With some families, the annual ritual of "putting up" canned fruits, meats and vegetables is a tradition. Prize recipes are passed along from mother to daughter. Men and children join in on the project too. For generations now, canning season has been a time for relatives to congregate and a time to be thankful for a plentiful harvest.

In earlier days, canning was a near necessity. In some areas, it was virtually the only economical method for preserving a wide variety of wholesome food for barren winter months. With all the recent developments in food distribution and technology, canning is not nearly so necessary as it once was. Yet home canning has grown tremendously in popularity in recent seasons. Why? Possibly because many are rediscovering that there is something basically satisfying and rewarding in preserving good food so it can be enjoyed at a later time when it is needed more.

More than 150 years ago, an obscure French confectioner, Nicholas Appert, discovered that food heated and sealed in glass bottles kept safely for months, or even years. Monsieur Appert did not know that his process destroyed molds, yeasts, bacteria and enzymes—he only knew that it worked. And the publication of his principles in 1810 earned M. Appert 12,000 francs, a prize from Napoleon Bonaparte, who was seeking a means of providing wholesome food for his undernourished troops.

Since then, of course, canning has been thoroughly and scientifically researched. Today, home canning is as safe and as easy as cooking a meal for immediate use, providing a few simple rules are followed. And, since its inception, the Blue Book has brought the latest technology and the best new recipes to its readers.

This is the 30th edition of the Blue Book, encompassing more than 70 years of canning knowledge and research. This edition also contains a section on preserving foods by freezing. Freezing has been used in some climates for the preservation of food since ancient times. But it wasn't until recently that the development of convenient home equipment and containers made freezing practical on a wide scale. As with canning, great attention to detail has gone into the freezing section of the Blue Book.

When former Ball Corporation president George A. Ball first began in 1905 to put together the forerunner of the Blue Book, he gathered favorite recipes from family and friends, including many from the files of his wife, Frances Woodworth Ball. Their daughter Elisabeth remembered years later that it took "quite a little doing here in our kitchen to try out the recipes and the methods to know they were all right."

When new recipes were added to the Blue Book in later editions, Mr. Ball insisted they be turned over to a professional cook for thorough testing. Many years ago, Ball Corporation began extensive laboratory research into the preservation of food. That research has been expanded greatly and continues today.

George Ball's basic policy for the Blue Book has been maintained ever since the first edition.

Whether home canned and frozen foods make up a major part of your family's diet, or whether you just want to "put up" a few jars of old favorites, the revised 30th edition is designed to answer all your questions and to help you every step of the way. Like the first edition, the 30th took "quite a little doing" too. We hope and trust you'll find it interesting and informative.
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LEARNING ABOUT CANNING

Canning is a simple method for capturing food’s delicious and wholesome qualities at nature’s very best, and preserving the food for enjoyment at a later time. Besides being economical, canning is enjoyable in itself. More than one rural canner has known a moment of pride when her homemade mincemeat won a blue ribbon at the county fair. And recently, more and more urban homemakers have been discovering that canning is both a rewarding hobby and a boon to the budget.

For all canners, some understanding of what canning is and why it works will be most helpful. Canning is a reliable method of preserving food and the basics of canning are easy to learn. But unless these basics are followed, canned goods are sure to be unsuccessful and can be quite harmful to eat.

This is because in the air and all around us are invisible microorganisms, such as molds, yeasts, and bacteria. Many of these microorganisms are beneficial to us, while others can be harmful under certain conditions. All fruits, meats and vegetables in their natural state contain these microorganisms to some degree. They are the major cause of food spoilage. It is nature’s way that food left unprotected will begin to change color and flavor, and eventually to spoil and decompose.

Canning interrupts this natural process through heating the food in containers that seal. The heat destroys the potentially harmful microorganisms and enzymes and, at the same time, air is driven from the container and a partial vacuum is formed, preventing other microorganisms from entering and recontaminating the food.

TWO KINDS OF FOOD

For the purpose of canning, all foods are divided into two classifications (See Figure 1):

1. Acid
2. Low Acid

Acids—Acid foods are those which contain natural acid. Each food is different, and different varieties of the same food may vary in acidity. Generally, all fruits are acids.

Tomatoes, which many of us think of as a vegetable, are technically a fruit and are treated as acids in canning. Sauerkraut and rhubarb and foods to which vinegar is added, such as certain pickles and relishes, are also treated as acids.

Low Acids—Low acids are foods which contain very little natural acidity. Generally, all vegetables are low acid. Meats, poultry, seafoods, mushrooms and soups are also in the low acid group. Mixed canned foods, which might contain part low acids (such as corn) and part acids (such as tomatoes) should be treated as low acids. Figure 1 lists common foods and gives their relative acidity.

The importance of acidity to the home canner is that molds and yeasts, which exist in acids, are easily destroyed by heating filled canned jars in briskly boiling water for a period of time. Acid in food protects against the growth of bacteria. The harmful elements of certain bacteria, however, thrive in low acids and cannot be destroyed at 212° F [100° C]. Low acids therefore must be superheated to 240° F [116° C].

The heating of the food within the canning containers is called processing. Unless canned food is thoroughly processed for the proper time and at the proper temperature, it is likely to spoil, because all the microorganisms may not be destroyed. In addition, a proper seal may not be achieved, allowing microorganisms to enter. If food is processed for too long a time, however, it will be overcooked and lose its fresh-from-the-farm tastiness.
**THE SPOILERS**

**Molds and Yeasts** — Molds are fungi that grow as silken threads that appear as fuzz on food. Some molds can produce mycotoxins that are harmful to eat. Molds thrive on the acids that are a protection against more dangerous bacteria. Yeasts, which are also fungi, cause food to ferment and can make it unfit to eat. Fortunately, molds and yeasts are easily destroyed at temperatures between 140° and 190° F [60° and 88° C] (See Figure 2.)

**Enzymes** — Enzymes are protein that are present in all living things. They promote the normal organic changes necessary to the life cycle. Their action can cause food to change flavor, texture and color and make it unappetizing. Enzymes are also easily destroyed by heat, at temperatures beginning around 140° F [60° C] (See Figure 2.)

**Bacteria** — Bacteria are not so easily destroyed, however. Certain bacteria actually thrive at temperatures that destroy molds, yeasts and enzymes. (See Figure 2.) And some bacteria thrive on foods with low acidity. *Salmonella* are destroyed when held at 140° F [60° C]. And *Staphylococcus aureus*, or "staph" bacteria, are checked if food is kept above 140° F. But staph produces a toxin that can be destroyed only by long hours of boiling, or by superheating to 240° F [116° C] for a relatively short time.

Botulism is food poisoning caused by the bacterium *Clostridium botulinum*. These bacteria are also readily destroyed by boiling, but they produce a spore that throws off a strong toxin and the spores cannot readily be destroyed at 212°F [100° C]. Furthermore, the botulism-causing bacteria thrive on low acids, in the absence of air and in moist environments — exactly the conditions inside a jar of canned meat or vegetables.

Because of bacterial spores, low acid foods must be brought to 240° F [116° C], which is hotter than the boiling point of water. This can easily be done with special canning equipment.

While the effects of "the spoilers" can be serious, the home canner should not be unduly worried about them. It is helpful to understand what they are and how they affect acid and low acid foods. Providing the directions and precautions outlined in this book are followed, food can be safely canned or frozen with little concern for spoilage.

---

**FIGURE 1**

<table>
<thead>
<tr>
<th>APPROXIMATE GROWTH LIMIT FOR:</th>
<th>STRONG ACID</th>
<th>RELATIVE POSITION OF VARIOUS FOODS ON pH (ACIDITY-ALKALINITY) SCALE</th>
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</thead>
<tbody>
<tr>
<td>MOLDS</td>
<td>2</td>
<td>PLUMS, GOOSEBERRIES, PRUNES, APRICOTS, APPLES, BLACKBERRIES, SOUR CHERRIES, PEACHES, KRAUT, SWEET CHERRIES, Pears, TOMATOES</td>
</tr>
<tr>
<td>YEASTS</td>
<td>3</td>
<td>PROCESS AT 212°F (100°C) IN BOILING WATER BATH</td>
</tr>
<tr>
<td>BACTERIA</td>
<td>4</td>
<td>PROCESS AT 240°F (116°C) IN STEAM PRESSURE CANNER</td>
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<tr>
<td></td>
<td></td>
<td>Certain bacteria, known as thermophiles, grow in this range</td>
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<tr>
<td></td>
<td></td>
<td>Growth of most microorganisms ceases</td>
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<tr>
<td></td>
<td></td>
<td>Active growing range of molds, yeasts and bacteria</td>
</tr>
<tr>
<td>NEUTRAL</td>
<td>7</td>
<td>GROWTH CEASES</td>
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<td>STRONG ALKALI</td>
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**FIGURE 2**

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</table>

Growing cells of bacteria killed; also molds and yeasts

Bacteria spores destroyed by short heating periods

Bacteria spores not destroyed except by long heating
TWO METHODS OF CANNING

Boiling water bath method—
High acid foods can be processed in a boiling water bath canner, which is any kettle large enough for the canning jars to be completely immersed and fully surrounded in boiling water. Boiling water bath canners are commercially available. (See Figure 3.)

Generally, they have a tight-fitting cover and a metal basket to hold the jars off the bottom of the kettle and to separate the jars from each other. The jars must be held off the bottom so the heat can penetrate properly. The jars are divided so they will not bump into each other or tip over in the boiling water. The jars should be covered by one to two inches [25 to 51 mm] of water when it is briskly boiling, so the heat thoroughly penetrates the food at the top of the jar. An additional one to two inches of air space should be allowed between the top of the boiling water and the top of the kettle.

The boiling water bath method is recommended for canning fruits, tomatoes, foods with vinegar added and other acid foods. Butters, conserves, marmalades, jams and preserves are also processed at boiling temperatures (212°F—100°C) for 10 to 20 minutes in a boiling water bath canner.

Steam pressure method—Low acid foods must be processed in a steam pressure canner, which is a heavy kettle with a lid which can be clamped or locked down to make a steam-tight seal. (See Figure 4.) The lid is fitted with a safety valve, a petcock (vent) and a pressure gauge.

Two types of steam pressure canners are available commercially: those with dial gauges and those with weighted gauges. (See Figure 5.) Dial gauges must be checked periodically for accuracy, because if the gauge is incorrect, the processing of canned goods will not be accurate and all bacteria, including botulinum spores, may not be killed. Your county extension agent or the manufacturer usually can tell you where to have dial gauges checked.

If your dial gauge reads five pounds per square inch (psi) or more too high or too low, you need a new gauge. If it is less than five pounds [35 kPa] in error, you can adjust for the variation. (See Figure 6.) Pressure canning is usually done at 10 pounds [70 kPa] pressure, adjusted for altitude. If your gauge reads too high, add one pound [7 kPa] of pressure for each pound that it reads too high; i.e., if one pound too high, process at 11 pounds [77 kPa] pressure; two pounds too high, process at 12 pounds [84 kPa], etc. Conversely, if the gauge reads too low, subtract one pound of pressure for each pound it reads too low, i.e., if one pound too low, process at nine pounds [63 kPa]; two pounds too low, process at eight pounds [56 kPa] etc.

The petcock on your pressure canner allows steam to escape under a controlled pressure. Because the steam inside the kettle is pressurized, its temperature exceeds the boiling point of water, 212°F [100°C]. At 10 pounds [70 kPa] pressure the temperature will reach 240°F [116°C], which is hot enough to kill bacterial spores. If the petcock should inadvertently become plugged, the safety valve is designed to pop, releasing pressure and preventing the kettle from exploding.

Because of the twin dangers of under-processed food and steam under high pressure, it is imperative that all parts of the pressure canner be kept clean and in good working order. A string should be drawn through the petcock and safety valve openings before the canner is used to make sure they are free of obstruction. Providing the canner is clean and working well and foods are processed for the prescribed times and temperatures, pressure canning is a reliable, efficient method for canning low-acid foods. If, for any reason, the pressure should drop during processing, the processing time must be recounted.

The manufacturer’s directions should be followed for your own pressure canner. Generally, pressure canners have one or more racks for holding jars, and two to three inches [51 to 76 mm] of water are boiled in the canner to produce the steam.

Pressure saucepans or pressure cookers, as they are sometimes called, work similarly to pressure canners, except they usually are smaller. The smaller pressure saucepans or canners can be used in place of a pressure canner for pint [473 mL] and half-pint [237 mL] size jars. The smaller pressure canners, however, heat and cool more quickly than pressure canners. For this reason, when using a pressure cooker in place of a pressure canner, 20 minutes at 10 pounds [70 kPa] pressure should be added to the regular processing time given in recipes for the pressure canner.

FIGURE 6

ADJUSTING INACCURATE DIAL GAUGES

Make these adjustments for inaccurate dial gauges only when recipe calls for processing at 10 pounds [70 kPa] adjusted for altitude. If gauge is inaccurate by more than five pounds [35 kPa], replace the gauge.

<table>
<thead>
<tr>
<th>If Gauge Reads High By:</th>
<th>Process At:</th>
<th>Pressure</th>
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<td>kPa</td>
<td>psi</td>
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<td>28</td>
<td>14</td>
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</table>

<table>
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<tr>
<th>If Gauge Reads Low By:</th>
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<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>psi</td>
<td>kPa</td>
<td>psi</td>
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<tr>
<td>1</td>
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</table>
OTHER EQUIPMENT 
YOU'LL NEED  
With the exception of the boiling water bath and steam pressure canners, most kitchens will already have much of the equipment needed for canning. Some recipes call for specialized utensils, so the recipe should be checked in advance of canning day.

The boiling water bath and steam pressure canners are essential to canning. Any container that is large enough can be substituted for the boiling water bath canner when processing acid foods, but some means of keeping the jars separated from each other and off the bottom of the container are necessary. A pressure cooker can be substituted for the steam pressure canner for processing small jars. Adjustments in processing time must be made, however.

A good selection of long handled spoons and ladles is useful. Measuring cups and spoons are necessary, since ingredients should be carefully measured. A kitchen scale helps for many dry measures.

Sharp knives of various sizes speed the work. Kitchen scissors and a vegetable peeler are sometimes needed. And a food brush to help in removing all dirt is helpful for cleaning fruits and vegetables.

A colander large enough to hold two quarts or more is a useful item. It should have legs, to facilitate drainage. A one-quart sieve with brackets and a handle for holding over the edges of pans is often needed.

Certain recipes call for food choppers or grinders or a food mill. Sometimes the simple kitchen grater can be used in place of these items. And sometimes the electric blender will work well. A fruit press is sometimes a help when canning juices and jellies.

Saucepans and large kettles usually are necessary, depending upon the recipe. A dishpan or sink for washing and rinsing should be available. And, of course, jars and closures to fit the purpose are required.

In the case of pickling, ceramic, stone or glass jars or crocks are used, and sometimes wooden kegs and barrels. Implements made of copper, brass, iron and galvanized zinc should not be used for pickling. These metals may react with acids and salts in the food, causing disagreeable color and taste changes or, possibly, creating poisonous substances.

Jar lifters are especially made for home canners and are so helpful that they're a near-necessity. So are potholders, dishcloths and towels. A wooden or plastic spoon or a specially made plastic bubble-freer should be on hand when jars are being packed. Metal implements should be avoided, since they may damage the glass. Special funnels with wide mouths, large enough to hold a cup at a time, are made to fit inside the rims of common sized jars. Meats, poultry and seafoods require a pencil-shaped cooking thermometer. A candy thermometer is useful for checking the jellying point in jelly and soft spreads.

Some recipes require cheesecloth or a muslin bag for suspending spices, for straining and for blanching. Gummed labels and a logbook are useful, but not necessary, for record-keeping.

Some method of timing accurately is essential. If a special cooking timer is used, it should be capable of being set for the time called for in the recipe. Alarm clocks can be used, although they are usually difficult to set accurately for periods of less than an hour. Many modern ranges have a built-in timer, but these should be checked for accuracy before starting to can. Darkroom timers can be used to good advantage, since they are usually accurate down to the second.

All equipment should be assembled and checked for cleanliness and working order before starting to can. Read through the recipe ahead of time and decide in advance the equipment that will be needed. This way you'll avoid searching for a needed item during the critical time when the food is being prepared and processed.

CHOOSING THE RIGHT CONTAINERS AND CLOSURES  
Home canning may never have achieved the popularity it enjoys today had it not been for a tinsmith named John Landis Mason. On November 30, 1858, nearly a half-century after Nicholas Appert discovered the principles of canning and shortly after Louis Pasteur discovered that microorganisms cause spoilage, Mason patented a glass canning jar with a threaded opening that could be sealed with a metal cap and a rubber ring for a gasket.

Until then, glass bottles and earthenware jugs sealed with cork stoppers and wax, or tin containers sealed with solder, were used. Mason's invention greatly simplified home canning, and made it easy, economical and popular.

While the term "Mason" was once a trade name, the patent on the original jar has long since expired, and "mason" jar is now a generic term. But the basic idea developed by John Mason is still used today in several variations:

CLOSURES  
Wire Bails with Glass Lids— These old style closures and the jars they fit, except reproductions for nostalgia purposes, have not been manufactured for more than a decade. (See Figure 7.) But many of them are still around and home canners still use them. Some of the old jars, in fact, have become collectors' items.

Rather than threads, these jars have a glass ledge on which a rubber ring rests. A domed glass lid sets over the rim of the jar and on the rubber ring. (The rubber rings are still available at local markets.) The lid is held in place by a wire clamp with two loops.

To use these jars, wet the rubber ring and place it over the neck so it rests on the glass ledge of the jar. The rubber rings should be stretched only enough to fit over the jar. They are not reusable. The glass lid on. Pull up the longest of the two wire bails so it rests in the groove in the glass lid. Leave the small bail up while the food is being processed. If liquid boils out of the jar during processing, do not open the jar to add more liquid because food spoilage may occur. Seal the jar just as it is. To seal, pull the small bail down to clamp the lid on tight as soon as the jar is removed from the canner.

One problem with these older style jars is that it is difficult to tell whether they have sealed properly. After the jars have cooled 12-24 hours, tip the jars to see whether leakage occurs. If the jars leak, check the food to determine if it is fit for consumption. (See Signs of Spoilage — page 15.) If the food is safe for consumption, the food should be reprocessed or consumed immediately.

Figure 7
A GUIDE TO CANNING EQUIPMENT

Spoons—a necessity for stirring, spooning, packing and lifting. Use wooden spoons for stirring and packing, slotted spoons for lifting. Accurate measuring spoons are essential.

Knives—a variety of knives is necessary, including a good paring knife, a sharp chopping knife (butcher or French) and a vegetable peeler.

Food Brushes—food to be canned must be carefully washed. Food brushes with stiff bristles facilitate this work.

Saucepans—occasionally needed to heat lids.

Measuring Cups—both dry (metal) and liquid (glass) measuring cups should be on hand. Measurement capability should range from 1/4 cup [60 mL] to 2 cups [480 mL].

Jelly Bags—made from a thin fabric (usually cheesecloth) to help strain juice from softened fruit and pulp.

Colander or strainer—helps hold fruit or vegetables after washing. Excellent for draining.

Jelmeter—a graduated glass tube with an opening at each end, used in jelly-making. The rate of flow of juice through the tube is used to measure the jellying power of the juice and as an index to the amount of sugar it contains.

Scales—essential for following recipes where ingredients are given by weight. Scale with capacity up to 25 pounds [11 kg] is desirable.

Timer—necessary for measuring processing times accurately by the minute.

Pressure Canner—available in various sizes. Size should be related to needs of the family. Pressure canners may be obtained with either weighted or dial gauges.

Boiling Water Bath Canner—for processing acid foods. Height of kettle is important. Jars, when seated on rack, must be covered by 1-2 inches of water [25-51 mm], with an additional 1-2 inches of air space above to permit boiling.

Crock—a needed item when fermenting food, as in pickling. Crock should be clean and free of cracks. Glaze should not be chipped.

Jar Funnel—commercially available funnels are made especially for canning. Funnel helps avoid getting particles of food on sealing surfaces of jar and aids in determining proper head space.

Jar Lifter—may be purchased where canning supplies are sold. Soft plastic coating prevents jars from slipping and wooden handles protect the hand from heat.

Bubble Freer—a commercially available plastic bubble freer, or a similar non-metallic utensil, is required to run down sides of filled jars to release air bubbles without damaging interior of jar.

Jar—standard home canning jars should be used. The size of the jar should be based on the needs of the family.

Lids—standard lids from a reliable manufacturer of home canning supplies should be used. The manufacturer’s directions should be followed carefully.
Zinc Caps with Porcelain Liners—This older style closure is made for use on jars with threads. (See Figure 8.) The inside of the cap has a porcelain liner to prevent contact of the food with the zinc. Therefore, if the porcelain is damaged, the cap should be discarded.

To use these caps, gently stretch a wet rubber ring over the neck of the jar so it rests on the glass ledge of the jar. Screw the cap on firmly, then unscrew it about 1/4-inch [6 mm]. This will allow air in the jar to vent properly. If liquid boils out of jar during processing, do not open to add more liquid because spoilage may occur. Seal the jar just as it is. As soon as the jar is removed from the canner, slowly retighten the lid, using potholders, to complete the seal. After the jar has cooled, tip it to see if it leaks. If so, it is not sealed. The lids and jars are reusable, but the rubber rings must be discarded after one use.

Modern Two-piece Vacuum Caps and Lids—By far the most popular closure system today is the two-piece vacuum lid and cap. (See Figure 9.) The set consists of a flat metal lid with a flanged edge, the underside of which has a rubber-like sealing compound, and a threaded metal screw band which fits over the rim of the jar to hold the lid in place. The lids now come in bright decorator colors, which are especially nice when canned food is intended for gifts.

The manufacturer's directions should be followed to use this closure. Generally the lid will be placed over the mouth of the jar so that the sealing compound rests on the rim. Screw the band down firmly.

INSTRUCTIONS FOR USING IDEAL JARS WITH WIRE BAILS AND GLASS LIDS

1. Visually examine sealing surfaces of jar and glass lid for nicks, cracks and sharp edges. Examine wire bail to make sure it works properly. Discard any defective jars or lids.

2. Wash jars, lids and rubbers in warm, soapy water and rinse in hot water. Let stand in hot water until needed.

3. Pack food into jar, leaving head space recommended in recipe. Eliminate air bubbles with a non-metallic kitchen utensil. Wipe away any food residue from sealing surface of jar with a clean damp cloth.

4. Fit wet rubber on shoulder of jar, stretching only enough to fit over mouth of jar.

5. Place glass lid over mouth of jar so that it rests on rubber.

6. Place long wire bail so it lies in center of groove on top of lid. Leave short wire bail in up position during processing. Process jars of food as recommended in recipe. When jar is removed from canner, push lower wire bail down against side of jar to complete seal.

7. When jars are fully cooled, tip jars to check for leaks. Store properly sealed jars in cool, dark, dry place.

8. To open, raise lower wire bail to loosen and then place both bails on side of jar. Run dull table knife between rubber and shoulder of jar to let in air and break seal. Discard rubber; it is not reusable.

INSTRUCTIONS FOR USING PORCELAIN-LINED ZINC CAPS AND RUBBERS

Steps 1 and 2 are same as above.

3. Pack food into jar, leaving head space recommended in recipe. Eliminate air bubbles with a non-metallic kitchen utensil. Wipe away any food residue from top edge, threads and shoulder of jar with a clean damp cloth.

4. Fit wet rubber on shoulder of jar, stretching only enough to fit over mouth of jar.

5. Screw zinc cap tightly onto jar. Then loosen approximately 1/4-inch [6 mm].

6. Process jars of food as recommended in recipe. After processing, remove jars from canner and screw caps tight to complete seal. When jars are fully cooled, tip jars to check seal for leaks. Store properly sealed jars in cool, dark, dry place.

7. To open, pull rubber from beneath cap with pliers or fingers, or run dull table knife between rubber and shoulder of jar. If still unable to open, stand jar, top down, in hot water for five minutes. Discard rubber; it is not reusable.
so that it is hand tight. Do not use a jar wrench or other device to tighten the screw band.

During processing, there is enough "give" in the lid to allow air to exhaust from the jar. The screw band should not be tightened or loosened after processing. As the jar cools, a vacuum inside the jar will pull the lid down in the center so that it is slightly concave. A slight pinging sound may be heard as the seal is formed. After 12-24 hours the jars will be thoroughly cooled and the screw bands should be removed, since the lid will be held in place by the vacuum. The lid must be discarded after one use, but the screw bands are reusable. A good place to store the bands is in plastic bags that are tightly sealed.

CONTAINERS

Glass Canning Jars—Glass canning jars, sometimes called mason jars, are the most popular containers for home canning and freezing. They come in a wide variety of sizes and styles. (See Figure 10.) The jars are carefully made so the home canning closures will seal well. The glass in the jars is tempered to withstand the heat of the steam pressure canner or the sub-zero temperatures of the food freezer.

Tin Cans—Tin containers, often used for home canning, are made of thin glass for use on high speed packing machines. Often the glass is not highly tempered, and will not with-
stand the extremes of temperatures in home canning and freezing. The jars may have been subjected to abuse during packing and while being transported and therefore might have nearly invisible nicks and scratches. These slight imperfections can cause the jars to break, especially in the steam pressure canner.

Some of the commercial jars have mouths and threads that appear to be the same as canning jars. In fact, canning lids and caps sometimes do seem to fit the threads of the commercial jars. However, the commercial jar mouth may vary in width and the rim may have nearly invisible dips. This can prevent the jars from sealing properly.

The commercial jars often do not come in exact pint [473 mL] and quart [946 mL] sizes, but are in odd ounce measures. If the jars are not exactly the size specified in the recipe, then the processing time given will be inaccurate.

Like commercial jars, commercial lids are designed for a single use only. Some of them are made for dry products. Some have treated paper gaskets which are not intended to be airtight. These lids may not seal when used for home canning, and the food may become spoiled.

Containers and closures made and sold especially for home canning should be used.

**TWO WAYS TO FILL JARS**

Food may be placed into jars while it is hot or cold. The “hot pack” method is usually preferred for nearly all vegetables and meats and for most fruits. “Cold pack,” or “raw pack” as it’s sometimes called, means placing the food in jars without any precooking, and sometimes is the better method. Either method can be used for most foods, and information throughout this book suggests which method is preferable for particular foods.

**Hot Pack**—The hot pack method is generally preferred where the food being canned is relatively firm and tighter pack and requires fewer jars. Precooking the food makes it more pliable, permits a tighter pack and requires fewer jars. Generally, the food is first cooked in water, a syrup or in the juice that is extracted. Fruit canned without sweetening is always hot packed.

In the boiling water bath method, food that is hot packed requires less processing time than raw packed, because it is already hot when it goes into the canner. With the steam pressure canner, however, there is no difference in processing time. This is because by the time the pressure reaches 10 pounds [70 kPa] and you begin counting processing time, the raw packed food has become as hot as it would have been if it were packed hot to begin with.

**Cold Pack**—Foods that would be delicate after they are cooked, such as whole tomatoes, are usually easier to handle if they are cold packed. The food is placed into the jars while it is raw. It should be packed firmly but should not be crushed. There usually will be some shrinkage when the food is processed, and some foods may float to the top of the jar. After packing, boiling

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### FIGURE 11

## JAR ESTIMATING

The actual number of jars needed in canning depends upon the size and condition of the produce and the manner of preparing and packing it into jars. The standard weight of a bushel, lug or box is not the same in all states.

