



## PRESERVING PUMPKIN AND WINTER SQUASH

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FS303E

## General Information

Pumpkins and squash are commonly used in soups, pies, and breads. Cubes of pumpkin and other squash can be roasted for a healthy side dish. As indicated by the bright orange color of pumpkins, they contain high amounts of beta-carotene (U of I Extension 2016a). Beta-carotene protects against heart disease and may help prevent certain cancers. Squash is also a good source of potassium, niacin, iron, and fiber (U of I Extension 2016b).

Squash are categorized as summer squash and winter squash. Summer squash are tender vegetables that are grown during warm, frost-free seasons and are harvested before the rind hardens and the fruit matures (U of I Extension 2017). As opposed to winter squash that grows on vines, summer squash grows on bush-type plants (Florkowska and Westerfield 2016). Winter squash is harvested after it forms the hard rind that allows for cold-weather storage (Florkowska and Westerfield 2016).

There are many varieties of winter squash and pumpkins that are suitable for preservation. Squash varieties that preserve well are: acorn, buttercup, butternut, banana, golden delicious, Hubbard, and sweet meat (Figure 1 and Figure 2). Pumpkin varieties that are best for preserving are sugar and pie varieties. This publication outlines how to preserve pumpkins and winter squash, from harvesting and storing, to canning, freezing, and dehydrating for long-term storage.



Figure 1. Acorn squash (iStock Photo).



Figure 2. Assortment of pumpkins and squash (iStock Photo).

## *Harvesting and Storing*

Pumpkins and winter squash should be harvested before the first frost. Both pumpkins and winter squash are at their peak when they are mature, firm, bright-colored and have a hard rind (OSU Extension 2013). Squash are ready to harvest when the rind is hard enough to resist fingernail scratches (Figure 3).

When harvested at their peak, pumpkins and squash can be stored for several months at temperatures between 50–55°F, with 50–70% humidity (OSU Extension 2013). Do not store pumpkins or squash below 50°F, as they deteriorate rapidly (OSU Extension 2013). Pumpkins and squash that have been exposed to freezing conditions before harvest do not keep well. Store pumpkins and squash separate from apples and pears, as these fruits emit ethylene gas as they ripen. Ethylene gas causes squash to yellow and shortens storage life of both pumpkins and squash (OSU Extension 2013).

## Preserving

For longer-term storage, pumpkins and squash can be preserved by canning, freezing, or dehydrating. The seeds can also be roasted.

### Preparing Winter Squash for Preservation—Cutting through the Rind

The tough outer rind of winter squash can be difficult to cut through for preservation. Utah State University Cooperative Extension offers the following suggestions for cutting winter squash (Anderson and Vitale 2009):

- Use a sharp knife with a long blade.
- For safety, work on a flat surface.
- Bear down on the squash while cutting it and cut next to the stem rather than through it.
- If the rind is too tough to cut through, and the squash fits in the microwave, microwave the squash until it's soft enough to cut into.
- Drop the squash on the floor to break open. This method is messy; consider placing the squash in a plastic bag prior to dropping it.



Figure 3. Freshly harvested pumpkin (iStock Photo).

## Canning

Canning is an excellent way to preserve squash and pumpkin for year-round usage. When canning squash or pumpkin, remember to use a pressure canner only. Squash and pumpkin must be canned using a pressure canner because they are low in acid. Low acid products must be pressure canned in order to reach high enough temperatures to kill disease-causing organisms, such as *Clostridium botulinum*, which is responsible for causing botulism poisoning (Powers-Hammond and McCurdy 2015). Before using your pressure canner, remember to have the gauge tested for accuracy at your local Extension office. Pressure canner gauges should be tested annually, even if not used in the previous year. For information on using a pressure canner, contact your local Extension office or refer to the [National Center for Home Food Preservation](#).

Prepare about 16 pounds of pumpkin or squash for 7-quarts of yield, or about 10 pounds to fill 9 pints (UGA Extension 2009). When canning, select fruit with a hard rind and same qualities as if cooking fresh.

