

LET'S PRESERVE

Root Vegetables: Beets, Carrots, Turnips, and Rutabagas

CAUTION: Root vegetables must be processed in a pressure canner. Root vegetables cannot be safely canned in a boiling water bath or atmospheric steam canner. Only acidified vegetables, as in pickled beets, can be safely processed in a water bath or atmospheric steam canner.

Beets

Recommended Varieties

Varieties for canning include Detroit Dark Red, Cylindra, Ruby Queen, Red Ace, Red Cloud, and Golden. In addition, Chioggia (striped) and Albino (white) are suitable for pickling. Varieties for freezing include but are not limited to Albino and Early Wonder.

Quantity

One pound of beets without tops yields 2 cups of diced, peeled beets. An average of 14 pounds is needed per canner load of 7 quarts; an average of 8 pounds is needed per canner load of 9 pints. An average of 1 pound makes 1 pint of frozen beets.

Quality

Select deep, uniformly red, young, tender beets. Beets with a diameter of 1 to 1½ inches are preferred for whole packs for canning. Beets larger than 3 inches in diameter are often fibrous.



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Preparation

Cut off beet tops, leaving an inch of stem and root to reduce color loss. Scrub well. Cover with boiling water. Boil until skins slip off easily (about 15 to 25 minutes for canning, depending on size). For freezing, cook until tender (25 to 30 minutes for small beets, 45 to 50 minutes for medium beets). Cool promptly in cold water, remove skins, and trim off root and stem. For canning, leave baby beets whole. Cut medium or large beets into ½-inch cubes or slices. Halve or quarter very large slices. Disposable gloves may be worn to prevent staining of hands.

Table 1. Pressure adjustments for elevation.

Dial Gauge Canner	0 to 2,000 feet	2,001 to 4,000 feet	4,001 to 6,000 feet	6,001 to 8,000 feet
	11 psi	12 psi	13 psi	14 psi
Weighted Gauge Canner	0 to 1,000 feet	1,001 feet and above		
	10 psi	15 psi		



Freezing Procedure

Don't freeze more than 2 pounds of food per cubic foot of freezer capacity per day. Cool cooked beets promptly in cold water. Remove stem and taproot, and slip off skins. Cut into slices or cubes. Fill pint or quart zip-type plastic freezer bags or plastic freezer containers. Remove as much air as possible from freezer bags. Allow ½ inch of headspace in rigid plastic containers. Seal, label, and freeze. If desired, beets may be spread in a single layer on shallow trays or pans. Place in the freezer only long enough to freeze firm. Check often after the first hour to avoid loss of moisture. When beets are firmly frozen, package, leaving no headspace, and seal. Tray-packed beets remain looser, allowing you to pour desired amount from the container.

Canning Procedure

Read "Let's Preserve: Basics of Home Canning" before starting. Wash jars. Prepare lids according to manufacturer's instructions. Pack prepared beets into hot jars, leaving 1 inch of headspace. If desired, add up to 1 teaspoon of canning or pickling salt per quart or ½ teaspoon per pint. Fill jar to 1 inch from the top with fresh boiling water. (Do not use the water beets were cooked in; it is dirty!) Remove air bubbles. Wipe jar rims with a clean damp paper towel. Adjust lids and process in a pressure canner. Process pints for 30 minutes and quarts for 35 minutes in a dial gauge pressure canner at 11 pounds of pressure or in a weighted gauge pressure canner at 10 pounds of pressure. Increase canner pressure at high altitudes as shown in Table 1 on the previous page.

To Process in a Pressure Canner

Place jar rack, 2 to 3 inches of hot water, and sealed jars in the canner. Fasten lid and heat canner on the high setting. After exhausting steam for 10 minutes, add a weighted gauge or pressure regulator or close the 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 the canner from heat. Let the canner cool down naturally until it is fully depressurized. Then slowly remove the weighted gauge or open the petcock, wait 10 more minutes, and unfasten and carefully remove the canner lid.

