

Successful Home Canning



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Ground or Chopped Meat (beef, lamb, pork, sausage, veal, venison, and bear)

Procedure:

1. Select fresh, chilled meat. With venison, add 1 part high-quality pork fat to 3 or 4 parts venison before grinding. Use freshly made sausage, seasoned with salt and cayenne pepper (sage may cause bitter off-flavor). Shape chopped meat into patties or balls, or cut cased sausage into 3- to 4-in. links.
2. Cook until lightly browned. Ground meat may be sauteed without shaping. Remove excess fat.
3. Fill jars with pieces. Add boiling meat broth, tomato juice, or water, leaving 1-in. headspace. Add 1 teaspoon of salt per quart., if desired.
4. Adjust lids and process.

Dial Gauge Pressure Canner:

Process at 12 lbs. of pressure for 75 min. for pints and 90 minutes for quarts.

Weighted Gauge Pressure Canner:

Process at 15 lbs. of pressure for 75 min. for pints and 90 min. for quarts.

Chicken or Rabbit

Procedure:

Choose freshly killed and dressed, healthy animals. Large chickens are more flavorful than fryers. Dressed chicken should be chilled for 6 to 12 hrs. before canning. Dressed rabbits should be soaked 1 hr. in water containing 1 tblsp. of salt per quart. and then rinsed. Remove excess fat. Cut the chicken or rabbit into suitable sizes for canning. Can with or without bones.

Hot pack:

Boil, steam, or bake meat until about two-thirds done. Add 1 tsp. salt per quart., if desired. Fill jars with pieces and hot broth, leaving 1¼-in. headspace. Adjust lids and process.

Raw pack:

Add 1 tsp. salt per quart., if desired. Fill jars loosely with raw meat pieces, leaving 1¼-in. headspace. Do not add liquid Adjust lids and process.

Dial Gauge Pressure Canner:

With bones (hot and raw pack) - process at 12 lbs. of pressure for 65 min. for pints and 75 min. for quarts.

Without bones (hot and raw pack) - process at 12 lbs. of pressure for 75 min. for pints and 90 min. for quarts.

Weighted Gauge Pressure Canner:

With bones (hot and raw pack) - process at 15 lbs. of pressure for 65 min. for pints and 75 min. for quarts.

Without bones (hot and raw pack) - process at 15 lbs. of pressure for 75 min. for pints and 90 min. for quarts.

Chile Con Carne

3 cups dried pinto or red kidney beans
5½ cups water
5 tsp. salt (divided)
3 lbs. ground beef
1½ cups chopped onions
1 cup chopped peppers of your choice (optional)
1 tsp. black pepper
3 to 6 Tbsp. chili powder
2 quarts. crushed or whole tomatoes
Yield: 9 pints

Procedure:

Wash beans thoroughly and place them in a 2-qt. saucepan. Add cold water to level of 2- to-3 in. above the beans and soak 12 to 18 hrs. Drain and discard water. Combine beans with 5½ cups of fresh water. Bring to a boil. Reduce heat and simmer 30 min. During the last few minutes of cooking, add 2 tsp. salt. Stir and boil for 2 more min. Drain and discard water. Brown ground beef, chopped onions, and peppers, if desired, in skillet. Drain off fat and add 3 tsp. salt, pepper, chili powder, tomatoes, and drained cooked beans. Simmer 5 min. **Caution: Do not thicken.** Fill jars, leaving 1-in. headspace. Adjust lids and process.

Dial Gauge Pressure Canner:

Process at 12 lbs. of pressure for 75 min. for pints only.

Weighted Gauge Pressure Canner:

Process at 15 lbs. of pressure for 75 min. for pints only.

Canning and Processing Directions ~

Meat Preparation - beef, veal, pork, lamb, and large game animals.

If meat is home produced, chill it to 40 degrees For lower immediately after slaughter. This is to prevent spoilage and allow for tenderizing. If the meat is to be held longer than 2 to 3 days, freeze it at 0 degrees F or lower until ready to can. Then thaw it slowly in the refrigerator. Keep all meat as cool as possible during preparation for canning. Remove meat from bones, and trim off gristle, bruised spots, and fat. During processing, fat can rise to the top of the jar and keep the lid from sealing. Handle meat quickly and process as soon as the containers are packed. Cut the meat into convenient sizes for your needs—strips, cubes, chunks, slices, chops, or larger pieces. If desired, strong-flavored wild meats can be soaked for 1 hour in brine water (1 tablespoon salt per quart of water) before cutting it into pieces. Rinse before heating. Then process according to the following directions.

Strips, Chunks, or Cubes of Meat (beef, pork, veal, venison, bear, and lamb)

Procedure: Choose quality chilled meat. Remove excess fat. Remove large bones.

Hot Pack:

Precook meat until rare by roasting, stewing, or browning in a small amount of fat. Add 1 teaspoon of salt per quart to the jar, if desired. Fill jars with pieces and add boiling broth, meat drippings, water, or tomato juice (especially with wild game), leaving 1 in. headspace.

Raw Pack:

Add 1 tsp. of salt per qrt. to the jar, if desired. Fill jars with raw meat pieces, leaving 1-in. headspace. Do not add liquid. Wipe mouth of jar with a clean cloth; adjust lids and process.

Dial Gauge Pressure Canner:

Process at 12 lbs. of pressure for 75 min. for pints and 90 min. for qrts.

Weighted Gauge Pressure Canner:

Process at 15 lbs. of pressure for 75 min. for pints and 90 min. for qrts.

Stock (Broth)

Beef:

Saw or crack fresh trimmed beef bones to enhance flavor. Rinse bones and place in large stock pot or kettle, cover bones with water, add lid, and simmer 3 to 4 hrs. Remove bones, cool broth, and pick off fat. Skim off fat, add meat removed from bones to broth, and reheat to boiling. Fill jars, leaving 1-in. headspace. Adjust lids and process.

Dial Gauge Pressure Canner:

Process at 12 lbs. of pressure for 20 min. for pints and 25 min. for qrts.

Weighted Gauge Pressure Canner:

Process at 15 lbs. of pressure for 20 min. for pints and 25 min. for qrts.