<table>
<thead>
<tr>
<th>Raw Produce</th>
<th>Measure and Weight</th>
<th>Approximate Number of Jars Needed</th>
<th>Approximate Amount Needed for 1 Quart Jar (950 mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apples</td>
<td>1 bu. (48 lb)</td>
<td>22</td>
<td>16-20</td>
</tr>
<tr>
<td>Applesauce</td>
<td>1 bu. (48 lb)</td>
<td>22</td>
<td>15-18</td>
</tr>
<tr>
<td>Apricots</td>
<td>1 lug (22 lb)</td>
<td>10</td>
<td>7-11</td>
</tr>
<tr>
<td>Berries</td>
<td>24 quart crate</td>
<td></td>
<td>12-18</td>
</tr>
<tr>
<td>Cherries</td>
<td>1 bu. (56 lb)</td>
<td>25</td>
<td>22-32 (unpitted)</td>
</tr>
<tr>
<td></td>
<td>1 lug (22 lb)</td>
<td>10</td>
<td>9-11 (unpitted)</td>
</tr>
<tr>
<td>Peaches</td>
<td>1 bu. (48 lb)</td>
<td>22</td>
<td>18-24</td>
</tr>
<tr>
<td></td>
<td>1 lug (22 lb)</td>
<td>10</td>
<td>8-12</td>
</tr>
<tr>
<td>Pears</td>
<td>1 bu. (50 lb)</td>
<td>23</td>
<td>20-25</td>
</tr>
<tr>
<td></td>
<td>1 box (35 lb)</td>
<td>16</td>
<td>14-17</td>
</tr>
<tr>
<td>Plums</td>
<td>1 bu. (56 lb)</td>
<td>25</td>
<td>24-30</td>
</tr>
<tr>
<td></td>
<td>1 lug (24 lb)</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>1 bu. (53 lb)</td>
<td>24</td>
<td>15-20</td>
</tr>
<tr>
<td></td>
<td>1 lug (30 lb)</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Tomatoes (for juice)</td>
<td>1 bu. (53 lb)</td>
<td>24</td>
<td>12-16</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, Lima (in pods)</td>
<td>1 bu. (32 lb)</td>
<td>15</td>
<td>6-10</td>
</tr>
<tr>
<td>Beans, Green or Wax</td>
<td>1 bu. (30 lb)</td>
<td>14</td>
<td>12-20</td>
</tr>
<tr>
<td>Beets (without tops)</td>
<td>1 bu. (52 lb)</td>
<td>24</td>
<td>15-24</td>
</tr>
<tr>
<td>Carrots (without tops)</td>
<td>1 bu. (50 lb)</td>
<td>23</td>
<td>16-25</td>
</tr>
<tr>
<td>Corn, Sweet (in husks)</td>
<td>1 bu. (35 lb)</td>
<td>16</td>
<td>6-10 (whole-kernel)</td>
</tr>
<tr>
<td>Okra</td>
<td>1 bu. (26 lb)</td>
<td>12</td>
<td>16-18</td>
</tr>
<tr>
<td>Peas, Green (in pods)</td>
<td>1 bu. (30 lb)</td>
<td>14</td>
<td>5-10</td>
</tr>
<tr>
<td>Spinach and other greens</td>
<td>1 bu. (18 lb)</td>
<td>8</td>
<td>3-8</td>
</tr>
<tr>
<td>Squash, Summer</td>
<td>1 bu. (40 lb)</td>
<td>18</td>
<td>10-20</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>1 bu. (50 lb)</td>
<td>23</td>
<td>16-25</td>
</tr>
<tr>
<td><strong>Meats—Poultry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steer (prime quality)</td>
<td>800 lb</td>
<td>363</td>
<td>175-200</td>
</tr>
<tr>
<td>Hog</td>
<td>300 lb</td>
<td>136</td>
<td>30</td>
</tr>
<tr>
<td>Chicken (with bone)</td>
<td>3-4 lb</td>
<td>1.5-2.0</td>
<td>1</td>
</tr>
</tbody>
</table>
The steam pressure canner method is used, the packed jars should not be put into boiling water in the canner. Since they are still cold, they may break. Raw packed foods should be packed firmly so that the heat during processing fully penetrates the food.

**HEAT SPACE**

Whether the boiling water bath or the steam pressure canner method is being used, a certain amount of “head space” must be allowed. This is a space in the jar between the inside of the lid and the top of the food or its liquid. (See Figure 12.) Some foods, especially those that are starchy, swell more in the canner than others and therefore require more head space.

If too little head space is allowed, the food may expand and bubble when air is being forced out from the lid during processing. The bubbling food may leave a deposit on the rim of the jar or the seal of the lid and prevent the jar from sealing properly.

If too much head space is allowed, the food at the top is likely to discolor. And, if there is too much head space, the jar may not seal properly because there will not be enough processing time to drive all the air out of the jar.

This book specifies the proper head space for each recipe. As a general rule for other recipes, leave a 1-inch [25 mm] head space for beets, corn, peas and low acid foods; %inch [13 mm] head space for fruits and acid vegetables; ¼-inch [6 mm] head space for juices, soft spreads, pickles and relishes; %inch [3 mm] head space for jellies.

**STARTING TO CAN**

For some, the canning season starts with the planting of a garden in the spring. They know what their family’s likes and dislikes are, so they start planning what and how much to can when they put in their gardens.

---

### FIGURE 13

**GARDEN PLANNING GUIDE**

<table>
<thead>
<tr>
<th>Vegetables by Groups</th>
<th>Vitamin Value</th>
<th>Pounds to Raise for Preserving (lbs)</th>
<th>Quarts to Preserve</th>
<th>Yield Per 100 Ft. (30 m) Row (lbs)</th>
<th>Foot Row Needed (ft)</th>
<th>Seed or Plants Per 100 Ft. (30 m) Row (g)</th>
<th>Days to Maturity</th>
<th>Depth to Plant Seed (in)</th>
<th>Seed or Plants Per Plant Seed (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High in Vitamin A &amp; C</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
<td>40</td>
<td>18</td>
<td>20</td>
<td>50</td>
<td>23</td>
<td>90</td>
<td>27</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>Turnip Greens</td>
<td>40</td>
<td>18</td>
<td>20</td>
<td>45</td>
<td>20</td>
<td>100</td>
<td>30</td>
<td>%</td>
<td>14</td>
</tr>
<tr>
<td>Broccoli</td>
<td>48</td>
<td>22</td>
<td>24</td>
<td>60</td>
<td>27</td>
<td>85</td>
<td>26</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td><strong>High in Vitamin A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>40</td>
<td>18</td>
<td>20</td>
<td>75</td>
<td>34</td>
<td>60</td>
<td>18</td>
<td>%</td>
<td>14</td>
</tr>
<tr>
<td>Sweet Potato</td>
<td>48</td>
<td>22</td>
<td>24</td>
<td>80</td>
<td>36</td>
<td>60</td>
<td>18</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Winter Squash</td>
<td>40</td>
<td>18</td>
<td>20</td>
<td>400</td>
<td>181</td>
<td>10</td>
<td>3</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td><strong>High in Vitamin C</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato – Whole Juice</td>
<td>120</td>
<td>54</td>
<td>60</td>
<td>380</td>
<td>172</td>
<td>100</td>
<td>30</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Juice</td>
<td>240</td>
<td>109</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Peppers</td>
<td>44</td>
<td>20</td>
<td>22</td>
<td>60</td>
<td>27</td>
<td>75</td>
<td>23</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>72</td>
<td>33</td>
<td>36</td>
<td>120</td>
<td>54</td>
<td>60</td>
<td>18</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td><strong>Green Vegetables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas</td>
<td>48</td>
<td>22</td>
<td>24</td>
<td>40 in pods</td>
<td>18</td>
<td>300</td>
<td>181</td>
<td>50 plants</td>
<td>454</td>
</tr>
<tr>
<td>Green Beans</td>
<td>120</td>
<td>54</td>
<td>60</td>
<td>60</td>
<td>27</td>
<td>200</td>
<td>61</td>
<td>454</td>
<td>454</td>
</tr>
<tr>
<td>Okra</td>
<td>30</td>
<td>14</td>
<td>15</td>
<td>65</td>
<td>29</td>
<td>55</td>
<td>17</td>
<td>1</td>
<td>454</td>
</tr>
<tr>
<td><strong>Starchy Vegetables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet Corn</td>
<td>72</td>
<td>33</td>
<td>36</td>
<td>85 ears</td>
<td>39</td>
<td>200</td>
<td>61</td>
<td>4</td>
<td>113</td>
</tr>
<tr>
<td>Lima Beans</td>
<td>48</td>
<td>22</td>
<td>24</td>
<td>25 in pods</td>
<td>11</td>
<td>400</td>
<td>122</td>
<td>12</td>
<td>340</td>
</tr>
<tr>
<td><strong>Vegetables for Variety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beets</td>
<td>24</td>
<td>11</td>
<td>12</td>
<td>60</td>
<td>27</td>
<td>40</td>
<td>12</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>100</td>
<td>45</td>
<td>20</td>
<td>6</td>
<td>17</td>
<td>15</td>
<td>5</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Lettuce Leaf</td>
<td>100</td>
<td>45</td>
<td>15</td>
<td>10</td>
<td>3</td>
<td>32</td>
<td>32</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Onions</td>
<td>100</td>
<td>45</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>32</td>
<td>32</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Radish</td>
<td>100</td>
<td>45</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>32</td>
<td>32</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Turnips</td>
<td>24</td>
<td>11</td>
<td>12</td>
<td>300</td>
<td>136</td>
<td>10</td>
<td>3</td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
<tr>
<td>Pumpkin</td>
<td>24</td>
<td>11</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% or 4-5 seeds per hill</td>
<td>14</td>
</tr>
</tbody>
</table>

---
For others, including those who plan to buy fresh produce, plans for canning should be made well in advance. Much of the success of canning depends on timing—being ready with containers, closures and equipment when produce reaches its prime condition. For help in planning, see Figures 13 and 14.

Determine ahead of time the varieties and amounts of canned food your family will want to eat in the months ahead. This way you will not end up with large amounts of one or two fruits and vegetables that your family will soon tire of. Properly canned food will keep indefinitely, but it is better to can just the amounts that will be needed until next canning season rolls around. The longer canned food is stored, the greater the opportunity for deterioration. Properly canned food has a RECOMMENDED shelf life of approximately one year.

And it’s more enjoyable to can a few jars a day for a period of days, than to devote a whole day to canning. Usually, fruits and vegetables should be canned when they reach their most perfect stage for table use, and rarely do all ripen on the same day.

Long before the produce is ready, you should decide the sizes and types of jars and closures you are going to need. Jars should be selected on the basis of the type of food being canned and the size of the family. If your family’s appetite is small, plan to use the smaller size jars for most canning.

Check over your supply of jars and closures well ahead of time. Make sure you have the size of jars called for in the recipes. Visually check the rim of each jar for nicks, cracks and sharp surfaces. Discard any that are imperfect. Check to make sure screw bands are not bent. Vacuum lids or rubber rings that are old may have deteriorated and should be replaced if they are not in good shape.

Shop for any additional jars and closures that are needed well in advance of canning day. This way you will not be disappointed if you are unable to locate the supplies you need at the time fruits and vegetables are ready to can.

Check your canning equipment to make sure it is clean, in good working order and that nothing is damaged. Properly canned food has a RECOMMENDED shelf life of approximately one year. Deterioration. Properly canned food has a RECOMMENDED shelf life of approximately one year. Never put a hot jar on a cold surface or in a draft. Never pour boiling water or other liquids into a cool jar.

Closures should also be washed in hot soapy water and rinsed well. The manufacturer’s directions should be followed closely in using the various closures. Generally, vacuum lids and screw bands are placed in water and brought to a simmer (180°F—82°C). Then the lids are removed from the heat and should remain in the water until ready for use, to protect them from microorganisms. Zinc caps that have previously been used should be boiled in water for 15 minutes. The zinc caps and rings should be washed in hot soapy water and rinsed well.

Assemble all equipment and supplies in one place so everything is ready to use when you start to can. Nothing can be more disconcerting than looking for a mislaid box of lids or the rack for the boiling water bath canner at the last minute. Nothing can be more disconcerting than looking for a mislaid box of lids or the rack for the boiling water bath canner at the last minute. Small blemishes should be carefully trimmed away.

Fruits and vegetables should be washed well and drained before cutting or breaking the skin, or before removing hulls (caps), cores, pits, seeds or skins. If necessary, use several rinses, lifting the produce out of the rinse water so the dirt that is washed off will remain in the water.

Canned food is stored, the greater the opportunity for deterioration. Properly canned food has a RECOMMENDED shelf life of approximately one year. Never put a hot jar on a cold surface or in a draft. Never pour boiling water or other liquids into a cool jar.

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Only enough food for one canner load at a time should be prepared. Directions in the recipe should be followed closely. Special care should be taken in filling the jars. Special plastic jar funnels are available to help with packing. Head space should be carefully measured to achieve proper venting and sealing of the jar.

After the food has been packed in the jar, any air bubbles that are present should be removed. This can be done by running a wooden spoon or a plastic paddle around between the food and the jar. Metal knives or other metal devices should not be used, since they may nick the bottoms.
of the jars and cause breakage. A commercially available plastic bubble-freeer that does not melt or bend with ordinary kitchen use is ideal for this task.

The tops of the jars, screw threads and the top surface of rubber rings, if they are being used, should be wiped with a clean, damp cloth. Particles of food that remain on the tops of jars could prevent a tight seal.

The manufacturer's directions should be followed carefully in placing closures on jars. The method varies according to the type of closure being used.

Food should be processed immediately after the jars are closed to minimize the possibility of micro-organisms entering the food. After processing, the jars should be removed promptly from the canner. Food allowed to remain in a boiling water bath canner for too long a period will be over-processed and will lose some of its nourishment. With a pressure canner, a cooling down period of 10 minutes should be allowed before removing the jars from the canner. If jars are lifted from the canner too soon, a cool draft can cause the glass to break. For safety, a commercially available jar lifter should be used to remove jars from the canner. These tong-like devices often have wooden handles to protect against burns, and soft plastic tips to protect the jars.

If food has boiled out of the tops of the jars during processing, do not attempt to readjust the lids, since this will probably break the seal. After the jars have cooled, wipe the residue away. If, for any reason, the jar obviously has failed to seal, repack the jar and use a new lid or rubber, reprocessing for the full length of time called for in the recipe. Or the food can be refrigerated and eaten within a brief period of time.

Jars removed from the canner should be placed on cloths or wire racks to cool. They should be kept out of drafts to avoid breakage. The jars should be allowed to cool for 12-24 hours before storing.

**METHODS TO AVOID**

Only the boiling water bath and the pressure canner methods, with one exception, are recommended for canning. The one exception is jellies. This will be discussed in more detail later. Otherwise, instructions in this book apply only to these two proven methods. Recently, with the back-to-earth movement, some older methods of preserving food are being revived. Some of these were unreliable to begin with and that's why they no longer are recommended. Conversely, with rapid advancements in technology, new gadgetry is being tried for canning. These methods have not been proven and should be avoided by the home canner.

**Open Kettle**—Open kettle canning is not safe except for jellies. In the open kettle method, food is first cooked in an open pan and then put into jars. The lids are quickly clamped on, with the hope that a proper seal will be achieved as the food cools. Jars are filled and capped one at a time.

The open kettle method is obviously not safe for low acids, because it is impossible for the food to reach the 240°F [116°C] necessary for killing bacterial spores. This may cause the lid to seal and later unseal as the underprocessed food spoils, produces gas within the jar and forces up the lid. Also, a proper seal may not be obtained. There is also the possibility that organisms will enter the food while it is being transferred from kettle to jar, or that the jar and lid are not thoroughly sterilized.

Jellies can be satisfactorily canned by the open kettle method because they contain a large amount of sugar, which helps preserve them. Also, fruits contain acids, and bacteria do not thrive in acids. Molds and yeasts thrive in acids, but they can be rendered harmless at relatively low temperatures.

**FIGURE 14**

**CANNER’S PLANNING GUIDE**

This guide is based on the United States Department of Agriculture’s *Daily Food Guide*. Only foods that may be canned are listed. It covers a one-year period. Few families serve canned meat at all meals, so we have allowed for four servings of canned meat a week; in addition 10 other servings of meat, poultry, seafood or eggs are needed weekly. Adjust this guide to your family’s needs and appetites. Increase amounts if you often have guests for meals and if you give gifts of food.

<table>
<thead>
<tr>
<th>Product</th>
<th>Number Times Served</th>
<th>Approximate Size Serving</th>
<th>Amount Needed One Person</th>
<th>Amount Needed Family of 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>U.S.</td>
<td>ml</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrus Fruit and Tomatoes</td>
<td>7 per week - 36 weeks</td>
<td>1 cup 240 mL. 63 quarts</td>
<td>59,623</td>
<td>252 quarts 238,493</td>
</tr>
<tr>
<td>(Includes juices)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark Green and Yellow Vegetables</td>
<td>4 per week - 36 weeks</td>
<td>1/2 cup 120 mL. 18 quarts</td>
<td>17,035</td>
<td>72 quarts 68,141</td>
</tr>
<tr>
<td>Spinach and other greens, carrots,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sweet potatoes, yellow winter squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Fruits and Vegetables</td>
<td>17 per week - 36 weeks</td>
<td>1/2 cup 120 mL. 76 quarts</td>
<td>71,926</td>
<td>304 quarts 287,706</td>
</tr>
<tr>
<td>Apples, apricots, peaches, pears,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>asparagus, green beans, Lima beans,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corn, green peas, summer squash, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meats, Poultry, Seafoods</td>
<td>4 per week - 36 weeks</td>
<td>1/2 cup (2-3 oz.) 120 mL (57-65 g)</td>
<td>18 quarts or 144 pints</td>
<td>17,035</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72 quarts 68,141</td>
</tr>
<tr>
<td>Soups</td>
<td>2 per week - 36 weeks</td>
<td>1 cup 240 mL. 18 quarts</td>
<td>17,035</td>
<td>72 quarts 68,141</td>
</tr>
<tr>
<td>Jams, Jellies, Preserves</td>
<td>6 per week - 52 weeks</td>
<td>2 table-spoons 30 mL.</td>
<td>9,464</td>
<td>160 half-pints 37,856</td>
</tr>
<tr>
<td>Relishes</td>
<td>3 per week - 52 weeks</td>
<td>1 tablespoon 15 mL.</td>
<td>5 pints 2,366</td>
<td>20 pints 9,464</td>
</tr>
<tr>
<td>Pickles, Vegetable</td>
<td>2 per week - 52 weeks</td>
<td>13 pints 12,303</td>
<td>13 quarts 12,303</td>
<td>52 quarts 49,203</td>
</tr>
<tr>
<td>Pickles, Fruit</td>
<td>2 per week - 52 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Aspirin—Do not use aspirin as a substitute for processing. While aspirin contains a weak germicidal agent that acts as a preservative, it is not adequate for preventing spoilage. Other hazards:

- There is no evidence to indicate its acceptability for preventing spoilage. It has no effect on enzymatic reactions which cause deterioration.
- Because there is no heat treatment, no vacuum can form to seal the container, and so deterioration is accelerated.

Dishwasher—Since there is no way to control the temperature or the processing time, this method is unsafe.

Microwave Oven—Otherwise identical jars of canned food placed in a microwave oven for processing do not all reach the same temperatures. In order to measure internal temperatures, the lids must be left off and a thermometer inserted. With the lids off, contamination can enter. And canning containers and lids are made in such a way that they will not seal properly unless they are on the jars during processing.

Oven Canning—Oven canning is dangerous, because jars may explode when the oven door is opened. Other than that, it is unsafe, even for acid foods, because the temperature of the food does not become hot enough to destroy bacteria.

Steam Canning—Not to be confused with pressure canning, steam canning is conducted in a tank affair no longer on the market that allowed steam to waft around the filled jars. Steam in this type of canner does not maintain a steady flow of even temperature, so it is impossible to know if the heat has penetrated properly.

ADJUSTMENTS FOR ALTITUDE

Because air is thinner at higher altitudes, both pressures and boiling points are affected. Water will boil furiously at temperatures well below 212°F [100°C] at altitudes of 1,000 feet [305 m] or more above sea level. That means that with both the boiling water bath and the pressure canner method, adjustments in processing must be made. With the boiling water bath method, additional processing time must be allowed. With the pressure canner method, additional pressure is required. Figure 15 shows the requirements for both methods at various altitudes.

The processing times given in recipes in this book are for foods canned at altitudes of less than 1,000 feet above sea level, when using the boiling water bath method. When using the steam pressure canner, the pressure given is for altitudes of less than 2,000 feet [610 m] above sea level. With the boiling water bath method, if processing time given in the recipe is 20 minutes or less, add one minute to the time for each additional 1,000 feet of altitude. If the processing time is more than 20 minutes, add two minutes for each additional 1,000 feet in altitude. In steam pressure canning, one-half pound [3.5 kPa] of additional pressure is required for each additional 1,000 feet above sea level. If your pressure canner has a weighted gauge rather than a dial gauge, use 15 pounds [105 kPa] of pressure instead of 10 [70 kPa] when canning at altitudes above 2,000 feet. Do not raw pack vegetables for pressure processing at altitudes above 6,000 feet [1829 m].

HOW TO COUNT PROCESSING TIME

It is necessary to process foods for the exact times given in recipes. Too little time may result in the food spoiling; too much time will cause the food to be overcooked.

Boiling Water Bath Method—In the boiling water bath method, jars are placed into the canner in hot water if they have been raw packed. If they have been hot packed, the water in the canner should be boiling. When the jars are placed in the canner, the temperature of the water will be reduced. Add boiling water if necessary to bring the water an inch or two over tops of the jars. Do not pour the water directly onto glass.

![FIGURE 15 ALTIMETECH CHART](image)

The processing times given in this book are for foods canned at altitudes less than 1,000 feet [305 m] above sea level when using the boiling water bath canner. At altitudes of 1,000 feet or above, adjust the processing time according to the boiling water bath canner chart.

When using the steam pressure canner, the pressure given is for altitudes less than 2,000 feet [610 m] above sea level. At altitudes of 2,000 feet or above, adjust the processing pressure according to the steam pressure canner chart.

<table>
<thead>
<tr>
<th>BOILING WATER BATH CANNER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altitude</strong></td>
</tr>
<tr>
<td>ft</td>
</tr>
<tr>
<td>1,000</td>
</tr>
<tr>
<td>2,000</td>
</tr>
<tr>
<td>3,000</td>
</tr>
<tr>
<td>4,000</td>
</tr>
<tr>
<td>5,000</td>
</tr>
<tr>
<td>6,000</td>
</tr>
<tr>
<td>7,000</td>
</tr>
<tr>
<td>8,000</td>
</tr>
<tr>
<td>9,000</td>
</tr>
<tr>
<td>10,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEAM PRESSURE CANNER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altitude</strong></td>
</tr>
<tr>
<td>ft</td>
</tr>
<tr>
<td>2,000-3,000</td>
</tr>
<tr>
<td>3,000-4,000</td>
</tr>
<tr>
<td>4,000-5,000</td>
</tr>
<tr>
<td>5,000-6,000</td>
</tr>
<tr>
<td>6,000-7,000</td>
</tr>
<tr>
<td>7,000-8,000</td>
</tr>
<tr>
<td>8,000-9,000</td>
</tr>
<tr>
<td>9,000-10,000</td>
</tr>
</tbody>
</table>
jars, since they may break. Cover the canner and bring the water to a rolling boil. Start counting processing time at point the rolling boil begins. Allow the water to boil gently but steadily for the time required. (See Figure 16.) Add boiling water if needed to keep tops of jars covered. Remove the containers from the canner immediately when the processing time is up.

Steam Pressure Canner—In pressure canning, put two to three inches [51 to 76 mm] of hot water in the canner or the amount recommended by the manufacturer. Place the jars in the canner so that steam can flow freely around each container. Fasten the canner cover securely so that steam escapes only through the petcock. Allow steam to vent steadily according to manufacturer’s instructions, or for 10 minutes to drive all air from the canner. Otherwise you will have air pressure as well as steam pressure and you’ll get a faulty pressure reading. If you are using a dial gauge, close the petcock at this point. If you are using a weighted gauge, put the weight in place. Bring to 10 pounds [70 kPa] pressure. For either type of gauge, follow the manufacturer’s directions to determine when 10 pounds pressure have been reached, and start counting processing time at this point. (See Figure 17.) Use the manufacturer’s instructions for opening the canner. A cooling down period should be allowed before removing the jars from the canner to avoid breakage.

AFTER CANNING
After jars of food have thoroughly cooled, they should be checked to see if a proper seal has been obtained. Different types of closures require different tests, so the manufacturer’s directions should be followed.

Generally, the seal of closures using rubber rings can be tested by tipping the jar slightly. (See Figure 18.)

If any leakage occurs, the jar is not properly sealed. If bubbles start at the lid and rise through the contents, the jar is not sealed.

Modern two-piece vacuum lids with metal screw bands are easily checked for a proper seal, which helps account for their popularity. A slight pinging noise may be heard as the jar cools. This indicates that a vacuum has formed, sealing the food. The center of the lid is pulled down by the vacuum, creating a slightly concave surface. If you are not sure the surface of the lid is concave, push down in the center. (See Figure 19.)

If it does not push down, the jar is sealed. If it pushes down but then springs up, the jar is not sealed, and the food has to be eaten or reprocessed promptly. If the lid is not concave, but pushes down and holds, the seal is questionable. In this case, remove the screw band and lift the jar by the edges of the lid. Care
should be taken in doing this, because the jar may break or spill. Hold over a padded surface and lift only a fraction of an inch. If the lid comes off, the food should be eaten or reprocessed promptly, using a new lid. When it has been determined that a tight seal exists, the screw bands should be removed. Bands that are left in place may become corroded, making the jars difficult to open.

It is a good idea to label each jar of food. The date that the food was canned should be taken in doing this, because the jar may break or spill. Food that has been properly canned will keep the longest period of time should be included. Food that has been properly canned will keep chemical changes do occur. For this reason, food that has been canned should be stored in a place that is cool, dark most of the time. Light will also hasten the oxidation and deteriorating effects of light, jars may expand and break the seal.

Canned food should be kept in a cool, dark, dry place. Even foods that are properly processed will lose some of their nourishing qualities over a period of time. This process is accelerated if the food is stored at temperatures above 50° F [10° C]. On the other hand, the food should not be stored where it might be subject to freezing, since the food can expand and break the seal.

Light hastens the oxidation and destroys certain vitamins, so the food should be stored in a place that is dark most of the time. Light will also cause certain foods to fade in color. To protect canned food from the deteriorating effects of light, jars may be stored in the cardboard cartons in which they were purchased.

Damp storage areas can cause the metal lids and closures to corrode or rust and endanger the seal.

Jars of food should be arranged in their storage place so they are convenient to locate, and so the oldest jars can be used first. Canned food should be checked regularly for signs of spoilage. Any food that has spoiled should be carefully destroyed so that it cannot be eaten by humans or animals.

To open jars with threads, various rubber-like devices are available for gripping the caps. To open jars with vacuum lids, break the vacuum and lift off the lid. This method of removing lids will prevent damaging the jar mouth surface. The vacuum lids are not reusable.

### SIGNS OF SPOILAGE

Before tasting, check the food for signs of spoilage. Indications that the food has spoiled include broken seals, seepage, mold, gassiness, spurring liquid when the jar is opened, sliminess, cloudiness and disagreeable odors.