After removing the lid, remove jars from canner with a jar lifter, being careful not to tilt the jars; place the jars on dry towels or a wooden board. Leave at least 1 inch of space between the jars. Do not retighten the screw bands. Air-cool the jars for 12 to 24 hours. Remove the screw bands and check the lid seals. If the center of the lid is indented, then wash, dry, label, and store the jars in a clean, cool, dark place. If the lid does not correctly seal, examine and replace the jar if defective, use a new lid, and reprocess as before or place the jar in the refrigerator and consume within 3 days. Wash the bands and store them separately. Canned goods are best if consumed within a year and are safe as long as lids remain vacuum sealed.

Additional Information

Sometimes canned red beets turn pale in color when pressure

canned. The red pigments in beets are sensitive to high temperatures and can transform into a colorless compound during canning. Some varieties of beets are more sensitive to heat than others. The reaction is reversible and often the color of the canned product will return to a darker red after a few days of storage at room temperature.

There are no research-tested recipes for home canning of glazed or thickened beets (e.g., Harvard beets). Thicken and season plain canned beets when you are ready to serve them.

Carrots

Recommended Varieties

Varieties suitable for canning include Danvers types and Chantenay. Varieties for freezing include Scarlet Nantes and other Nantes types.

Quantity

An average of 14 pounds of carrots is needed per canner load of 7 quarts; an average of 8 pounds is needed per canner load of 9 pints. An average of 1 pound makes 1 pint of frozen carrots.

Quality

Harvest carrots when the roots reach an acceptable size. Normally, this is when the roots of the Nantes types are 1 inch in diameter and Danvers types are up to 2 inches in diameter at the top. Carrots are especially good if left in the soil until frost but harvested before the ground freezes.

Preparation

Select small carrots, preferably 1 to 1¼ inches in diameter. Large carrots are often fibrous. Select young, tender, coreless, medium-length carrots. Remove tops, wash, and peel. Leave small carrots whole. Cut others into thin slices, ¼-inch cubes, or lengthwise strips. Wash, peel, and rewash carrots. Slice or dice.

Freezing Procedure

Don't freeze more than 2 pounds of food per cubic foot of freezer capacity per day. Blanch up to 6 cups of raw prepared carrots at a time. Place each batch in 1 gallon of boiling water. Blanch small whole carrots for 5 minutes after water comes to a boil. Blanch diced, sliced, or lengthwise strips for 2 minutes.

Cool quickly in several changes of cold water and drain in a colander. Fill pint or quart zip-type plastic freezer bags or plastic freezer containers, allowing ½ inch of headspace. Seal, label, and freeze.

Another method to freeze the carrots is to use a tray pack. Spread the blanched, cooled, and drained carrots in a single layer on shallow trays or pans. Place in the freezer only long enough to freeze firm. Check often after the first hour to avoid loss of moisture. When carrots are firmly frozen, package, leaving no headspace, and seal. Tray-packed carrots remain loose, allowing you to pour desired amount from the container.

Canning Procedure

Carrots cannot be safely canned in a boiling water bath or atmospheric steam canner. Read "Let's Preserve: Basics of Home

Canning” before starting. Wash jars. Prepare lids according to manufacturer’s instructions. If desired, add up to 1 teaspoon of canning or pickling salt per quart, ½ teaspoon per pint. Carrots may be packed into jars hot or raw.

HOT PACK: Cover carrots with water and bring to a boil. Simmer for 5 minutes. Pack hot into hot jars, leaving 1 inch of headspace. Fill jar to 1 inch from the top with boiling water. Remove air bubbles. Wipe jar rims with a clean, damp paper towel. Adjust lids and process in a pressure canner as described below.

RAW PACK: Fill jar tightly with raw carrots, leaving 1 inch of headspace. Fill jar to 1 inch from the top with boiling water. Remove air bubbles. Wipe jar rims with a clean, damp paper towel. Adjust lids and screw bands.