Chicken or Turkey:

Place large carcass bones in a large stockpot, add enough water to cover bones, cover pot, and simmer 30 to 45 min. or until meat can be easily stripped from bones. Remove bones and pieces, cool broth, strip meat, discard excess fat, and return meat to broth. Reheat to boiling and fill jars, leaving 1-in. headspace. Adjust lids and process.

Dial Gauge Pressure Canner:

Process at 12 lbs. of pressure for 20 min. for pints and 25 min. for qrts.

Weighted Gauge Pressure Canner:

Process at 15 lbs. of pressure for 20 min. or pints and 25 min. for quarts.

Canning Vegetables



These processing recommendations are for West Virginia conditions (maximum altitude, 4,000 ft.). For canning directions in other locations, consult with your county Extension office. Begin with high-quality, fresh foods. Discard diseased and moldy food. Remove small diseased cuts and spots from food. Vegetables must be processed in a pressure canner to ensure food safety. Processing time varies according to the specific vegetable, size of container pack, and type of pressure canner. Processing times are listed on the chart according to specific characteristics. Note that salt is for seasoning only and is not necessary to preserve. Salt may be omitted if desired. However, if you wish to add salt, 1 tsp. may be added per quart, or ½ tsp. per pint.

General Recommendations for Packing Glass Jars

Raw Pack ~

Pack the vegetable tightly without crushing. Cover with boiling water, leaving 1-in. headspace at top of jar. (Note exceptions for specific vegetables.) Adjust lids and process.

Hot Pack ~

Heat vegetables as directed. Pack hot vegetables loosely to about 1 inch of top. Cover with boiling hot cooking liquid, or if liquid contains grit, use fresh boiling water. Leave 1-in. headspace at top of jar.

Test for Seal ~

After the jars have cooled for 12 to 24 hrs., remove the screw bands and test seals with one of the following options:

Option 1: Press the middle of the lid with a finger or thumb. If the lid springs up when you release your finger, the lid is unsealed.

Option 2: Tap the lid with the bottom of a teaspoon. If it makes a dull sound, the lid is not sealed. If the food is in contact with the underside of the lid, it will also cause a dull sound. If the jar is sealed correctly, it will make a ringing, highpitched sound.

Option 3: Hold the jar at eye level and look across the lid. The lid should be concave (curved downward slightly in the center). If the center of the lid is either flat or bulging, it may not be sealed.

Check for Spoilage ~

Check the jars before opening. Examine the jars for signs of broken seals such as spurting liquid, an off-odor, or mold. **NEVER** taste food as a check for spoilage. Home canned food may contain botulism-causing toxins if foods are not canned properly. Always boil home canned vegetables 13 minutes before tasting.

Vegetable	Pack	Preparation	Canner Type ~ Process Time
Beans, snap and Italian pieces	Hot	About 14 lbs. is needed to make 7 qrts. Wash, trim, and cut or snap in 1-in. pieces or leave whole. Pack hot beans loosely almost to top. Cover with boiling hot water leaving 1-in. headspace.	<i>Dial gauge</i> - pints: 12 lbs. for 20 min.; qrts.: 12 lbs. for 25 min. <i>Weighted gauge</i> - pints: 15 lbs. for 20 min.; qrts.: 15lbs. for 25 min.
Beans, snap and Italian pieces	Raw	Wash, trim, and cut or snap in 1-in. pieces or leave whole. Pack tightly almost to top jar. Cover with boiling water leaving 1-in. headspace.	Processing times the same as for hot pack, above.
Beets	Hot	About 21 lbs. is needed to make 7 qrts. Trim off beet tops; leave 1-in. stem and roots to reduce bleeding of color. Scrub well. Cover with boiling water. Boil until skins slip off easily (15-25 min.). Cool; remove skin and trim off stems and roots. Leave small beets whole; cut large in ½ -in. cubes or slices. Pack hot beets almost to top. Cover with fresh hot water, leaving 1-in. headspace.	<i>Dial gauge</i> - pints: 12 lbs. for 30 min.; qrts.: 12 lbs. for 35 min. <i>Weighted gauge</i> - pints: 15 lbs. for 30 min.; qrt.: 15 lbs. for 35 min.
Carrots	Hot	About 17½ lbs. are needed to make 7 qrts. Select small carrots no more than 1¼-in. in diameter. Larger carrots are too fibrous. Wash, peel, and rewash carrots. Slice or dice. Cover with boiling water; bring to boil and simmer for 5 minutes. Fill jars. Cover with cooking liquid or hot water leaving 1-in. headspace.	<i>Dial gauge</i> - pints: 12 lbs. for 25 min.; qrts.: 12 lbs. for 30 min. <i>Weighted gauge</i> - pints: 15 lbs. for 25 min.; qrts.: 15 lbs. for 30 min.
Carrots	Raw	Wash, peel, and rewash carrots. Slice or dice. Pack tightly into jars. Add fresh hot water, leaving 1-in. headspace.	Process the same as for hot pack, above.

Home Canning of Meats & Poultry

These recommendations are for West Virginia conditions (maximum altitude, 4,000 feet). For canning directions in other locations, consult your county Extension office.

Fresh or frozen meats and poultry can be canned safely at home. Since these products are low-acid foods, they must be processed in a pressure canner to be sure that spoilage organisms, including those that cause botulism, are destroyed. For a safe product, follow all canning directions exactly.

To get ready for a safe canning season ~

- Be sure your pressure canner is in good working condition and that the pressure gauge was checked for accuracy this season at your county Extension office. The weighted gauge - the one that jiggles - doesn't have to be tested.
- Check the gasket. If it is nicked, replace it.
- Have sufficient jars on hand and discard any with nicks and/or cracks. Use only pint or quart Mason jars made specially for home canning. Straight-sided or wide-mouth jars are easier to work with.
- Buy new lids. Old screw bands can be used if they are not rusted or bent.

Just before canning ~

- Be sure your knives are sharp.
- Sanitize all cutting surfaces. (See containers of household bleach for directions.)
- Review directions for using the pressure canner.

Yields of Canned Food from Fresh ~

The number of jars you can fill with meat or poultry depends upon the size of pieces and the way the meat is packed. For a quart jar, allow about the following amounts of fresh untrimmed meat with bone or ready-to-cook chicken:

Meat:	Number of lbs.
Round (beef)	3 to 3½
Rump (beef)	5 to 5½
Pork loin	5 to 5½

Chicken:

Canned with bone	3½ to 4¼
Canned without bone	5½ to 6¼

After Canning ~

- To cool, place hot jars, well separated, on rack or folded cloth away from drafts.
- Cool at room temp. for 12 to 24 hrs.
- When jars are cool, remove the screw-band and test the seal. If the lid did not seal, you have three options:

Option 1: Use the food the same day or refrigerate immediately and use within several days.