To prepare pumpkin and squash for canning, follow these steps (UGA Extension 2009):

1. Wash.
2. Cut in half, remove seeds, and set aside for later roasting.
3. Cut into slices and peel.
4. Cut the flesh into 1-inch cubes (see Figure 4 and Figure 5). (**Caution: safe processing times have not been determined for mashed or pureed pumpkin and squash, because the pureed product is too dense.**)



Figure 4. 1-inch cubes of butternut squash ready for canning (iStock Photo).



Figure 5. Cubes of canned pumpkin ready to be consumed (iStock Photo).

5. Boil cubes for 2 minutes in water and immediately fill hot jars with hot cubes and boiling liquid, leaving 1-inch of headspace. (Headspace is the distance between the bottom of the lid and the product in the jar.)
6. Remove bubbles by inserting a bubble freer or any plastic or rubber knife-like utensil at the edge of the jar and gently shifting the food around to release any trapped air. Re-measure and adjust headspace by adding liquid, if needed. (Do not use a metal utensil for removing bubbles, as the metal can scratch and weaken the jar.)
7. Thoroughly wipe jar rim and threads with a clean, damp paper towel.
8. Cover jar with lid and ring and tighten ring to “fingertip tight.”
9. Using a jar lifter, load jars into the pressure canner that has already been filled with 2-inches of warm water.
10. Place the lid on the canner, close and seal lid, and turn heat up to the highest setting.
11. Leaving the vent open, allow steam to release at a steady stream for 10 minutes.
12. After the pressure canner has vented for 10 minutes, close the vent and wait for pressure to build. The appropriate pressure should be reached in three to five minutes. See Table 1 and Table 2 for the proper pressure, adjusted for altitude.
13. Regulate burner heat by making slow, gradual changes to the heat to maintain a steady pressure at, or slightly above, the proper pressure. Start timing the processing time when the correct pressure has been reached. (If the pressure drops below the target pressure, bring the pressure back up, and re-start the processing time.)
14. When processing time is complete, turn heat off and carefully remove canner from heat. Wait for pressure to return to zero before slowly removing weight or petcock. Wait another 10 minutes, then unfasten and carefully remove canner lid.
15. Using a jar lifter, remove jars, keeping them upright at all times. Place jars on a drying rack and allow to cool, undisturbed, for 12–24 hours. Do not tighten rings during cooling.
16. When cool, check for seals. To check jars for seal, listen for the “popping” sound during cooling. Since jars do not always pop when they seal, there are two other ways to check seals. Lids are sealed if they are curved downward in the center and do not move when pressed on. Another way to test for a proper seal is by tapping the center of the lid with a spoon. Sealed lids produce a clear, ringing sound.
17. Remove ring bands from sealed jars to prevent rusting, clean jars and lids, label, and store in a cool, dry place out of direct light.
18. What if jars don’t seal? You have three choices:
  - Put in the refrigerator and use immediately.

- Put in the freezer.
- Re-process within 24 hours. Remove the lid and check the jar sealing surface for tiny nicks. If necessary, change the jar, add a new, clean lid, and reprocess using the original processing time.

*If jar(s) unseal after 24 hours, product must be thrown away.*

19. For added safety after opening a jar, boil all home-canned vegetables for at least 10 minutes before eating (OSU Extension 2013).

Table 1. Recommended processing time for pumpkin and winter squash in a dial-gauge pressure canner (UGA Extension 2009).

			Canner Pressure (PSI) at Altitudes of:			
Style of Pack	Jar Size	Process Time	0–2,000 ft	2,001–4,000 ft	4,001–6,000 ft	6,001–8,000 ft
Hot	Pints	55 min	11 lb	12 lb	13 lb	14 lb
	Quarts	90 min	11 lb	12 lb	13 lb	14 lb

Table 2. Recommended processing time for pumpkin and winter squash in a weighted-gauge pressure canner (UGA Extension 2009).

