



## FOOD PRESERVATION

# Preserve Your Garden Delights: How to Can Fresh Vegetables

Nutritional Sciences  
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Vegetables are at peak quality for six to 12 hours after harvesting. Vegetables picked from your garden or purchased from nearby producers are usually good for canning. If you must delay canning fresh vegetables, keep them refrigerated until you are ready to begin.

### For safety's sake

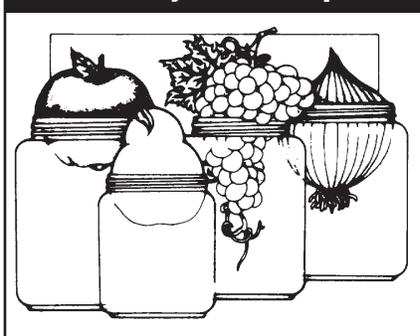
Pressure canning is the only safe method for canning vegetables. *Clostridium botulinum* is the bacterium that causes botulism food poisoning in low-acid foods such as vegetables. When you process vegetables in a pressure canner at the correct time and temperature, you destroy the bacterium.

- Canning low acid foods in boiling-water canners is absolutely unsafe because the botulinum bacteria can survive this process.
- If *Clostridium botulinum* bacteria survive and grow inside a sealed jar of food, they can produce a poisonous toxin.

### It's OK to skip the salt

Salt seasons vegetables, but it is not necessary for safety. It is perfectly safe to can vegetables without adding salt. Add salt substitutes when serving vegetables; don't use them when canning. If added before the canning

### Quality for Keeps



process, salt substitutes may cause a bitter taste. If you do add salt, be sure to use canning salt. Please refer to MU publication GH1451, *Steps to Success in Home Canning*, for information on correct canning procedure and the steps to follow in pressure canning.

**Only use tested recipes from Cooperative Extension, USDA or Ball Blue Book (dated 1989 or later).**

**Follow canning procedures from the same sources dated 2009 or later.**

### Asparagus — spears or pieces

**Quantity:** For 8 to 12 1-quart jars, you need an average of 24 pounds of fresh asparagus.

A crate weighs 30 pounds and yields 10 quarts to 15 quarts (an average of 2 pounds to 3 pounds per quart).

**Quality:** Use tender, tight-tipped

spears, 4 inches to 6 inches long.

**Procedure:** Wash asparagus and trim off tough scales. Break off tough stems and wash again. Cut into 1-inch pieces or can whole.

**Hot pack:** Cover asparagus with boiling water. Boil two minutes or three minutes. Loosely fill jars with hot asparagus; leave 1 inch of headspace.

**Raw pack:** Fill jars with raw asparagus, pack as tightly as possible without crushing, and leave 1 inch of headspace.

Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Add boiling water; leave 1-inch headspace. Adjust lids and process as directed in Table 1.

### Beans or peas — shelled, dried (all varieties)

**Quantity:** For each 7-quart canner load, you need an average of 5 pounds of dried beans or peas. For each 9-pint canner load, you need an average of 3¼ pounds of dried beans or peas (an average of ¾ pound per quart).

**Quality:** Select mature, dry seeds. Sort out and discard discolored beans.

**Procedure:** Place dried beans or peas in a large pot and cover with water. Soak 12 hours to 18 hours in a cool place. Drain water. To save time, cover sorted and washed beans or

peas with boiling water in a saucepan. Boil two minutes, remove from heat, soak one hour and drain.

After soaking beans or peas, cover with fresh water and boil 30 minutes. Add ½ teaspoon canning salt per pint or 1 teaspoon per quart to each jar if desired. Fill jars with beans or peas and cooking water; leave 1 inch of headspace. Adjust lids and process as directed in Table 1.

### **Beans, fresh lima — shelled**

**Quantity:** For each 7-quart canner load, you need an average of 28 pounds of fresh, shelled lima beans. For each 9-pint canner load, you need an average of 18 pounds of fresh, shelled lima beans.

A bushel weighs 30 pounds and yields 5 quarts to 8 quarts (an average of 4 pounds to 5 pounds per quart).

**Quality:** Select well-filled pods with green seeds. Discard insect-damaged and diseased seeds.

**Procedure:** Shell beans and wash thoroughly.

**Hot pack:** Cover beans with boiling water and heat to boil. Boil 3 minutes. Fill jars loosely; leave 1 inch of headspace.

**Raw pack:** Fill jars loosely with raw beans. Do not press or shake down.

**Small beans:** Leave 1 inch of headspace for pints and 1½ inches for quarts.

**Large beans:** Leave 1 inch of headspace for pints and 1¼ inches for quarts.

Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Add boiling water; leave the same headspace listed above. Remove air bubbles. Adjust lids and process as directed in Table 1.

