



K-STATE
Research and Extension

PRESERVE IT FRESH, PRESERVE IT SAFE BEANS



When preserving fresh foods at home, follow proper procedures to prevent foodborne illness. The following safety-tested methods can be used for preserving snap and Italian beans, lima beans, and dry beans.

Snap and Italian Beans — Green and Wax

Quality

Select pods that are full but still tender and crisp. Discard diseased and rusty pods.

Quantity

An average of $\frac{3}{4}$ pound makes 1 pint of frozen beans.

Preparation

Wash beans, snip and discard ends, removing strings if necessary. Leave beans whole or cut, or snap beans into 1-inch pieces. Then wash and drain.

Freezing

Fresh green beans contain enzymes, which cause them to lose flavor, color, and nutrients when frozen. Enzymes must be inactivated by blanching to prevent changes. To blanch expose vegetables briefly to boiling water or steam. Then cool rapidly in ice water to stop cooking. Blanching destroys microorganisms on the vegetable surface and is essential for top-quality frozen vegetables.

Procedure

Freezer manuals offer guidelines for the maximum amount that can be frozen at one time to maintain quality — usually 2 to 3 pounds of food for each cubic foot of freezer space.

Blanch 6 cups raw, prepared beans at a time. Place each batch in a blanching basket or colander into 1 gallon of boiling water. Blanch small pieces 2 minutes and large pieces 3 minutes after water returns to a boil. Cool beans quickly in several changes of ice water and drain. Remove excess water with dry paper towels. Fill pint- or quart-size freezer bags or containers. Squeeze to remove air, leaving $\frac{1}{2}$ inch of headspace. Label and freeze. Bags may be inserted into reusable, rigid-plastic freezer containers for added protection against punctures and freezer burn.

Canning

Wash and sterilize jars and keep them hot. Preheat standard metal lids in simmering but not boiling water if desired. If using reusable plastic lids with rubber rings, follow the manufacturer's instructions.

To learn more about canning, see *How-to Guide to Water Bath Canning and Steam Canning* (MF3241) and *How-to Guide to Pressure Canning* (MF3242).

Food Safety

Snap and Italian beans are low-acid foods. Unless they are pickled, beans must be pressure-canned for a specific amount of time to avoid the foodborne illness, botulism. Pickled beans can be processed in a water bath canner or steam canner.

Quantity

An average of 14 pounds of beans is needed for a canner load of 7 quarts and an average of 9 pounds for a canner load of 9 pints. A bushel weighs 30 pounds and yields 12 to 20 quarts.

Procedure

Salt: If desired, add canning or pickling salt: $\frac{1}{2}$ teaspoon per pint and 1 teaspoon per quart. Salt is for flavor only and can be omitted.

Raw pack: Fill jars tightly with prepared beans, leaving 1 inch headspace. Add boiling water to cover beans, leaving 1 inch of headspace.

Hot pack: Cover the prepared beans in a large pot with boiling water and boil 5 minutes. Fill the jars with the beans and cooking liquid, leaving 1 inch of headspace.

Wipe sealing surface of the jars with a clean, damp paper towel. Apply lids and rings fingertip-tight. Process in a pressure canner according to the instructions in Table 1. Turn off heat and let the canner depressurize naturally. Remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, and store.

Pickled Three-Bean Salad

Yield: about 3 pints or 6 half-pints

- 1½ cups cut and blanched green or yellow beans (prepared as below)
- 1½ cups canned, drained, red kidney beans
- 1 cup canned, drained garbanzo beans
- ½ cup peeled and thinly sliced onion (about 1 medium onion)
- ½ cup trimmed and thinly sliced celery (1½ medium stalks)
- ½ cup sliced green peppers (½ medium pepper)
- ½ cup white vinegar (5 percent)
- ¼ cup bottled lemon juice
- ¾ cup sugar
- ¼ cup oil
- ½ teaspoon canning or pickling salt
- 1¼ cups water

Wash and remove ends from fresh beans. Snap or cut into 1- to 2-inch pieces. Blanch 3 minutes and cool immediately. Rinse kidney beans with tap water and drain again. Prepare and measure other vegetables. Combine vinegar, lemon juice, sugar, and water and bring to a boil. Remove from heat. Add oil and salt, and mix well. Add beans, onions, celery, and green pepper to solution and bring to a simmer. Marinate 12 to 14 hours in refrigerator, then bring the entire mixture to a boil. Fill clean jars with solids. Add hot liquid, leaving ½ of inch headspace. Apply lids and rings fingertip-tight. Process in a water bath or steam canner for 15 minutes at altitude 0 to 1,000 feet; or 20 minutes at altitude 1,001 to 6,000 feet. Turn off heat. Remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, and store.