Even if no signs of spoilage are obvious, canned meats and vegetables and other low acids should be boiled for 15 to 20 minutes before tasting. Fruits, which are acids, do not have the risk of botulism present as do low acid meats and vegetables. Even though it is not practical to boil fruits, they should be carefully examined before eating. All spoiled food should be destroyed so that it cannot be eaten by humans or animals.

### FIGURE 17

CANNING TIME REFERENCE FOR STEAM PRESSURE CANNER

<table>
<thead>
<tr>
<th>Low-acid Vegetables</th>
<th>Type Pack</th>
<th>Steam Pressure Canner (240°F-116°C)</th>
<th>10 Pounds Pressure (70 kPa)</th>
<th>Processing Time In Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asparagus</td>
<td>Raw or Hot</td>
<td>25</td>
<td>100</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Beans—Green, Snap, Wax</td>
<td>Raw or Hot</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans—Lima and Butter</td>
<td>Raw or Hot</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beets</td>
<td>Hot</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>Hot</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, Whole-kernel</td>
<td>Hot</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn, Cream-style</td>
<td>Hot</td>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greens (all kinds)</td>
<td>Hot</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hominy</td>
<td>Hot</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okra</td>
<td>Hot</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas—Blackeye, Crowder, Field</td>
<td>Hot</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas—Green or &quot;English&quot;</td>
<td>Hot</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peppers, Green</td>
<td>Hot</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes, White</td>
<td>Hot</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes, Sweet</td>
<td>Hot and Dry</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes, Sweet</td>
<td>Hot and Wet</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rutabagas</td>
<td>Hot</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salsify or Oyster Plant</td>
<td>Hot</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
<td>Hot</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squash, Summer</td>
<td>Hot</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes with Okra</td>
<td>Hot</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes, stewed</td>
<td>Hot</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnips</td>
<td>Hot</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greens</td>
<td>Hot</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Meats, Poultry, Seafoods**

<table>
<thead>
<tr>
<th></th>
<th>Type Pack</th>
<th>Steam Pressure Canner (240°F-116°C)</th>
<th>10 Pounds Pressure (70 kPa)</th>
<th>Processing Time In Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chili</td>
<td>Hot</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chopped Meat—Beef, Veal, Lamb, Mutton, Pork, Chevon, Venison</td>
<td>Hot</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Corned Beef</td>
<td>Hot</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat Sauce, Stew</td>
<td>Hot</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headcheese, Pork Sausage</td>
<td>Hot or Raw</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Pork Tenderloin</td>
<td>Hot</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roasts—Beef, Veal, Lamb, Mutton, Pork, Chevon, Venison</td>
<td>Hot</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Spareribs</td>
<td>Hot</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steaks and Chops—Beef, Veal, Lamb, Mutton, Pork, Chevon, Venison</td>
<td>Hot or Raw</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Poultry, Rabbit and Squirrel—Bonded</td>
<td>Hot</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Poultry and Rabbit—On Bone</td>
<td>Hot or Raw</td>
<td>65</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Chicken à la King</td>
<td>Hot</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clams</td>
<td>Hot</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crab Meat</td>
<td>Hot</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mackerel, Trout, Salmon, Shad, etc., Shrimp</td>
<td>Hot</td>
<td>45</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Smelt (in Tomato Sauce)</td>
<td>Hot</td>
<td>50</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

**Soups**

<table>
<thead>
<tr>
<th></th>
<th>Type Pack</th>
<th>Steam Pressure Canner (240°F-116°C)</th>
<th>10 Pounds Pressure (70 kPa)</th>
<th>Processing Time In Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bean</td>
<td>Hot</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clam Chowder</td>
<td>Hot</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish Chowder</td>
<td>Hot</td>
<td>Not recommended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetable</td>
<td>Hot</td>
<td>Length of time needed for vegetable requiring longest processing time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Foods high in acidity are perhaps the easiest products to can. Fruits are fun to put up, convenient to have on hand and they add dessert excitement to family and party meals. Other acid foods are also easy for the home canner to preserve.

Tomatoes, which are botanically classified as fruits, are especially popular with home canners. Rhubarb, which is grown like a vegetable but usually is sweetened and used like a fruit in pies and other desserts, is relatively high in acidity and therefore is processed as an acid food. And sauerkraut, which is vegetable but usually is sweetened and therefore falls into the acid group, is popular with home canners.

The soft spreads—jellies, jams, conserves, butters, marmalades and preserves—are made from fruit and also are acids, but because handling is somewhat different for these products they are covered in a separate section of the Blue Book.

Likewise, pickles and relishes, frequently made from low acid ingredients, are treated as acids in canning because they contain vinegar, which is high in acidity. Here again, the handling is much different than for other acids, so a special section of the Blue Book is devoted to pickles and relishes.

Because bacteria do not thrive in acids, the lower temperature of the boiling water bath canner (212°F—100°C) is adequate for processing acids. The times given in recipes in this book are for foods processed at altitudes under 1,000 feet (305 m) above sea level. For higher altitude areas, adjustments in processing time must be made as in Figure 15.

TO PREVENT DARKENING

Apples, apricots, peaches, pears and some other fruits tend to darken while they are being prepared for canning or after they are in the jar. To prevent the darkening, use ascorbic and citric acid mixtures according to manufacturer's instructions. Or, add 2 tablespoons [30 mL] each of salt and vinegar to a gallon [3800 mL] of water. Drop the fruit into the solution as it is pared, cored, peeled or pitted. Do not leave the fruit in the solution longer than 20 minutes, however, and rinse thoroughly before packing. To prevent darkening in the jar, use ascorbic and citric acid mixtures according to the manufacturer's instructions. If using ascorbic acid, sprinkle over the fruit ¼ teaspoon [1.25 mL] to each quart [950 mL] just before capping.

Fruits are canned with a syrup made ahead of time with sugar and sometimes corn syrup or honey and water or fruit juice. (See Figure 20.)

Measure sugar and liquid into a saucepan. Cook until sugar dissolves. Keep syrup hot until needed, but do not let it boil down. Usually 1 to 1½ cups [240 to 360 mL] of syrup are needed for each quart [950 mL] of fruit.

STEP-BY-STEP CANNING OF ACID FOOD

1. Read "Learning about Canning" on pages 2-15.
2. Assemble all equipment and utensils. Make sure everything is clean.
4. Select only the best produce and just enough for one canner load at a time. Wash and rinse thoroughly before breaking the skin.
5. Follow recipe closely.
6. Pack food in jars loosely enough for juice to circulate between pieces without wasting space.
7. Cover food with boiling water, boiling syrup, juice, brine or pickling solution as directed in recipe. Leave recommended head space.
8. Remove air bubbles.
9. Wipe top and threads of jar with clean, damp cloth. Attach closures.
10. Place each jar as it is filled onto rack in canner. When canner is filled, add hot water to cover jars 1 to 2 inches [25 to 51 mm]. Cover canner and bring water to boil. Reduce heat to hold water at a steady boil. Start counting processing time when water reaches a full boil. If, during processing time, water should boil away and the tops of jars become exposed, cover them with 1 to 2 inches [25 to 51 mm] of boiling water.
11. When processing time has been completed, remove jars from canner. Stand jars on cloths, out of drafts and with space between. Complete seal if necessary.
12. After 12-24 hours, test seals.
13. Store sealed jars in dark, dry, cool place.

FRUITS

APPLES—HOT PACK


APPLES—FOR PIES

Make syrup (1 cup [240 mL] sugar to 4 or 5 cups [960 or 1200 mL] water). Follow recipe for Apples—Hot Pack.

| FIGURE 20 |
| SYRUPS FOR CANNING |

<table>
<thead>
<tr>
<th>Type of Syrup</th>
<th>Sugar to One Quart (950 mL) Liquid</th>
<th>Yield of Syrup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td>2 cups (480 mL)</td>
<td>5 cups (1200 mL)</td>
</tr>
<tr>
<td>Medium</td>
<td>3 cups (720 mL)</td>
<td>5½ cups (1320 mL)</td>
</tr>
<tr>
<td>Heavy</td>
<td>4½ cups (1140 mL)</td>
<td>6½ cups (1560 mL)</td>
</tr>
</tbody>
</table>

Medium with Corn Syrup: Use 1½ cups (360 mL) sugar, 1 cup (240 mL) corn syrup to 3 cups (720 mL) liquid.
Medium with Honey: Use 1 cup (240 mL) sugar, 1 cup (240 mL) honey to 4 cups (960 mL) liquid.
APPLE RINGS
Choose medium size, well shaped, just ripe, bright red apples which hold their shape when cooked (allow 1½ pounds [680 g] of apples for each pint).
Wash the apples in cold water. Core, then slice into ½-inch [6 mm] rings. To prevent discoloration, drop into salt-vinegar water or ascorbic acid water. See page 17.
Dissolve 4 cups [960 mL] sugar in 1 quart [950 mL] water. Add food coloring for desired color. Place over heat, bring to a boil and boil 5 minutes. Remove from heat, add drained apple rings and allow to stand 10 minutes. This helps firm the apples. Return to heat, and bring to a rolling boil, then simmer 30 minutes or until apples are the desired color. Set the saucepan off the heat and allow the apple rings to cool in the syrup.
Drain off the syrup and bring to a boil. Pack the apple rings loosely in preheated jars, leaving ½-inch [13 mm] head space. Cover with the boiling syrup, leaving ½-inch [13 mm] head space. Remove air bubbles. Adjust caps. Process pints 25 minutes, quarts 30 minutes, in boiling water bath.

APRICOTS
Tree-ripened apricots may be canned whole. Pits should be removed from fruit harvested before it was fully ripe. Some varieties of apricots should be packed raw because they do not hold their shape when heated before packing.


APPLESAUCE
Wash, pare, if desired, quarter and core cooking apples. Simmer, covered, in a small amount of water, until tender. Press apples through sieve or food mill. Sweeten sauce to taste (about ¼ cup [60 mL] sugar to 4 medium apples). Reheat to boiling. Pour, boiling hot, into hot jars, leaving ½-inch [13 mm] head space. Stir with rubber bottle scraper or similar non-metallic utensil to remove air bubbles. Adjust caps. Process pints and quarts 20 minutes in boiling water bath.

BLUEBERRIES AND HUCKLEBERRIES
These berries may be canned in syrup or water, but the method given here is better if berries are to be used in muffins, etc. Put 2 or 3 quarts [1900 to 2850 mL] clean berries in square of cheesecloth. Hold cloth by corners and dip into boiling water until spots appear on cloth. Dip into cold water. Pack into hot jars, leaving ½-inch [13 mm] head space. Add neither sugar nor liquid. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

ELDERBERRIES
Follow any recipe for berries. You may add 1 tablespoon [15 mL] vinegar to each quart [950 mL] to improve flavor.

GOOSEBERRIES
Make medium or heavy syrup. Wash and drain green berries. Use scissors to snip off "heads and tails." Pour ½ cup [120 mL] boiling syrup into hot jar. Fill jar with berries. Shake jar to pack berries closely without crushing, leaving ½-inch [13 mm] head space. Add more hot syrup, if needed, leaving ½-inch [13 mm] head space. Remove air bubbles. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

STRAWBERRIES
Use firm, red-ripe berries, which have neither white nor hollow centers. Hull (cap), wash, drain and measure berries. Use ½ to ¾ cup [120 mL to 180 mL] sugar to each quart berries. Gently mix sugar with berries. Let stand five to six hours in a cool place. Heat slowly until sugar dissolves and berries are hot. Pack, hot, into hot jars, leaving ½-inch [13 mm] head space. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

Note—Strawberries tend to fade and lose flavor when canned.
CHERRIES

Cold or Raw Pack—If cherries are sweet, make a light or medium syrup; if sour, use medium or heavy syrup. Cherries for pies may be canned in water, but hold color better when cold or raw packed. Pack cherries closely without crushing, leaving a 1/2-inch (13 mm) head space. Fill jars with cherries. Shake jars to pack grapes closely without crushing, leaving a 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving a 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints and quarts 10 minutes boiling water bath.

Hot Pack—Prepare cherries as for Cold or Raw Pack. Measure after pitting. Mix 1/2 to 3/4 cup (120 mL to 180 mL) sugar with each quart cherries. Heat slowly until sugar dissolves and cherries are hot through. If cherries are unpitted, add a little water to prevent sticking. Pack, hot, into hot jars, leaving 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

GRAPES—RIPE

Make light syrup. Wash and drain grapes. Remove stems. Pour about 1/2 cup (120 mL) boiling syrup into hot jar. Fill jar with cherries. Shake jars to pack grapes closely without crushing, leaving a 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving a 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

GRAPES—UNRIPE

Green grapes, canned before the seeds harden, are used in pies. Make medium or heavy syrup. Wash, drain and stem grapes. Pack into hot jars, leaving a 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving a 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 20 minutes, quarts 25 minutes in boiling water bath.

GUAVAS

Make light syrup. Wash, peel and cut guavas into halves. Remove seeds. Heat syrup to boiling. Pour over fruit; let stand 30 minutes. Pack fruit into hot jars, leaving a 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving a 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

LOQUATS

Make light syrup. Wash and drain firm-ripe fruit. Remove stem and blossom ends; cut in half and remove seeds. Cook 3 to 5 minutes in syrup. Pack, hot, into hot jars, leaving 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 15 minutes, quarts 20 minutes, in boiling water bath.

NECTARINES

Follow recipes for canning Apricots.

PEACHES

See pages 20-21 for the best way to handle evenly ripened peaches. Scrape cavities to remove pink or red fibers. The fibers are likely to become an ugly brownish color; there is no other reason for removing them. Cling peaches are easier to cut into halves if a pitting spoon is pushed all the way through from the stem end to the end of the stone. If no spoon is available, cut both sides through to stone; begin at stem end and follow crease. After cutting, hold peach with both hands and twist in opposite directions.


MIXED FRUITS

Use three or more fruits, such as apricots, grapefruit, peaches, pears, green gage plums, pineapple, white cherries, white grapes. Make light syrup. Prepare each fruit as given in the recipe for canning it. If to be used for salad or dessert, leave in large pieces, cut into small pieces for cocktails. Simmer fruit in syrup until hot through. Pack, hot, into hot jars, leaving 1/2-inch (13 mm) head space. Cover with boiling syrup, leaving 1/2-inch (13 mm) head space. Remove air bubbles. Adjust caps. Process pints 20 minutes, quarts 25 minutes in boiling water bath.

Note—For juicy peaches, measure after pitting and peeling. Add 1 to 2 cups [240 mL to 480 mL] sugar to each 5 quarts [4750 mL] fruit. Heat slowly until sugar dissolves and fruit is boiling hot through. Pack and process as for Peaches—Hot Pack. If there is not enough syrup, add boiling water to cover peaches, leaving ½-inch [13 mm] head space.

BRANDIED PEACHES

4 pounds [1.8 kg] whole peeled peaches
3 pounds [1.4 kg] sugar
1 teaspoon [5 mL] salt
1 quart [950 mL] boiling water
1 pint [480 mL] peach brandy

Dissolve one-half of the sugar and the salt in the boiling water. Add one layer of peaches at a time and boil gently for 6 minutes. Peaches will darken if not heated through, but should not be cooked until soft. Put heated peaches in deep bowl; boil syrup 5 minutes and pour over fruit. Cover bowl and let stand overnight. Drain syrup into kettle, add remaining sugar, boil 5 minutes and pour back over peaches. Next day, pack peaches within ½-inch [13 mm] of top of pint fruit jars. Add 3 or 4 tablespoons [45 to 60 mL] of brandy to each jar. Boil syrup until about as thick as warm honey, and pour over peaches. Syrup should come to within ½-inch [6 mm] of top of jar. Put vacuum lid on jar; screw band tight. Process for 10 minutes in boiling water bath. Peaches should be ready to use in about a month. Yield: about 3 quarts [2850 mL].

CANNING PEACHES—STEP BY STEP

1. Visually examine jars for nicks, cracks and sharp edges on sealing surface.
2. Wash jars and closures in hot soapy water. Rinse. Leave jars and closures in hot water until needed.
5. Cut peaches into halves, pit and peel. Drop halves into salt-vinegar solution, 2 tablespoons [30 mL] each per gallon [3800 mL] of cold water. Rinse before packing.
9. Wipe top and threads of jar with clean, damp cloth. If using vacuum lids with metal screw bands, put lid on with sealing compound next to jar. Screw band down evenly and tightly.
10. As each jar is filled, stand it on rack in boiling water bath canner. Water in canner should be hot, but not boiling. If needed, add more hot water to cover jars 1-2 inches [25-51 mm]. Put cover on canner.
Peaches may be raw (cold) packed as shown here, or hot packed as described on page 20.

3. Select firm-ripe peaches. Sort, wash and drain just enough fruit for one canner load. Fill boiling water bath canner half full with hot water. Put canner on to heat. Prepare sugar syrup as described on page 17.

4. Put peaches in wire basket or cheesecloth. Dip peaches into boiling water one half to one minute to loosen skins. Dip into cold water. Drain.


7. Cover peaches with boiling hot syrup, leaving ½-inch [13 mm] head space. It will take 1-1½ cups [240-360 mL] syrup for each quart jar.

8. Run non-metallic kitchen utensil gently between fruit and jar to release air bubbles. Add more syrup if needed.

11. Bring water to a boil. At altitudes less than 1,000 feet [305 m] above sea level, process pints 25 minutes, quarts 30 minutes, at a gentle but steady boil.

12. Remove jars and stand several inches apart and out of drafts. Allow to cool for about 12 hours. Do not retighten bands. Test for seal. Remove bands. Store jars in dry, dark, cool place.
PEARS
Pears should be removed from the tree when full-grown and stored in a cool place (60°-65° F [16°-18° C]) until ripe, but not soft. Bartlett pears are considered best for canning, but Kieffers and similar varieties are satisfactory, if properly ripened and then cooked until almost tender in plain water before sugar is added.


Cinnamon Pears—Add 2 sticks cinnamon and a few drops of red food coloring per quart syrup. Remove cinnamon before packing pears. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

Mint Pears—Add oil of peppermint and green food coloring, a drop at a time, until syrup is flavored and colored as wanted. Cook pears in syrup 10 minutes before packing. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

Orange Pears—Cook peel of ¼ orange with each quart [950 mL] of syrup. Remove orange peel before packing pears. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

Pineapple Pears—Use pineapple juice instead of water for making syrup. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

Pear and Melon Balls—Make light syrup. Use equal measure of balls or cubes of firm—ripe fruit, using with the pears any combination of these varieties of melon: cantaloupe, Casaba, Crenshaw, Honeydew or Persian. Cover with boiling syrup. Let stand until cold. Drain. Pack fruit into hot jars, leaving ½-inch [13 mm] head space. Add 1 teaspoon [15 mL] lemon juice to each quart [950 mL], ½ tablespoon [7.5 mL] to each pint [480 mL]. Heat syrup to boiling. Pour over fruit, leaving ½-inch [13 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 25 minutes, in boiling water bath.

PEAR MINCEMEAT
7 pounds [3.2 kg] ripe Bartlett pears
1 lemon
2 pounds [454 g] seedless raisins
6 3/4 cups [1620 mL] sugar
1 tablespoon [15 mL] cloves
1 tablespoon [15 mL] cinnamon
1 tablespoon [15 mL] nutmeg
1 tablespoon [15 mL] allspice
1 teaspoon [5 mL] ginger
1 cup [240 mL] vinegar


Yield: about 9 pints [4320 mL].

BRANDED PEARSS
5 pounds [2.3 kg] ripe, unblemished pears
3 pounds [1.4 kg] sugar
4 cups [960 mL] water
3 cups [720 mL] brandy

Pare pears, making sure fruit entirely unblemished. Split and remove cores. In the meantime, make a syrup with sugar and water. Cook the pears in syrup a layer at a time, until just tender—about 5 minutes. Lift out, cool slightly and pack in jars. Cook the syrup about 15 minutes longer or until thickened. Add brandy and pour liquid over the fruit. Leave ¾-inch [6 mm] head space. Use white brandy for good-looking pears, but any brandy will preserve and flavor the fruit equally well. Seal at once. Process for 15 minutes in a boiling water bath canner.

Yield: about 4 quarts [3800 mL].

PLUMS AND FRESH PRUNES
Green gage and other meaty plums are better for canning than the more juicy varieties. Plums may be scalded and peeled, but are usually canned unpeeled. Prick plums with sterilized needle. Pricking does not prevent skins cracking, but helps prevent the fruit bursting. Make medium or heavy syrup. Wash and drain plums. Heat syrup to boiling. Add plums (not more than two layers in pan). Remove pan from heat two minutes after adding fruit. Cover. Let stand 20 to 30 minutes. Pack plums into hot jars, leaving ½-inch [13 mm] head space. Reheat syrup to boiling. Pour over plums, leaving ½-inch [13 mm] head space. Remove air bubbles. Adjust caps. Process pints 20 minutes, quarts 25 minutes, in boiling water bath.

RHUBARB

TOMATOES
Use fresh, firm, red-ripe tomatoes which are free of decayed spots, weather cracks and fungus growths. Wash tomatoes clean before scalding. Scald a few at a time to loosen skins, then dip in cold water. Cut out all core and green spots; skin.


A WORD ABOUT TOMATOES
Recent research by a leading university confirms that tomatoes, even those designated as "low acid," are safe to can by the boiling water bath method as long as standard canning procedures are followed. The study showed that tomatoes for canning should be firm, ripe and fully colored. Overripe tomatoes—those that are ordinarily soft, juicy, deep red in color and have wrinkled skins—should not be canned. Tomatoes that are too ripe result in an inferior canned product. More importantly, the study showed that acidity decreases as tomatoes ripen and that if tomatoes are not ripe when canned they may not have enough natural acidity to kill all the microorganisms present. The final product therefore may be unsafe to eat.

In canning tomatoes, normal sanitary precautions as outlined elsewhere in this book, should be taken. The recipe should be followed closely. The tomatoes should be processed by the boiling water bath method for the full length of time recommended in the recipe.

In the university study, 109 different varieties of tomatoes were tested. The research included several "low acid" varieties. The tomatoes were grown in different fields under various soil treatment conditions. The results showed that all those tested, even the "low acid" types, contained enough acid when the tomatoes were not overripe to make them completely safe for boiling water bath processing.

TOMATOES FOR SALAD
Prepare tomato juice. (See recipe below or use canned tomato juice.) Pack peeled and cored whole tomatoes into hot jars, leaving ¼-inch [13 mm] head space. Pour hot tomato juice over tomatoes, leaving ¼-inch [13 mm] head space. Remove air bubbles. Adjust caps. Process pints 35 minutes, quarts 45 minutes in boiling water bath.

TOMATO JUICE
Wash and drain firm, fresh, red-ripe tomatoes. (One small decayed spot can cause the whole batch to spoil.) Remove core and blossom ends. Leave tomatoes whole and bake in oven, or cut into small pieces and cook slowly (simmer) until soft, stirring often. Press through fine sieve or food mill. Salt, sugar and spices, to taste, may be added to the juice. Reheat juice until it is almost, but not quite, boiling. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process pints 10 minutes, quarts 15 minutes, in boiling water bath.

TOMATO PASTE
8 quarts [7600 mL] peeled, cored, chopped tomatoes (about 4 dozen large)
1½ cups [360 mL] chopped sweet red peppers (about 3)
2 bay leaves
1 tablespoon [15 mL] salt
1 clove garlic (optional)
Combine first four ingredients and cook slowly 1 hour. Press through a fine sieve; add garlic, if desired. Continue cooking slowly until thick enough to round up on a spoon, about 2½ hours. Stir frequently to prevent sticking. Remove garlic and bay leaves. Pour, hot, into hot half-pint jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 45 minutes in boiling water bath.
Yield: about 9 half-pints [2160 mL].

TOMATO PUREÉ
Wash, scald, peel and core tomatoes. Cook until soft. Press through fine sieve. Cook until thick; stir frequently to prevent sticking. If permitted in diet, 1 teaspoon [5 mL] each salt and sugar may be added to each quart [950 mL] puree. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process half-pints and pints 30 minutes in boiling water bath.
Yield: about 9 pints [4320 mL].

TOMATO PUREÉ—SEASONED
4 quarts [3800 mL] peeled, cored, chopped tomatoes (about 2 dozen large)
3 cups [720 mL] chopped onions
2 cups [480 mL] sliced carrots (about 4 medium)
2 cups [480 mL] chopped celery
1½ cups [360 mL] chopped green peppers (about 3 medium)
1 tablespoon [15 mL] salt
Combine all ingredients; cook until tender. Press through fine sieve. Cook pulp until thick, about 1½ hours. Stir frequently to prevent sticking. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process half-pints and pints 45 minutes in boiling water bath.
Yield: about 9 half-pints [2160 mL].

FRUIT JUICES

APRICOT OR PEACH JUICE, NECTAR OR PURÉE
Although it may be thinned with a light or medium syrup before canning, the pulp of apricots is usually canned as a purée and thinned with ice-cold water when used as a drink.

To Prepare: Wash, drain, pit and measure ripe apricots. Add 1 cup [240 mL] boiling water to each quart [950 mL] fruit. Cook until fruit is soft. Press through sieve or food mill. Add sugar to taste, also 1 tablespoon [15 mL] lemon juice to each quart [950 mL] if wanted. Reheat until sugar dissolves. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process half-pints and pints 15 minutes in boiling water bath. (3½ quarts [3088 mL] prepared fruit and 3¼ cups [780 mL] water yield about 9 pints [4320 mL] canned purée.)

Note: If using blender to make purée, fruit should be peeled.

BERRY JUICES
Use boysenberries, loganberries, raspberries, etc. Wash, crush and simmer berries until soft. Strain through cotton flannel, jelly bag or four layers of cheesecloth. (For a greater yield of juice, twist the two ends of the bag in opposite directions until most of the juice is extracted.) Add 1 to 2 cups [240 mL to 480 mL] sugar to each gallon juice. Reheat to 190°F [88°C]. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process pints and quarts 30 minutes in boiling water bath.

Note: If clearer juice is desired, before adding sugar let juice stand for 24 hours in refrigerator. Carefully ladle juice into pan (do not disturb sediment), add sugar, proceed as above.

BLACKBERRY CORDIAL
To 2 quarts [1900 mL] blackberry juice (see Berry Juices, above, for how to prepare juice), add 3 cups [720 mL] sugar, and 1 tablespoon [15 mL] each whole cloves, whole allspice, whole cinnamon and whole nutmeg (tied in bag). Simmer 30 minutes. Bring to boiling. Discard spice bag. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process pints and quarts 15 minutes in boiling water bath.

CRANBERRY JUICE

Wash cranberries. Boil equal measure of berries and water together until berries burst. Strain juice through cotton flannel, jelly bag or four layers of cheesecloth. (For a greater yield of juice, twist the two ends of the bag in opposite directions until most of the juice is extracted.) Add sugar to taste. Boil 1 minute. Pour, boiling hot, into hot pint or quart jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath.

GRAPE JUICE I

Wash, stem, crush and measure fresh, firm-ripe grapes. Add 1 cup [240 mL] water to each gallon, [3800 mL] crushed grapes. Heat 10 minutes at 190° F [88° C]. (Boiling develops a poor flavor.) Strain through cotton flannel, jelly bag or 4 layers of cheesecloth. (For greater yield of juice, twist the two ends of the bag in opposite directions until most of the juice is extracted.) Let stand 24 hours in refrigerator. Strain again. Add 1 to 2 cups [240 mL to 480 mL] sugar to each gallon juice. Reheat to 190° F [88° C]. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process, pints and quarts, 15 minutes, in boiling water bath.

