day program meet specific criteria developed by the Produce for Better Health Foundation in cooperation with the National Cancer Institute.

Nutritional analysis per serving: 145 Calories; 0 grams (g.) fat; 0 milligrams (mg.) cholesterol; 4.3 g. fiber; 2 mg. sodium.

Golden Apple Oatmeal

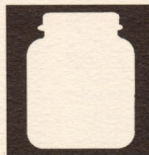
- 1/2 cup diced Golden Delicious apple (about 1/2 medium)
- 1/3 cup apple juice
- 1/3 cup water
- 1/8 teaspoon salt (optional)
- Dash each of ground cinnamon and nutmeg
- 1/3 cup quick-cooking rolled oats, uncooked

Combine apples, juice, water and seasonings in a saucepan. Bring to boil. Stir in rolled oats and cook over medium heat for 1 minute. Cover and let stand several minutes before serving. Makes a 1 cup serving.

This is an official 5 A Day recipe.

Nutritional analysis per serving: 180 Calories; 2 g. fat; 0 mg. cholesterol; 4 g. fiber; 25 mg. sodium.

HOW TO PRESERVE



To freeze apples

Syrup pack is preferred for apples to be used for fruit cocktail or uncooked desserts. Apples packed in sugar or frozen unsweetened are good for pie making. For better quality, apple slices need to be treated to prevent darkening. Use the following instructions to prevent darkening.

Preventing discoloration – ascorbic acid solution

While preparing apples for freezing or canning, keep cut apple sections in ascorbic acid and cold water. Ascorbic acid can be purchased in several forms. Pure powdered ascorbic acid is available seasonally and can be found among canning supplies in grocery stores. Use 1 teaspoon per gallon of water as a treatment solution. Vitamin C tablets can also be used. Buy 500 milligram tablets. Crush and dissolve six tablets per gallon of water as a treatment solution. Also try commercially prepared mixes of ascorbic and citric acid, available seasonally among canning supplies in grocery stores. Sometimes citric acid powder is sold in supermarkets, but it is less effective in controlling discoloration. Be sure to follow the manufacturer's directions.

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 a better quality frozen product, add 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: Over each quart (1 1/2 pounds) of apple slices, sprinkle evenly 1/2 cup sugar and stir. Pack apples into containers and press fruit down, leaving 1/2 inch headspace. Seal, label, date and freeze.

Unsweetened pack: Follow directions for sugar pack, omitting sugar.

Frozen applesauce: Select apples that are recommended for cooking. Wash apples, peel if desired, core and slice. Put into saucepan. To each quart of apple slices, add 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. Use frozen apple slices or sauce within 8 to 12 months for best quality.

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.

To can apples

Sliced apples: Select apples that are juicy and crispy, preferably a mixture of both sweet and tart varieties. Wash, peel and core apples. To prevent discoloration, slice apples into water containing ascorbic acid (see earlier directions). Raw-pack apples make poor quality products. Place drained slices in large saucepan and add 2 cups water or very light, light or medium syrup (see following directions) per 5 pounds of sliced apples. Boil 5 minutes, stirring occasionally to prevent burning. 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. Place each lid, gasket down, onto the cleaned jar-sealing surface. Then fit the metal screw band over the flat lid and follow the manufacturer's guidelines enclosed in or printed on the box for tightening the jar lids properly. Process in a boiling-water or pressure canner using the following general boiling-water or general pressure canner directions and recommended process times.

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

Measures of Water and Sugar

Syrup type	Approx. % sugar	for 9-pint load*		for 7-quart 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

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

General boiling-water canner directions

1. Fill the canner halfway with water.
2. Preheat water to 140 degrees F for raw-packed foods and to 180 degrees F for hot-packed foods.
3. Load filled jars, fitted with lids, into the canner rack and use the handles to lower the rack into the water; or fill the canner, one jar at a time, with a jar lifter.
4. Add more boiling water, if needed, so the water level is at least 1 inch above jar tops.
5. Turn heat to its highest position until water boils vigorously.
6. Set a timer for the minutes required for processing the food.
7. Cover with the canner lid and lower the heat

setting to maintain a gentle boil throughout the process schedule.

8. Add more boiling water, if needed, to keep the water level above the jars.

9. When jars have been boiled for the recommended time, turn off the heat and remove the canner lid.

10. Using a jar lifter, remove the jars and place them on a towel, leaving at least 1-inch spaces between the jars during cooling.

Recommended process times

Sliced apples, in a boiling-water canner

Style of pack	Jar size	Process times (in minutes) at altitudes of			
		0-1,000 ft.	1,001-3,000 ft.	3,001-6,000 ft.	Over 6,000 ft.
Hot	Pint	20 min.	25 min.	30 min.	35 min.
Hot	Quarts	20 min.	25 min.	30 min.	35 min.