Beans, Shelled and Dried, All Varieties

Quantity

An average of 5 pounds is needed for a 7-quart canner load, 3¼ pounds for a 9-pint load — ¾ pound per quart.

Quality

Select mature, dry seeds. Sort and discard discolored seeds.

Procedure

Place dried beans or peas in a large pot and cover with water. Soak 12 to 18 hours in a cool place. Drain water. To hydrate beans quickly, cover sorted and washed beans with boiling water in a saucepan. Boil 2 minutes, remove from heat, soak 1 hour, and drain. Cover with fresh water and boil 30 minutes. Add ½ teaspoon of salt per pint or 1 teaspoon per quart to the jar, if desired. Fill jars with beans or peas and cooking water, leaving 1 inch of headspace. Apply lids and rings fingertip-tight. Process in a pressure canner following recommendations in Table 1.

Turn off heat and let the canner depressurize naturally. Remove canner lid. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands. Cool completely, check seals, label, and store.

Beans, Baked

Quantity

An average of 5 pounds of beans is needed for a 7-quart canner load and 3¼ pounds for a 9-pint load — about ¾-pound per quart.

Quality

Select mature, dry seeds. Sort and discard discolored and damaged seeds.

Procedure

Sort and wash dry beans. Add 3 cups water for each cup of dried beans. Boil 2 minutes. Remove from heat, soak for 1 hour, and drain. Heat to boiling in fresh water and save liquid for making sauce.

Molasses sauce – Mix 4 cups water or cooking liquid from beans, 3 tablespoons dark molasses, 1 tablespoon vinegar, 2 teaspoons salt, and ¾ teaspoon powdered dry mustard. Heat to boiling.

Place seven ¾-inch pieces of pork, ham, or bacon in an earthenware crock, a large casserole, or pan. Add beans and enough molasses sauce to cover beans. Cover and bake 4 to 5 hours at 350°F. Add water as needed — about every hour.

Fill jars, leaving 1 inch of headspace. Apply lids and rings fingertip-tight. Process in a pressure canner as recommended in Table 1. Turn heat off and let the canner depressurize naturally. Remove the canner lid. Cool jars for 5 minutes, and then remove from canner. Do not retighten bands. Cool completely, check seals, label, and store.

Dry Beans with Tomato or Molasses Sauce

Quantity

An average of 5 pounds of beans is needed for a 7-quart canner load and 3¼ pounds for a 9-pint load — about ¾-pound per quart.

Quality

Select mature, dry beans. Discard any that are discolored or damaged.

Procedure

Sort and wash dry beans. Add 3 cups of water for each cup of dried beans. Boil 2 minutes and remove from heat. Soak 1 hour, and then drain. Heat to boiling in fresh water. Save liquid for making one of the following sauces:

Tomato sauce – Mix 1 quart tomato juice, 3 tablespoons sugar, 2 teaspoons salt, 1 tablespoon chopped onion, and

¼ teaspoon each of ground cloves, allspice, mace, and cayenne pepper. Heat to boiling.

Ketchup sauce – Mix 1 cup tomato ketchup with 3 cups cooking liquid from beans. Heat to boiling.

Molasses sauce – Mix 4 cups water or cooking liquid from beans, 3 tablespoons dark molasses, 1 tablespoon vinegar, 2 teaspoons salt, and ¾ teaspoon powdered dry mustard. Heat to boiling.

Fill jars three-fourths full with hot beans. Add a ¾-inch cube of pork, ham, or bacon to each jar, if desired. Fill jars with heated sauce, leaving 1 inch of headspace.

Apply lids and rings fingertip-tight. Process in a pressure canner as recommended in Table 1. Turn off heat and let the canner depressurize naturally. Remove canner lid. Cool jars 5 minutes. Remove from canner. Do not retighten bands. Cool completely, check seals, label, and store.

Beans, Fresh Lima – Shelled

Quantity

An average of 28 pounds is needed for a 7-quart canner load, 18 pounds for a 9-pint load. A bushel weighs 32 pounds and yields 6 to 10 quarts — an average of 4 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. Fill jars loosely, leaving 1 inch of headspace.

Raw pack – Fill jars with raw beans. Do not press or shake.

Small beans – leave 1 inch of headspace for pints, 1½ inches for quarts.

Large beans – leave 1 inch headspace for pints, 1¼ inches for quarts.