			Canner Pressure (PSI) at Altitudes of:	
Style of Pack	Jar Size	Process Time	0–1,000 ft	Above 1,000 ft
Hot	Pints	55 min	10 lb	15 lb
	Quarts	90 min	10 lb	15 lb

### Freezing

For the best quality frozen product (Figure 6), select firm, mature pumpkins and squash with a hard rind, and follow the subsequent steps (UGA Extension 2006a; UGA Extension 2006b):

1. Wash.
2. Cut in half, remove seeds, and set aside for later roasting.
3. Cut into cooking-sized pieces.
4. Cook squash until soft in: boiling water, steam, a pressure cooker, or in an oven.
5. Remove pulp from rind and mash. (Mashing the pulp is not necessary for spaghetti squash.)
6. Cool cooked squash by placing pan containing squash in ice-cold water and stirring occasionally.



Figure 6. Cubed pumpkin ready for freezing (iStock Photo).

7. Package cooled squash in a food-safe, freezer-appropriate container, leaving 1/2-inch headspace, then seal and freeze. Freezer-appropriate containers are made from materials designed for freezing. These containers are: freezer-weight plastic bags (not food storage bags), plastic containers specifically created for the freezer, and glass canning jars. Not all glass jars can withstand the temperatures of a freezer, however, canning jars are both heat and cold tempered and are appropriate for storing frozen squash.

### ***Dehydrating Squash and Pumpkin Flesh***

Did you know that the fruit or flesh from pumpkins and squash can be dehydrated as well? To dehydrate flesh, follow these directions (OSU Extension 2013):

1. Wash and cut in half.
2. Remove seeds, cavity pulp, and rind.
3. Cut squash flesh into 1/4-inch strips and steam for 2–3 minutes, or until almost tender.
4. Dehydrate in a dehydrator or oven set to 140°F for 2–3 hours, then reduce temperature to 130°F and continue drying until brittle and crisp. At this stage, the dried product contains about 10% moisture and will shatter if struck with a hammer (Schmutz and Hoyle 1999). Therefore, properly dried pumpkin and squash do not need to be conditioned like dried fruits.
5. Store dried pumpkin and squash in a cool, dry place. Pumpkin stored longer than 1–2 months at room temperature can develop an undesirable flavor. Dried pumpkin can be rehydrated, pureed, and used in pumpkin pie or as a vegetable side dish.



Figure 7. Dehydrated vegetable chips (iStock Photo).

Pumpkin and squash can also be dehydrated as bite-size vegetable chips (Figure 7), a healthier alternative to the normal potato chip. To make vegetable chips, cut squash into bite-size pieces that are 1/4-inch thick and follow the same process as dehydrating the flesh.

### ***Dehydrating Pumpkin and Squash Leather***

Pumpkin and squash flesh can also be pureed and dehydrated, similar to a fruit leather. To do so, follow the recipe and instructions below (OSU Extension 2013):

- 2 cups pumpkin or squash, cooked and pureed
- 1/2 cup honey or brown sugar
- 1/4 tsp cinnamon
- 1/8 tsp nutmeg
- 1/8 tsp powdered cloves
- Blend all ingredients and spread on a lightly oiled drying sheet or cookie sheet lined with plastic wrap or parchment paper. Dry at 140°F in a dehydrator or oven.

Dehydrated leathers are done when pliable, with no moisture present. To test doneness, touch the center of the leather; no indentation or sticky spot should linger after removing your finger. Leathers are overdone if they snap or break when folded (Powers-Hammond and McCurdy 2015).

### Dehydrating Seeds

It is a common practice to dehydrate pumpkin seeds (Figure 8). Follow these steps for dehydrating seeds (OSU Extension 2013):

1. Wash seeds and remove any clinging cavity pulp.
2. Dry seeds in a dehydrator at 115°F–120°F until crisp, or in the oven at 150°F for 1–2 hours. When this drying process is complete, the seeds can be eaten.
3. For a more flavorful snack, dried seeds can be roasted following the drying process. To roast, mix 2 cups of dried seeds with 1/2 tsp Worcestershire sauce, 1½ Tbsp melted butter and 1 tsp salt. Place in shallow baking pan and roast, stirring frequently. Temperatures and times for roasting seeds are shown in Table 3 (OSU Extension 2013):



Figure 8. Dehydrated pumpkin seeds (iStock Photo).

Table 3. Time and temperature for roasting seeds.

	Temperature (°F)		
	250°F	275°F	300°F
Time (min)	60 min	30 min	10–15 min

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