Option 2: Freeze the food in the same jar, if tempered for freezing, by increasing the headspace to 1½ inches, or freeze it in another freezer container. Mark that the food needs to be boiled in an uncovered container for 20 min. before using.

Option 3: Reprocess. Remove the lid and check the jar seal surface for tiny nicks. Fully process the jar for the correct time and at the correct temperature.

Before Using ~

As an added safety precaution, boil home-canned meat or poultry for 20 minutes in an uncovered saucepan. If the meat smells spoiled during boiling, destroy it without tasting. If, after boiling, the meat or poultry is not to be used at once, or if it's to be used in salads or cold dishes, refrigerate it immediately. Use within 1 to 2 days.

Pressure Canning of Fruits

Processing in a boiling-water canner is the preferred method for fruits. However, if you choose to process in a pressure canner, the process tables for dial gauge and weighted gauge pressure canner are included in this publication.

Fruit	Pack	Dial Gauge Pressure Canner	Weighted Gauge Pressure Canner
Applesauce	Hot	7 lbs. pressure for 8 min. for pints and 10 min. for qrts.	10 lbs. pressure for 8 min. for pints and 10 min. for qrts.
Apples, sliced	Hot	7 lbs. pressure for 8 min. for pints and qrts.	10 lbs. pressure for 8 min. for pints and qrts.
Cherries	Raw	7 lbs. pressure for 10 min. for pints and qrts.	10 lbs. pressure for 10 min. for pints and 10 min. for qrts.
Fruit Puresse	Hot	7 lbs. pressure for 8 min. for pints and qrts.	10 lbs. pressure for 8 min. for pints and qrts.
Peaches, Apricots, Nectarines	Hot or Raw	7 lbs. pressure for 10 min. for pints and qrts.	10 lbs. pressure for 10 min. for pints and qrts.
Pears	Hot	7 lbs. pressure for 10 min. for pints and qrts.	10 lbs. pressure for 10 min. for pints and qrts.
Plums	Hot or raw	7 lbs. pressure for 10 min. for pints and qrts.	10 lbs. pressure for 10 min. for pints and qrts.
Rhubarb	Hot	7 lbs. pressure for 8 min. for pints and qrts.	10 lbs. pressure for 8 min. for pints and qrts.

Vegetable	Pack	Preparation	Canner Type ~ Process Time
Corn, cream style	Hot	About 20 lbs. (in husk) is needed to make 9 pints. Husk corn, remove silk, and wash ears. Blanch ears 4 min. in boiling water. Cut corn from cob at about the center of kernel. Scrape remaining corn from cob with a table knife. In saucepan, to each quart of corn and scrapings, add 2 cups of boiling water. Heat to boiling. Use pints only. Add ½ tsp. salt to each jar, if desired. Fill pint jar with hot corn mixture, leaving 1-in. headspace.	<i>Dial gauge-</i> pints: 12 lbs. for 85 min. <i>Weighted gauge-</i> pints: 15 lbs. for 85 min.
Corn, Whole Kernal	Hot	About 3½ lbs. (in husk) is needed to make 7 qrts. Canning of some sweeter varieties or too immature kernels may cause browning. Select corn ready for eating fresh. Husk corn, remove silk, and wash. Blanch 3 min. in boiling water for hot or raw pack. Cut corn from cob at about three-fourths the depth of the kernel. Do not scrape cob. In saucepan, add 1 cup of hot water for each quart of corn, bring to a boil, and simmer 5 min. Fill jars with hot corn and liquid, leaving 1-in. headspace.	<i>Dial gauge-</i> pints: 12 lbs. for 55 min.; qrts.: 12 lbs. for 85 min. <i>Weighted gauge-</i> pints: 5 lbs. for 55 min.; qrts.: 15 lbs. for 85 min.
Corn, Whole Kernal	Raw	After blanching and cutting kernels from cob, fill jars with corn, leaving 1-in. headspace. Do not shake or press down. Add 1 tsp. of salt to each jar, if desired. Add fresh boiling water, leaving 1-in. headspace.	Process as for hot pack, above.
Peas, green or English, shelled	Hot	About 3½ lbs. (in pods) is needed to make 7 qrts. Shell and wash peas. In saucepan, cover with boiling water and bring to boil for 2 min. Fill jars loosely with hot peas and added cooking liquid, leaving 1-in. headspace.	<i>Dial gauge-</i> pints or qrts.: 2 lbs. for 40 min. <i>Weighted gauge-</i> pints or qrts.: 15 lbs. for 40 min.

Vegetable	Pack	Preparation	Canner Type ~ Process Time
Peas, green or English, shelled	Raw	Shell and wash peas. Fill jars with raw peas, add boiling water, leaving 1-in. headspace. Do not shake or press down peas.	Process as for hot pack, above.
Peppers, hot, sweet, jalapeno, chile, and pimento	Hot	About 9 lbs. is needed to make 9 pints. Use pints or half-pints only. Select firm, yellow, red, or green peppers. Don't use diseased or soft peppers. Caution: If you choose hot peppers, wear plastic gloves while handling them or wash hands thoroughly with soap and water before touching your face. Remove core and seeds. Quarter large peppers; small can be left whole. Slash two or four slits in each pepper, and either blanch or blister peppers. (Blister: oven or broiler - place peppers in 400 degree F oven or broiler for 6-8 min. until skin blisters. Range top - cover hot burner with heavy iron mesh. Place peppers on burner for several minutes until they blister.) Allow peppers to cool. Place in pan and cover with cool cloth. After several minutes, peel each pepper. Add ½ tsp. salt to each pint jar, if desired. Fill jars loosely with peppers and add fresh boiled water, leaving 1-in. headspace.	<i>Dial gauge</i> - half-pints or pints: 12 lbs. for 35 min. <i>Weighted gauge</i> - half-pints or pints: 15 lbs. for 35 min.
Pumpkin and winter squash, cubed	Hot	About 16 lbs. is needed to make 7 qrts. Wash, remove seeds, cut into 1-in. slices, and peel. Cut flesh into 1-in. cubes. Boil 2 min. in water. Caution: Do not mash or puree. Fill jars with cubes and cooking liquid, leaving 1-in. headspace.	<i>Dial gauge</i> - pints: 12 lbs. for 55 min.; qrts.: 12 lbs. for 90 min. <i>Weighted gauge</i> - pints: 15 lbs. for 55 min.; qrts.: 15 lbs. for 90 min.