### **Beans, snap and Italian — pieces (green and wax)**

**Quantity:** For each 7-quart canner load, you need an average of 14 pounds of fresh beans. For each 9-pint canner load, you need an average of 9 pounds of fresh beans.

A bushel weighs 30 pounds and yields 15 quarts to 20 quarts (an average of 1½ pounds to 2 pounds per quart).

**Quality:** Select filled but tender, crisp pods. Remove and discard diseased and rusty pods.

**Procedure:** Wash beans and trim ends. Leave whole, cut or snap into 1-inch pieces.

**Hot pack:** Place beans in a large saucepan, and cover with boiling water; boil five minutes. Fill jars; leave 1 inch of headspace.

**Raw pack:** Fill jars with raw beans, pack tightly and leave 1 inch of headspace.

Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to the jar, if desired. Add boiling water; leave 1 inch of headspace. Remove air bubbles. Adjust lids and process as directed in Table 1.

### **Beets — whole, cubed or sliced**

**Quantity:** For each 7-quart canner load, you will need an average of 21 pounds of fresh beets (without tops). For each 9-pint canner load, you will need an average of 13½ pounds of fresh beets.

A bushel of beets (without tops) weighs 52 pounds and yields 17 quarts to 20 quarts (an average of 2½ pounds to 3 pounds per quart).

**Quality:** Beets with a diameter of 1 inch to 2 inches are preferred for whole packs. Beets larger than 3 inches in diameter are often fibrous and tough.

**Procedure:** Trim off beet tops; leave 1 inch of stem and root to reduce bleeding of color. Scrub well. Cover with boiling water. Boil until skins slip off easily, about 15 minutes to 25 minutes depending on size. Cool just enough to remove skins. Trim off stems and roots. Leave baby beets whole. Cut medium or large beets into ½-inch cubes or slices. Halve or quarter very large slices.

Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Fill jars with hot beets and fresh, hot water. Leave 1 inch of headspace. Remove air bubbles. Adjust lids, and process as directed in Table 1.

### **Carrots — sliced or diced**

**Quantity:** For each 7-quart canner load, you will need an average of 17½ pounds of fresh carrots (without tops). For each 9-pint canner load you will need an average of 11 pounds of fresh carrots. A bushel of carrots (without tops) weighs 50 pounds and yields 16 quarts to 20 quarts (an average of 2½ pounds to 3 pounds per quart).

**Quality:** Select small carrots, preferably 1 to 1¼ inches in diameter. Larger carrots are often too fibrous and tough.

**Procedure:** Wash, peel and rewash carrots. Slice or dice.

**Hot pack:** Cover with boiling water, bring to boil again and simmer for five minutes. Fill jars; leave 1 inch of headspace.

**Raw pack:** Fill jars with raw carrots, packing tightly.

Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Add boiling cooking liquid or water; leave 1 inch of headspace. Remove air bubbles. Adjust lids and process as directed in Table 1.

## Corn — cream style

**Quantity:** For each 9-pint canner load, you will need an average of 20 pounds of sweet corn (in husks). A bushel weighs 35 pounds and yields 12 pints to 20 pints (an average of 2¼ pounds per pint).

**Quality:** Select ears containing slightly immature kernels or corn that is at the ideal stage or maturity for eating fresh.

**Procedure:** Husk corn, remove silk and wash ears. Blanch ears 4 minutes in boiling water. Cut corn from cob at about the center of kernel. Scrape remaining corn from cobs with a table knife.

**CAUTION:** Quart jars are not recommended due to the denseness of the canned product.

**Hot pack:** Add 1 cup of boiling water to each 2 cups of corn. Heat to boiling. Add ½ teaspoon canning salt to each jar if desired. Fill pint jars with hot corn mixture; leave 1 inch of headspace. Remove air bubbles. Adjust lids, and process as directed in Table 1.

## Corn — whole kernel

**Quantity:** For each 7-quart canner load, you need an average of 31½ pounds of sweet corn (with husks). For each 9-pint canner load, you need an average of 20 pounds of sweet corn.

A bushel weighs 35 pounds and yields 8 quarts to 9 quarts (an average of 4½ pounds per quart).

**Quality:** Select ears containing slightly immature kernels at the ideal stage of maturity for eating fresh. Some of the sweeter varieties may turn brown during the canning process. Kernels that are too immature may also turn brown. This does not affect safety. For best quality, can a small amount and check color and flavor before canning large quantities.

**Procedure:** Husk corn, remove silk and wash. Blanch 3 minutes in boiling

water. Cut corn from cob at about three-fourths the depth of the kernel. Caution: Do not scrape the cob.