GRAPE JUICE II

Wash and stem fresh, firm-ripe grapes. Put 1 cup [240 mL] grapes into a hot quart jar. Add ½ to 1 cup [120 mL to 240 mL] sugar. Fill jar with boiling water, leaving ¼-inch [6 mm] head space. Adjust cap. Process quarts 10 minutes in boiling water bath.

GRAPEFRUIT JUICE

Wash fresh, tree-ripened grapefruit. Extract and strain juice. Add sugar to taste. Heat to 165° F [74° C]. Pour, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process pints and quarts 30 minutes in boiling water bath. (Yield depends upon juiciness of fruit used.)

ORGANIC GARDENING

For those who grow their vegetables and fruits by the organic method, process by the processing methods and times as given in this book.

CANNING TOMATOES - STEP BY STEP

1. Set out all equipment and utensils needed. Fill large saucepan two-thirds full of hot water; put on high heat to boil.

5. Put tomatoes in wire basket and lower into boiling water in large saucepan. Remove after about 30 seconds or as soon as skin starts to crack. Dip into cold water.

9. Wipe top and threads of jar with clean, damp cloth. If using vacuum lids with metal screw bands, remove one lid from simmering water with tongs, and place it flat on top of jar so sealing compound is against jar. Screw band down evenly and tightly.

10. As each jar is filled, stand it on rack in canner of hot, not boiling, water. Water should cover jars 1-2 inches [25-51 mm]. Add more water if necessary.
2. Visually examine jars for nicks, cracks or sharp edges on sealing surface. Fill boiling water bath canner half full of hot water. Put canner on to heat.

3. Wash jars and closures in hot soapy water. Rinse. Leave jars and closures in hot water until needed. If using vacuum lids and metal screw bands, put lids in saucepan filled with water and place on stove to simmer.

4. Select just enough tomatoes for one canner load. Make sure tomatoes are fresh, firm and red ripe. Don't use any with spots, cracks or growths. Wash tomatoes carefully and drain.

6. Cut out core, remove skins and trim off any green spots. Remove one jar from hot water and drain. Place clean jar funnel on jar. Drop whole tomato into jar. (Large tomatoes should be cut into quarters.)

7. Remove the funnel. Use a non-metallic kitchen utensil to press the tomato until the juice runs out. Add additional tomatoes, pressing out the juice, until the jar is filled to within 1/2 inch [13 mm] of the top. If necessary, pour off a little juice or add tomato to achieve the proper head space.

8. Repeat process for each jar. Add 1 teaspoon [5 mL] canning salt to each quart jar, 1/2 teaspoon [2.5 mL] to a pint jar.) Run a non-metallic kitchen utensil between tomatoes and jar to release any trapped air bubbles.

11. Put cover on canner. Bring water to boil. Process quarts 45 minutes (pints 35 minutes) at a gentle but steady boil, at altitudes under 1,000 feet [305 m] above sea level. For higher altitudes, see chart on page 13.

12. Remove jars and stand several inches apart and out of drafts. Allow to cool for about 12 hours. Do not retighten bands. Test for seal. Remove bands. Store jars in dry, dark, cool area.
Pickles are one of the favorites of home canners and pickling is among the oldest known methods of preserving food, dating back to Biblical times. In today's meals, pickles are great for snacks and are the perfect companion for sandwiches.

When we speak of pickles, many of us think only of cucumbers. But in canning terms, pickles mean any fruit, meat or vegetable prepared by a pickling process, and include a wide variety of relishes.

Pickle products are either fermented in brine (salt) or packed in vinegar to aid preservation. Many older recipes called for pickles to be packed into jars and sealed without processing. This method is no longer recommended. There is always a danger of harmful microorganisms entering the food when it is transferred from pickling container to jar. Processing destroys organisms that can cause spoilage and inactivates enzymes that may affect flavor, color and texture.

Processing procedures for fermented cucumbers and fresh-pack dills are slightly different from the usual boiling water bath method. For these products, start to count processing time as soon as the filled jars are placed in the actively boiling water. This prevents the development of a cooked flavor and a loss of crispness.

Pickle products are generally grouped into four classes:

**Brined pickles**—Also called fermented pickles. They are made from vegetables, usually cucumbers, and are submerged in a brine solution to ferment or cure for about three weeks. Dilled cucumbers and sauerkraut belong in this group, and green tomatoes may also be brined. Dill, garlic and other herbs and spices are often added to the solution for flavoring.

**Fresh-pack pickles**—Also called quick-process pickles. Sometimes fresh-pack pickles are canned in a spicy vinegar solution without brining, but usually they are brined for several hours or overnight. Whole cucumber dills, sweet gherkins and dilled green beans are among products that may be prepared by this method.

**Relishes**—Relishes are prepared from fruits and/or vegetables which are chopped and cooked to desired consistency in a spicy vinegar solution. Sometimes sugar is added if a sweet relish is desired, and sometimes hot peppers or other spices are added for a hot relish. Relishes include piccalilli, pepper-onion, chutney, horseradish and corn relish.

**Fruit pickles**—Fruit pickles are usually prepared from whole fruits and simmered in a spicy, sweet-sour syrup. Pears, peaches and watermelon rind are among the products prepared in this manner.

**TOP QUALITY INGREDIENTS—THE KEY TO SUCCESSFUL PICKLING**

Pickling is one area of canning where it is essential to have top quality ingredients and to follow proper procedures carefully to achieve satisfactory results. And the ingredients and procedures may be right, but if the correct proportions of sugar, salt, vinegar and spices are not maintained, the quality will likely suffer.

**Fruits and vegetables**—Ideally, fruits and vegetables should be fresh from the garden, hopefully gathered no more than 24 hours before pickling. If preparation is delayed, the produce should be kept refrigerated until ready for use. Cucumbers especially deteriorate rapidly at room temperatures.

Select tender vegetables and firm fruit. Unlike other areas of canning, some recipes call for slightly underripe fruits and vegetables for pickling, such as pears and peaches and green tomatoes. Unwaxed cucumbers to be pickled whole should be used, since the brine cannot penetrate wax. Produce should be of the ideal size for the recipe being followed, and each fruit or vegetable should be of uniform size.

Ingredients for relishes should be chopped into uniform pieces for an attractive product. And cabbage for sauerkraut should be uniformly cut (about the thickness of a dime), with all large, coarse pieces of leaves or core eliminated.

Fruits and vegetables should be washed thoroughly in cold water. Wash whole before paring. Use a brush if possible, and scrub under running water or through several rinses. Clinging soil may contain bacteria that are hard to destroy. Remove blossoms from cucumbers, since they may be the source of enzymes which could soften the cucumbers during fermentation.

**Salt**—Brine solutions should be carefully prepared. Pure granulated or pickling salt should be used if at all possible. Un-iodized salt can be used, but additives in the salt that prevent caking may make the brine cloudy. Iodized table salt should not be used; it may darken pickles. The salt acts as a preservative and adds flavor and crispness to pickles. Brine draws juices and sugar from foods and forms lactic acid, a preservative.

**Vinegar**—Vinegar gives pickles a tart taste and acts as a preservative. Use a high-grade cider or white distilled vinegar of four to six percent acidity (sometimes listed as 40 to 60 grain). Vinegars of unknown acidity should not be used, since their preservative power is unknown. Cider vinegar, with its mellow acid taste, gives a nice blending of flavors, but may darken white or light-colored fruits and vegetables. Wherever color is important, such as in pickled pears, onions and cauliflower, white distilled vinegar should be used. It has a sharp, pungent, acetic acid taste. Vinegar should not be diluted unless the recipe so specifies. If a less sour product is preferred, add sugar rather than decrease vinegar, because otherwise the preservative balance will be upset.

**Sugar**—Use white granulated sugar, cane or beet, unless the recipe calls for another sweetener. Brown sugar will darken the product. Honey and maple syrup are sometimes called for in a recipe, and should be used if specified. Sugar substitutes should not be used unless the manufacturer’s specific instructions for pickling are followed.

**Spices and herbs**—Spices and herbs readily flavor pickles, adding immeasurably to their tastiness. Only fresh spices and herbs should be used. Whole fresh spices are preferred—
the dry, powdered and salt forms may cloud the pickling mixture. Spices and herbs lose their pungency readily in heat and humidity and therefore should be stored in airtight containers in a cool place. Seasoning can be added directly to pickling mixtures, but usually spices and herbs are tied in a bag of cheesecloth or muslin and held in the solution, just like a teabag.

**Water**—Soft water should be used for making brine. The minerals in hard water will have a definite negative effect on the quality of pickles. If soft tap water is not available, the water can be softened by boiling it for 15 minutes and then letting it stand for 24 hours. A scum will likely appear on the top of the water and this should be carefully skimmed off. Then the water should be ladled from the container without disturbing the sediment on the bottom. Add 1 tablespoon [15 mL] of vinegar per gallon [3800 mL] of boiled water before using. Distilled water, although it is relatively expensive, can be substituted in hard water areas.

**Other ingredients**—Some older recipes call for the use of alum and/or lime to add crispness or firmness to pickles. If the proper ingredients are used, these items are unnecessary and can cause digestive upset if used in excess. Coloring agents are not recommended.

**EQUIPMENT AND UTENSILS**

Very little specialized equipment is needed for pickling, and those who have done other types of canning will already have most of the needed utensils. There are some differences, however.

 Implements made of zinc, iron, brass, copper or galvanized metal should not be used. Enamelware with cracks or chips in the enamel also should not be used. The metal in these utensils may react with acids or salts and cause undesirable color and taste changes in pickles or create even more serious problems.

For the fresh-pack method, where vinegar is the pickling ingredient, almost any large container of the proper material is suitable. Unchipped enamelware, stainless steel or glassware is best.

For fermenting and brining, a crock or stone jar, an unchipped enamel-lined pan, a large glass jar, a bowl or a casserole can be used for small quantities. Kegs and barrels can be used for large quantities;

they should be of hardwood and either enamel, glass or paraffin lined.

The container used must be fitted with a heavy plate or lid which will fit inside the container to cover the food in the brine. A weight is necessary to hold the cover down and to keep the food below the surface of the brine. A glass jar filled with water makes a good weight.

Much of the rest of the equipment will be readily available in the kitchen.

**STEP-BY-STEP PICKLING**


2. Read recipe to determine equipment and ingredients necessary. Assemble all equipment and utensils. Make sure everything is clean.


4. Remove pickle products from pickling solution and pack into jars according to directions in recipe. Use just enough for one canner load at a time.

5. Leave proper head space.

6. Remove air bubbles.

7. Wipe top and threads of jar with clean, damp cloth. Attach closures.

8. Place each jar as it is filled onto rack in canner containing hot water. When canner is filled with jars, add hot water to cover jars 1 to 2 inches [25 to 51 mm]. Cover canner hot water to cover jars 1 to 2 inches [25 to 51 mm]. Cover canner.

9. When processing time has been reached, remove jars from canner. Stand jars on cloths, out of drafts and with space between. Complete seal if necessary.

10. After 12-24 hours, test seals.

11. Store sealed jars in dark, dry, cool place.

**BRINED CURED PICKLES**

Pickle making begins with the brine, and to make carelessly or to maintain carelessly a brine is the reason for most of the soft and unfit pickles.

Remember these key points: Use clean stone or glass jars, use only a recommended pickling variety of cucumbers, use only pure granulated salt, do not use hard water.

**FERMENTED OR BRINED PICKLED VEGETABLES**

Pickles must be placed in a brine and fermented for approximately 6 weeks before the addition of the final and last brine.

**GENERAL DIRECTIONS**

1. Wash cucumbers carefully. Use only freshly harvested, slightly immature pickling variety.

2. Weigh cucumbers. Put in a clean crock or glass jar and cover with a 10 percent brine solution—made by dissolving 1 cup [240 mL] salt in 2 quarts [1900 mL] water. (Cucumbers may be added during the first day or two of curing process if enough brine is added to cover them and if salt is added in definite amounts to maintain a 10 percent brine.)

3. Weight cucumbers down under brine with a clean plate or something similar. A glass jar filled with water makes an excellent weight.

4. Store in a cool, dark place.

5. Next day, add salt at the rate of 1 cup for each 5 pounds [2.3 kg] of cucumbers. This is necessary to maintain a 10 percent brine solution. Salt should be added on top of plate or clean cloth (and not directly on the cucumbers) to prevent its going to the bottom and forming too strong a brine there.

6. Remove scum when it forms on top of brine. This, if left on, will destroy the acidity of the brine and result in spoilage of the product.

7. At the end of the week and for 4 or 5 succeeding weeks, add ¼ cup [60 mL] salt for each 5 pounds [2.3 kg] of cucumbers. Add in same manner as in No. 5.

8. Fermentation resulting in bubble formation should continue about 4 weeks. Test for bubbles by tapping container on the side with your hand. As a second test, cut a cucumber in half; if it is the same color throughout and has no
noticeable rings or white spots, fermentation is complete.

9. Cucumbers may be kept in this 10 percent brine solution — no more salt added after they are cured— until made into pickles. Pour a layer of paraffin (%-inch [6 mm] thick) on top of brine; cover with a lid and store in a dark, dry, cool place.

10. The best temperature for brining cucumbers is about 80-85°F [27-28°C].

11. To use brined cucumbers in pickle recipes, they need to be soaked in water to remove salt.

## DESALTING CURED CUCUMBERS

1. Cover cucumbers with hot water (180°F [82°C]) (at least 3 times as much water as cucumbers.) Let stand about 4 hours. Stir occasionally.

2. Lift cucumbers out of water; pour out water, rinse container.

3. Cover cucumbers with hot water (180°F [82°C]). Let stand about 4 hours. Stir occasionally.

4. Lift cucumbers out of water; pour out water, rinse container.

5. Cover cucumbers with hot water (180°F [82°C]). Let stand about 4 hours. Stir occasionally.

6. Lift cucumbers out of water; pour out water, rinse container.

7. Prick the cucumbers through and through in several places to prevent shriveling, using silver or stainless steel fork.

8. Then let stand in a weak vinegar solution (1 part water to 3 parts cider vinegar) for 12 hours.

9. Taste to see if sufficient salt has been removed; if not, let stand 12 hours longer.

10. Place the "desalted" cucumbers into your favorite pickling solution. Note: If in no hurry, salted cucumbers can be soaked in cold water. Use 3 or 4 times as much water as cucumbers. Change the water every 8 hours. Stir the cucumbers occasionally. The salt should be removed in a 24-hour period.

## CUCUMBER CHUNKS

4 quarts [3800 mL] 1-inch [25 mm] slices small to medium cucumbers

**Brine 1**
1½ cups [360 mL] salt
4 quarts [3800 mL] water

**Brine 2**
1 quart [950 mL] vinegar

**Brine 3**
2 cups [480 mL] sugar
5 cups [1200 mL] vinegar
3 cups [720 mL] water
2 tablespoons [30 mL] mixed pickling spices

Add to brine 2 to 3 cups [480-720 mL] sugar

Put cucumber slices in a stone jar, large glass container or stainless steel container. Dissolve salt in 4 quarts [3800 mL] water. Pour over cucumber slices. Cover cucumbers with dinner plate or glass pie plate. Fill jar with water and use to hold plate under brine. Cover stone jar and let stand 36 hours in a cool place. Drain. Pour 1 quart [950 mL] vinegar over cucumbers; add water to cover. Simmer 10 minutes. Drain, discarding liquid. Combine 2 cups [480 mL] sugar, 5 cups [1200 mL] vinegar and 3 cups [720 mL] water. Tie spices in a cheesecloth bag; add to vinegar mixture. Simmer 10 minutes. Pour over cucumbers; cover and let stand 24 hours. Drain, reserving syrup; add remaining 2 to 3 cups of sugar to syrup according to taste; heat to boiling. Pour over cucumbers. Cover and let stand 24 hours. Pack pickles into hot jars, leaving %-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

Note: The brined cucumbers could be cut into sticks or chunks, rather than rings.

## CUCUMBER SANDWICH PICKLES

6 cups [1440 mL] %-inch [6 mm] slices small to medium cucumbers

**Brine 1**
1/2 cup [120 mL] salt
2 quarts [1900 mL] cold water

**Brine 2**
3 cups [720 mL] vinegar

3 cups [720 mL] water

**Brine 3**
1 cup [240 mL] brown sugar
1 cup [240 mL] sugar
1/2 teaspoon [2.5 mL] celery seed
1/2 teaspoon [2.5 mL] mustard seed
1/2 teaspoon [2.5 mL] turmeric
2 cups [480 mL] vinegar
1 cup [240 mL] water

Sprinkle salt over cucumbers; add 2 quarts [1900 mL] cold water and let stand 2 to 3 hours. Drain thoroughly. Combine 3 cups [720 mL] vinegar and 3 cups [720 mL] water; bring to boiling. Add cucumbers, simmer about 8 minutes. (Cucumbers should not become soft.) Drain well, discarding liquid. Combine 2 cups [480 mL] vinegar and 1 cup [240 mL] water with remaining ingredients; simmer 10 minutes. Add drained cucumbers. Bring to boiling. Pack, boiling hot, into hot pint jars, leaving %-%inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 3 pints [1440 mL].
CURED OR BRINED DILL PICKLES

40-50 medium size cucumbers
1 pound (1 1/2 cups) [454 g] pure salt
3/4 cup (2 oz.) [56 g] whole mixed pickling spices
2 bunches fresh or dried dill
1 pint [480 mL] vinegar
2 gallons [7600 mL] water

Wash and drain the cucumbers. Place half of pickling spices and a layer of dill in a 5-gallon [19 L] clean crock. Add cucumbers to the crock. Place a layer of dill in a 5-gallon [19 L] clean crock. Add cucumbers to the crock. Place a layer of dill and other half of pickling spices over the top. Garlic may be added to recipe if desired.

Cover with a heavy clean plate or something similar to hold the cucumbers under the brine. Use only enough brine to cover the plate, since the liquid drawn from the cucumbers may overflow the crock.

Keep container at about 70°F [21°C]. Daily remove the scum that forms over the top. Let pickles ferment until well-flavored with dill and clear throughout, with no white spots when cut. In about 2 to 3 weeks the pickles should be ready to use.

Pack the cured pickles into hot quart jars, leaving 1/4-inch [6 mm] head space. Strain the pickle brine, and develop a satisfactory flavor.

Note: You may use cured cucumbers in this recipe. If so, make these changes:
1. Use only 1/4 cup [60 mL] salt.
2. Let set in this pickling solution 3 weeks before sealing; and
3. Drain liquid off weekly, bring to a boil and pour over cucumbers.

SWEET CHUNK PICKLES

2 dozen (3 to 4-inch)
[76-102 mm] cucumbers

Brine 1
1/2 cup [120 mL] salt
1/2 cup [120 mL] vinegar
2 quarts [1900 mL] water

Brine 2
6 cups [1440 mL] sugar
1 stick cinnamon
1 1/2 teaspoons [7.5 mL] whole cloves
1 1/2 teaspoons [7.5 mL] mixed pickling spices
3 cups [720 mL] vinegar

Wash and dry cucumbers. Put cucumbers in a stone jar or stainless steel container. Add salt and 1/2 cup [120 mL] vinegar to 2 quarts [1900 mL] water. Bring to boiling; cool. Pour over cucumbers. Cover with dinner plate or glass pie plate. Fill jar with water and use to hold plate under brine. Cover and let stand 2 weeks in a cool place. (If scum forms, remove it each day.) Drain, discarding brine, and cut cucumbers into 1-inch [25 mm] chunks. Cover with cold water; let stand 24 hours. Drain, reserving syrup. Heat syrup to boiling and pour over pickles. Let stand 24 hours. Repeat the last step three times. Pack pickles into hot pint jars, leaving 1/4-inch [6 mm] head space. Remove spice bag. Heat syrup to boiling. Pour syrup to boiling, over pickles, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 10 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

SWEET ICICLE PICKLES

20 cucumbers, 4 to 6 inches [102-152 mm] long, cut into quarters

Brine 1
1 cup [240 mL] salt
2 quarts [1900 mL] water

Brine 2
1 1/2 tablespoons [22.5 mL] mixed pickling spices
5 cups [1200 mL] sugar
5 cups [1200 mL] vinegar

Put cucumber strips in stone jar, large glass container, or stainless steel container. Add salt to water and bring to boiling. Pour over cucumbers. Cover cucumbers with dinner plate or glass pie plate. Fill jar with water and use to hold plate under brine. Cover stone jar and let stand 1 week in a cool place. (If scum forms, remove it each day.) Drain, discarding brine; rinse cucumbers thoroughly. Cover with boiling water; let stand 24 hours. Drain. Cover with boiling water. Cover; let stand 24 hours. Drain. Tie spices in a cheesecloth bag. Add to syrup and vinegar; bring to boiling. Pour over cucumbers. Pour over cucumbers; cover and let stand 24 hours. Drain syrup; bring syrup to boiling, over pickles, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 10 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

SOUR CUCUMBER PICKLES

May be made by following directions for Sweet Cucumber Pickles, except omit all or part of sugar.

SWEET FRESH PICKLE

The food product is placed in jars, brine is added and jars processed. It requires a time period of about 4 to 5 weeks for the food item to cure and develop a satisfactory flavor.
### APPLE CHUTNEY
2 quarts [1900 mL] chopped, cored, pared, tart apples (about 16 medium)  
2 pounds [907 g] seedless raisins  
1 cup [240 mL] chopped onions  
1 cup [240 mL] chopped sweet red peppers (about 2 medium)  
4 cups [960 mL] brown sugar  
3 tablespoons [45 mL] mustard seed  
2 tablespoons [30 mL] ground ginger  
2 teaspoons [10 mL] ground allspice  
2 teaspoons [10 mL] salt  
2 hot red peppers  
1 clove garlic, crushed  
1 quart [950 mL] vinegar

Combine ingredients; simmer until thick, about 1 hour and 15 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot pint jars, leaving 5/8-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 8 pints [3840 mL].

**Note:** For a milder chutney, another quart of chopped apples may be used.

### PEACH OR PEAR CHUTNEY
4 quarts [3800 mL] finely chopped, peeled peaches or pears  
1 cup [240 mL] seedless raisins  
1 cup [240 mL] chopped onions  
2 to 3 cups [480-720 mL] brown sugar  
1/2 cup [60 mL] mustard seed  
2 tablespoons [30 mL] ground ginger  
2 teaspoons [10 mL] salt  
1 clove garlic, minced (optional)  
1 hot red pepper  
5 cups [1200 mL] vinegar

Combine all ingredients and cook slowly until thick, about 1 1/2 to 2 hours. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot pint jars, leaving 5/8-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 10 pints [4800 mL].

### TOMATO APPLE CHUTNEY
2 1/2 quarts [2375 mL] peeled, cored, chopped ripe tomatoes (about 15 large)  
1 quart [950 mL] chopped, cored, pared apples (about 4 to 6)  
2 cups [480 mL] chopped cucumber (about 1 large)  
1 1/2 cups [360 mL] chopped onion  
1 1/2 cups [360 mL] chopped sweet red peppers (about 3 medium)  
1 cup [240 mL] seedless raisins  
3 cups [720 mL] brown sugar  
1 hot red pepper  
1 clove garlic, crushed  
1 tablespoon [15 mL] ground ginger  
1 teaspoon [5 mL] salt  
1 teaspoon [5 mL] ground cinnamon  
3 cups [720 mL] vinegar

Combine all ingredients and cook slowly until thick, about 1 1/2 to 2 hours. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot pint jars, leaving 5/8-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 3 pints [1400 mL].

### FRUIT PICKLES

#### CRAB APPLE PICKLES
2 quarts [1900 mL] crab apples with stems (about 2 1/2 pounds [1.1 kg])  
6 cups [1440 mL] sugar  
2 sticks cinnamon  
1 1/2 tablespoons [22.5 mL] whole allspice  
1 1/2 tablespoons [22.5 mL] whole cloves  
3 cups [720 mL] water  
3 cups [720 mL] vinegar

To prevent apples from bursting, run a large sterilized needle through each. Tie spices in a cheesecloth bag. Combine remaining ingredients; add spices and boil 5 minutes. Add apples, a layer at a time, cook gently until the apples are almost tender. Carefully remove apples. Repeat until all apples are cooked. Pour boiling syrup over apples. Cover and let apples stand 12 to 18 hours in a cool place. Carefully pack apples into hot jars, leaving 5/8-inch [6 mm] head space. Remove spice bag. Heat syrup to boiling. Pour boiling syrup over apples, leaving 5/8-inch [6 mm] head space. Remove air bubbles.

Adjust caps. Process pints and quarts 15 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

#### FIG PICKLES
4 quarts [3800 mL] firm-ripe figs  
3 cups [720 mL] sugar  
2 quarts [1900 mL] water  
2 cups [480 mL] sugar  
2 sticks cinnamon  
1 tablespoon [15 mL] whole allspice  
1 tablespoon [15 mL] whole cloves  
3 cups [720 mL] vinegar

Peel figs. (If unpeeled are preferred, pour boiling water over figs and let stand until cool; drain.) Add 3 cups [720 mL] sugar to water and heat until sugar dissolves. Add figs and cook slowly 30 minutes. Add 2 cups [480 mL] sugar and vinegar. Tie spices in a cheesecloth bag; add to figs. Cook gently until figs are clear. Cover and let stand 12 to 24 hours in a cool place. Remove spice bag. Heat to simmering; pack, hot, into hot jars, leaving 5/8-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 15 minutes in boiling water bath. Yield: about 8 pints [3840 mL].

#### PEACH PICKLES
8 pounds [3.6 kg] peeled peaches (small to medium sized)  
3 pounds [1.4 kg] sugar  
4 sticks cinnamon (2 inches long) [51 mm]  
2 tablespoons [30 mL] whole cloves, crushed  
1 tablespoon [15 mL] ginger  
1 quart [950 mL] vinegar

Wash and peel peaches with a sharp knife, and drop into a cold salt and vinegar water solution (2 tablespoons [30 mL] each of salt and vinegar per gallon [3800 mL] water). Dissolve sugar in vinegar in preserving kettle and put on range to heat. Boil 5 minutes and skim. Add spices (tied loosely in cheesecloth). Wash salt-vinegar water off peaches and drain well. Drop drained peaches into boiling syrup and cook until they can be pierced with a fork, but not soft. Remove from range and allow peaches to set in syrup overnight to plump. Bring to a boil and pack into hot, preheated jars, leaving 5/8-inch [6 mm] head space. Cover with syrup, leaving 5/8-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 20 minutes in boiling water bath. Yield: about 3 quarts [2850 mL].
PEACH PICKLES
24 small firm-ripe peeled peaches
2 cups [480 mL] sugar
2 sticks cinnamon
1 tablespoon [15 mL] whole allspice
1 tablespoon [15 mL] whole cloves
1 piece ginger root
3 cups [720 mL] vinegar
2 cups [480 mL] water
2 cups [480 mL] sugar

Clingstones are best for pickling, but freestone peaches may be used. Prepare peaches as given in recipe on page 31. Tie spices in a cheesecloth bag. Add spice bag, 2 cups [480 mL] sugar and water to vinegar. Bring to boiling; add peaches, a few at a time, simmer until heated thoroughly. Carefully remove peaches. Repeat until all peaches have been heated. Pour boiling syrup over peaches; cover and let stand 3 to 4 hours. Carefully remove peaches from syrup. Add 2 cups [480 mL] sugar to the syrup and heat to boiling. Pour boiling syrup over peaches; cover and let stand 12 to 18 hours in a cool place. Pack peaches into hot jars, leaving ¼-inch [6 mm] head space. Add remaining 2 cups [480 mL] sugar to syrup. Bring to boiling, pour over peaches, leaving ¼-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 15 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

Note: Sugar is added in small amounts to avoid shriveling the peaches.