Add 1 teaspoon of salt per quart, if desired. Add boiling water, leaving headspace as described above. Apply lids and rings fingertip-tight. Process in a pressure canner according to the recommendations in Table 1. Turn heat off and let the canner depressurize naturally. Remove canner lid. Cool jars 5 minutes, then remove from canner; do not retighten bands. Cool completely, check seals, label, and store.

Chili Con Carne

Yield: 9 pints

- 3 cups dried pinto or red kidney beans
- 5½ cups water
- 5 teaspoons salt (separated)
- 3 pounds ground beef

- 1½ cups chopped onion
- 1 cup chopped peppers of your choice (optional)
- 1 teaspoon black pepper
- 3 to 6 tablespoons chili powder
- 2 quarts crushed or whole tomatoes

Wash beans thoroughly and place in a 2-quart saucepan. Add cold water to cover by 2 to 3 inches. Soak 12 to 18 hours. Drain and discard water. Combine beans with 5½ cups of fresh water and 2 teaspoons salt. Bring to a boil. Reduce heat; simmer 30 minutes. Drain and discard water.

In a skillet, brown ground beef, chopped onions, and peppers if desired. Drain fat and add 3 teaspoons salt, pepper, chili powder, tomatoes, and drained, cooked beans. Simmer 5 minutes. *Do not thicken.*

Fill jars, leaving 1 inch headspace. Wipe rims with a damp, clean paper towel. Apply lids and rings fingertip-tight. Process in a pressure canner according to the recommendations in Table 1. Turn off heat and let the canner depressurize naturally. Remove canner lid. Let jars cool 5 minutes. Remove jars from canner. Do not retighten bands. Cool completely, check seals, label, and store.

Problems and Solutions

1. Can plain green beans be processed in a water-bath canner?

No. Beans are a low-acid vegetable and must be processed in a pressure canner. Improper processing of beans or other low-acid vegetables can result in growth of *Clostridium botulinum*, which causes the foodborne illness botulism. Pickled beans are the only beans that can be processed safely in a water-bath canner.

2. Can salt be left out when canning beans?

Yes. Salt is for flavor and can be left out to reduce sodium content.

3. Can beans be added to home canned salsa before canning?

No. Adding beans changes the acid content of the salsa and makes it unsafe when canned. Add beans when ready to serve the salsa.

4. What causes cut ends and seeds inside of green beans to turn reddish-brown?

Faint red pigments (anthocyanins) are present in small amounts in some varieties of green beans. Pigments may appear brown when canned but are safe to eat when processed properly. Another possible cause is overly mature beans.

Table 1. Recommended processing times for pressure-canning beans

	Style of Pack	Jar Size	Process Time (min.)	Canner gauge pressure for different altitudes (in feet)			
				Dial gauge (lbs.)		Weighted gauge (lbs.)	
				0-2,001	2,001-4,000	0-1,000	Above 1,000
Snap and Italian Beans, Wax and Green	Hot and Raw	Pints	20	11	12	10	15
		Quarts	25	11	12	10	15
Beans – Shelled, Dried: All Varieties	Hot	Pints	75	11	12	10	15
		Quarts	90	11	12	10	15
Beans, Baked	Hot	Pints	65	11	12	10	15
		Quarts	75	11	12	10	15
Beans, Dry, with Tomato or Molasses Sauce	Hot	Pints	65	11	12	10	15
		Quarts	75	11	12	10	15
Beans, Fresh Lima	Hot and Raw	Pints	40	11	12	10	15
		Quarts	50	11	12	10	15
Chile Con Carne	Hot	Pints	75	11	12	10	15

Nutritional analysis

Nutrient	Green or Wax Beans (½ cup)	Pickled Three Bean Salad (½ cup)	Beans – Shelled, Dried (½ cup)*	Baked Beans (½ cup)	Dry Beans with Tomato Sauce (½ cup)	Lima Beans (½ cup)	Chili con Carne (1 cup)**
Calories	22.0	140.0	122.0	200.0	190.0	105.0	290
Carbohydrate (g)	4.9	21.0	22.4	35.0	37.0	20.1	30.0
Fat (g)	0.18	5.0	0.56	1.5	1.0	0.27	8.0
Protein (g)	2.36	3.0	7.7	13.0	12.0	5.8	24.0
Dietary Fiber (g)	2.0	3.0	7.7	11.0	11.0	4.5	7.0
Potassium (mg)	91	141.6	373	601.8	657.7	484.0	1041.5
Sodium (mg)							
With salt	149	170.0	203.0	420	270	215.0	910.0
Without salt	1.0	NA	1.0	NA	NA	14.0	260.0

*based on Pinto Beans

**based on 90% lean ground beef

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