Operating the Pressure Canner ~

- Put 2- to-3 inches of hot water in the canner. Place filled jars on the rack, using a jar lifter. Fasten canner lid securely.
- Leave weight off vent port or open petcock. Heat at the highest setting until steam flows from the petcock or vent port.
- Maintain high heat setting, exhaust steam 10 minutes, and then place weight on vent port or close petcock. The canner will pressurize during the next 3 to 5 minutes.
- Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached, or when the weighted gauge begins to jiggle or rock.
- Regulate heat under the canner to maintain a steady pressure at or slightly above the correct gauge pressure. Quick and large pressure variations during processing may cause unnecessary liquid losses from jars. Weighted gauges on Mirro canners should jiggle about 2 to 3 times per minute. On Presto canners, they should rock slowly throughout the process.
- When the timed process is completed, turn off the heat, remove the canner from heat if possible, and let the canner depressurize. **DO NOT FORCE-COOL THE CANNER.** Forced cooling may result in food spoilage. Cooling the canner with cold running water or opening the vent port before the canner is fully depressurized will cause loss of liquid from jars and seal failures. Force-cooling may also warp the canner lid of older model canners, causing steam leaks.

Depressurization of older models should be timed. Standard-size heavy-walled canners require about 30 minutes when loaded with pints and 45 minutes with quarts. Newer thin-walled canners cool more rapidly and are equipped with vent locks. These canners are depressurized when their vent lock piston drops to a normal position.

7. After the canner is depressurized, remove the weight from the vent port or open the petcock. Wait 2 minutes, unfasten the lid, and remove it carefully. Lift the lid away from you so that the steam does not burn your face.

8. Remove jars with a lifter and place them on towel or cooling rack, if desired. Process the jars using the correct time and pressure specified for your altitude. Allow canner to cool at room temperature until it is completely depressurized.



Pressure Canners



Canning meats and vegetables takes higher than boiling temperatures to kill the bacteria that cause botulism, which can be fatal. Pressure canning is the only way to reach these temperatures. Know your pressure canner and how it works. Whether you have a small-capacity pressure canner holding only 4 quarts or the largest canner, which can hold 18 pints in two layers, all are treated in the same manner and should be vented using the typical venting procedures. A loaded pressure canner requires about 12-15 minutes of heating before it begins to vent; another 10 minutes to vent the canner; another 5 minutes to pressurize the canner; another 20-90 minutes to process low acid food; and, finally, another 20-60 minutes to cool the canner before removing jars.

Essential Parts ~

- Closures or covers of pressure canners lock in place so that they cannot be lifted by steam. Older canners are closed with a thumb-screw type closure. Covers on newer canners usually have turn-on lids.
- Pressure gauges record the pressure. The dial or the weight with a sliding core shows the pressure within the canner; you must adjust the heat to keep the pressure steady. The weight type permits pressure to rise to a definite point and then releases excess steam by rocking or jiggling to keep pressure from going higher.
- Safety fuses are thin metal inserts or rubber plugs designed to relieve excessive pressure from the canner. Do not pick at or scratch fuses while cleaning lids. Use only canners that have the Underwriter's Laboratory (UL) approval.
- Replacement gauges and other parts for canners are often available at stores offering canning equipment or from canner manufacturers. When ordering parts, give your canner model number and describe the parts needed.
- Vents allow steam to escape from the canner. To vent a canner, leave the vent port uncovered on newer models or manually open petcocks on some older models. Heating the filled canner with its lid locked into place causes the water to boil and generates steam that escapes through the petcock or vent port. When steam first escapes, set a timer for 10 minutes. After venting 10 minutes, close the petcock or place the counterweight or weighted gauge over the vent port to pressurize the canner.
- Gaskets of rubber or rubberlike compounds keep steam from leaking out around the cover. Handle canner lid gaskets carefully and clean them according to the manufacturer's directions. Nicked or dried gaskets will allow steam leaks during pressurization of canners. Keep gaskets clean between uses. Gaskets on older model canners may require a light coating of vegetable oil once a year. Gaskets on newer model canners are prelubricated and do not benefit from oiling. Check your canner's instructions if there is doubt that the particular gasket you use has been prelubricated.

Vegetable	Pack	Preparation	Canner Type ~ Process Time
Potatoes, sweet	Hot	About 17½ lbs. is needed to make 7 qrts. Do not dry pack sweet potatoes. Choose small-to mediumsize potatoes. Can within 1-2 months after harvest. Wash potatoes and boil or steam until partially soft (15-20 min.). Remove skins; cut medium potatoes to uniform size. Caution: Do not mash or puree pieces. Fill jars, leaving 1-in. headspace. Add 1 tsp. salt per qrt. jar, if desired. Cover with your choice of fresh boiling water or syrup, leaving 1-in. headspace.	<i>Dial gauge</i> -pints: 12 lbs. for 65 min.; qrts.: 12 lbs. for 90 min. <i>Weighted gauge</i> -pints: 15 lbs. for 65 min.; qrts.: 15 lbs. for 90 min.
Spinach and other greens	Hot	About 28 lbs. is needed to make 7 qrts. Can only freshly harvested greens. Wash only small amounts of greens at a time. Drain water and continue rinsing until water is clear and free of grit. Don't soak greens. Cut out tough stems and midribs. Place 1 lb. of greens at a time in a cheesecloth bag or blancher basket and steam 3-5 min., or until wilted. Add ½ tsp. salt to each qrt. jar, if desired. Fill jars loosely with greens and add fresh boiling water, leaving 1-in. headspace.	<i>Dial gauge</i> -pints: 12 lbs. for 70 min.; qrts.: 12 lbs. for 90 min. <i>Weighted gauge</i> -pints: 15 lbs. for 70 min.; qrts.: 15 lbs. for 90 min.