PEAR PICKLES
4 dozen firm-ripe Seckel pears
3 cups [720 mL] sugar
1 tablespoon [15 mL] mixed pickling spices
1 teaspoon [5 mL] whole cloves
1 piece ginger root
½ lemon, thinly sliced
2½ cups [600 mL] water
1½ cups [360 mL] vinegar

Pare pears, leaving whole with stem intact. Tie spices in a cheesecloth bag; add to remaining ingredients; simmer 5 minutes. Add pears, a layer at a time, and cook gently until just tender, about 15 minutes. Carefully remove pears. Repeat until all pears are cooked. Pour boiling syrup over pears. Cover and let stand 12-18 hours in a cool place. Pack pears into hot jars, leaving ¼-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 15 minutes in boiling water bath. Yield: 3 to 4 pints [1440-1920 mL].

Note: Other small firm-ripe pears may be used. If Kieffer or sand pears are used, they should be cored, covered with hot water, simmered for 10 to 15 minutes and then drained before they are added to the pickling syrup.

ARTICHOKE RELISH
2 pounds [907 g] artichokes
1 cup [240 mL] salt
1 gallon [3800 mL] water
1 pound [454 g] sugar
1 pint [480 mL] ground sweet red or green peppers
1 pint [480 mL] ground onions
2 tablespoons [30 mL] mustard seed
1 tablespoon [15 mL] turmeric
½ teaspoon [1.25 mL] salt
1 quart [950 mL] vinegar


Note: Pickled and quick-cooked vegetables are used as relishes in vegetables, soups, salads, and sandwiches. A large number of ingredients can be used in this manner. Beets, carrots, onions, tomatoes, etc., can all be used to make relishes. A good relish is always a combination of several vegetables and fruits.

INDIA RELISH
12 cups [2880 mL] peeled and chopped tomatoes
3 cups [720 mL] chopped celery
2 cups [480 mL] chopped onions
½ cup [60 mL] salt
4 cups [960 mL] vinegar
3 cups [720 mL] brown sugar
½ cup [80 mL] mustard seed
2 chopped red peppers
1 teaspoon [5 mL] ground cinnamon
½ teaspoon [3.75 mL] ground allspice
½ teaspoon [3.75 mL] ground cloves

Allow the tomatoes, celery, onions and salt to stand for two hours. Add the rest of the ingredients and cook until the mixture is thickened. Fill hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in a boiling water bath canner. Yield: about 10 pints [4800 mL].

BEET OR RED RELISH
1 quart [950 mL] chopped cooked beets
1 quart [950 mL] chopped cabbage (about 1 small head)
1 cup [240 mL] chopped onions
1 cup [240 mL] chopped sweet red peppers (about 2 medium)
1½ cups [360 mL] sugar
1 tablespoon [15 mL] prepared horseradish
1 tablespoon [15 mL] salt
3 cups [720 mL] vinegar


CHOW-CHOW RELISH
1 quart [950 mL] chopped cabbage (about 1 small head)
3 cups [720 mL] chopped cauliflower (about 1 medium head)
2 cups [480 mL] chopped green tomatoes (about 4 medium)
2 cups [480 mL] chopped onions
2 cups [480 mL] chopped sweet green peppers (about 2 medium)
1 cup [240 mL] chopped sweet red peppers (about 2 medium)
3 tablespoons [45 mL] salt
1½ cups [360 mL] sugar
2 teaspoons [10 mL] celery seed
2 teaspoons [10 mL] dry mustard
1 teaspoon [5 mL] mustard seed
1 teaspoon [5 mL] turmeric
½ teaspoon [2.5 mL] ground ginger
2½ cups [600 mL] vinegar

Combine chopped vegetables; sprinkle with salt. Let stand 4 to 6 hours in a cool place. Drain well.
Combine vinegar, sugar and spices; simmer 10 minutes. Add vegetables; simmer 10 minutes. Bring to boiling.


### CORN RELISH

- 2 quarts [1900 mL] cut corn (about 18 ears)
- 1 quart [950 mL] chopped cabbage (about 1 small head)
- 1 cup [240 mL] chopped onions
- 1 cup [240 mL] chopped sweet green peppers (about 2 medium)
- 1 cup [240 mL] chopped sweet red peppers (about 2 medium)
- 1-2 cups [240-480 mL] sugar
- 2 tablespoons [30 mL] dry mustard
- 1 tablespoon [15 mL] celery seed
- 1 tablespoon [15 mL] mustard seed
- 1 tablespoon [15 mL] salt
- 1 tablespoon [15 mL] turmeric
- 1 quart [950 mL] vinegar
- 1 cup [240 mL] water


To make corn relish with frozen corn: Defrost overnight in refrigerator, or for 2 to 3 hours at room temperature. You may place frozen corn in front of fan to hasten defrosting. Follow directions in recipe.

To make corn relish with vacuum packed canned whole kernel corn: Drain enough canned corn to measure 2 quarts [1900 mL], and combine with ingredients listed. Follow directions in recipe.

### CUCUMBER RELISH

- 2 quarts [1900 mL] chopped cucumbers (about 4 medium)
- 2 cups [480 mL] chopped sweet green peppers (about 4 medium)
- 2 cups [480 mL] chopped sweet red peppers (about 4 medium)
- 1 cup [240 mL] chopped onions
- ½ cup [120 mL] salt
- 2 quarts [1900 mL] cold water
- 1½ cups [360 mL] brown sugar
- 2 sticks cinnamon
- 1 tablespoon [15 mL] mustard seed
- 1 tablespoon [15 mL] turmeric
- 2 teaspoons [10 mL] whole allspice
- 2 teaspoons [10 mL] whole cloves
- 1 quart [950 mL] vinegar

Combine cucumbers, peppers and onions; sprinkle with turmeric. Dissolve salt in 2 quarts [1900 mL] cold water and pour over vegetables; let stand 3 to 4 hours. Drain; cover vegetables with cold water and let stand 1 hour. Drain thoroughly. Tie spices in a cheesecloth bag; add to vinegar; simmer 20 minutes. Bring to boiling. Pack, boiling hot, into hot half-pint jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 half-pints [1680 mL].

### HORSEHERRISH RELISH

- 1 cup [240 mL] grated horseradish
- ½ teaspoon [1.25 mL] salt
- ½ cup [120 mL] vinegar

Wash horseradish roots thoroughly, and remove the brown, outer skin. (A vegetable peeler is useful in removal of outer skin.) The roots may be grated, or cut into small cubes and put through a food chopper or a blender. Combine ingredients. Pack into clean jars. Seal tightly. Store in refrigerator.

### PEAR RELISH

- 1 peck pears [8810 mL]
- 6 large onions
- 6 sweet green peppers
- 6 sweet red peppers
- 1 bunch celery

Wash the above ingredients in cold water. Peel and core the pears. Remove stem and seed from the pears. Clean the celery, peel the onion, and put them through a food chopper. Then add:

- 3 cups [720 mL] sugar
- 1 tablespoon [15 mL] allspice
- 1 tablespoon [15 mL] salt
- 5 cups [1200 mL] vinegar


### DIXIE RELISH

- 1 quart [950 mL] chopped cabbage (about 1 small head)
- 2 cups [480 mL] chopped onions
- 2 cups [480 mL] chopped sweet green peppers (about 4 medium)
- 2 cups [480 mL] chopped sweet red peppers (about 4 medium)
- ½ cup [120 mL] salt
- 2 quarts [1900 mL] cold water
- ¾ cup [180 mL] sugar
- 3 tablespoons [45 mL] mustard seed
- 2 tablespoons [30 mL] celery seed
- 1 quart [950 mL] vinegar

Dissolve salt in 2 quarts [1900 mL] cold water. Pour over chopped vegetables and let stand 1 hour. Drain. (If too salty, rinse and drain again.) Add vegetables, sugar and spices to vinegar; simmer 20 minutes. Bring to boiling. Pack, boiling hot, into hot half-pint jars,
**PEPPER-ONION RELISH**

2 quarts [1900 mL] chopped sweet green peppers (about 16 medium)
2 quarts [1900 mL] chopped sweet red peppers (about 16 medium)
1 1/2 cups [360 mL] chopped onions
3/4 cup [180 mL] sugar
2 teaspoons [10 mL] whole mixed pickling spices
2 teaspoons [10 mL] salt
1 hot pepper
1 1/2 cups [360 mL] vinegar

Cover chopped vegetables with boiling water; let stand 5 minutes. Drain; cover again with boiling water and let stand 10 minutes. Drain. Tie spices and hot red pepper in a cheesecloth bag. Add spice bag, sugar and salt to vinegar; simmer 15 minutes. Add drained vegetables and simmer 10 minutes. Remove spice bag. Bring to boiling. Pour, boiling hot, into hot half-pint jars, leaving 3/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

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**RED PEPPER RELISH**

7 cups [1680 mL] finely chopped sweet red peppers (14-16 medium)
6 cups [1440 mL] sugar
2 tablespoons [30 mL] salt
1 quart [950 mL] vinegar

Combine peppers and salt; let stand 3 to 4 hours. Add sugar and vinegar; cook, stirring frequently, until thick, about 45 minutes. Pour, boiling hot, into hot half-pint jars, leaving 3/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

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**RUMMAGE RELISH**

2 quarts [1900 mL] cored, chopped green tomatoes (about 16 medium)
1 quart [950 mL] chopped ripe tomatoes (about 6 large)
1 quart [950 mL] chopped cabbage (about 1 small head)
3 cups [720 mL] chopped onions
2 cups [480 mL] chopped celery
1 cup [240 mL] chopped cucumbers
1 cup [240 mL] chopped sweet green peppers (about 2 medium)
1 cup [240 mL] chopped sweet red peppers (about 2 medium)
1 1/2 cups [360 mL] brown sugar
2 cloves garlic, minced
1 tablespoon [15 mL] celery seed
1 tablespoon [15 mL] ground cinnamon
1 tablespoon [15 mL] mustard seed
1 teaspoon [5 mL] ground ginger
1/2 teaspoon [2.5 mL] ground cloves
2 quarts [1900 mL] vinegar

Combine tomatoes, onions, sweet green or sweet red peppers (about 3 medium) and hot red peppers, sugar and salt. Cook until vegetables are soft, about 30 minutes. Press through a fine sieve to prevent sticking. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process half-pints and pints 20 minutes in boiling water bath. Yield: about 4 to 5 pints [1920-2400 mL].

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**BARBECUE SAUCE**

4 quarts [3800 mL] peeled, cored, chopped red-ripe tomatoes (about 24 large)
2 cups [480 mL] chopped celery
2 cups [480 mL] chopped onions
1 1/2 cups [360 mL] chopped sweet green or sweet red peppers (about 3 medium)
2 hot red peppers
1 cup [240 mL] brown sugar
2 cloves crushed garlic
1 tablespoon [15 mL] dry mustard
1 tablespoon [15 mL] paprika
1 teaspoon [5 mL] salt
1 teaspoon [5 mL] paprika
1 teaspoon [5 mL] Tabasco sauce
1/4 teaspoon [.5 mL] cayenne pepper
1 cup [240 mL] vinegar

Combine tomatoes, quartered onions, celery and peppers. Cook until vegetables are soft, about 30 minutes. Press through a fine sieve or food mill. Cook until mixture is reduced to about one-half, about 45 minutes. Tie peppercorns in a cheesecloth bag; add with remaining ingredients and cook slowly until mixture is the consistency of catsup, about 1 1/2 hours. As mixture thickens, stir frequently to prevent sticking. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process half-pints and pints 20 minutes in boiling water bath. Yield: about 4 to 5 pints [1920-2400 mL].

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**CHILI SAUCE**

4 quarts [3800 mL] peeled, cored, chopped, red-ripe tomatoes (about 24 large)
2 cups [480 mL] chopped onions
2 cups [480 mL] chopped sweet red peppers (about 4 medium)
1 hot red pepper
1 cup [240 mL] sugar
3 tablespoons [45 mL] salt
3 tablespoons [45 mL] mixed pickling spices
1 tablespoon [15 mL] celery seed
1 tablespoon [15 mL] mustard seed
2 1/2 cups [600 mL] vinegar

Combine tomatoes, onions, sweet and hot peppers, sugar and salt. Cook gently 45 minutes. Tie spices
in a cheesecloth bag; add to tomato mixture; cook until very thick, about 45 minutes. As mixture thickens, stir frequently to prevent sticking. Add vinegar and cook slowly until as thick as wanted. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

PERUVIAN SAUCE

4 quarts [3800 mL] peeled, cored, chopped, red-ripe tomatoes (about 24 large)
1 quart [950 mL] chopped, cored, pared apples (4 to 5 medium)
1 quart [950 mL] chopped onions
1½ cups [360 mL] chopped sweet green peppers (about 3 medium)
1 hot red pepper
1 clove crushed garlic
3 cups [720 mL] brown sugar
1 tablespoon [15 mL] ground allspice
1 tablespoon [15 mL] mustard seed
1 tablespoon [15 mL] salt
1 teaspoon [5 mL] ground cinnamon
3 cups [720 mL] vinegar

Combine tomatoes, onions, apples, peppers, garlic and sugar. Cook slowly until thick, about 1 hour. As mixture thickens, stir frequently, to prevent sticking. Add salt, spices and vinegar. Cook until thick as wanted, about 45 to 60 minutes. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

RED HOT SAUCE

2 quarts [1900 mL] peeled, cored, chopped red-ripe tomatoes (about 3 large)
1½ cups [360 mL] chopped, seeded, long, hot red peppers (about 24)
2 cups [480 mL] vinegar
1 cup [240 mL] sugar
2 tablespoons [30 mL] mixed pickling spices
1 tablespoon [15 mL] salt
2 cups [480 mL] vinegar

Use rubber gloves to prevent burning hands when seeding hot peppers. Combine tomatoes, peppers and 2 cups [480 mL] vinegar; cook until tomatoes are soft. Press through a sieve or food mill. Add sugar and salt. Tie spices in a cheesecloth bag and add to tomato mixture. Cook about 30 minutes or until thick. As mixture thickens, stir frequently to prevent sticking. Add remaining 2 cups [480 mL] vinegar. Cook until thick as wanted, about 20 to 30 minutes. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [950 mL].

SPICY CHILI SAUCE

4 quarts [3800 mL] peeled, cored, chopped, red-ripe tomatoes (about 24 large)
2 cups [480 mL] chopped onions
1½ cups [360 mL] chopped sweet green peppers (about 3 medium)
1½ cups [360 mL] chopped sweet red peppers (about 1 medium)
1 tablespoon [15 mL] celery seed
1 teaspoon [5 mL] salt
1 teaspoon [5 mL] paprika
1 tablespoon [15 mL] allspice
1 teaspoon [5 mL] mustard seed
1 teaspoon [5 mL] salt
1 teaspoon [5 mL] ground allspice
1 teaspoon [5 mL] ground cloves
1 teaspoon [5 mL] ground cinnamon
1 tablespoon [15 mL] ground ginger
1 to 1½ cups [240-360 mL] vinegar

Combine all ingredients. Bring to boiling; simmer until thick as wanted, about 1 to 2 hours. Stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 8 pints [3840 mL].

WHOLE CRANBERRY SAUCE

8 cups [1920 mL] cranberries
4 cups [960 mL] sugar
4 cups [960 mL] water

**JELLIED CRANBERRY SAUCE**

4 1/4 cups [1020 mL] cranberries
1 3/4 cups [420 mL] water
2 cups [480 mL] sugar

Wash, sort and stem berries. Boil berries and water together until skins burst. Press through sieve or food mill. Add sugar to pulp and juice. Boil almost to jellying point (see page 42.) Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 2 pints [960 mL].

**VICTORIA SAUCE (RHUBARB)**

2 quarts [1900 mL] chopped rhubarb
1 1/2 cups [360 mL] chopped, seedless raisins
1/2 cup [120 mL] chopped onions
3 1/2 cups [840 mL] brown sugar
1/2 cup [120 mL] vinegar
1 teaspoon [5 mL] ground allspice
1 teaspoon [5 mL] ground cinnamon
1 teaspoon [5 mL] ground ginger
1 teaspoon [5 mL] salt

Combine rhubarb, onion, raisins, sugar and vinegar. Cook until thick, about 25 minutes. As mixture thickens, stir frequently to prevent sticking. Add spices; cook 5 minutes longer. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 pints [1920 mL].

**CUCUMBER CHIPS**

24 thinly sliced cucumbers, 4 to 5 inches long [102-127 mm]
1/2 cup [120 mL] salt
1 tablespoon [15 mL] turmeric
3 cups [720 mL] vinegar
1 quart [950 mL] water
2 cups [480 mL] sugar
2 sticks cinnamon
1 piece ginger root
1 tablespoon [15 mL] mustard seed
1 teaspoon [5 mL] whole cloves
1 cup [240 mL] water
2 cups [480 mL] brown sugar

Sprinkle salt over cucumber slices; mix thoroughly. Let stand 3 hours: drain thoroughly. Combine turmeric, 3 cups [720 mL] vinegar and 1 quart [950 mL] water; bring to boiling and pour over cucumbers. Let stand until cool; drain. (Taste cucumbers; if too salty, rinse thoroughly, drain.) Add sugar to 1 quart [950 mL] vinegar and 1 cup [240 mL] water. Tie spices in a cheesecloth bag. Add to vinegar mixture and simmer 15 minutes; pour over cucumbers. Let stand 12 to 24 hours in a cool place. Remove spice bag. Drain syrup into kettle; add brown sugar and heat to boiling. Pack hot cucumber chips into hot jars, leaving 1/4-inch [6 mm] head space. Heat syrup to boiling. Pour syrup, boiling hot, over cucumbers, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

**CRYSTAL PICKLES**

7 pounds [3.2 kg] green tomatoes
2 gallons [7600 mL] water
1/2 ounce [9 g] lime
4 1/2 pounds [2 kg] sugar
6 sticks cinnamon, 2 inches long [51 mm] 
2 tablespoons [30 mL] salt
1 teaspoon [5 mL] grated nutmeg
1 teaspoon [5 mL] ground ginger
2 quarts [1900 mL] vinegar

Wash green tomatoes thoroughly; drain; slice 1/4-inch [6 mm] thick; place in large container. Dissolve lime in water. If brine is cloudy, pour through a cheesecloth. Pour brine over tomato slices; let stand 24 hours, stirring occasionally. Remove. Rinse well through several cold waters to remove all lime sediment; soak in cold water for 4 hours; change water each hour; drain. Dissolve sugar in vinegar, add spices tied loosely in cheesecloth and bring to a boil. Add tomato slices and boil rapidly until slices are glazed and syrup clings to the spoon in drops. Remove from heat and allow to set in syrup overnight. Drain off syrup and bring to a boil. Pack tomato slices loosely into hot jars, leaving 1/4-inch [6 mm] head space. Cover with boiling syrup, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 pints [3360 mL].

**DILL PICKLES KOSHER**

Follow recipe for Dill Pickles—Short Method. When packing cucumbers, add to each jar:

- 1 bay leaf
- 1 clove garlic
- 1 piece hot red pepper
- 1/2 teaspoon [2.5 mL] mustard seed

Process as recommended.

**DILL PICKLES SWEET**

1 quart [950 mL] medium dill pickles
4 cups [960 mL] sugar
3 tablespoons [45 mL] mixed pickling spices
1 cup [240 mL] vinegar

Cut pickles into 1/4-inch [6 mm] slices. Pack loosely into hot jars, leaving 1/4-inch [6 mm] head space. Tie spices in cheesecloth bag; add to sugar and vinegar. Bring mixture to boil; cool to room temperature. Remove spice bag. Pour syrup over pickle slices, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Immediately place in refrigerator and leave there a minimum of one week before using to develop flavor. Yield: about 2 pints [960 mL]. Note: These pickles have not been sealed air tight, and must be stored in the refrigerator.
MIXED PICKLES
1 quart [950 mL] small cucumbers (cut into 1-inch [25 mm] slices)
2 cups [480 mL] pared carrots (1½-inch [38 mm] slices)
2 cups [480 mL] celery (1½-inch [38 mm] slices)
2 cups [480 mL] peeled pickling onions
2 sweet red peppers (cut into wide strips)
1 small cauliflower (broken into flowerets)
1 cup [240 mL] salt
4 quarts [3800 mL] water
2 cups [480 mL] sugar
¼ cup [60 mL] mustard seed
2 tablespoons [30 mL] celery seed
1 hot red pepper
6½ cups [1560 mL] vinegar

Dissolve salt in cold water. Pour over prepared vegetables. Let stand 12 to 18 hours in a cool place. Drain thoroughly. Add vegetables; simmer until thoroughly heated. Pack, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process pints and quarts 10 minutes in boiling water bath. Yield: about 6 pints [2880 mL].

OLIVE OIL PICKLES
3 quarts [2850 mL] small cucumbers (¼-inch [6 mm] slices)
3 medium sliced onions
½ cup [120 mL] salt
3 tablespoons [45 mL] mustard seed
2 tablespoons [30 mL] celery seed
2 quarts [1900 mL] vinegar
3 cups [720 mL] water
¾ cup [160 mL] sugar
¾ cup [160 mL] olive oil

Add salt to cucumbers and onions; let stand 3 to 4 hours. Drain. (Taste; if too salty, rinse with cold water and drain again.) Combine vinegar, water and spices; bring to boiling. Add vegetables and return to boiling. Remove from heat; add sugar and olive oil and mix thoroughly. Return to boiling. Pack, boiling hot, into hot jars, leaving ⅛-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 6 pints [2850 mL].

MUSTARD PICKLES
1 quart [950 mL] small cucumbers (½-inch [13 mm] slices)
1 quart [950 mL] green tomato wedges (6 medium)
3 cups [720 mL] cauliflower flowerets (1 small head)
3 medium chopped sweet green peppers
3 medium chopped sweet red peppers
2 cups [480 mL] peeled pickling onions
1 cup [240 mL] salt
4 quarts [3800 mL] water
1¼ cups [360 mL] sugar
½ cup [120 mL] flour
1 tablespoon [15 mL] turmeric
5 cups [1200 mL] vinegar
½ cup [120 mL] prepared mustard
½ cup [120 mL] water


SPICED RED CABBAGE
6 cups [1440 mL] red cabbage
Salt
2 quarts [1900 mL] wine vinegar
1 cup [240 mL] brown sugar
½ cup [120 mL] white mustard seed

For Spice Bag:
1 oz. [28 g] whole cloves
1 oz. [28 g] mace
1 oz. [28 g] allspice
1 oz. [28 g] peppercorns
1 oz. [28 g] celery seed
1 stick cinnamon

Trim off outer leaves, core and shred cabbage. Place in a bowl, generously salting each layer. Cover and stand in a cool place for 24 hours. Drain thoroughly and place cabbage on a baking sheet and drain in a bag 6 hours. The cabbage should be dry. Pack into hot, sterilized jars.

Put the remaining ingredients into a kettle, bring to a boil and boil 5 minutes. When cool, remove the spice bag and pour liquid over cabbage. If more liquid is needed, add vinegar after dividing boiled liquid evenly between the jars, leaving ⅛-inch [6 mm] head space. Cover and process pints 15 minutes or quarts 20 minutes in a boiling water bath canner. Yield: about 8-10 pints [3840-4800 mL].

CARROT PICKLES
2-3 bunches small carrots
1 cup [240 mL] sugar
1 tablespoon [15 mL] mixed pickling spices
1 stick cinnamon
1 teaspoon [5 mL] salt
2 cups [480 mL] vinegar
1½ cups [360 mL] water

**DILLY BEANS**

2 pounds [907 g] trimmed green beans

1/4 cup [60 mL] salt

4 heads dill

5 cloves garlic

1 teaspoon [5 mL] cayenne pepper

2 1/2 cups [600 mL] vinegar

2 1/2 cups [600 mL] water

Pack beans, lengthwise, into hot jars, leaving 1/4-inch [6 mm] head space. To each pint, add 1/2 teaspoon [1.25 mL] cayenne pepper, 1 clove garlic and 1 head dill. Combine remaining ingredients and bring to boiling. Pour, boiling hot, over beans, remaining ingredients and bring to boiling water bath. Yield: about 4 pints [1920 mL].

**DILLED BRUSSELS SPROUTS**

2 pounds [907 g] Brussels sprouts

1 teaspoon [5 mL] cayenne pepper

4 cloves garlic

4 heads dill

3 tablespoons [45 mL] salt

2 1/2 cups [600 mL] water

Cook Brussels sprouts until just tender, leaving whole. Combine water, vinegar, salt, pepper and dill; boil about 5 minutes. Pack Brussels sprouts into hot jars. Pour vinegar solution, boiling hot, over Brussels sprouts, leaving 1/4-inch [6 mm] head space. (A clove of garlic and 1 head of dill can be placed into each jar if desired). Adjust caps. Process pints about 15 minutes in boiling water bath canner. Yield: about 4 pints [1920 mL].

**OKRA PICKLES**

1/2 pounds [1.6 kg] small okra pods

1/3 cup [80 mL] salt

3 small hot peppers

2 teaspoons [10 mL] dill seed

1 garlic bud

1 quart [950 mL] water

1 pint [480 mL] vinegar

Pack okra firmly into hot jars, leaving 1/4-inch [6 mm] head space. Put a garlic bud in each jar. Pour boiling brine to cover, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 4 to 5 pints [1920-2400 mL].

**ONION PICKLES**

4 quarts [3800 mL] tiny, peeled pickling onions

1 cup [240 mL] salt

2 cups [480 mL] sugar

1/4 cup [60 mL] mustard seed

2 1/2 tablespoons [38 mL] prepared horseradish

2 quarts [1900 mL] distilled vinegar

7 bay leaves

7 small red hot peppers

To peel pickling onions: cover onions with boiling water; let stand 2 minutes. Drain; dip in cold water; peel.

Sprinkle onions with salt; add cold water to cover. Let stand 12 to 18 hours in a cool place. Drain; rinse and drain thoroughly. Combine sugar, mustard seed, horseradish and vinegar; simmer 15 minutes. Pack onions into hot jars, leaving 1/4-inch [6 mm] head space, adding 1 pepper and 1 bay leaf to each jar. Heat pickling liquid to boiling. Pour, boiling hot, over onions, leaving 1/4-inch [6 mm] head space. Adjust caps. Process half-pints and pints 10 minutes in boiling water bath. Yield: about 7 pints [3360 mL].

**PEPPERS, PICKLED**

4 quarts [3800 mL] long red, green or yellow peppers (Hungarian, Banana or other varieties)

1 1/2 cups [360 mL] salt

4 quarts [3800 mL] water

1/2 cup [60 mL] sugar

2 tablespoons [30 mL] prepared horseradish

2 cloves garlic

10 cups [2400 mL] vinegar

2 cups [480 mL] water

Cut tops off peppers or tomatoes; save. Scoop out centers. Dissolve 1 cup [240 mL] salt in 4 quarts [3800 mL] cold water; pour over vegetable shells and tops; let stand 24 hours in a cool place. Drain; rinse and drain thoroughly. Combine cabbage, 1 teaspoon [5 mL] salt and the pepper and mustard seed; press into shells. Replace tops and fasten with toothpicks or sew with coarse thread. Pack into hot jars, leaving 1/4-inch [6 mm] head space. Combine vinegar, water and sugar. Bring to boiling and pour, boiling hot, over peppers or tomatoes, leaving 1/4-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 quarts [2840 mL].

