

Squash and Pumpkin

Quality

When selecting chayote and summer squash for freezing, select young, tender squash. Winter squash should always have a firm rind and mature pulp for preserving. Pumpkins and winter squash should have a hard rind and mature pulp and be of ideal quality for cooking fresh. Small pumpkins (pie varieties) make the best finished products because they will be less fibrous.

Preparation

Start with clean countertops and utensils. Wash hands with soap and warm water. All produce should be properly washed before it is consumed or preserved. Gently scrub squash and pumpkin with a clean vegetable brush under cold running water. Do not soak produce in water. Read and follow recipe instructions on the preparation of the produce specifically, sliced, cubed, shredded, etc.

Freezing Procedure

Varieties for freezing include chayote; summer squash (cocozele, crookneck, pattypan, straightneck, white scallop and zucchini); and winter squash (pie pumpkins and spaghetti squash). Freezing 40 pounds of summer or winter squash will yield 16 to 20 quarts or 2 to 3 pounds for a 1-quart jar. Don't freeze more than 2 pounds of food per cubic foot of freezer capacity per day.

Chayote Squash

Chayote squash is regarded as a summer squash in culinary applications. When selecting chayote squash, choose those with tender skins. Wash squash and remove the stem and blossom end. Dice chayote squash and be sure to remove all seeds. Water blanch the squash for 2 minutes. After blanching, cool the squash in cold water, drain, and package it in rigid freezer containers. Leave ½ inch (13 mm) of headspace before sealing and freezing.

Summer Squash (Cocozele, Crookneck, Pattypan, Straightneck, White Scallop, and Zucchini)

When freezing summer squash, choose young squash with tender skin. Wash the squash and cut it into ½-inch (13 mm) slices. Water blanch the squash for 3 minutes. Cool the squash in ice water, drain, and package it in rigid freezer containers. Leave ½ inch (13 mm) of headspace before sealing and freezing.

Grated zucchini can be frozen for baking applications. Be sure to choose young zucchini with tender skin. Wash and grate the zucchini. Steam blanch small quantities of the grated zucchini for 1 to 2 minutes until it is translucent. Pack measured amounts needed for baking into freezer containers. Leave ½ inch (13 mm) of headspace at the top of the rigid container. Chill the container by placing it in cool water. Seal the container and freeze it. Thaw rigid containers of frozen zucchini in the refriger-



Photo credit: dlystock.com

erator prior to using it for baking. If the zucchini is watery once thawed, discard the water prior to using the zucchini for baking.

Pumpkin and Winter Squash

Select mature pumpkins with a firm rind. Wash and remove the pulp and seeds and cut the pumpkin into cooking-sized slices or chunks. Cook the pumpkin until soft by boiling in just enough water to prevent sticking, steaming, covering and baking in the oven, or cooking in a pressure cooker. When the pumpkin is soft, cool slightly and scrape from the peel; drain, then mash or puree. Place the container of mashed pumpkin in cold water to cool, stirring the pumpkin periodically. Package the pumpkin in rigid freezer containers, leaving ½ inch (13mm) of headspace. Seal the container and freeze. Squash puree may also be put into zip-type freezer bags, excess air squeezed out, flattened and frozen on trays until solid. Bags can be stacked when frozen solid.

To freeze cubed squash, water blanch cubes of squash for 3 minutes (just until heated through), drain, and chill in cold water. Keep blanched cubes in a colander while chilling to prevent the cubes from breaking apart. Pat dry with a paper towel. Spread the cubes on a cookie sheet in a single layer, place the cookie sheet in the freezer for at least 4 hours, and then transfer the cubes to a freezer bag, pressing to remove air before freezing.

To freeze other winter squash (i.e., acorn, banana, buttercup, butternut, golden delicious, hubbard, spaghetti), prepare just like pumpkin above, but note that mashing the cooked pulp of spaghetti squash is not necessary.

Refer to *Let's Preserve: Freezing Vegetables* for more in-depth information on freezing.

Drying Procedure

Varieties that work well for drying include zucchini and yellow squash (summer squash) and pumpkin and hubbard squash (winter squash). Drying approximately 11 pounds of pumpkin or 10 pounds of squash will yield ¾ pound dried product or 3½ pints or 5 pints, respectively.