Canning Fruits



These processing recommendations are for West Virginia conditions (maximum altitude, 4,000 feet). For canning directions in other locations, consult your county Extension office.

Fruit ~

Because of their high acidity, fruits may be processed safely in a boiling-water canner. Low-acid foods (most vegetables and all meats) must be processed using a pressure canner. Some fruits that are not high in acid content can be processed in a boiling-water canner if acid is added in the form of lemon juice, citric acid, or vinegar. Figs are one fruit that falls into this category.

Canning Jars ~

1. Check jars for cracks or chips. Use only canning or canning-freezing jars.
2. Secure a fresh supply of lids at the start of the season. Screw bands can be reused as long as they are in good condition.

Equipment ~

Boiling-water canners are readily available on the market, but any large metal container may be used. It should be deep enough to allow water to cover rack and jars, plus an additional 2 inches. A wire or wooden rack and a tight-fitting lid are necessary. A rack with dividers is helpful, since it prevents jars from touching one another and falling against the sides of the canner during processing. A pressure canner may be used, provided it is deep enough. If using as a boilingwater bath canner, the cover should not be fastened; the petcock should be left open so steam can escape and pressure does not build up in the canner. Instructions are also given for actual pressure canning.

General Recommendations for Packing ~

Glass Jars

Syrup solutions for 9-pint or 4-quart load:

Type	% Sugar	Cups Water	Cups Sugar
very light	10	6½	¾
light	20	5¾	1½
medium	30	5¼	2¼
heavy	40	5	3¼
very heavy	50	4¼	4¼

Combine water and sugar. Bring to a boil and pour over raw fruits in jars. For hot packs, bring water and sugar to a boil, add fruit, reheat to boil, and fill into jars immediately. Hot pack is superior to raw pack because floating and discoloration are minimized.

Hot Pack ~

Boil fruit in syrup or water for 2-5 min. Fruits with high juice content may be preheated without added liquid and then packed in the juice that cooks out.

Raw Pack ~

Pack raw fruit into jars. Cover with boiling water, juice, or syrup.

Freezing Vegetables ~

Asparagus	Remove woody part of stalks. Leave in spears or cut into 1- to 2-in. lengths. Blanch according to thickness of stalk: small-2 min.; medium-3 min.; large-4 min. Can be tray frozen.
Beans:green or wax	Leave whole, snap, or cut french style. Blanch 3 min.
Beans: lima	Shell and sort according to size. Blanch small beans 2 min.; medium beans, 3 min.; large beans, 4 min.
Beets	Remove tops and cook whole in boiling water until tender. Remove skins and slice or dice.
Broccoli	Pare stems if tough and discard woody parts. Split lengthwise so that heads aren't more than 1½ in. across. Blanch 3 min. Can be tray frozen.
Carrots	If small, leave whole and blanch 5 min. Blanch diced, sliced, or lengthwise strips 2 min.
Corn	<i>Whole kernel or cream style</i> - Heat ears in boiling water for 4 min. Cool promptly and drain. For whole kernel, cut kernels from cob at about two-thirds the depth of the kernels. For cream style, cut corn from cob at about center of kernels. Scrape cobs with back of knife to remove juice and heart of kernel. <i>On the cob</i> - Blanch small ears (1¼ in. or less in diameter) 7 min.; medium ears (1¼ to 1½ in.) 9 min.; large ears (over 1½ in.) 11 min. Can be wrapped in laminated freezer paper, heavy-duty foil, or plastic wrap.
Eggplant	Peel and cut into 1-in. slices or lengthwise strips. To preserve color, soak 5 min. in ascorbic acid solution. Drain. Blanch 4 min. Can be tray frozen.
Greens: beet, chard, kale, spinach, etc.	Remove tough stems. Blanch very tender leaves 1½ min.; beet greens, chard, mustard greens, turnip greens, and spinach 2 min.; collards 3 min.
Peas, green	Shell and blanch 1½ min.
Peas, sugar snap	Blanch whole 2 min.
Pumpkin and winter squash	Cut or break into fairly uniform pieces. Remove seeds. Cook pieces until soft in boiling water, steam, pressure cooker, or oven. Remove pulp from rind. Mash or sieve. To cool, place in a shallow pan and place pan in ice cold water and stir.
Tomatoes	Quality of frozen raw tomatoes is poor. Freeze stewed tomatoes, tomato sauce, and/or favorite spaghetti sauce.
Zucchini and other summer squash	Slice (½ in.) and blanch 3 min.

To serve frozen vegetables:

Cook most frozen vegetables while they are still frozen. Corn on the cob, however, should be partially thawed before cooking so that the cob will be heated through by the time the corn is cooked. To save vitamins, minerals, bright color, and flavor, drop frozen vegetables into a small amount of boiling water (about ½ cup to a pint package), cover, and cook for 5 to 15 min., depending upon the vegetable. Frozen vegetables can be added directly to soups and/or stews.

Freezing Fruit ~

Preparation - refer to chart for headspace

Apples	Peel, quarter, and core. Can be frozen raw-syrup packed, dry sugar packed, or packed without sugar. Dip in lemon juice solution, as directed under Fruits; drain and add ascorbic acid solution before packing. Slices can be steamed first and then sugar packed-½ cup sugar over a quart of sliced apples. To steam: place slices in a single layer in steamer and steam 1½ to 2 min. Drain and cool.
Applesauce	Prepare with or without sugar as for the table. Cool. For better flavor, add spices just before serving the thawed product.
Blackberries, boysenberries and loganberries	Syrup pack is preferred method for berries to be served uncooked. Whole berries can also be dry sugar packed or packed unsweetened.
Blueberries and huckleberries	To tenderize skins, steam 1 min. Cool and pack as directed.
Strawberries	Remove caps. Can be used whole or sliced. Can be syrup packed or packed dry, with or without sugar. Sprinkle with 2 tablespoons ascorbic acid solution per each quart of fruit before packing.
Cherries, sour	Remove pits. Dry sugar pack is best for pies(2/3 cups sugar to 1 quart cherries). Add ascorbic acid solution, as directed, before packing.
Cherries, sweet	Chill in cold water. Remove pits if desired. Pack in syrup, dry sugar, or pack with no sweetener. Add 2 tablespoons ascorbic acid solution, as directed, before packing.
Grapefruit and oranges	Section fruit; remove membranes and seeds. Cover with syrup, using excess fruit juice as part of liquid. For better color quality, add 2 tablespoons ascorbic acid solution to each quart of fruit.
Peaches and nectarines	Peel and pit. For better product, peel without boiling water dip. Slice into lemon juice solution, as directed. If dry packing, sugar packing, or water packing, add ascorbic acid solution, as directed, before packing. If syrup packing, slice peaches directly into syrup and add ascorbic acid solution.
Rhubarb	Cut in 1- or 2-in. pieces. Can be packed raw, but heating in boiling water for 1 minute and cooling promptly help retain flavor and color. Can be syrup or dry sugar packed. Can be packed unsweetened.