**STUFFED GREEN PEPPERS**

About 50 pounds [23 kg] cabbage

1/2 pound [454 g] pure, granulated salt

Remove the outer leaves and any undesirable portions from firm, mature, heads of cabbage; wash and drain. Cut into halves or quarters; remove the core. Use a shredder or sharp knife to cut the cabbage into thin shreds about the thickness of a dime.

In a large container, thoroughly mix 3 tablespoons [45 mL] salt with 5 pounds [2.3 kg] shredded cabbage. Let the salted cabbage stand for several minutes to wilt slightly; this allows packing without excessive breaking or bruising of the shreds.

Pack the salted cabbage firmly and evenly into a large clean crock or jar. Using a wooden spoon or tamper or the hands, press down firmly until the juice comes to the surface. Repeat the shredding, salting, and packing of cabbage until the...
Cover cabbage with a clean, thin, white cloth (such as muslin) and tuck the edges down against the inside of the container. Cover with a plate or round paraffined board that just fits inside the container so that the cabbage is not exposed to the air. Put a weight on top of the cover so the brine comes to the cover but not over it. A glass jar filled with water makes a good weight.

Another method of covering cabbage during fermentation consists of placing a plastic bag filled with water on top of the fermenting cabbage. The water-filled bag seals the surface from exposure to air, and prevents the growth of film, yeast or molds. It also serves as a weight. For extra protection, the bag with the water in it can be placed inside another plastic bag.

Any bag used should be of heavy-weight, watertight plastic and intended for use with foods. The amount of water in the plastic bag can be adjusted to give just enough pressure to keep the fermenting cabbage covered with brine. Formation of gas bubbles indicates fermentation is taking place. A room temperature of 68-72°F [20-22°C] is best for fermenting cabbage. Fermentation is usually completed in 5 to 6 weeks.


### SOUR ONION PICKLES

| 1 quart [950 mL] tiny, peeled pickling onions |
| ½ cup [60 mL] salt |
| 3 tablespoons [45 mL] sugar |
| 1 tablespoon [15 mL] mustard seed |
| 2 teaspoons [10 mL] prepared horseradish |

**Small hot red peppers**

**3 cups [720 mL] distilled vinegar**

**To peel pickling onions:** cover onions with boiling water; let stand 2 minutes. Drain; dip in cold water; peel.

Sprinkle onions with salt; add cold water to cover. Let stand 12 to 18 hours in a cool place. Drain; rinse and drain thoroughly. Combine sugar, mustard seed, horseradish and vinegar; simmer 15 minutes. Pack onions into hot jars, leaving ¼-inch [6 mm] head space, adding 1 hot red pepper to each jar. Heat pickling liquid to boiling. Pour, boiling hot, over onions, leaving ¼-inch [6 mm] head space. Adjust caps. Process half-pints and pints 10 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

### ZUCCHINI PICKLE

| 2 pounds [907 g] fresh firm zucchini |
| ½ cup [60 mL] salt |
| 2 cups [480 mL] sugar |
| 2 teaspoons [10 mL] mustard seed |
| 1 teaspoon [5 mL] celery salt |
| 1 teaspoon [5 mL] turmeric |
| 3 cups [720 mL] vinegar |

Wash zucchini and cut in thin slices. Peel and cut onions in quarters, then slice very thin. Add to zucchini. Cover zucchini and onions with 1-inch [25 mm.] water and add salt. Let stand 2 hours. Drain thoroughly.

Bring remaining ingredients to boiling. Pour over zucchini and onions. Let stand 2 hours. Bring all ingredients to boiling point and heat 5 minutes.


### DILLED FRESH ZUCCHINI

| 6 pounds [2.7 kg] zucchini |
| 2 cups [480 mL] thinly sliced celery |
| 2 cups [480 mL] chopped onion |
| ½ cup [120 mL] salt |
| 2 tablespoons [30 mL] dill seed |
| 2 cups [480 mL] white vinegar, 5% acetic acid |
| 6 halved cloves garlic |

Prepare zucchini, peel, seed and slice lengthwise into thin strips about 4-inches [102 mm.] long (makes about 16 cups [3840 mL]). Mix all vegetables together in large bowl. Put ice cubes over the top. Cover with a towel. Let stand at room temperature for about 3 hours. Drain. Combine sugar, dill seed and vinegar. Heat and stir constantly to boiling. Add vegetables and reheat to boiling. Pack, hot, into hot jars, adding 1 to 2 pieces peeled, halved garlic per jar. Adjust caps. Process 15 minutes in boiling water bath canner. Yield: about 12 half-pints [2880 mL].

### SQUASH PICKLES

| 4 medium summer squash (about 2 pounds) [907 g] |
| 2 small (or medium) quartered or sliced onions, (optional) |
| ½ cup [120 mL] coarse salt (pickling salt is best) |
| ½ cup [120 mL] sugar |
| 1½ cups [360 mL] white vinegar, 5% acetic acid |
| 3 tablespoons [45 mL] dry mustard |
| 1 tablespoon [15 mL] ground ginger |
| 1 tablespoon [15 mL] curry powder |
| 6 peppercorns |

Peel, halve, seed and cut squash into ½-inch [13 mm] cubes. Layer with salt in a large bowl. Cover bowl with a towel, allow to stand about 4 hours. Rinse squash in cold water. Two or three times in fresh water will remove most of the salt. Drain thoroughly. Place rinsed squash in a heavy kettle. Combine sugar, vinegar and spices in a heavy saucepan. Heat to boiling. Boil for 5 minutes, pour over squash (and onions). Reheat to boiling. Cook 5 minutes or just until squash is tender, but not mushy. Pack, hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath canner. Yield: 4 pints [1920 mL].
Jellies and related semi-soft spreads—jams, conserves, preserves, marmalades and butters—are particularly fun to make and add a special touch to any meal. These popular spreads, put up in fancy jars or glasses with decorator lids, make excellent gifts.

Actually there is very little difference between the various spreads. They are all made of fruit and sugar and are jellied to various degrees. They differ mostly in consistency.

**Jelly**—Just the strained juice from fruit is used to make jelly. It is usually prepared in a way that keeps it crystal clear and shimmering. It is gelatinized enough to make it firm and capable of holding its shape outside the jar, yet it is soft enough to spread easily.

**Butters**—Butters are made by cooking fruit pulp and sugar to a thick consistency that will spread outside the jar, yet it is soft enough to spread easily. Spices may be added; the amount and variety depend upon personal taste. After sugar is added, butters should be cooked slowly and stirred frequently to prevent scorching. Since less sugar is used in butters than in some other products, it is advisable to process them 10 minutes in a boiling water bath canner. If a fine-textured butter is desired, the pulp can be strained through a food mill and then re-strained through a fine-meshed sieve.

**Conserves**—Conserves are jam-like products made by cooking two or more fruits with sugar until the mixture will either round up in a spoon, like jam, or else flake from it like jelly. A true conserve contains nuts and raisins. But recipes may be varied according to personal taste by either adding or omitting these two ingredients. Conserves should be made in small batches, and cooked rapidly after the sugar has dissolved.

**Marmalades**—Marmalades are soft fruit jellies containing small pieces of fruit or peel evenly suspended in the transparent jelly. They should be cooked in small batches and, after the sugar is added, brought rapidly to, or almost to, the jellying point. In preparing oranges, lemons and grapefruit for marmalade, part of the white rind should be cooked, for it contains most of the pectin found in citrus fruits.

**Preserves**—Preserves are fruits preserved with sugar so that the fruit retains its shape, is clear and shiny, tender and plump. The syrup is clear, and varies from the thickness of honey to that of soft jelly. Preserves should be cooked in small batches, and in wide pans. If the syrup becomes too thick before the fruit is tender and clear, boiling water (½ cup [60 mL] at a time) should be added. If the fruit is clear and tender but the syrup is too thin, the fruit should be removed and the syrup cooked rapidly to the desired consistency (to, or almost to, the jellying point).

**INGREDIENTS**

Proper amounts of four ingredients—fruit, pectin, acid and sugar—are needed to make a jellied fruit product.

**Fruit**—Fruit provides the flavoring for soft spreads. As in other canning, the selection and handling of fruit are critical to success. Only top quality fruit, slightly underripe or barely ripe, is best for these products.

**Pectin**—Pectin is a natural substance of high molecular weight found in varying amounts in fruits. It is pectin that causes jelly to gel. Fruit that is slightly underripe contains more pectin than fully ripe fruit. Overripe fruit used in spreads will likely cause a runny final product. Many recipes call for the skins and cores of various fruit to be included in preparing fruit for juice or pulp. This is because the pectin is concentrated in these areas.

**Acid**—Acid adds to the flavor and helps with the gel formation in spreads. Like pectin, the acid content varies in different fruits, but is higher in slightly underripe fruit than in fruit that is fully ripe. To test for acid content, mix a teaspoon [2.5 mL] of sugar. Taste this mixture in fruit that is fully ripe. To test for acid content, mix a teaspoon [5 mL] of lemon juice, 3 tablespoons [45 mL] of water and ½ teaspoon [2.5 mL] of sugar. Taste this mixture and then the fruit juice you’re planning to use. Unless your juice tastes as tart as the lemon juice mixture, it does not have enough acid to gel properly. Citric acid, available commercially, or lemon juice can be added to fruits low in natural acid. One tablespoon [15 mL] of strained lemon juice to 1 cup [240 mL] of fruit juice usually will supply the acid needed.

**Sugar**—Sugar helps in gel formation, contributes to flavor, and serves as a preserving agent. Beet and cane sugar may be used with equal success. Light corn syrup can be used to replace part of the sugar in recipes. In recipes without added pectin, one-fourth of the sugar can be replaced with corn syrup for fruit jellies containing small pieces of fruit or peel evenly suspended in the transparent jelly. They should be cooked in small batches and, after the sugar is added, brought rapidly to, or almost to, the jellying point. In preparing oranges, lemons and grapefruit for marmalade, part of the white rind should be cooked, for it contains most of the pectin found in citrus fruits.

**Preserves**—Preserves are fruits preserved with sugar so that the fruit retains its shape, is clear and shiny, tender and plump. The syrup is clear, and varies from the thickness of honey to that of soft jelly. Preserves should be cooked in small batches, and in wide pans. If the syrup becomes too thick before the fruit is tender and clear, boiling water (½ cup [60 mL] at a time) should be added. If the fruit is clear and tender but the syrup is too thin, the fruit should be removed and the syrup cooked rapidly to the desired consistency (to, or almost to, the jellying point).

**INGREDIENTS**

Proper amounts of four ingredients—fruit, pectin, acid and sugar—are needed to make a jellied fruit product.

**Fruit**—Fruit provides the flavoring for soft spreads. As in other canning, the selection and handling of fruit are critical to success. Only top quality fruit, slightly underripe or barely ripe, is best for these products.

**Pectin**—Pectin is a natural substance of high molecular weight found in varying amounts in fruits. It is pectin that causes jelly to gel. Fruit that is slightly underripe contains more pectin than fully ripe fruit. Overripe fruit used in spreads will likely cause a runny final product. Many recipes call for the skins and cores of various fruit to be included in preparing fruit for juice or pulp. This is because the pectin is concentrated in these areas.

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**Sugar**—Sugar helps in gel formation, contributes to flavor, and serves as a preserving agent. Beet and cane sugar may be used with equal success. Light corn syrup can be used to replace part of the sugar in recipes. In recipes without added pectin, one-fourth of the sugar can be
replaced with syrup. Where powdered pectin is used, corn syrup can replace one-half the sugar. And with liquid pectin, 2 cups [480 mL] of the sugar can be replaced with corn syrup.

Honey can also be used to replace sugar. Light, mild-flavored honey is generally the best kind to use. In recipes without added pectin, honey can replace one-half the sugar. When pectin is added, 2 cups [480 mL] of honey can replace 2 cups of sugar in most recipes: 3/4 to 1 cup [180 to 240 mL] of sugar can be replaced by honey in small recipes (5-6 glasses).

JELLY

A large kettle is essential for making jelly. A kettle of 8-10 quarts [7600-9500 mL] capacity with a broad flat bottom is ideal for most recipes. This size permits the jelly mixture to come to a full rolling boil without boiling over.

A jelly bag is another necessity. It is used for straining juice from the fruit pulp. An adequate bag can be made of several thicknesses of closely woven cheesecloth or of cotton flannel with the napped side in.

A clock or watch with a second hand is invaluable for timing jelly made with pectin added. And a thermometer—the jelly, candy or syrup thermometer—the jelly, candy or deep-fat type—is a great aid in making jelly without pectin.

Increasing the size of jelly recipes is not recommended. Better success is obtained, for example, by making two separate batches of a recipe rather than doubling the size. Only enough fruit for one batch should be prepared at a time, since the fruit will deteriorate rapidly.

The fruit selected should include some that is underripe, but not green, for added pectin and acid, and some that is firm ripe for flavor. The fruit should be washed and rinsed thoroughly, either under cold running water or with several complete rinses in a pan. Lift fruit from the rinse water instead of pouring the water off, since most of the dirt settles to the bottom.

All damaged parts of the fruit should be discarded. Caps, stems and blossom ends should be removed, but fruits should not be peeled or cored. Larger fruit should be cut into small pieces. Berries should be handled carefully to prevent loss of juice.

The fruit is boiled in water to extract the juice. For apples and other hard fruits, add enough cold water to cover the fruit in the kettle.

For berries and grapes, use only enough water to prevent scorching. Soft fruits, such as berries and grapes, should be crushed to start the flow of juice. Bring the water to a boil. Excess boiling tends to destroy pectin, flavor and color. Stir to prevent scorching.

Grapes and berries need about 10 minutes to cook soft; apples and other hard fruit need 20 to 25 minutes, depending upon the firmness of the fruit.

Pour the cooked product into a damp jelly bag which has been placed over a stand or colander to allow the juice to drain. Do not squeeze the bag; a cloudy jelly will result. If a fruit press is used to extract the juice, the juice should be re-strained through a jelly bag. The jelly bag should not be squeezed.

The pectin content of the juice should be tested as suggested earlier. At this point the juice is ready and can be used immediately, or can be canned or frozen for making jelly at a later time.

The techniques for jelly making vary slightly, depending upon whether pectin is added or not, whether home canning jelly glasses or jars are being used, and whether standard vacuum lids with metal screw bands or paraffin is used as a closure.

Jelly glasses and jars should be examined for nicks and cracks. Jars or glasses and lids and bands should be washed in hot, soapy water and rinsed well in hot water. Glasses and jars should be placed in a deep container, covered with water and boiled for 10 minutes. Lids and bands should be covered with water in a small saucepan and brought to a simmer (180° to 185°F [82° to 85°C]). The lids and bands should be removed from heat and allowed to remain in the water until ready for use.

In recipes that call for added pectin, remove jars or glasses from hot water just before putting jelly on to cook. In recipes that do not call for pectin, leave glasses or jars in hot water until jelly has cooked five or ten minutes. Remove jars or glasses from water at the proper time, invert on clean towels to drain. Keep out of drafts. Follow the manufacturer's directions.

In making jelly without pectin added, the jellying point must be tested. First put the juice into a large kettle and bring to boiling. Jars or glasses are removed from water at this point. With juice boiling, add sugar and stir until it dissolves. Boil rapidly to jellying point.

JELLYING POINT

The jellying point can be tested using the sheet test. (See Figure 21.) Dip a cool metal spoon into the boiling jelly mixture. Lift out a spoonful of the mixture and tip the spoon so the juice will drop into the kettle. When the mixture first starts to boil, the drops will be light and syrupy. Later, the drops will become heavier and will drop off the spoon two at a time. When two drops form together and run off the spoon like a sheet or flake, the jellying point has been reached.

The jellying point can also be tested by thermometer, a more dependable method. (See Figure 22.)

Figure 21

![Figure 21](http://example.com/figure21.jpg)

Figure 22

![Figure 22](http://example.com/figure22.jpg)

(continued on page 45)
JELLY MAKING — STEP BY STEP
Using Liquid Pectin


2. Following pectin manufacturer's directions, measure prepared juice and sugar into an 8-10 quart [7600-9500 mL] kettle. Stir to dissolve sugar. Remove jars and lids from hot water. Invert on towel to drain.

3. Put kettle of juice and sugar on high heat. Quickly bring to a full rolling boil — one that cannot be stirred down — stirring constantly. Boil for one minute.

4. Remove kettle from heat. Following pectin manufacturer's directions, immediately stir in liquid pectin.

5. Skim off foam. Quickly fill jar to ⅛ inch [3 mm] from top. Wipe top and threads of jar with clean, damp cloth. Put lid on with sealing compound next to jar. Screw band down evenly and very tightly. Jelly may trickle down sides of jar if bands are not tight enough.

6. Invert jar for a few seconds so hot jelly can destroy mold or yeast which may have settled on lid. Then stand jars upright to cool. When jars are cool, test for seal. Store in a dry, dark, cool place.
MAKING APPLE JELLY—STEP BY STEP
Without Pectin and Using Paraffin

1. Use about 3 pounds [1.4 kg] firm, tart apples. Select about one-fourth under-ripe apples, three-fourths ripe. Sort and wash apples. Remove stem and blossom ends. Do not pare or core. Cut into small pieces.

2. Put apples into large kettle. Add 1 cup [240 mL] water per pound [454 g] of apples. Cover, bring to boil on high heat. Reduce heat and simmer until apples are tender, about 20 to 25 minutes, depending on the firmness or ripeness of the fruit.

3. Pour cooked apples into a jelly bag inside a colander, so the juice will drain into a container.

4. Measure 4 cups [960 mL] of apple juice into a large kettle. Add 3 cups [720 mL] of sugar. If desired, 2 tablespoons [30 mL] of lemon juice may also be added. Stir to dissolve sugar.

5. Place on high heat and boil rapidly to 8°F [4°C] above the boiling point of water, or until jelly mixture sheets from spoon. Remove from heat. Quickly skim off foam.

6. Pour jelly immediately into hot jelly glasses to within ¼ inch [6 mm] of top of glass. Cover immediately with a ¼ inch [3 mm] layer of hot, but not smoking, paraffin. To assure a good seal, paraffin must touch all sides of the glass. Prick any air bubbles that appear. Allow glasses to stand until paraffin hardens and jelly cools. Cover glasses with metal lids. Store in dry, dark, cool place. If jelly jars are used instead of glasses with paraffin, follow instructions on page 42.
Differences in altitude and barometric pressure will cause the jelly mixture to boil at different temperatures. Before cooking the jelly, test the candy or jelly thermometer in boiling water to find out what the boiling point of water is in your area. Cook the jelly to a temperature of 8°F [4°C] higher than the boiling point of water for your area. At that point, a satisfactory gel should be achieved.

For an accurate thermometer reading, hold the thermometer in a vertical position and read it at eye level. The bulb of the thermometer must be completely covered with the jelly mixture, but must not touch the bottom of the saucepan. Jelly must be boiling hot to achieve a seal when using vacuum lids and metal screw bands. Pour jelly into jar, holding ladle or kettle close to the bottom of the saucepan. Quickly fill jar to within ½ inch [3 mm] of the top. Wipe top and threads with clean, damp cloth. Put hot lid on with sealing compound next to jar. Screw band on evenly and tightly.

Invert jar for a few seconds so hot jelly can destroy any mold or yeast which may have settled on the lid. Cool, test for seal, remove bands and store. Jelly glasses are filed in a manner similar to jars, except a ½-inch [13 mm] space is left at the top. Then the jelly is immediately covered with a ½-inch [3 mm] layer of melted, but not smoking, paraffin. A single, thin layer of paraffin holds a seal better than a thick layer. To ensure a good seal, paraffin must touch all sides of the glass. Prick any air bubbles that appear on the paraffin. Bubbles cause holes to appear as the paraffin hardens, and an imperfect seal may result. Allow glasses to stand until paraffin hardens and then cover with metal lids. Store in a cool, dark, dry place.

### JELLY RECIPES

#### APPLE JELLY

| 4 cups [960 mL] apple juice (takes about 3 pounds [1.4 kg] apples and 3 cups [720 mL] water) | 2 tablespoons [30 mL] strained lemon juice, if desired | To prepare juice: Select about one-fourth fully ripe and three-fourths fully ripe tart apples. Sort, wash, and remove stem and blossom ends; do not pare or core. Cut apples into small pieces. Add water, cover and bring to boil on high heat. Reduce heat and simmer for 20 to 25 minutes, or until apples are soft. Extract juice. |
| To make jelly: Measure apple juice into a kettle. Add lemon juice and sugar and stir well. Boil over high heat to 8°F [4°C] above the boiling point of water, or until jelly mixture sheets from a spoon. Remove from heat, skim off foam quickly. Pour jelly immediately into sterilized hot containers and seal. Yield: about 3 to 4 eight-ounce glasses [720-960 mL]. |

#### BLACKBERRY JELLY

| 4 cups [960 mL] blackberry juice (takes about 3 quart [2850 mL] boxes berries) | 7½ cups [1800 mL] sugar | 1 bottle liquid pectin |
| To prepare juice: Select about one-fourth firm-ripe and three-fourths fully ripe blackberries. Sort, wash, and remove stem and blossom ends; do not pare or core. Crush the berries and extract juice. |
| To make jelly: Measure juice into a kettle. Stir in the sugar. Place on high heat and stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute. Remove from heat; skim off foam quickly. Pour jelly immediately into sterilized hot containers and seal. Yield: about 8 to 9 eight-ounce [1920-2160 mL] glasses. |

#### CHERRY JELLY

| 3 cups [720 mL] cherry juice (takes about 3 pounds [1.4 kg] or 2 quart [1893 mL] boxes sour cherries and ½ cup [120 mL] water) |
| 7 cups [1680 mL] sugar |
| 1 bottle liquid pectin |
| To prepare juice: Select fully ripe cherries. Sort, wash, and remove stems; do not pit. Crush the cherries, add water, cover, and bring to boil on high heat. Reduce heat and simmer 10 minutes. Extract juice. |
| To make jelly: Measure juice into a kettle. Stir in the sugar. Place on high heat and stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute. Remove from heat; skim off foam quickly. Pour jelly immediately into sterilized hot containers and seal. Yield: about 7 to 8 eight-ounce [1680-1920 mL] glasses. |
CRAB APPLE JELLY

4 cups [960 mL] crab apple juice (takes about 3 pounds [1.4 kg] crab apples and 3 cups [720 mL] water)
4 cups [960 mL] sugar

To prepare juice: Select firm, crisp crab apples, about one-fourth firm-ripe, the rest fully ripe. Sort, wash, and remove stem and blossom ends; do not pare or core. Cut crab apples into small pieces. Add water, cover, and bring to boil on high heat. Reduce heat and simmer for 20 to 25 minutes, or until crab apples are soft. Extract juice.

To make jelly: Measure juice into a kettle. Add sugar and stir well. Boil over high heat to 8°F [4°C] above the boiling point of water, or until jelly mixture sheets from a spoon. Remove from heat; skim off foam quickly. Pour jelly immediately into sterilized hot containers and seal. Yield: about 5 to 6 eight-ounce [1200-1440 mL] glasses.

GRAPE JELLY

4 cups [960 mL] grape juice (takes about 3 1/2 pounds [1.6 kg] Concord grapes and 1/2 cup [120 mL] water)
7 cups [1680 mL] sugar
1/2 bottle liquid pectin

To prepare juice: Sort, wash, and remove stems from fully ripe grapes. Crush grapes, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice. To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals that have formed.

To make jelly: Measure juice into a kettle. Stir in the sugar. Place on high heat and, stirring constantly, bring quickly to full rolling boil that cannot be stirred down. Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute. Remove from heat; skim off foam quickly. Pour jelly immediately into sterilized hot containers and seal. Yield: about 8 to 9 eight-ounce [1920-2160 mL] glasses.

GREEN PEPPER JELLY

6 large green peppers, cut in pieces
1 1/2 cups [360 mL] cider vinegar (4%-6% acid strength)
6 cups [1440 mL] sugar
1/2 teaspoon [2.5 mL] salt
1 teaspoon [5 mL] crushed red pepper
1 bottle liquid pectin
Green food coloring

Put half the green peppers and half the vinegar into blender container, cover and process at LIQUEFY until pepper is liquefied. Pour into a saucepan. Repeat with remaining peppers and vinegar. Add the red pepper, sugar and salt. Bring to a boil and add pectin. Boil until it thickens when dropped from spoon, about 20 minutes. Add a few drops of green food coloring. Pour into sterilized hot jars, and seal. Yield: about 4 half-pints [960 mL].

FRESH GRAPEFRUIT WINE JELLY

1 cup [240 mL] freshly squeezed, strained grapefruit juice
1 cup [240 mL] claret or ruby red port
3 1/2 cups [840 mL] sugar
1/2 bottle (3 ounces) [84 g] liquid pectin

In small heavy saucepan, combine grapefruit juice, wine and sugar; stir over very low heat until well blended. Warm mixture just until bubbles appear around edge of pan and sugar is dissolved, about 5 to 6 minutes. Remove from heat and immediately stir in pectin. Skim off foam, if necessary. Pour immediately into hot sterilized jars and seal. Yield: about 5 eight-ounce jars [1200 mL].

JELLY from CANNED or FROZEN FRUIT JUICES

Home Canned

Unsweetened canned or frozen fruit juices are excellent for making jelly. Commercial canned or frozen juices make excellent jelly; however, commercial pectin will be needed.
APPLE JUICE for JELLY
Use fresh, or can for future use.
Select fresh, sound, tart fruit. Wash. Cut out and discard blossom and stem ends. Do not pare or core. Slice or chop apples. Add 2 cups [480 mL] water to each slightly heaped quart [950 mL] prepared apples. Cover and cook gently until soft. Drain through damp cotton flannel, jelly bag or 4 layers of cheesecloth. If to be canned, reheat just to boiling. Pour, hot, into hot jars, leaving ⅛-inch [6 mm] head space. Do not pare or core. Slice or chop apples. Add 2 cups [480 mL] water to each slightly heaped quart [950 mL] prepared apples. Cover and cook gently until soft. Drain through damp cotton flannel, jelly bag or 4 layers of cheesecloth. If to be canned, reheat just to boiling. Pour, hot, into hot jars, leaving ⅛-inch [6 mm] head space.

GRAPES for JELLY
Wash, stem, crush and measure fresh, firm, ripe Concord type grapes. Add ⅔ cup [240 mL] sugar with 4 cups [960 mL] prepared grapes. Heat 10 minutes at simmering. Do not boil. Drain through damp cotton flannel, jelly bag or 4 layers of cheesecloth. If to be used fresh, let it stand in refrigerator from 12 to 24 hours. Then, strain through damp cheesecloth. If to be canned, reheat to simmering. Pour into sterilized hot jars and seal. Yield: about 6 half-pint glasses [1440 mL].

ORANGE-SAUTEURNE JELLY

Made from Frozen Concentrated Juice
3⅓ cups [780 mL] sugar
1 cup [240 mL] water
3 tablespoons [45 mL] lemon juice
½ bottle liquid pectin
6 ounces (¾ cup) [180 mL] frozen concentrated orange-and-grapefruit juice

Stir the sugar into the water. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute. Remove from heat: skim off foam. Pour the boiling jelly or glasses [1920-2160 mL].

MINT JELLY
1 cup [240 mL] firmly packed mint leaves
1 cup [240 mL] boiling water

Pour the boiling water over the firmly packed mint leaves and let stand for one hour. Press the juice from the leaves.