Summer Squash (Zucchini and Yellow Squash)

Wash and trim ends from squash. Cut squash into ¼-inch (6 mm) slices. Steam blanch summer squash for 2½ to 3 minutes or water blanch squash for 1½ minutes. Dry in a food dehydrator at 135° to 140°F (57°C to 60°C) for 10 to 12 hours. The finished product should be leathery to brittle.

Winter Squash (Pumpkin and Hubbard Squash)

Cut winter squash into pieces. Remove pulp and seeds from inside the squash. Cut the squash into 1-inch (2.5 cm) strips or slices and peel the rind. Cut strips crosswise into pieces ⅛ inch (3 mm) thick. Steam blanch winter squash for 2½ minutes or water blanch for 1 minute. Dry in a food dehydrator for 10 to 16 hours. The finished product should be tough to brittle.

CAUTION: Only cubed squash can be canned safely. Never use mashed, puréed, or grated squash for canning. There are currently no research-tested canning recipes that prove the amount of heat penetrating these products is adequate to eliminate the risk of botulism.

Canning Procedure

Varieties for canning include cubed pumpkin (sugar or pie pumpkins) and cubed winter squash (acorn, banana, buttercup, butternut, golden delicious or hubbard).

To pressure can pumpkin and winter squash cubes, you will need approximately 16 pounds per canner load of 7 quarts; an average of 10 pounds is needed per canner load of 9 pints (an average of 2¼ pounds per quart).

Summer Squash (Zucchini and Yellow Squash)

There is no research-tested recipe to safely can summer squash and zucchini alone in a pressure canner. There is a research-tested recipe for zucchini combined with acidic tomatoes (see “Tomatoes and Zucchini” recipe below). Other ways to preserve summer squash are to freeze, dry, or pickle the squash using a research-tested recipe.

Winter Squash (Pie Pumpkins, Acorn, Banana, Buttercup, Butternut, Golden Delicious, or Hubbard)

Select winter squash with a hard rind and mature pulp for canning. Start by washing the squash and removing any seeds. Cut the squash into 1-inch (2.5 cm) slices, peel, and cut the flesh into 1-inch (2.5 cm) cubes. Add the cubes to a saucepot of boiling water and boil for 2 minutes.

NOTE: Spaghetti squash flesh will not stay cubed when heated and thus should be frozen and not canned (see “Freezing Procedure” above).

After the squash has been boiled for 2 minutes, pack hot cubes into hot jars, leaving 1 inch (2.5 cm) of headspace. Fill the jar to within 1 inch (2.5 cm) from the top with the boiling cooking liquid. Use a bubble freer or plastic knife to remove air bubbles from around the sides of the jar. Wipe the rim of the jar with a moist paper towel. Place a lid on the jar and screw on a ring to just fingertip tight. Cubed squash is a low-acid food and therefore can only be processed safely in a pressure canner. The tables below show required process times for a dial-gauge and weighted-gauge pressure canner at different altitudes.

To Process in a Pressure Canner

Place jar rack, 2 to 3 inches (5 cm to 7.5 cm) of water, and sealed jars in the canner. Fasten lid and heat canner on high setting. After exhausting steam for 10 minutes, add weighted gauge or close petcock to pressurize the canner. Start timing the recommended process when the desired pressure is reached. Regulate heat to maintain a uniform pressure. When processing is complete, remove canner from heat. Air-cool canner until it is fully depressurized. Then slowly remove weighted gauge or open petcock, wait 10 more minutes, and unfasten and carefully remove canner lid. Remove jars from the canner with a jar lifter, being careful not to tilt the jars, to a wooden cutting board or towel-lined surface.

To Process in a Boiling Water Canner

Preheat canner filled halfway with water to 180°F (82°C). Load sealed jars onto the canner rack and lower with handles or load one jar at a time with a jar lifter onto rack in canner. Add water, if needed to 1 inch (2.5 cm) above jars and cover. When water boils vigorously, lower heat to maintain a gentle boil and process jars of the product for the time given in the recipe. After processing is complete, set canner off heat and remove canner lid. Wait 5 minutes before removing jars from the canner with a jar lifter, being careful not to tilt the jars, to a wooden cutting board or towel-lined surface.