Process either hot or raw packs in a pressure canner using procedure described under “To Process in a Pressure Canner” in the beets section on page 2. Process pints for 25 minutes and quarts for 30 minutes in a dial gauge pressure canner at 11 pounds of pressure or in a weighted gauge pressure canner at 10 pounds of pressure. Increase canner pressure at high altitudes as shown in the Table 1.

Turnips (Root) and Rutabaga

Recommended Varieties

Purple Top White Globe and Royal Crown turnips, and Laurentian and American Purple Top rutabaga.

Quantity

An average of 14 pounds of turnips is needed per canner load of 7 quarts; an average of 8 pounds is needed per canner load of 9 pints. An average of 1 pound makes 1 pint frozen.

Preparation

Select small to medium, firm turnips that are tender and have a mild flavor. Select young, medium-sized rutabagas. Cut off tops, wash, and peel. Cut into ½-inch cubes for freezing or into cubes or slices for canning.

Freezing Procedure

Blanch up to 6 cups of product at a time in 1 gallon of boiling water. Water blanch turnips or rutabagas for 3 minutes. Cool quickly in several changes of cold water and drain. Fill pint or quart zip-type plastic bags or plastic freezer containers, allowing ½ inch of headspace. Tray freezing may be used (refer to directions for freezing carrots). Seal, label, and freeze. Rutabagas may also be frozen mashed by cooking chunks until tender in boiling water. Drain, mash, cool, and pack into containers, leaving ½ inch of headspace for pint containers with a wide-top opening and 1 inch headspace for quart containers.

Canning Procedure

Place turnips in a saucepan, cover with boiling water, and boil for 5 minutes. Pack hot pieces into hot jars, leaving 1 inch of headspace. Add ½ teaspoon of canning or pickling salt to pints or 1 teaspoon salt to quarts, if desired. Fill jar to 1 inch from the

top with boiling-hot cooking liquid. Remove air bubbles. Wipe jar rims. Adjust lids and process in a pressure canner using procedure described under beets “To Process in a Pressure Canner” in the beets section on page 2.

Process pints for 30 minutes and quarts for 35 minutes in a dial gauge pressure canner at 11 pounds of pressure or in a weighted gauge pressure canner at 10 pounds of pressure. Increase canner pressure at high altitudes as shown in Table 1.

Rutabagas may be canned by these directions, but they usually discolor and develop a strong flavor when canned. It is better to freeze rutabagas.

Pickled Root Vegetables

To Process Pickled Vegetables in a Boiling Water Canner

Preheat canner filled halfway with water to 180°F for hot packs. Load sealed jars onto the canner rack and lower the rack with handles, or load one jar at a time with a jar lifter onto the rack in the canner. Add water, if needed, to 1 to 2 inches above jars and add the canner cover. Turn heat to high. When water boils vigorously, lower heat to maintain a gentle but steady boil and process sealed jars according to recipe directions. Start counting process time when water comes to a vigorous boil. When jars have been processed in boiling water for the recommended time, set the canner off the heat and remove the canner lid. Wait 5 minute before removing jars. Remove the jars from the canner with a jar lifter and place them on a towel-covered counter.

Air-cool jars for 12 to 24 hours. Remove screw bands and check lid seals. If the center of the lid is indented, then wash, dry, label, and store jars in a clean, cool, dark place. If the lid is unsealed, examine and replace the jar if defective, use a new lid, and reprocess as before, or place the jar in the refrigerator and consume within 3 days. Wash the bands and store them separately. Canned goods are best if consumed within a year and are safe as long as lids remain vacuum sealed.

To Process Pickled Vegetables 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 bottom of the canner. Heat water in the base of the canner to 180°F. 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 stream of steam at least 6 inches long escapes from the vent hole(s). Processing time begins when there is a steady stream of steam 6 to 8 inches long. Slowly adjust the heat to maintain a steady stream of steam throughout the processing time. When processing is complete, remove the canner lid or cover. Allow the jars to sit in the canner for 5 minutes before removing them from the canner with a jar lifter to a towel-covered counter. Do not retighten screw bands. Cool, inspect, label, and store jars as described above in boiling water canner instructions.