Sweetened Vs. Unsweetened Fruit ~

Additional sweetness is not essential to preserving fruit, but it does help canned fruit retain shape, color, and flavor. Sweetening may be in the form of sugar syrup, sugar, corn syrup, or mild-flavored honey. Use of brown sugar, molasses, or other strong-flavored sweeteners is not recommended. Their flavor will overpower the true fruit flavor.

Sugar syrup: Combine sugar with water or juice extracted from some of the fruit. Use amounts indicated on the table depending on the natural sweetness of the fruit and your own taste. Remember, however, heavier syrups supply many more calories. Sugar added directly to the fruit - In a saucepan, sprinkle the amount of sugar desired over raw fruit. Let stand until juice appears. Heat to simmering over low heat for 2-5 minutes. Pack fruit in jars, along with juice. Other sweeteners - light corn syrup or mild-flavored honey may be used to replace one-half the sugar called for in canning fruit. Noncaloric or artificial sweeteners - use according to manufacturer's instructions.

Unsweetened fruit: Pack and can fruit in its own juice, in extracted juice, or in water. To use extracted fruit juice, thoroughly crush ripe, sound, juicy fruit. Heat to simmering over low heat. Strain through a jelly bag or several layers of cheesecloth. If adding sugar, heat sugar and liquid together at this time, until sugar dissolves. Skim if necessary.

General Rules for Boiling-Water Canner ~

1. Clean jars and rims in hot water and detergent before each use, making sure to rinse thoroughly. If processing less than 10 min., jars must be sterilized. (To sterilize, boil jars 14 min. in water which covers jars by 1 in. [Rule: 10 min. for conditions less than 1,000 ft. altitude; add an additional min. for each 1,000 ft.; 14 min. accommodates W.Va. conditions of up to 4,000 ft.]; save hot water for processing filled jars.) Boil lids according to manufacturer's directions.

2. Prepare syrup if desired.

3. Prepare fruit. Place peeled, sliced, halved, or quartered fruit immediately in an antioxidant solution, such as Fruit Fresh®, to prevent discoloration, or in a solution made by mixing six 500 milligram Vitamin C tablets in 1 gal. of water. Drain before packing.

4. Fill clean jars using hot or raw-pack method. Pack fruit closely without crushing. Add hot water, juice, or syrup, leaving ½ in. headspace. Canned fruit may float if packed loosely, if syrup is too heavy, or if some air remains.

5. Remove air bubbles by sliding a plastic utensil around and through fruit. If necessary, add more syrup, water, or juice.

6. Wipe jar rim clean. Adjust lids. Tighten screw bands securely but not too tight.

7. Place filled jars on rack in canner filled with

boiling water. Jars should not touch each other so the hot water circulates around the jars.

8. Jars should be covered with 2 inches of water. Cover canner with lid.

9. When water comes to a rolling boil, start to count the processing time.

10. Boil gently for the recommended time.

11. When the processing time is up, remove jars immediately. Cool on rack or towel away from drafts. **DO NOT RETIGHTEN BANDS.**

12. The day after canning, check the seal by pressing in the center of the lid. It will be slightly concave and not move. Remove screw bands from cooled jars. Label with contents and date.

Maintaining Color and Flavor ~

To ensure that your canned foods retain optimum colors and flavors during processing and storage:

- use only freshly picked, high-quality foods at the proper maturity and free of diseases and bruises.

- presoak fruit in an antioxidant solution before canning.

- use the hot-pack method.

- store the jars in a relatively cool, dark place, preferably between 50 and 70 degrees F.

- can no more food than you will use in one year.

Fruit	Pack	Preparation	Canner Type ~ Process Time
Apples	Hot	About 19 lbs. is needed to make 7 qrts. Wash, pare, core; cut into pieces. Place cut fruit in antioxidant solution. Drain; then boil 5 min. in water, juice, or syrup, stirring to prevent burning. One pint of solution is needed for 5 lbs. of apples. Pack hot into jars. Add liquid leaving ½-headspace.	Process pints or qrts. for 30 min. <i>Dial gauge canner</i> - pint or qrts.: 7 lbs. for 8 min. <i>Weighted gauge canner</i> - pint or qrts.: 10 lbs. for 8 min.
Applesauce	Hot	About 21 lbs. of apples are needed for 7 qrts. Prepare applesauce – place apple slices in water and boil quickly until tender, 5-20 min., stirring occasionally to prevent burning. If sugar is added, reheat sauce to boiling, stirring constantly. Pack hot applesauce leaving ½-inch headspace.	Process pints for 20 min.; qrts. for 30 min. <i>Dial gauge canner</i> - pints: 7 lbs. for 8 min.; qrts: 7 lbs. for 10 min. <i>Weighted gauge canner</i> - pints: 10 lbs. for 8 min.; quarts: 10 lbs. for 10 min.
Berries (except strawberries)	Hot	About 12 lbs. is needed for 7 qrts. Wash berries; drain; cap and stem if necessary. Heat berries in boiling water for 30 sec.; drain. Fill jars and add hot water, juice, or syrup to ½-in. headspace.	Process pints or qrts. for 20 min. <i>Dial gauge canner</i> - pints or qrts: 7 lbs. for 8 min. <i>Weighted gauge canner</i> - pints or qrts: 10 lbs. for 8 min.
Berries (except strawberries)	Raw	Wash berries; drain. Fill jars but leave room for solution. Shake berries down while filling jar. Cover with boiling water, juice, or syrup leaving ½-in. headspace.	Process pints for 20 min. and qrts. for 30 min. <i>Dial gauge canner</i> - pints: 7 lbs. for 8 min.; qrts: 7 lbs. for 10 min. <i>Weighted gauge canner</i> - pints: 10 lbs. for 8 min.; qrts.: 10 lbs. for 10 min.