To Process in an Atmospheric Steam Canner

Preheat the base of a steam canner that has been filled with the amount of water designated in the instruction manual that comes with the canner—usually about 2 quarts. Set the rack in the base of the canner. Heat water in the base of the canner to 180°F (82°C). As each jar is filled, place it on canner rack, keeping the cover or lid on the atmospheric steam canner as you work. When all jars are in the canner, bring the canner to a boil over medium to medium-high heat until a steady column of steam at least 6 inches long escapes from the vent hole(s). Processing time begins when there is a steady column of steam 6 to 8 inches long. Slowly adjust the heat to maintain a steady column of steam throughout the processing time. When processing is complete, turn off heat. Allow the jars to sit in the covered canner for 5 minutes before removing them from the canner with a jar lifter, being careful not to tilt the jars, to a wooden cutting board or towel-lined surface.

After Processing

Do not retighten screw bands. Cool jars for 12 to 24 hours and remove screw bands. Check lid seals. If the center of the lid is indented, the jar is sealed. Wash, dry, label, and store sealed jars in a clean, cool, dark place. If the lid is unsealed, examine and replace jar if defective, use new lid, and reprocess as before or store in the refrigerator. Wash screw bands and store separately. Canned goods are best if consumed within a year and are safe as long as lids remain vacuum sealed.

Tomatoes and Okra or Tomatoes and Zucchini

QUANTITY. Yields about 7 quart or 9 pint jars

PROCEDURE:

1. Wash 12 pounds of tomatoes and 4 pounds of okra or zucchini.
2. Dip tomatoes in boiling water for 30 to 60 seconds or until skins split.

3. Then dip in cold water, slip off skins, remove cores, and quarter.
4. Trim stems from okra and slice into 1-inch (2.5 cm) pieces or leave whole. Slice or cube zucchini, if used.
5. Bring tomatoes to a boil and simmer for 10 minutes.
6. Add okra or zucchini and boil gently 5 minutes. Add 1 teaspoon of salt to each quart, if desired.
7. Fill jars with mixture, leaving 1 inch (2.5 cm) of headspace.
8. Adjust lids and process in a dial-gauge pressure canner at 11 pounds pressure or a weighted-gauge pressure canner at 10 pounds pressure.

PINTS: 30 MINUTES

QUARTS: 35 MINUTES

NOTE: The proportions of low-acid squash and acidic tomatoes must be used each time to assure proper acidification of the squash.

VARIATION: You may add four or five pearl onions or two onion slices to each jar. No other additions of other low-acid foods are permitted to be added to this research-tested recipe.

Squash Pickles and Relish

VARIETIES FOR PICKLING: summer squash, zucchini, yellow squash, and chayote squash.

QUANTITIES FOR PICKLING: 4 pounds of summer squash (zuc-

chini and yellow squash); 2 or 3 chayote squash.

REFER TO *LET'S PRESERVE: BASICS OF HOME CANNING* FOR BOILING WATER BATH AND ATMOSPHERIC STEAM CANNING PROCESSING INSTRUCTIONS.

Summer Squash Relish

- 4 lbs. fresh, firm yellow and/or zucchini summer squash (as purchased)
- ½ cup diced sweet onion (about 2.4 ounces prepared)
- 2 cups cider vinegar (5%)
- 2¼ cups white sugar
- 2 teaspoons celery seed
- 2 teaspoons turmeric
- 4 teaspoons mustard seed

YIELDS ABOUT 5 PINT JARS

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 squash well, remove blossom and stem ends, and shred in a food processor. Peel onions and remove root and stem ends. Rinse well and dice or shred in a food processor.
3. Combine remaining ingredients and bring to a boil. Carefully

► **Table 1.** Process times for pumpkin cubes and winter squash in a dial-gauge pressure canner.

Style of pack	Jar Size	Process Time (mins.)	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	55	11	12	13	14
	Quarts	90	11	12	13	14

► **Table 2.** Process times for pumpkin and winter squash in a weighted-gauge pressure canner.

Style of pack	Jar Size	Process Time (mins.)	Canner Pressure (PSI) at Altitudes of	
			0–1,000 ft.	Above 1,000 ft.
Hot	Pints	55	10	15
	Quarts	90	10	15

► **Table 3.** Recommended process time for squash pickle and relishes in a boiling water canner or atmospheric steam canner.