Recipes

Pickled Beets

Yield: approximately 8 pints
7 pounds of beets (2 to 2½ inches in diameter)
4 cups vinegar (5% acidity)
1½ teaspoons canning or pickling salt
2 cups sugar
2 cups water
2 cinnamon sticks
12 whole cloves
4 to 6 onions (2 to 2½ inches in diameter) (optional)

PROCEDURE: Trim off beet tops, leaving 1 inch of stem and roots to prevent bleeding of color. Wash thoroughly. Sort for size. Cover similar sizes with boiling water and cook until tender (about 25 to 30 minutes). **Caution:** Drain and discard liquid. Do not use the cooking liquid for the water in the recipe. Cool beets. Trim off roots and stems, and slip off skins. Slice into ¼-inch slices. Peel and thinly slice onions.

Combine vinegar, salt, sugar, and fresh water. Put spices into a cheesecloth bag and add to the vinegar mixture. Bring to a boil. Add beets and onions. Simmer for 5 minutes. Remove spice bag. Fill jars with beets and onions, leaving ½ inch of headspace. Add the hot vinegar solution, allowing ½ inch of headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel. Adjust lids. Process pints or quarts for 30 minutes in a boiling water bath or an atmospheric steam canner. At altitudes of 1,001 to 3,000 feet process for 35 minutes; at 3,001 to 6,000 feet process for 40 minutes; at altitudes over 6,000 feet process for 45 minutes.

VARIATION: For pickled whole baby beets, follow above directions but use beets that are 1 to 1½ inches in diameter. Pack whole; do not slice. Onions may be omitted.

SOURCE: *Complete Guide to Home Canning* (USDA Extension Service, 2015).

Pickled Carrots

Yield: About 4 pint jars
2¾ pounds peeled carrots (about 3½ pounds as purchased); to make with baby carrots, see note below*
5½ cups white distilled vinegar (5% acidity)
1 cup water
2 cups sugar
2 teaspoons canning salt
8 teaspoons mustard seed
4 teaspoons celery seed

PROCEDURE: Wash and rinse pint canning jars; keep hot until ready to use. Prepare lids and bands according to manufacturer's directions. Wash and peel carrots. Wash again after peeling and cut into rounds that are approximately ½ inch thick. Combine vinegar, water, sugar, and canning salt in an 8-quart Dutch oven or stockpot. Bring to a boil and boil gently for 3 minutes. Add carrots and bring back to a boil. Then reduce heat to a simmer and heat until the carrots are half-cooked (about 10 minutes).

Meanwhile, place 2 teaspoons of mustard seed and 1 teaspoon

of celery seed in the bottom of each clean, hot pint jar. Fill hot jars with the hot carrots, leaving 1 inch of headspace. Cover with hot pickling liquid, leaving ½ inch of headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel; adjust two-piece metal canning lids.

Process in a boiling water canner or an atmospheric steam for 15 minutes at altitudes below 1,000 feet. Process for 20 minutes at altitudes between 1,001 and 6,000 feet, and for 25 minutes above 6,000 feet. Remove the canner from heat; remove the lid from the canner; allow jars to sit in water or atmospheric steam canner for 5 minutes. Remove jars from canner to cool undisturbed for 12 to 24 hours; check for seals. Continue storage as for pressure canned beets.

Allow carrots to sit in processed jars for 3 to 5 days before consuming for best flavor development.

***Note:** To prepare this recipe using baby carrots, use 8½ cups peeled baby carrots, leaving them whole, and use the same process time. Wash carrots well and peel, if necessary. Wash again after peeling.

Sources

Complete Guide to Home Canning. USDA Extension Service, 2015.

So Easy to Preserve. 6th ed. University of Georgia, 2014.

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.

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