Measures of water and sugar for approximately 9 pints of fruit:

Syrup Type	Approx. % sugar	Cups water	Cups sugar
Very light	10	6½	¾
Light	20	5¾	1½
Medium	30	5¼	2¼
Heavy	40	5	3¼
Very heavy	50	4¼	4¼

Make syrup well in advance as it must be cold before pouring over fruit. Heat water and sugar together. Bring to a boil. Let cool. Place fruit into container and then pour cold syrup over fruit; or fill container about 1/4 full with syrup and slice fruit directly into syrup. Add more syrup if needed. Leave headspace as directed. Hold fruit under syrup with crumpled piece of waxed paper or plastic wrap.

Freezing without sugar:

Tray pack - Spread a single layer of prepared fruit on shallow trays. Freeze, and package immediately.

Dry pack - Pack prepared fruit in containers with no sugar, syrup or other liquid. Some berries can be packaged this way but freezer life is short.

Liquid pack - Noncaloric sweeteners can be used instead of sugar. For better flavor, however, freeze with plain water or fruit juice and add the sweetener at time of serving.

To serve frozen fruits:

Thaw unopened in refrigerator or at room temperature. Texture is best when some ice crystals remain. Fruits packed in syrup are generally best used for uncooked desserts. Fruits packed in granulated sugar or packed unsweetened are best used for cooking purposes.

Vegetables:

For best quality, taste, and nutritive value, freeze freshly gathered vegetables. If there is a delay, refrigerate vegetables until you are ready to freeze them.

- Wash well; peel, trim, and cut as desired.
- Vegetables should be blanched or scalded before freezing. This short heat treatment stops enzyme action that changes flavor, texture, color, and nutritive value.
- Vegetables are usually packed dry. They can be frozen in single layer on a cookie sheet (tray pack) and then packed in suitable containers. Single thickness bags require an outside cover. Remove all possible air. Seal.

Blanching or scalding:

In boiling water - This method uses large amounts of water (4 qrts.) to small amounts of prepared vegetables (1 lb.) so that water returns quickly to boiling after the vegetable is added.

- Use a large kettle or blancher with tight-fitting lid. A wire blanching basket, strainer, or cheesecloth bag can be used to hold the vegetables.
- Bring specified amount of water to a vigorous boil. Place vegetables in basket and plunge into boiling water. Cover and start counting immediately.
- At end of blanching time, remove vegetables and cool quickly in cold running or ice water. Vegetables cool in about the same length of time as needed for blanching. Drain and package.
- You can reuse the boiling water, but keep it at the proper level and be sure it is boiling vigorously when vegetables are added. In microwave oven - Check your manufacturer's manual for recommendations.

Containers:

<i>Wide-top opening</i>	<i>Narrow-top opening</i>
pint qrt.	pint qrt.
1 in. 1½ in.	2 in. 2 in.

Juice requires 1½ in. headspace for pints and qrts. with wide-top openings. For narrow-top openings, pints need 2 in. and qrts. need 2½ in. of headspace.

Dry pack - fruit or vegetables packed without liquid, or fruit in sugar pack.

Containers:

<i>Wide-top opening</i>	<i>Narrow-top opening</i>
pint qrt.	pint quart
¾ in. 1 in.	1 in. 1 in.

Vegetables that pack loosely, such as broccoli and asparagus, require no headspace.

Freezing Guidelines ~

- Freeze fruits and vegetables soon after they are picked.
- Place containers in contact with freezing surfaces in coldest part of freezer.
- Set freezer dial at lowest setting so that foods will freeze at 0 degrees F (-18 degrees C) or below.
- Space at least 1 in. apart to promote rapid freezing. After freezing, packages can be placed close together and stored at 0 degrees F (-18 degrees C).
- Freeze small amounts of food at a time—no more than will freeze within 24 hours. This is no more than 2 lbs. of food per cubic foot of freezer capacity per day. Overloading the freezer slows the rate of freezing. This lowers the quality of the product and promotes spoilage.
- Most fruits and vegetables maintain high quality for 8 to 10 months if stored at 0 degrees F or below; citrus fruits keep for 4 to 6 months.

Fruits:

- Use ripe but not soft or mushy fruit. Wash, sort, and prepare (peel, trim, pit, halve, or slice) as you will use them.
- Fruit can be packed without sugar, in dry sugar, or in syrup. Different methods lend themselves to different uses. Experiment with all three methods to discover which you like best for your purposes. Unsweetened fruits lose quality faster than those packed in sugar or syrup.
- To prevent discoloration of peaches, apricots, pears, pineapple, and apples, cut fruit into a solution of 3 tablespoons bottled lemon juice to 1 quart of cold water. Drain well.
- In addition, ascorbic acid or a commercial product should be used to keep fruits from discoloring. Ascorbic acid solution can be made by mixing 1 teaspoon of ascorbic acid crystals, or six 500-milligram vitamin C tablets, in 1 gallon of water. Use 2 tablespoons of the mixture per each quart of fruit. Add at the last minute.

Use the commercial product according to the manufacturer's directions.

Freezing with sugar:

Dry sugar pack— Place food in shallow container. Sprinkle sugar over fruit—about ½ to ¾ cup of sugar for each quart of fruit. Mix gently with a large spoon until juice is drawn from fruit and sugar is dissolved. Pack into containers and leave recommended headspace; cover with a piece of crumpled wax paper or plastic wrap. *Syrup pack* - Select the syrup according to the natural sweetness or tartness of fruit. A 20 or 30 percent syrup is suitable for most fruits. About ½ to ⅔ cup of syrup is needed for each pint package of fruit.