**Hot pack:** Place kernels in saucepan. Add 1 cup of hot water for each quart of corn, heat to boiling and simmer five minutes. Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Fill jars with corn and cooking liquid; leave 1 inch of headspace. Remove air bubbles.

**Raw pack:** Fill jars with raw kernels; leave 1 inch of headspace. Do not shake or press down. Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Add fresh boiling water; leave 1 inch of headspace. Remove air bubbles. Adjust lids, and process as directed in Table 1.

## Okra

**Quantity:** For each 7-quart canner load, you need an average of 11 pounds of fresh okra. For each 9-pint canner load, you need an average of 7 pounds of fresh okra.

A bushel weighs 30 pounds and yields 19 quarts to 21 quarts (an average of 1½ pounds per quart).

**Quality:** Select young, tender pods. Remove and discard diseased and rust-spotted pods.

**Procedure:** Wash pods and trim ends. Leave whole or cut into 1-inch pieces. Cover with hot water in a saucepan, boil 2 minutes and drain. Fill jars with hot okra and cooking liquid; leave 1 inch of headspace. Add 1 teaspoon canning salt per quart or ½ teaspoon per pint, to each jar if desired. Remove air bubbles. Adjust lids, and process as directed in Table 1.

## Peas, green or English — shelled

**Note:** Sugar Snap and Chinese

edible podded peas should be frozen for best quality.

**Quantity:** For each 7-quart canner load, you need an average of 31½ pounds of fresh peas (in pods). For each 9-pint canner load, you need an average of 20 pounds.

A bushel weighs 30 pounds and yields 6 quarts to 8 quarts (an average of 4½ pounds per quart).

**Quality:** Select filled pods containing young, tender, sweet seeds. Discard diseased pods.

**Procedure:** Shell and wash peas. Add 1 teaspoon canning salt per quart or ½ teaspoon per pint, to each jar if desired.

**Hot pack:** Cover with boiling water. Bring to a boil in a saucepan and boil two minutes. Fill jars with hot peas (don't pack tightly) and add cooking liquid. Leave 1 inch of headspace. Remove air bubbles.

**Raw pack:** Fill jars with raw peas, add boiling water and leave 1 inch of headspace. Do not shake or press down peas. Remove air bubbles. Adjust lids and process as directed in Table 1.

## Peppers

(hot or sweet, including chilies, jalapeno and pimento)

**Quantity:** For each 9-pint canner load, you need an average of 9 pounds of fresh peppers.

A bushel weighs 25 pounds and yields 20 pints to 30 pints (an average of 1 pound per pint).

**Quality:** Select firm yellow, green or red peppers. Do not use soft or diseased peppers.

**Procedure:** Select your favorite pepper(s). **CAUTION: If you choose hot peppers, wear plastic gloves while handling them or wash hands thoroughly with soap and water before touching your face.** Leave small peppers whole. Cut large

peppers into quarters. Remove cores and seeds. Slash two or four slits in each pepper, and either blanch in boiling water or blister using one of the following methods:

Oven or broiler method: Place peppers in a hot oven (400 degrees F) or broiler for six minutes to eight minutes until skins blister.

Allow peppers to cool. Place in a pan, and cover with a damp cloth to make peeling the peppers easier. After several minutes, peel each pepper. Flatten whole peppers. Fill jars loosely with peppers, add fresh boiling water and leave 1 inch of headspace. Add ½ teaspoon canning salt to each pint jar if desired. Adjust lids, and process as directed in Table 1.

### Potatoes, sweet — pieces or whole

**Caution:** It is unsafe to dry-pack or can mashed or pureed sweet potatoes.

**Quantity:** For each 7-quart canner load, you need an average of 17½ pounds of potatoes. For each 9-pint canner load, you need an average of 11 pounds of fresh potatoes.

A bushel weighs 50 pounds and yields 17 quarts to 25 quarts (an average of 2½ pounds per quart).

**Quality:** Choose small to medium potatoes. They should be mature and not too fibrous. Can within 1 month to 2 months after harvest.

**Procedure:** Wash potatoes and boil or steam just until tender (15 minutes to 20 minutes). Remove skins. Cut potatoes into uniform pieces. Fill jars; leave 1 inch of headspace. Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Cover with fresh boiling water or syrup (See MU publication GH1455, *Fruitful Canning*, for syrup directions). Remove air bubbles. Adjust lids, and process as directed in Table 1.

### Potatoes, white — cubed or whole

**Quantity:** For each 7-quart canner load, you need an average of 35 pounds of potatoes. For each 9-pint canner load, you need an average of 22½ pounds of potatoes.