General pressure canner directions (for a dial-gauge or weighted-gauge canner)

1. Put 2 to 3 inches of hot water in the canner. Place filled jars on the rack, using a jar lifter. Fasten canner lid securely.
2. Leave weight off vent port or open petcock. Heat at the highest setting until steam flows from the petcock or vent port.
3. Maintain high heat setting, exhaust steam 10 minutes, and then place weight on vent port or close petcock. The canner will pressurize during the next 3 to 4 minutes.
4. Check the chart for the recommended process time for jar size and altitude. Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached, or when the weighted gauge begins to jiggle or rock.
5. Regulate heat under the canner to maintain a steady pressure at or slightly above the correct gauge pressure. Quick and large pressure variations during processing may cause unnecessary liquid losses from jars.
6. When the timed process is completed, turn off the heat, remove the canner from heat, if possible, and let the canner depressurize. **DO NOT FORCE-COOL THE CANNER.** Standard-size heavy-walled canners require about 30 minutes to cool when loaded with pints and 45 minutes with quarts. Newer thin-walled canners cool more rapidly and are equipped with vent locks. These canners are depressurized when the vent lock piston drops to a normal position.
7. After the canner is depressurized, remove the weight from the vent port or open the petcock. Wait 2 minutes, unfasten the lid and remove it

carefully. Open the lid away from you so that the steam does not burn your face.

8. Remove jars from canner with a jar lifter and place them on a towel or rack. DO NOT retighten screw bands. Air cool jars 12 to 24 hours. Remove screw bands and check lid seals. If the center of the lid is indented, wash, dry, label and store jar in a clean, cool, dark, dry place. If after 12 to 24 hours the lid is unsealed, examine and replace jar if defective, use a new lid and a screw band, and REPROCESS as before. Dump out apples and liquid into a pan, reheat until boiling, and fill hot jars with apples and liquid, leaving 1/2 inch headspace. Place NEW LIDS and screw bands on jars and process for the time recommended below. When jars have sealed and cooled, remove, wash and store screw bands separately. Apples are highest quality if consumed within one year and safe as long as lids remain vacuum sealed.

Recommended process times

Sliced apples, in a dial-gauge pressure canner

Style of pack	Jar size	Process time	Canner pressure (pounds pressure) at altitudes of			
			0-2,000 ft.	2,001-4,000 ft.	4,001-6,000 ft.	Over 6,000 ft.
Hot	Pints	8 min.	6 lb.	7 lb.	8 lb.	9 lb.
Hot	Quarts	8 min.	6 lb.	7 lb.	8 lb.	9 lb.

Recommended process times

Sliced apples, in a weighted-gauge pressure canner

Style of pack	Jar size	Process time	Canner pressure (pounds pressure) at altitudes of	
			0-1,000 ft.	Above 1,000 ft.
Hot	Pints	8 min.	5 lb.	10 lb.
Hot	Quarts	8 min.	5 lb.	10 lb.

Applesauce: 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 (see earlier directions). Place drained slices in an 8- to 10-quart saucepan. Add 1/2 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 burning. 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. Sauce may be

packed without sugar. If desired, add 1/8 cup sugar per quart of sauce. Taste and add more, if preferred. Reheat sauce to boiling. Fill clean, hot canning jars with hot applesauce. Remove air bubbles and wipe jar rims. Place each lid, gasket down, onto the cleaned jar-sealing surface. Then fit metal screw band over the flat lid and follow the manufacturer's guidelines enclosed in or printed on the box for tightening the jar lids properly. Process using the general boiling-canner directions, page 3, or general pressure canner directions, pages 3 and 4, and following recommended times.

Recommended process times

Applesauce, in a boiling-water canner

Style of pack	Jar size	Process times (in minutes) at altitudes of			
		0-1,000 ft.	1,001-3,000 ft.	3,001-6,000 ft.	Over 6,000 ft.
Hot	Pints	15 min.	20 min.	20 min.	25 min.
Hot	Quarts	20 min.	25 min.	30 min.	35 min.

Recommended process times

Applesauce, in a dial-gauge pressure canner

Style of pack	Jar size	Process time	Canner pressure (pounds pressure) 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 min.	6 lb.	7 lb.	8 lb.	9 lb.
Hot	Quarts	10 min.	6 lb.	7 lb.	8 lb.	9 lb.

Recommended process times

Applesauce, in a weighted-gauge canner

Style of pack	Jar size	Process time	Canner pressure (pounds pressure) at altitudes of	
			0-1,000 ft.	Above 1,000 ft.
Hot	Pints	8 min.	5 lb.	10 lb.
Hot	Quarts	10 min.	5 lb.	10 lb.

INFORMATION

For more information on food, food preservation, USDA-tested and approved canning recipes, nutrition and health, see <<http://www.msue.msu.edu>>.

Information in this bulletin is based on the USDA Canning Guide (September 1994), E-1702 Using and Storing Apples (Michigan State University Extension, 1993), E-1879 Food Preservation Series-Apples (Michigan State University Extension, 1990) and So Easy to Preserve (University of Georgia Cooperative Extension Service, 1993).



MSU is an affirmative action/equal opportunity institution. Michigan State University Extension educational programs and materials are available to all without regard to race, color, national origin, sex, disability, religion or age. ■ Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Arlen Leholm, Director, MSU Extension, East Lansing, MI 48824. ■ This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to advertise a commercial product or company.

New 6/98-20M-KMF/BRD, Price 25¢, single copy free to Michigan residents