Fruit	Pack	Preparation	Canner Type ~ Process Time
Cherries (sour or sweet)	Hot	About 17½ lbs. are needed to make 7 qrts. Stem and wash; remove pits if desired. If pitted, place in antioxidant solution. If unpitted, prick with a needle to prevent splitting. In large saucepan, add ½ cup water, juice, or syrup per quart of fruit. Cover pan; bring to boil. Pack hot fruit with liquid to ½ -in. headspace.	Process pints for 20 min. and qrts. for 30 min. <i>Dial gauge canner</i> - qrts.: 7 lbs. for 8 min.; qrts.: 7 lbs. for 10 min. <i>Weighted gauge canner</i> - pints: 10 lbs. for 8 min.; qrts.: 10 lbs. for 10 min.
Cherries (sour or sweet)	Raw	Wash; drain. If removing pits place in antioxidant solution. If not pitting, prick skin to prevent splitting. Fill jars almost full with fruit. Shake down while filling. Cover with boiling water, juice or syrup to ½-in. headspace.	Process pints or qrts. for 35 min. <i>Dial gauge canner</i> - pints or qrts.: 7 lbs. for 10 min. <i>Weighted gauge canner</i> - pints or qrts.: 10 lbs. for 10 min.
Fruit purees (except figs and tomatoes)	Hot	About 16 lbs. is needed to make 7 qrts. Stem, wash, drain, and remove pits if desired. Measure fruit into large saucepan and crush. Add 1 cup of water for each quart of fruit. Cook slowly, stirring often until fruit is soft. Strain through cloth bag or cheesecloth. Add sugar if desired. Reheat to simmering if sugar was added. Fill hot into jars leaving ½-in. headspace.	Process pints or qrts. for 20 min. <i>Dial gauge canner</i> - pints or qrts.: use 7 lbs. for 8 min. <i>Weighted gauge canner</i> - pints or qrts.: 10 lbs. for 8 min.
Grapefruit and orange sections	Raw	About 15 lbs. is needed to make 7 qrts. Wash, peel, and remove membrane to prevent bitter taste. Fill jars with sections and hot water, juice, or syrup, leaving ½ -in. headspace. The flavor is best if equal parts orange and grapefruit sections are canned together.	Process pints or qrts. for 15 min. <i>Dial gauge canner</i> - pints: use 7 lbs. for 8 min.; quarts-use 7 lbs. for 10 min. <i>Weighted gauge canner</i> - pints: use 10 lbs. for 8 min.; qrts.: use 10 lbs. for 10 min.

Fruit	Pack	Preparation	Canner Type ~ Process Time
Peaches	Hot	About 17½ lbs. are needed to make 7 qrts. Dip fruit in boiling water for 30 to 60 sec. until skins loosen. Dip quickly in cold water and slip off skins. Cut in half; remove pits and slice if desired. Place fruit in antioxidant solution and drain before boiling. In large saucepan, place fruit in water, juice, or syrup and bring to boil. Pack hot fruit into jars; cover with boiling liquid, leaving ½-in. headspace. Raw packs make poor-quality peaches.	Process pints for 30 min. and qrts. for 35 min. <i>Dial gauge canner</i> -pints or qrts.: 7 lbs. for 10 min. <i>Weighted gauge canner</i> -pints or qrts.: 10 lbs. for 10 min.
Pears	Hot	About 17½ lbs. are needed for 7 qrts. Wash, peel, halve, and core. Place fruit in antioxidant solution and drain before boiling. In large saucepan, place fruit in water, juice, or syrup and boil for 5 min. Pack hot fruit into jars; cover with boiling liquid, leaving ½-in. headspace. Raw packs make poor quality pears.	Process pints for 30 min.; qrts. for 35 min. <i>Dial gauge canner</i> -pints or qrts.: 7 lbs. for 10 min. <i>Weighted gauge canner</i> -pints or qrts.: 10 lbs. for 10 min.
Rhubarb	Hot	About 10½ lbs. are needed for 7 qrts. Trim leaves; wash, cut in ½- to 1-in. pieces. In a large saucepan, add ½ cup sugar for each quart of fruit. Let stand until juice appears. Heat gently to boiling. Fill jars without delay, leaving ½ -in. headspace.	Process pints or qrts. for 20 min. <i>Dial gauge canner</i> -pints or qrts.: 7 lbs. for 8 min. <i>Weighted gauge canner</i> -pints or qrts.: 10 lbs. for 8 min.



Freezing Fruits & Vegetables

Freezing is a simple and quick way to preserve fruits and vegetables. Choose top-quality fruits and vegetables and follow recommended methods to get high-quality, nutritious foods for year-round enjoyment.

Approximate Amount Needed to Yield 1 Pint of Frozen Product ~

<u>Fruit</u>	<u>Fresh</u>
Apples	1¼ to 1½ lbs.
Berries	1 to 1½ lbs.
Cantaloupes	1 to 1¼ lbs.
Cherries	1¼ to 1½ lbs.
Cranberries	1½ lb.
Nectarines	1 to 1½ lbs.
Peaches	1 to 1½ lbs.
Pineapple	1¼ lbs.
Plums	1 to 1½ lbs.
Raspberries	1 pint
Rhubarb	⅔ to 1 lb.
Strawberries	⅔ qrt.

<u>Vegetable</u>	<u>Fresh</u>
Beans, lima, in pod	2 to 2½ lbs.
Beans, snap, green, or wax	⅔ to 1 lb.
Beets	1¼ - 1½ lbs.
Broccoli	1 lb.
Carrots	1¼ - 1½ lbs.
Corn (in husks)	2 - 2½ lbs.
Eggplant	1 lb.
Greens: spinach, kale, mustard	1 - 1½ lbs.
Peas	2 - 2½ lbs.

Containers ~

Containers should be moisture-vapor resistant, durable, easy to handle, and made for food storage.

Some common containers are:

- Dual-purpose glass jars (for either canning or freezing) are tapered for ease in removing frozen foods. Jars must be sterilized before use. To sterilize empty jars, put them right side up on the rack in a boiling-water canner. Fill the canner and jars with hot (not boiling) water to 1 inch above the tops of the jars. Boil 14 min. Remove and drain hot sterilized jars one at a time.
- Rigid polyethylene boxes come in different sizes. Lids should fit tightly.
- Commercial paperboard cottage-cheese-type cartons are not airtight but could be used if a plastic bag is used as the carton liner.
- Protective cartons may be necessary if plastic bags will be moved around in the freezer.
- Boil-in-bag pouches can be used. When packaging, be sure to press out as much air as possible before sealing.

Packaging ~

Head space is necessary to allow for expansion during freezing. Amount of headspace to allow between food and closure:

Liquid pack - fruit in juice, syrup, sugar, or water; crushed fruit or juice.

Labeling ~

Use freezer or masking tape and felt-tipped pen or waxed pencil. Label should include name of product, freezing date, type of pack, and other information you want.