A 50-pound bag yields 8 quarts to 12 quarts (an average of 5 pounds per quart).

**Quality:** Select small-to-medium, mature potatoes of ideal quality for cooking. Potatoes stored below 45 degrees F may discolor when canned. Choose potatoes with a 1-inch to 2-inch diameter if they are to be packed whole.

**Procedure:** Wash and peel potatoes. Place in ascorbic acid solution to prevent darkening (See MU publication GH1455, *Fruitful Canning*). If desired, cut into ½-inch cubes. Drain. Cook cubed potatoes two minutes in boiling water and drain again. For whole potatoes, boil 10 minutes and drain. Add 1 teaspoon canning salt per quart, or ½ teaspoon per pint, to each jar if desired. Fill jars with hot potatoes and fresh hot water, leave 1 inch of headspace. Remove air bubbles. Adjust lids, and process as directed in Table 1.

### Pumpkins and winter squash

**Caution:** It is unsafe to can mashed or pureed pumpkins or squash. Instead, cut pumpkins or squash into cubes.

**Quantity:** For each 7-quart canner load, you need an average of 16 pounds of pumpkins or squash. For each 9-pint canner load, you need 10 pounds of pumpkins or squash (an average of 2¼ pounds per quart).

**Quality:** Pumpkins and squash should have a hard rind and stringless, mature pulp of ideal quality for cooking fresh. Small pumpkins (sugar or pie

varieties) make better canned products.

**Procedure:** Wash, remove seeds, cut into 1-inch-wide slices and peel. Cut flesh into 1-inch cubes. Boil two minutes in water. Fill jars with cubes and cooking liquid; leave 1 inch of headspace. Remove air bubbles. Adjust lids and process as directed in Table 1.

### Spinach and other greens

Greens can be canned, but freezing results in a better product.

**Quantity:** For each 7-quart canner load, you need an average of 28 pounds of fresh spinach or other greens. For each 9-pint canner load, you need an average of 18 pounds of fresh spinach or other greens. A bushel weighs 20 pounds and yields 3 quarts to 9 quarts (an average of 4 pounds per quart).

**Quality:** Can only freshly harvested greens. Discard any wilted, discolored, diseased or insect-damaged leaves. Leaves should be tender and attractive in color.

**Procedure:** Wash only small amounts of greens at one time. Drain water and continue rinsing until water is clear and free of grit. Cut out tough stems and midribs. Place 1 pound of greens at a time in cheesecloth bag or blancher basket and steam three minutes to five minutes or until wilted thoroughly.

Fill jars loosely with greens, add fresh boiling water and leave 1 inch of headspace. Add ½ teaspoon canning salt to each quart jar, or ¼ teaspoon per pint, if desired. Remove air bubbles. Adjust lids and process as directed in Table 1.

**Table 1: Recommended process times for vegetables in a pressure canner.**

					Canner gauge pressure needed at different altitudes (in feet)	
Product	Style of pack <sup>1</sup>	Jar size	Process time (minutes)	Dial gauge (lbs.) 0–2,000	Weighted gauge (lbs.)	
					0–1,000 ft.	Above 1,000 ft.
<b>Asparagus</b>	H or R	P	30	11	10	15
		Q	40	11	10	15
<b>Beans or peas, shelled dried</b>	H or R	P	75	11	10	15
		Q	90	11	10	15
<b>Lima beans</b>	H or R	P	40	11	10	15
		Q	50	11	10	15
<b>Beans, snap and Italian</b>	H or R	P	20	11	10	15
		Q	25	11	10	15
<b>Beets</b>	H or R	P	30	11	10	15
		Q	35	11	10	15
<b>Carrots</b>	H or R	P	25	11	10	15
		Q	30	11	10	15
<b>Corn, cream style</b>	H	P	85	11	10	15
<b>Corn, whole kernel</b>	H or R	P	55	11	10	15
		Q	85	11	10	15
<b>Okra</b>	H	P	25	11	10	15
		Q	40	11	10	15
<b>Peas</b>	H or R	P	40	11	10	15
		Q	40	11	10	15
<b>Peppers</b>	H	P	35	11	10	15
<b>Potatoes, sweet</b>	H	P	65	11	10	15
		Q	90	11	10	15
<b>Potatoes, white</b>	H	P	35	11	10	15
		Q	40	11	10	15
<b>Pumpkin and winter squash</b>	H	P	55	11	10	15
		Q	90	11	10	15
<b>Spinach and other greens</b>	H	P	70	11	10	15
		Q	90	11	10	15

<sup>1</sup>H = hot pack; R = raw pack

<sup>2</sup>P = pints; Q = quarts

For more information, visit MU Extension:

*<http://extension.missouri.edu>*



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