Recipe	Style of pack	Jar Size	Process Time (minutes) at altitudes of		
			0–1,000 ft.	1,001–6,000 ft.	Above 6,000 ft.
Summer squash relish	Hot	Pints or half-pints	15	20	25
Pickled bread-and-butter zucchini	Hot	Pints or quarts	10	15	20
Chayote and jicama slaw	Hot	Half-pints	15	20	25

add squash and onions. Return combined ingredients to a boil; boil gently for 5 minutes, stirring often.

4. Pack hot vegetables with liquid into hot jars, leaving ½ inch (13 mm) of headspace. Remove air bubbles and adjust headspace if needed. Make sure liquid covers the top of the food pieces. Wipe rims of jars with a dampened, clean paper towel. Apply and adjust prepared canning lids.
5. Process in a boiling water canner or atmospheric steam canner according to the recommendations in Table 3. Let cool, undisturbed, for 12 to 24 hours and check seals.

NOTES: Recipe may use all yellow squash, all zucchini squash, or a combination of both. (The recipe testers liked ¾ yellow and ¼ zucchini squash; another was half and half.) Squash may be diced or shredded by hand instead of shredded in food processor. For recipe development, Vidalia onions were used. Any variety of onion is acceptable. Celery salt may be used in place of celery seed as taste preference. Refrigerate any leftover relish from filling jars, if any, and enjoy freshly made! Refrigerate the canned relish once jars are opened for use.

Pickled Bread-and-Butter Zucchini

- 16 cups fresh zucchini, sliced ¼ to ½ inch (6 mm to 13 mm) in diameter
- 4 cups onions, thinly sliced
- ½ cup canning or pickling salt
- 4 cups white vinegar (5%)
- 2 cups sugar
- 4 Tablespoons mustard seed
- 2 Tablespoons celery seed
- 2 teaspoons ground turmeric

YIELDS ABOUT 8–9 PINTS

PROCEDURE:

1. Cover zucchini (sliced to ¼ to ½ inch (6 mm to 13 mm) in diameter) and onion slices with 1 inch (2.5 cm) of water and salt. Let stand 2 hours and drain thoroughly.
2. Combine vinegar, sugar, and spices. Bring to a boil and add zucchini and onions.
3. Simmer 5 minutes and fill jars with mixture and pickling solution, leaving ½ inch (13 mm) of headspace.

ADJUST LIDS AND PROCESS ACCORDING TO THE RECOMMENDATIONS IN TABLE 3.

Chayote and Jicama Slaw

- 4 cups julienned jicama
- 4 cups julienned chayote
- 2 cups finely chopped red bell pepper
- 2 finely chopped hot peppers*
- 2½ cups water

- 2½ cups cider vinegar (5%)
- ½ cup white sugar
- 3½ teaspoons canning salt
- 1 teaspoon celery seed (optional)

YIELDS ABOUT 6 HALF-PINT JARS

***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 half-pint canning jars; keep hot until ready to use. Prepare lids according to manufacturer's directions.
2. Wash, peel, and thinly julienne jicama and chayote, discarding the seed of the chayote. (A mandolin slicer works well.)
3. In an 8-quart Dutch oven or stockpot, combine all ingredients except chayote. Bring to a boil and boil for 5 minutes. Reduce heat to simmering and add chayote. Bring back to a boil and then turn heat off.
4. Fill hot solids into clean, hot half-pint jars, leaving ½ inch (13 mm) of headspace. Cover with boiling hot cooking liquid, leaving ½ inch (13 mm) of headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened, clean paper towel; apply two-piece metal canning lids.
5. Process in a boiling water canner or atmospheric steam canner according to the recommendations in Table 3. Let cool, undisturbed, for 12 to 24 hours and check seals.

For additional information about food preservation, visit the Penn State Extension Home Food Preservation website at extension.psu.edu/food/preservation, or contact Penn State Extension in your county.

Prepared by Stacy Reed, senior extension educator; Martha Zepp, extension project assistant; Luke LaBorde, professor of food science; and Andy Hirneisen, senior extension educator.

extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

This publication is available in alternative media on request.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.