Using Apple Juice portion of Apple Jelly recipe on page 45, to each cup [240 mL] of apple juice, add 2 tablespoons [30 mL] of the mint extract and bring to a boil. Follow Apple Jelly recipe above. Just before pouring into jars or jelly glasses, tint the jelly with a few drops of green food coloring.

SPICED APPLE JELLY
Follow recipe for Apple Jelly on page 45, except tie a few whole spices in a cheesecloth bag and cook with the apples when preparing the juice.

UNCOOKED JELLIES
Uncooked berry jellies can be made from fresh red raspberries, boysenberries or loganberries. Jellies can be made from frozen concentrated juice of these berries or from frozen orange or grape juice concentrates.

To prepare juice from fresh berries, sort and wash fully ripe berries; remove any stems or caps. Crush the berries and extract juice.

To make jelly: Measure juice into a kettle. Stir in the sugar. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute. Remove from heat: skim off foam. Pour jelly immediately into sterilized hot containers and seal. Yield: about 6 half-pint glasses [1440 mL].
SEMI-SOFT SPREADS

The fun foods in home canning, and often the ones that produce the most satisfaction, are the butters, conserves, jams, marmalades and preserves. With these semi-soft spreads, the home canner can emphasize the natural fruit flavor or change it entirely by adding a tiny pinch of salt, a small amount of spice, extract, orange peel or lemon juice to any of the recipes.

With a little experimentation, the home canner can easily find the right combination of orchard-fresh fruits, sugar and personally chosen extra ingredients that will please the family and have a distinctive flavor that cannot readily be duplicated in commercial products.

Canning these soft spreads is similar to making jelly. But there is one essential difference. While jellies can safely be put up using the open kettle method, butters, conserves, jams, marmalades and preserves must be processed at boiling temperature (212°F -100° C ) in a boiling water bath canner for full safety. Processing time varies from 10 to 20 minutes, depending upon the product, size of container and the recipe.

Each of the various soft spreads is distinctive, and each requires techniques that vary slightly.

A kitchen scale is a profitable investment for serious "jam-makers." For best results, sugar and fruits should be accurately weighed to achieve the proportions outlined in the recipe. Butters take 2/3 pound [227 g] of sugar for each pound [454 g] of fruit; conserves, jams and marmalades, 3/4 pound [340 g] of sugar to each pound of fruit; preserves, 1 pound [454 g] of sugar to each pound [454 g] of fruit.

Corn syrup or honey may be substituted for cane or beet sugar in making soft spreads. Up to one third of the granulated sugar may be replaced with corn syrup; up to one half of the sugar may be replaced with honey. Honey changes the fruit flavor and may mask it.

A heavy, 8 to 10 quart [7600-9500 mL] kettle with a broad, flat bottom is essential in making conserves, jams, preserves and marmalades. The fruit and sugar mixture must bubble and cook rapidly without scorching. These products should be cooked in small batches. Do not double the recipes, since double-size mixtures will not cook in the same manner as smaller ones. The sugar and juice mixtures should be stirred over low heat until the sugar dissolves. Then the mixture should be boiled rapidly for a bright and sparkling finished product. The fruit-sugar mixture should be stirred frequently as it thickens.

Butters are cooked slowly for long periods of time. They will stick and scorch unless stirred regularly. For this reason, a heavy kettle is preferable to a light, thin one.

The soft spreads continue to thicken as they cool. How thick the finished product will be is hard to judge when it is still hot. Jams, conserves, marmalades and preserves must be boiled until the temperature is 8°F [4°C] above the boiling point of water. (See instructions in jelly section for determining boiling point of water in your area.) A firm product will result when cooked to this temperature. For a softer product, shorten the cooking time; for a firmer product, lengthen it. The jellying point test and the thermometer test, as explained in the section on jellies, can be used for the other soft spreads. Cooking times in the recipes in this book are intended as a guide only, since the actual time will vary according to the kettle used, the humidity and the altitude.

If pectin is used for jams or marmalades, the manufacturer's directions should be followed exactly. Generally, powdered pectin is added to the strained juice before heating; liquid pectin is added after the mixture is brought to a full boil. Directions given in the section on jelly should be followed for the other soft spreads for preparing the fruit, handling and checking containers, sealing, testing the seal and storing.

APPLE BUTTER

Old-Fashioned Kind
Using Whole Apples

2 dozen, medium apples, quartered (about 6 pounds) [2.7 kg]
2 quarts [1900 mL] sweet cider
3 cups [720 mL] sugar
1 1/2 teaspoons [7.5 mL] ground cinnamon
1/2 teaspoon [2.5 mL] ground cloves

Cook apples in cider until tender. Press through a sieve or food mill; measure 3 quarts [2850 mL] apple pulp. Cook pulp until thick enough to round up in a spoon. As pulp thickens, stir frequently to prevent sticking. Add sugar and spices. Cook slowly, stirring frequently, until thick, about 1 hour. Pour, hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. When cool, test for seal. Remove bands and store. Yield: about 5 pints [2400 mL].

Using Apple Pulp

2 quarts [1900 mL] cooked apple pulp
4 cups [960 mL] sugar
2 teaspoons [10 mL] ground cinnamon
1/4 teaspoon [1.25 mL] ground cloves

Use apple pulp left from preparing apple juice for jelly. See page 45. Press through a sieve or food mill. Measure pulp. Add sugar and spices. Cook until the flavors are well blended, about 15 minutes. To prevent sticking, stir frequently as mixture thickens. (If too thick, add a small amount of water for desired consistency.) Pour, hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. When cool, test for seal. Store. Yield: about 5 pints [2400 mL].
Q: WHY IS IT NECESSARY TO USE THE CORRECT RECIPE TO HOME CANN?  
A: When canning, use only recipes that have been scientifically developed and tested for an exact processing time and method. Recipes are developed by professional experts for individual foods so that sufficient heat is present throughout the food for a certain amount of time to destroy the microorganisms that would spoil food or cause illness. Do not make substitutions for ingredients, jar sizes or methods in home canning recipes.

Q: WHY DO HOME CANNING RECIPES DIFFER IN PROCESSING TIMES AND TEMPERATURES?  
A: Just as foods look and taste different, different foods take different times for all of the food inside a home canning jar to reach the correct temperature. The different times and temperatures are related to the basic food type being canned.

Q: WHAT MUST I KNOW ABOUT BASIC FOOD TYPES BEFORE STARTING TO CAN?  
A: Basically foods are either acid or low acid types. Do not use canning methods meant for one type when canning another.

Q: WHAT ARE HIGH ACID FOODS?  
A: Acid foods are: fruits, tomatoes (which many of us think of as vegetables, but which are really fruits); sauerkraut; pickles and relishes; jams and preserves; and fruit juices. In canning acid foods, one needs only to heat the canned food through to 212° F. (100° C.) using boiling water in a water bath canner, for a safe and wholesome product. Because each acid food is different, and therefore contains a different amount of acidity, be sure to follow recipe instructions exactly for the correct processing time.

Q: WHAT ARE LOW ACID FOODS?  
A: Low acid foods are: all vegetables; meats; poultry; fish (seafoods); soups; and mixed canned foods which contain some low acid foods (as corn with tomatoes). Because these foods do not naturally contain enough acid to protect against certain bacteria, such as those causing botulism, low acid foods must be processed, or superheated, to 240° F. (116° C.) in a pressure canner for the correct length of time to destroy these bacteria and produce a safe and wholesome end product.
Q: WHY CAN’T I USE A BOILING WATER BATH CANNER FOR PROCESSING ALL FOODS?
A: Never use a water bath canner to prepare low acid foods because botulism could be your final product. A water bath canner cannot heat foods to a high enough temperature to destroy the spores of botulism-causing bacteria. Botulism is caused by the toxin produced when these particular bacterial spores are present and grow in foods in the absence of air. This may occur in foods that are low acid or that have become low acid. Remember low acid foods are vegetables, meats, poultry, fish (seafoods), soups and mixed canned foods. Acid foods such as fruits, tomatoes, sauerkraut, pickles and relishes, jams and preserves and fruit juices may become low acid by using overripe fruit or by adding excess water or through the growth of mold. Figs and green peppers are particularly low acid foods and require special precautions in processing.

Q: HOW DOES A BOILING WATER BATH CANNER WORK?
A: The boiling water bath method is a way of processing food at a temperature of 212° F. (100° C.). Filled jars are placed on a rack inside a water bath canner and covered completely with hot water. The water level should be 1 to 2 inches (25-51 mm) over the tops of the jars. The canner is covered with a well-fitting lid and the water is brought up to a full rolling boil. Then the processing time begins. This method is recommended for processing high acid foods. Enough heat is supplied by the boiling water to destroy the bacteria, enzymes, molds, and yeasts which cause spoilage in acid foods.

Q: HOW DOES A STEAM PRESSURE CANNER WORK?
A: The pressure canner method is a way of processing foods at a temperature of 240° F. (116° C.) by not allowing the steam to escape. The steam causes the pressure in the canner to increase as its temperature is raised. This method is a must for processing low acid foods. Steam heat under pressure reaches temperatures high enough to destroy the harmful bacteria found in low acid foods. Be sure to follow the pressure canner manufacturer’s instructions.

Q: WHY IS THE CANNING TIME SO IMPORTANT?
A: Canning times are chosen so that the temperature required to destroy all the harmful microorganisms is reached in all parts of the jar. Do not shorten the time or take short cuts. Begin counting processing time only after the water in a boiling water bath canner has returned to a full rolling boil or after the pressure in a steam pressure canner has reached 10 pounds (70 kPa) pressure. Use an accurate kitchen timer, clock or watch.
Q: WHAT CAN I DO IF THE LIDS DO NOT SEAL?
A: The lids should seal promptly after processing. If they don’t, the food should be eaten or reprocessed promptly, using a new lid.

Q: WHAT ARE SIGNS OF SPOILAGE?
A: Before tasting, check the food for signs of spoilage. Indications that the food has spoiled include broken seals, seepage, mold, gasliness, spurting liquid when the jar is opened, sliminess, cloudiness and disagreeable odors.

Even if no signs of spoilage are obvious, canned meats and vegetables and other low-acid foods should be boiled for 15 to 20 minutes before tasting. Fruits, which are acids, do not have the risk of botulism present as do low-acid meats and vegetables. Even though it is not practical to boil fruits, they should be carefully examined before eating. All spoiled food should be destroyed so that it cannot be eaten by humans or animals.

Q: WHY IS IT IMPORTANT TO KEEP THE JARS IN HOT WATER UNTIL READY TO USE?
A: Keeping the jars in hot water before using helps to prevent jar breakage. Home canning jars may not withstand sudden changes in temperature. Remember this when using a boiling water bath canner. Both the jars and the water in the canner should be hot (but not boiling) when adding the jars to the canner. Only after the jars have been placed in the canner should the water be brought to a full rolling boil.

Q: WHY IS IT IMPORTANT TO LEAVE THE CORRECT AMOUNT OF HEAD SPACE?
A: Always leave the correct amount of head space when filling the jars. Leaving too much head space may prevent the formation of a vacuum within the jar and cause the lid to come unsealed after processing. Not leaving enough head space may prevent the lid from sealing because the food may not have enough room to expand when processed and be forced between the lid and top of the jar. Leave 1-inch (25 mm) head space for vegetables (except tomatoes), meats, poultry, seafoods and soups, 1/2-inch (13 mm) head space for fruits, tomatoes and sauerkraut, 1/4-inch (6 mm) head space for jams and other preserves, pickles, relishes and fruit juices, and 1/8-inch (3 mm) head space for jellies.

Q: WHY IS IT NECESSARY TO REMOVE AIR BUBBLES BEFORE CAPPING THE JARS?
A: Always remove air bubbles. Leaving excess air in the jars may prevent an airtight seal. (NOTE: Use only a non-metallic spatula to remove air bubbles. A metal utensil or knife may scratch the inside of the jar which could cause it to break during processing.)
On December 23, 1975, President Gerald Ford signed Public Law 94-168, calling for the voluntary conversion to metric measurements by all segments of American society. In the spirit of that law, Edition 30 of the Ball® Blue Book contains metric equivalents for all measurements of length, pressure, temperature, volume and weight. So either the U.S. Customary or the metric system may be followed when using this edition of the Blue Book. Metric measuring cups and spoons, thermometers, scales and rulers are now available commercially.

The metric system is not as difficult to understand as it may seem at first. For canning purposes, the basic metric measurements most often used are:

**Basic metric unit** | **Indicate** | **Approximate U.S. equivalent**
---|---|---
**Meter** linear measure | 1 meter = 39.37 inches
**Gram** weight | 1 gram = 0.0353 ounces
**Liter** volume measure | 1 liter = 0.2642 gallons

The metric system uses decimals, much the same way as the U.S. money system: 10 pennies make a dime, 10 dimes make a dollar, etc. Just as our money system uses different terms for different denominations, the metric system has different prefixes: a kilo- means a thousand times, for example. One may have a kilometer, a kilogram or a kiloliter. A kilometer simply means 1,000 meters.

Although there are other metric prefixes, all in multiples of 10, here are some more commonly used prefixes and their meanings:

**Prefix** | **Equivalent**
---|---
milli | 1/1000
centi | 1/100
kilo | 1000 times

The three basic metric measurement units and the three prefixes given above will cover most canning measurement situations.

Some metric symbols, or abbreviations, frequently used in the Blue Book are:

- **mm** millimeter
- **cm** centimeter
- **ml** milliliter
- **kPa** kilopascal
- **C** Celsius
- **kg** kilogram

In metrics, units of volume, such as cups or tablespoons, are converted to milliliters. Larger units, such as gallons, convert to liters. Units of weight, such as ounces, are converted to grams. Heavier amounts, such as pounds, convert to kilograms. Units of length, such as inches, convert to millimeters. Longer lengths, like feet and yards, may be stated in centimeters or meters. Degrees Fahrenheit are stated in degrees Celsius. Pounds per square inch (psi) of pressure are converted to kilopascals (kPa).

To simplify things, the Blue Book has rounded off decimal points, since a high degree of accuracy is not needed for cooking purposes. There are 453.59237 grams in a pound, for example, if carried to the fifth decimal point. The equivalent for a pound in the Blue Book, however, is stated simply as 454 grams.

We sincerely hope the metric equivalents given in this edition, plus this brief explanation, will help you make the switch to metrics.
APRICOT BUTTER
1½ quarts [1425 mL] apricot pulp
3 cups [720 mL] sugar
2 tablespoons [30 mL] lemon juice
To prepare pulp: Cook pitted apricot halves until soft, adding only enough water to prevent sticking. Press through a sieve or food mill. Measure pulp.
Add sugar; cook until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Add lemon juice; pour, hot, into hot jars, leaving ⅛-inch [6 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

PEACH BUTTER
2 quarts [1900 mL] peach pulp
(about 1½ dozen medium, fully ripe peaches)
4 cups [960 mL] sugar
To prepare pulp: Wash, scald, pit, peel and chop peaches; cook until soft, adding only enough water to prevent sticking. Press through a sieve or food mill. Measure pulp.
Add sugar; cook until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, hot, into hot jars, leaving ⅛-inch [6 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. Yield: about 4 pints [1920 mL].

SPICED PEACH BUTTER
Follow recipe for Peach Butter. Add ½ to 1 teaspoon [2.5-5 mL] each ground ginger and ground nutmeg with sugar to peach pulp. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

PEAR BUTTER
2 quarts [1900 mL] pear pulp
(about 20 medium, fully ripe pears)
4 cups [960 mL] sugar
1 teaspoon [5 mL] grated orange rind
½ cup [80 mL] orange juice
½ teaspoon [2.5 mL] ground nutmeg
To prepare pulp: Quarter and core pears. Cook until soft, adding only enough water to prevent sticking. Press through a sieve or food mill. Measure pulp.
Add remaining ingredients; cook until thick, about 15 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, hot, into hot jars, leaving ⅛-inch [6 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 10 minutes in boiling water bath. Cool. Test for seal. Store. Yield: about 5 to 6 half-pints [1200-1440 mL].

CONSERVE RECIPES

Don't forget to process in boiling water bath canner!

APPLE-BLUEBERRY CONSERVE
1 quart [950 mL] chopped, cored, pared tart apples
(about 4 medium)
½ cup [120 mL] seedless raisins
1 quart [950 mL] stemmed blueberries
6 cups [1440 mL] sugar
¼ cup [60 mL] lemon juice
Combine all ingredients; slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 20 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ⅛-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 8 half-pints [1920 mL].

APPLE-PINEAPPLE-APRICOT-ORANGE CONSERVE
3½ cups [840 mL] apricots
1½ cups [360 mL] orange juice
½ orange peel
2 tablespoons [30 mL] lemon juice
3½ cups [840 mL] sugar
¼ cup [120 mL] chopped walnuts or other nuts
Drain and chop about two No. 2½ cans unpeeled or 1 lb. [454 g] dried apricots. If dried, first cook uncovered in 3 cups [720 mL] water until tender (about 20 minutes).
Finely shred orange peel. Combine all ingredients except nuts in large kettle. Cook until thick, stirring constantly. Add nuts last 5 minutes of cooking; stir well.
Remove from heat; skim and stir alternately for 5 minutes. Pour into hot jars, leaving ⅛-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 5 to 6 half-pints [1200-1440 mL].
BLUEBERRY CONSERVE
2 cups [480 mL] water
4 cups [960 mL] sugar
½ thinly sliced lemon
½ thinly sliced orange
½ cup [120 mL] seedless raisins
1 quart [950 mL] stemmed blueberries

Bring water and sugar to boiling. Add lemon, orange and raisins; simmer 5 minutes. Add blueberries and cook rapidly until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

BLUEBERRY-PINEAPPLE CONSERVE
1 quart [950 mL] stemmed blueberries
2 cups [480 mL] finely chopped cored, pared fresh pineapple (about 1 small)
5 cups [1200 mL] sugar

Combine fruit and sugar; slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

CHERRY-RASPBERRY CONSERVE
3 cups [720 mL] raspberry pulp
3 cups [720 mL] pitted sweet cherries
4 cups [960 mL] sugar

To prepare raspberry pulp:
Press berries through a sieve or food mill to remove seeds. Simmer cherries until tender; add berry pulp and sugar.

Cook slowly until sugar dissolves, stirring occasionally. Cook rapidly until thick, about 30 to 40 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

CRANBERRY CONSERVE
1 unpeeled finely chopped orange
2 cups [480 mL] water
3 cups [720 mL] sugar
1 quart [950 mL] stemmed cranberries
½ cup [120 mL] seedless raisins
½ cup [120 mL] chopped walnuts or other nuts

Combine orange and water; cook rapidly until peel is tender, about 20 minutes. Add cranberries, sugar and raisins. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly almost to jellying point, about 8 minutes. As mixture thickens, stir frequently to prevent sticking. Add nuts the last 5 minutes of cooking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

DRIED FRUIT CONSERVE
1½ cups [360 mL] cut-up dried apricots (½ pound) [227 g]
1½ cups [320 mL] cut-up dried peaches (½ pound) [227 g]
1½ cups [320 mL] cut-up dried pears (½ pound) [227 g]
1 medium unpeeled chopped orange, (about 1 cup) [240 mL]
3 cups [720 mL] water
2 cups [480 mL] sugar
½ cup [120 mL] seedless raisins
1 tablespoon [15 mL] lemon juice
½ teaspoon [2.5 mL] ground cinnamon (optional)
¼ teaspoon [6 mL] ground cloves (optional)
½ cup [120 mL] chopped walnuts or other nuts

Combine first 5 ingredients: cover and cook until fruits are tender, about 15 to 20 minutes. Uncover and add remaining ingredients except nuts. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly, stirring frequently, until thick, about 15 minutes. Add nuts the last 5 minutes of cooking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 half-pints [1680 mL].

PEACH CONSERVE WITH RUM
1 medium sized seedless orange
½ cup [120 mL] light rum
2 quarts [1900 mL] chopped peaches
6½ cups [1560 mL] sugar
3 tablespoons [45 mL] lime juice
¾ cup [180 mL] crushed pineapple
¼ to ½ cup [60-120 mL] chopped maraschino cherries
½ teaspoon [2.5 mL] salt
¼ teaspoon [2.5 mL] ground ginger
¼ teaspoon [1.25 mL] ground mace

Combine all ingredients; heat slowly to boiling, stirring occasionally until sugar dissolves. Cook almost to jellying point, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

GOOSEBERRY CONSERVE
1½ quarts [1425 mL] gooseberries, stem and blossom ends removed
1 medium unpeeled chopped orange
4 cups [960 mL] sugar
1 cup [240 mL] seedless raisins

Combine all ingredients; heat slowly to boiling, stirring occasionally until sugar dissolves. Cook almost to jellying point, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

GRAPE CONSERVE
2 quarts [1900 mL] stemmed grapes (about 4 pounds) [1.8 kg]
1 cup [240 mL] chopped walnuts or other nuts
6 cups [1440 mL] sugar

If using Tokay or Malaga grapes, cook grapes whole. Otherwise, separate pulp from skins of grapes. Cook skins 15 to 20 minutes, adding only enough water to prevent sticking (about ½ cup) [120 mL]. Cook pulp without water until soft; press through a sieve or food mill to remove seeds. Combine skins, pulp and sugar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 15 minutes. Stir frequently to prevent sticking. Add nuts the last 5 minutes of cooking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 half-pints [1680 mL].
Use sharp knife to remove thin yellow part of orange peel. Finely chop rest of orange, add just enough water to prevent sticking, and cook until peel is tender. Put container of rum in hot water. Keep hot, but don’t boil. Wash, drain, peel, coarsely chop and measure peaches. With exception of rum, mix all ingredients including water in which orange was cooked and boil almost, but not quite, to jellying point. Quickly skim off foam, stir in hot rum. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 2 or 3 pints [960-1440 mL].

NOTE: When made without rum, this recipe yields a better than average peach conserve.

**PEACH CONSERVE**

1 unsqueezed chopped orange
7 cups [1680 mL] chopped, peeled, firm, ripe peaches (about 10 to 12 large)
5 cups [1200 mL] sugar
½ teaspoon [2.5 mL] ground ginger
½ cup [120 mL] blanched, slivered almonds

Add orange to peaches; cook gently about 15 to 20 minutes. Add sugar and ginger. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 15 minutes. As mixture thickens, stir occasionally to prevent sticking. Add nuts the last 5 minutes of cooking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 8 half-pints [1920 mL].

**PLUM CONSERVE**

2½ quarts [2375 mL] chopped, pitted plums (about 4 pounds) [1.8 kg]
¾ cup [150 mL] thinly sliced orange peel
1¾ cups [420 mL] chopped orange pulp (about 2 large)
2 cups [480 mL] seedless raisins
6 cups [1440 mL] sugar
2 cups [480 mL] broken pecans or other nuts

Combine plums, orange pulp and peel, raisins and sugar; slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly almost to jellying point, about 15 to 20 minutes. As mixture thickens, stir frequently to prevent sticking. Add nuts last 5 minutes of cooking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 10 half-pints [2400 mL].

**RHUBARB-STRAWBERRY-ORANGE CONSERVE**

1 large orange
3 cups [720 mL] sliced rhubarb
3 cups [720 mL] crushed strawberries
1 cup [240 mL] water
5 cups [1200 mL] sugar
½ teaspoon [2.5 mL] salt
1 cup [240 mL] raisins
½ cup [120 mL] chopped filberts, pecans or walnuts

Wash, rinse and drain orange, rhubarb and berries. Finely chop orange peel and pulp; add to 1 cup [240 mL] water and cook until peel is tender. Cut rhubarb into ¼-inch [6 mm] slices before measuring. Hull (cap), crush and measure strawberries. Put all ingredients, including water in which orange is cooked, except the nuts, into saucepan. Let boil until mixture begins to thicken. Add nuts and cook about 5 minutes longer. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 half-pints [1680 mL].

**STRAWBERRY-RHUBARB CONSERVE**

4 cups [960 mL] ½-inch [13 mm] slices rhubarb
7 cups [1680 mL] sugar
4 cups [960 mL] strawberries


**JAM RECIPES**

Don’t forget to process in boiling water bath canner!

**APRICOT JAM**

2 quarts [1900 mL] crushed, peeled apricots
6 cups [1440 mL] sugar
¼ cup [60 mL] lemon juice

Combine all ingredients; slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly to, or almost to, jellying point, depending upon whether a firm or soft jam is desired. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 5 pints [2400 mL].

**BERRY JAMS**

Blackberry, Blueberry, Boysenberry, Dewberry, Gooseberry, Loganberry, Raspberry, Youngberry

9 cups [2160 mL] crushed berries
6 cups [1440 mL] sugar

Combine berries and sugar; bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly to, or almost to, jellying point, depending upon whether a firm or soft jam is desired. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 to 4 pints [1440-1920 mL].

NOTE: If seedless jam is preferred, crushed berries may be heated until soft and pressed through a sieve or food mill; then add sugar and proceed as above.

**STRAWBERRY JAM**

2 quarts [1900 mL] strawberries
2 teaspoons [10 mL] grated orange rind
1 package [90 mL] powdered pectin
7 cups [1680 mL] sugar

Crush the berries, one layer at a time. Measure 4½ cups [1080 mL] berries and grated orange rind into a large kettle. Add powdered pectin with berries and place over high heat. Stir until mixture comes to a full rolling boil. Add the sugar at once and return to a rolling boil. Boil hard 1 minute, stirring constantly. Remove from heat and skim off foam. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 10
minutes in boiling water bath. Yield: about 8 eight-ounce glasses [1920 mL].

**BING CHERRY JAM**

4 cups [960 mL] pitted, chopped bing cherries
1 package powdered pectin
1/4 cup [60 mL] lemon juice
1/4 cup [60 mL] almond liqueur
1/2 teaspoon [1.25 mL] salt
1/2 teaspoon [2.5 mL] ground cinnamon
1/2 teaspoon [2.5 mL] ground cloves
4 1/2 cups [1080 mL] sugar

Place all ingredients into a 4-6 quart [3800-5200 mL] kettle, bring the mixture to a boil that cannot be stirred down. Immediately add the sugar. Bring the mixture to a boil and continue boiling for 2 minutes. Skim mixture. Pour hot jam immediately into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in a boiling water bath. Yield: about 6 to 7 half-pints [1440-1680 mL].

**BLUEBERRY-CURRANT JAM**

1 quart [950 mL] stemmed blueberries
1 cup [240 mL] water
3 cups [720 mL] sugar
2 cups [480 mL] stemmed currants
1 cup [240 mL] water

Combine blueberries and 1 cup [240 mL] water; cook slowly 5 minutes. Combine currants and 1 cup [240 mL] water; cook slowly 10 minutes, press through a sieve or food mill to remove seeds. Combine blueberries and currant pulp; cook rapidly 5 minutes. Add sugar, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 20 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

**CARROT JAM**

4 cups [960 mL] grated raw carrots
3 cups [720 mL] sugar
Juice and grated rind of 2 lemons
1/2 teaspoon [2.5 mL] ground cloves
1/2 teaspoon [2.5 mL] ground allspice
1/2 teaspoon [2.5 mL] ground cinnamon

Combine all ingredients. Bring to slow boil, reduce heat, and simmer, stirring constantly, until thick. Pour, hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 6 to 7 half-pints [1440-1680 mL].

**DAMSON PLUM JAM**

5 cups [1200 mL] coarsely chopped Damson plums (about 2 pounds) [907 g]
3 cups [720 mL] sugar
3/4 cup [180 mL] water

Combine all ingredients; bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly to, or almost to, jellying point. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

**ELDERBERRY JAM**

2 quarts [1900 mL] crushed elderberries
6 cups [1440 mL] sugar
1/4 cup [60 mL] vinegar

Combine berries, sugar and vinegar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

**FIG JAM**

2 quarts [1900 mL] chopped fresh figs (about 5 pounds) [2.3 kg]
3/4 cup [180 mL] water
6 cups [1440 mL] sugar
1/2 cup [60 mL] lemon juice

To prepare chopped figs: Pour boiling water over figs; let stand 10 minutes. Drain, stem and chop figs. Measure and add 3/4 cup [180 mL] water and sugar to figs. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick. Stir frequently to prevent sticking. Add lemon juice and cook 1 minute longer. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 5 pints [2400 mL].

**GRAPE JAM**

2 quarts [1900 mL] stemmed Concord grapes
6 cups [1440 mL] sugar

Separate pulp from skins of grapes. If desired, chop skins in a food blender or chopper. Cook skins gently 15 to 20 minutes, adding only enough water to prevent sticking (about 1/2 cup [120 mL]). Cook pulp without water until soft; press through a sieve or food mill to remove seeds. Combine pulp, skins and sugar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly almost to jellying point, about 10 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 pints [1440 mL].

**MUSCADINE OR SCUPPERNONG JAM**

Follow recipe for Grape Jam above. Process 15 minutes in boiling water bath canner.

**PEACH JAM**

2 quarts [1900 mL] crushed, peeled peaches
1/2 cup [120 mL] water
6 cups [1440 mL] sugar

Combine peaches and water; cook gently 10 minutes. Add sugar, slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 15 minutes, stirring frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving 1/4-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 pints [1920 mL].

**NOTE:** For Spiced Peach Jam follow Peach Jam recipe above except add to jam during cooking, spice bag tied in cheesecloth, containing the following ingredients:
1 teaspoon [5 mL] whole cloves
1/2 teaspoon [2.5 mL] whole allspice
1 stick cinnamon

Remove spice bag before pouring jam into jars. Process as shown above.

**PINEAPPLE JAM**

1 quart [950 mL] finely chopped, cored, pared fresh pineapple (about 1 large)
2 1/2 cups [600 mL] sugar
1 cup [240 mL] water
1/2 thinly sliced lemon
Combine all ingredients. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 half-pints [720 mL].

### PLUM JAM

2 quarts [1900 mL] chopped tart plums (about 4 pounds) [1.8 kg]
6 cups [1440 mL] sugar
1 ½ cups [360 mL] water
¼ cup [60 mL] lemon juice

Combine all ingredients and sugar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly almost to jellying point, about 20 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 half-pints [720 mL].

### RASPBERRY-CURRANT JAM

2 cups [480 mL] currant pulp
2 cups [480 mL] crushed raspberries
3 cups [720 mL] sugar

To prepare currant pulp: Cook currants until soft, press through a sieve or food mill. Measure pulp.

Combine currant pulp, raspberries and sugar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly almost to jellying point, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 2 pints [960 mL].

### CARROT AND ORANGE MARMALADE

4 cups [960 mL] grated raw carrots
2 oranges
Pinch salt
1 cup [240 mL] lemon juice

Combine berries and sugar; bring slowly to boiling, stirring until sugar dissolves. Cook rapidly until tender—about 30 minutes in 3 cups [720 mL] of water. Add the grated carrots and 3 cups [720 mL] of water and cook until tender—about 20 minutes. Add the orange and lemon juice. Measure the mixture. For each cup [240 mL] of this mixture add ¼ cup [60 mL] sugar. Boil to the marmalade stage. This will require about an hour. Add pinch salt. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 3 half-pints [720 mL].

### CHERRY MARMALADE

1 finely chopped orange, with peel
3 ½ cups [840 mL] sugar
4 cups [960 mL] pitted sweet cherries
¼ cup [60 mL] lemon juice

Combine carrots and 3 cups [720 mL] of water. Add the grated carrots and 3 cups [720 mL] of water and cook until tender—about 20 minutes. Add the orange and lemon juice. Measure the mixture. For each cup [240 mL] of this mixture add ¼ cup [60 mL] sugar. Boil to the marmalade stage. This will require about an hour. Add pinch salt. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

### STRAWBERRY JAM

2 quarts [1900 mL] crushed strawberries
6 cups [1440 mL] sugar

Combine berries and sugar; bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 40 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

### MARMALADE RECIPES

Don't forget to process in boiling water bath canner!

### CARROT AND ORANGE MARMALADE

4 cups [960 mL] grated raw carrots
2 oranges
Pinch salt
1 cup [240 mL] lemon juice

Combine all ingredients. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 half-pints [720 mL].

### CHERRY-PINEAPPLE MARMALADE

2 cups [480 mL] finely chopped, pitted, tart red cherries
2 cups [480 mL] sugar
2 cups [480 mL] finely chopped, cored, pared, fresh pineapple (about 1 medium)

Combine all ingredients. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 10 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 3 half-pints [720 mL].

### CITRUS MARMALADE

1 ½ cups [360 mL] thinly sliced grapefruit peel (about 1)
½ cup [120 mL] thinly sliced orange peel
1 ½ cups [360 mL] chopped grapefruit pulp (about 1)
¾ cup [180 mL] chopped orange pulp (about 1 medium)
½ cup [120 mL] thinly sliced lemon (about 1 medium)
1 ½ quarts [1425 mL] water
Sugar, about 6 ½ cups [1560 mL]

Add 1 ½ quarts [1425 mL] water to fruit peel. Boil 5 minutes; drain. Repeat. To drained peel, add fruit pulp, lemon and 1 ½ quarts [1425 mL] water; boil 5 minutes. Cover and let stand 12 to 18 hours in a cool place. Bring to boiling and cook rapidly until peel is tender, about 35 to 40 minutes. Measure fruit and liquid. Add 1 cup [240 mL] sugar for each cup [240 mL] of fruit mixture. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly to jellying point, about 30 minutes, stirring frequently. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 5 half-pints [1200 mL].
**GRAPE-CRANBERRY MARMALADE**

2 cups [480 mL] Concord grape juice  
2 cups [480 mL] stemmed cranberries  
$\frac{1}{2}$ teaspoon [2.5 mL] grated orange peel  
3 cups [720 mL] sugar

To prepare grape juice, see page 24. Combine juice, cranberries and orange peel; bring to boiling. Add sugar; bring slowly to boiling, stirring until sugar dissolves. Cook rapidly to jellying point, about 5 minutes. Stir occasionally to prevent sticking. Pour boiling hot, into hot jars, leaving $\frac{1}{2}$-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

**GRAPEFRUIT MARMALADE**

$\frac{3}{4}$ cup [160 mL] thinly sliced grapefruit peel  
1 1/2 cups [320 mL] chopped grapefruit pulp (about 1)  
1 quart [950 mL] water  
Sugar, about 4 cups [960 mL]

Cover grapefruit peel with water; boil 10 minutes and drain. Repeat 2 or 3 times. To drained peel, add chopped pulp and 1 quart [950 mL] water. Cover and cook gently for 1 hour; let stand in a cool place overnight. Bring to boiling and cook until peel is tender. To each cup [240 mL] of fruit mixture, add 1 cup [240 mL] sugar. Stir until sugar is dissolved. Cook rapidly to jellying point, about 45 minutes. Stir occasionally to prevent sticking. Pour boiling hot, into hot jars, leaving $\frac{1}{2}$-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 8 half-pints [1920 mL].

**GREEN GRAPE MARMALADE**

2 quarts [1900 mL] stemmed, young, green Concord grapes  
2 cups [480 mL] water  
8 cups [1920 mL] sugar

Add water to grapes and cook until tender. (If seeds of grapes are not tender, cut grapes in half and remove seeds before cooking.) Add sugar; bring slowly to boiling, stirring occasionally until sugar dissolves.

Cook rapidly to jellying point, stirring frequently. Pour boiling hot, into hot jars, leaving $\frac{1}{4}$-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 10 half-pints [2400 mL].

**KUMQUAT MARMALADE**

1 1/2 quarts [1425 mL] water  
2 cups [480 mL] thinly sliced kumquats (about 2 dozen)  
1 1/2 cups [360 mL] sliced orange peel (about 2 medium)  
1 1/2 cups [360 mL] chopped orange pulp (about 2 medium)  
1/2 cup [80 mL] lemon juice  
Sugar, about 9 cups [2160 mL]

Add water to fruit; cover and let stand in a cool place overnight. Bring to boiling and cook until peel is tender. To each cup [240 mL] of fruit mixture, add 1 cup [240 mL] sugar. Stir until sugar is dissolved. Cook rapidly to jellying point, about 45 minutes. Stir occasionally to prevent sticking. Pour boiling hot, into hot jars, leaving $\frac{1}{4}$-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 8 half-pints [1920 mL].

**ORANGE-MELON MARMALADE**

1 quart [950 mL] water  
6 thinly sliced oranges  
1 thinly sliced lemon  
6 cups [1440 mL] chopped, cored, pared, fresh pineapple (about 1 large or 2 medium)  
Sugar, about 6 1/2 cups [1560 mL]

Add water to oranges and lemon. Cover and cook gently for 1 hour; let stand 12 to 18 hours in a cool place. Add pineapple and cook until pineapple is tender. Measure fruit and liquid. Add 1 cup [240 mL] sugar for each cup [240 mL] of fruit mixture. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly until thick. As mixture thickens, stir frequently to prevent sticking. Pour boiling hot, into hot jars, leaving $\frac{1}{4}$-inch [6 mm] head space. Adjust caps. Process 10 minutes in boiling water bath. Yield: about 9 half-pints [2160 mL].
PEACH-ORANGE MARMALADE
2 quarts [1900 mL] chopped, peeled, firm, ripe peaches (about 10 large)
¾ cup [180 mL] sliced orange peel
1½ cups [360 mL] chopped orange pulp (about 2 medium)
2 tablespoons [30 mL] lemon juice
5 cups [1200 mL] sugar

Combine all ingredients; bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 20 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 8 half-pints [1920 mL].

QUINCE-APPLE MARMALADE
3 cups [720 mL] chopped, cored, pared quinces (about 6 medium)
2 cups [480 mL] chopped, cored, pared tart apples (about 3 medium)
Sugar, about 2½ cups [600 mL]

When preparing quinces, discard all gritty parts. Add water to quinces just to cover; cook rapidly until tender. Add apples and cook 10 minutes. Measure fruit and liquid. Add ¾ cup [180 mL] sugar to each cup [240 mL] of fruit mixture. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly almost to jellying point, about 15 to 20 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

PRICKLY PEAR MARMALADE
2 thinly sliced lemons, (about 1 cup) [240 mL]
2 large unpeeled, chopped oranges (about 3 cups) [720 mL]
1 quart [950 mL] water
1 quart [950 mL] chopped, peeled, seeded prickly pears (about 9)
6 cups [1440 mL] sugar

Combine first 3 ingredients; cover and let stand 12 to 18 hours in a cool place. Cook rapidly until peel is tender, about 30 minutes. Cool; add pears and sugar. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly to jellying point, about 25 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

STRAWBERRY-PINEAPPLE MARMALADE
2½ cups [600 mL] finely chopped, cored, pared, fresh pineapple (about 1 medium)
1 teaspoon [5 mL] grated orange peel
2½ cups [600 mL] chopped orange pulp (about 4 medium)
7 cups [1680 mL] sugar
1½ quarts [1425 mL] stemmed strawberries

Combine pineapple, orange peel, pulp and sugar. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly 15 minutes. Add strawberries and continue cooking rapidly until thick, about 20 to 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

APRICOT PRESERVES
5 cups [1200 mL] halved, peeled, hard, ripe apricots (about 2 pounds) [907 g]
4 cups [960 mL] sugar
¼ cup [60 mL] lemon juice

Thoroughly mix fruit with sugar and lemon juice. Cover tightly; let stand 4 to 5 hours in a cool place. Heat slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until fruit is clear, about 30 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

BAR-LE-duc (Currant) PRESERVES
1 cup [240 mL] currant juice
2 quarts [1900 mL] stemmed currants
4 cups [960 mL] sugar
3 cups [720 mL] sugar

To prepare juice, see page 23. Combine currant juice and fruit in a flat pan; add 4 cups [960 mL] sugar and cook 5 minutes. Let stand 12 hours or overnight in a cool place. Add remaining sugar. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly to or almost to jellying point, about 30 minutes. Stir occasionally to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 5 half-pints [1200 mL].

BERRY PRESERVES
Although blackberries and others which hold shape in cooking can be used for preserves, all, except strawberries, are more satisfactory for jam. If making preserves, use ¾ cup each pound [454 g] berries. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath.
• **CHERRY PRESERVES**

2 pounds [907 g] pitted, tart, red cherries

4 cups [960 mL] sugar

Drain juice from cherries. Add sugar to juice (if not enough juice to dissolve sugar, add a little water) and cook until sugar dissolves, stirring occasionally. Cool. Add cherries and cook rapidly until cherries become glossy, about 15 minutes. Cover and let stand 12 to 18 hours in a cool place. Bring to boiling and cook rapidly 1 minute. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

• **CITRON MELON PRESERVES**

1½ quarts [1425 mL] prepared citron melon (about 2 pounds) [907 g]

2 cups [480 mL] sugar

1 quart [950 mL] water

2 cups [480 mL] sugar

1 thinly sliced lemon

Both inner and outer part of melon may be used, but should be prepared separately. To prepare melon: Cut outer part into ¼-inch [19 mm] slices, crosswise, trim off green rind. Cut into 1-inch [25 mm] pieces. Remove seeds from inner part; cut into 1-inch [25 mm] pieces. Add 2 cups [480 mL] sugar to water; bring to boil. Add citron and cook rapidly until tender, about 45 minutes. Cover and let stand 12 to 18 hours in a cool place.

Add remaining sugar and lemon. Boil gently until clear, about 1 hour. (If syrup becomes too thick before figs become clear, add boiling water, ¼ cup [60 mL] at a time.) Cover and let stand 12 to 24 hours in a cool place. Pack into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 30 minutes in boiling water bath. Yield: about 10 half-pints [2400 mL].

NOTE: Although the product will not be as high in quality, figs may be preserved without peeling. If unpeeled, figs should be covered with water and boiled 15 to 20 minutes and drained before adding to syrup.

• **OLD-FASHIONED PEACH PRESERVES**

2 quarts [1900 mL] sliced, peeled, hard, ripe peaches (about 10 large)

6 cups [1440 mL] sugar

Combine fruit and sugar; let stand 12 to 18 hours in a cool place. Bring slowly to boiling, stirring frequently. Boil gently until fruit becomes clear and syrup thick, about 40 minutes. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 7 half-pints [1680 mL].

NOTE: This may be used as a substitute for commercial candied citron after draining thoroughly. Commercial citron is made from tree grown fruit. The citron melon is vine grown. The outer part is superior to the inner part for preserves.

• **FIG PRESERVES**

7 cups [1680 mL] sugar

¼ cup [60 mL] lemon juice

1½ quarts [1425 mL] hot water

2 quarts [1900 mL] peeled, firm, ripe figs (about 4½ pounds) [2 kg]

2 thinly sliced lemons

Add sugar and lemon juice to hot water. Cook until sugar dissolves. Add figs and cook rapidly 10 minutes. Stir occasionally to prevent sticking. Add sliced lemons and continue cooking rapidly until figs are clear, about 10 to 15 minutes. (If syrup becomes too thick before figs become clear, add boiling water, ¼ cup [60 mL] at a time.) Cover and let stand 12 to 24 hours in a cool place. Pack into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 30 minutes in boiling water bath. Yield: about 10 half-pints [2400 mL].

NOTE: This may be used as a substitute for commercial candied citron after draining thoroughly. Commercial citron is made from tree grown. The outer part is superior to the inner part for preserves.

• **HONEYED PEACH PRESERVES**

2 pounds [907 g] prepared peaches

4 cups [960 mL] sugar

1 cup [240 mL] light honey

½ grated orange (pulp and rind)

¼ teaspoon [1.25 mL] pure almond extract

½ teaspoon [2.5 mL] salt

To prepare peaches: Wash, rinse, scald (to loosen skins) and dip peaches into cold water. Drain. Cut peaches in halves, discard pits and skins. If peaches are small, leave in halves; if peaches are large, cut into pieces and weigh.

Mix sugar and honey with the peaches. Cover and allow peach mixture to stand while preparing the orange. The orange may be grated in the blender. Measure the grated peel, and add an equal amount of water. Cover and slowly cook the orange peel mixture until the peel is soft enough to mash with the fingers. If more water is needed to finish cooking the orange peel, add as little water as possible. Cook peaches over low heat until the sugar dissolves. Increase heat and boil about 15 minutes, add orange peel mixture and boil until peaches are "clear" and syrup is as thick as honey.
QUINCE PRESERVES
3 cups [720 mL] sugar
2 quarts [1900 mL] water
7 cups [1680 mL] quartered, cored, pared quinces (about 3 pounds [1.4 kg] before preparing)

When preparing quinces, discard all gritty parts. Combine sugar and water; boil 5 minutes. Add quinces and cook until fruit has a clear, red color and syrup is almost at jellying point, about 1 hour. As mixture thickens, stir frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

PEAR PRESERVES
1½ cups [360 mL] sugar
3 cups [720 mL] water
6 medium cored, pared, hard, ripe pears, cut in halves or quarters (about 2 pounds) [907 g]
1½ cups [360 mL] sugar
1 thinly sliced lemon

Combine 1½ cups [360 mL] sugar and water; cook rapidly 2 minutes. Add pears and boil gently for 15 minutes. Add remaining sugar and lemon, stirring until sugar dissolves. Cook rapidly until fruit is clear, about 25 minutes. Cover and let stand 12 to 24 hours in a cool place. Pack fruit into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 20 minutes in boiling water bath. Yield: about 5 half-pint jars [1200 mL].

STRAWBERRY PRESERVES DELUXE
1½ quarts [1425 mL] stemmed, firm, red, ripe strawberries
5 cups [1200 mL] sugar
½ cup [80 mL] lemon juice

Berries with hollow cores should not be used. Combine strawberries and sugar; let stand 3 to 4 hours. Bring slowly to boiling, stirring occasionally until sugar dissolves. Add lemon juice. Cook rapidly until berries are clear and syrup thick, about 10 to 12 minutes. Pour into a shallow pan. Let stand uncovered, 12 to 24 hours in a cool place. Shake pan occasionally to distribute berries through syrup. Pack into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 20 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

PLUM PRESERVES
5 cups [1200 mL] pitted, tart plums (about 2½ pounds) [1.1 kg]
4 cups [960 mL] sugar
1 cup [240 mL] water

Combine all ingredients. Bring slowly to boiling, stirring until sugar dissolves. Cook rapidly almost to jellying point, about 15 minutes, stirring frequently to prevent sticking. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 5 half-pints [1200 mL].

GOURMET STRAWBERRY PRESERVES
1 quart [950 mL] stemmed, firm, red, ripe strawberries
5 cups [1200 mL] sugar
½ cup [120 mL] lemon juice

Berries with hollow cores should not be used. Combine berries and sugar; let stand 3 to 4 hours. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 20 minutes. Add lemon juice and continue cooking 10 minutes longer. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 4 half-pints [960 mL].

TOMATO PRESERVES
1 tablespoon [15 mL] mixed pickling spices
1 piece ginger root
4 cups [960 mL] sugar
2 thinly sliced lemons
¾ cup [180 mL] water
1½ quarts [1425 mL] small, firm, yellow, green or red peeled tomatoes (about 2 pounds) [907 g]

Do not core tomatoes. Tie spices in a cheesecloth bag; add to sugar, lemon and water. Simmer 15 minutes. Add tomatoes and cook gently until tomatoes become clear, stirring occasionally to prevent sticking. Cover and let stand 12 to 18 hours in a cool place. Heat to boiling and pack tomatoes and lemon into hot jars, leaving ¼-inch [6 mm] head space. Remove spice bag from syrup. Boil syrup 2 to 3 minutes, or longer if too thin; pour, boiling hot, over tomatoes, leaving ¼-inch [6 mm] head space. Remove air bubbles. Adjust caps. Process 20 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

WATERMELON RIND PRESERVES
1½ quarts [1425 mL] prepared watermelon rind
4 tablespoons [60 mL] salt
2 quarts [1900 mL] cold water
1 thinly sliced lemon
1 tablespoon [15 mL] ground ginger
4 cups [960 mL] sugar
½ cup [60 mL] lemon juice
7 cups [1680 mL] water

To prepare watermelon rind: Trim green skin and pink flesh from thick watermelon rind; cut into 1-inch [25 mm] pieces. Dissolve salt in 2 quarts [1900 mL] water and pour over rind. Let stand 5 to 6 hours if salt is used. Drain; rinse and drain again. Cover with cold water and let stand 30 minutes. Drain. Sprinkle ginger over rind; cover with water and cook until fork-tender. Drain.

Combine sugar, lemon juice and 7 cups [1680 mL] water. Boil 5 minutes; add rind and boil gently for 30 minutes. Add sliced lemon and cook until the melon rind is clear. Pack, boiling hot into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 20 minutes in boiling water bath. Yield: about 6 half-pints [1440 mL].

NOTE: If Seckel pears are used, preserve whole with stem intact. Kiefer should be stored in a cool, dry place from 3 to 5 weeks before using. A piece of preserved ginger may be added to each jar.
LOW ACID FOODS

Low acid foods, while they require a little more care than acids, can easily and safely be canned at home. And vegetables especially, picked fresh from the garden or purchased at the peak of their perfection for canning, are a delicious, wholesome and economical addition to family meals.

Included in the low acid group are vegetables, meats, poultry, seafood, mushrooms and soup. Tomatoes, rhubarb and sauerkraut are considered as acids. Mixed vegetable recipes which include tomatoes should be processed as low acids. To assure that all spoilage microorganisms are destroyed, low acids MUST be processed in a pressure canner at 240°F [116°C] for the times prescribed in individual recipes.

The times given in recipes for low acids in this book are for foods processed at altitudes under 2,000 feet [610 m]. For higher altitude areas, adjustments in pressure must be made as in Figure 15.

STEP-BY-STEP CANNING OF LOW ACIDS

2. Assemble all equipment and utensils. Make sure everything is clean. Clean petcock and safety valve of pressure canner by drawing a string through openings. Determine that pressure gauge is accurate.
4. For meats, poultry, seafoods and soups, see special instructions in this section.
5. For vegetables, select only the best produce and just enough for one canner load at a time. Wash and rinse thoroughly before breaking the skin.
6. Follow recipe closely.
7. Pack vegetables in jars loosely enough for water to circulate between pieces without wasting space.
8. Cover vegetables with fresh boiling water, or with water in which they were heated for packing, leaving 1-inch [25 mm] head space.
9. Remove air bubbles.
10. Wipe top and threads of jar with clean, damp cloth. Attach closures.
11. Place jars in pressure canner and fasten cover, closely following manufacturer’s instructions. Heat, allowing steam to escape steadily for 10 minutes, or according to manufacturer’s instructions. Close petcock and bring pressure to 10 pounds [70 kPa]. Start counting processing time. Keep pressure constant for entire length of processing time specified in recipe or in manufacturer’s directions.
12. Remove canner from heat. Let pressure fall to zero naturally. Wait 2 minutes. Unfasten cover; slide cover slightly toward you, allowing steam to escape on opposite side, or according to manufacturer’s instructions. Lift cover. Then let stand 10 minutes and remove jars. Stand jars on cloths, out of drafts and with space between. Do not tighten bands on jars after processing.
13. After 24 hours, test seals and remove bands.
14. Store sealed jars in dark, dry, cool place.
15. Boil low acid foods for 15 minutes before serving.

MEATS, POULTRY, SEAFOODS, SOUPS & OTHER MIXTURES (POTPOURRI)

In addition to vegetables, many other low acids can be preserved by canning to supplement the family diet. Canning is an excellent way to preserve the game caught by hunters and fishermen.

The step-by-step instructions for canning low acids at the beginning of this section should be followed for canning meats, poultry, seafoods, soups and other mixtures. In addition, other special handling tips and instructions are outlined below.

MEATS—The flavor and texture of canned meats depend upon the breed, feed and manner of handling the meat at the time of, and immediately after, slaughtering. If you slaughter your own meat, contact your local county agricultural agent for complete information on slaughtering, chilling and aging the meat.

To prepare the meat, cut into pieces suitable for cooking or canning. Cut slices across the grain about 1 inch [25 mm] thick. Then cut with the grain into jar-size pieces. For stew, cut into uniform cubes.

Trim away gristle, bruised spots and fat. Too much fat is likely to cause the meat to have a strong flavor, and may also damage the compound used for sealing the jars.

Do not let meat stand in water. Strong-flavored game, however, should be soaked in salt water before canning. Prepare and pack meat according to the recipe and process for the prescribed time.

POULTRY—One or two year old fowls are better than younger ones for canning. After washing fowl, cut skin between legs and body. Bend legs until hip joints snap. Slip knife under ends of shoulder blades and cut up to wings. Pull back and breast apart. Remove entrails. Rinse and dry. Do not salt. Chill 6 to 12 hours before canning.

SEAFOODS—Prepare freshly caught, thoroughly bled fish as for cooking. Leave backbone in small fish, remove it from large ones. Fish should be soaked in salt water before canning. Fish should not be canned in jars larger than pints, because seafood is very low in acidity, and heat penetration may be inadequate for destroying bacterial spores. The seafood recipes in this book are based on information supplied by the Division of Fishery Industries, United States Department of Interior. For additional seafood recipes, write to this department in Washington, D.C. Or write for Home and Garden Bulletin No. 106, “Home Canning Meat and Poultry,” or Bulletin No. 93, “Freezing Meat and Fish in the Home,” U.S. Department of Agriculture, Washington, D.C.

SOUPS—Ingredients should be cut to uniform size for even processing. For soups containing vegetables, the length of processing time should be for the vegetable requiring the longest processing. (See Figure 17.)
CHOPPED MEAT
Beef, Veal, Lamb, Mutton, Pork, Chevon, Venison
Put meat through food chopper; measure. Cook it in hot skillet until seared. Add 1 to 1½ cups [240-360 mL] boiling water, meat stock or tomato juice, and 1 teaspoon [5 mL] salt for each quart [950 mL] ground meat. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 15 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure.
To serve: Use for meat loaf, baked hash, or stuffing vegetables.

CORNED BEEF
25 pounds [11.3 kg] beef (brisket, chuck, plate or rump)
2 pounds [907 g] pickling, dairy or kosher salt
1 pound [454 g] sugar
1½ teaspoons [7.5 mL] baking soda
1 ounce [28 g] salt peter

To Corn: Cut meat into pieces 3 to 6 inches [76-152 mm] thick. Put thin layer of salt in bottom of stone jar or tight keg. Add layer of meat. Sprinkle with salt. Add other layers of meat and salt; the top layer must be salt. Let stand 12 to 18 hours in a cool place. Dissolve sugar, soda and salt peter in a quart [950 mL] of lukewarm water; mix with 3 quarts [2850 mL] cool water; pour over meat. Cover with dinner plate or glass pie plate. Fill jar with water and use to hold plate below brine. Meat must be kept under brine at all times. Scum should be removed each day. If brine ferments, drain and wash meat, scald container and prepare new brine. Put meat back into keg and add fresh brine. The meat should be ready to can in 3 or 4 weeks; it will be a bright red color.
POULTRY

One or two year old fowls are better than younger ones for canning. After picking and washing fowl, cut skin between legs and body. Bend legs until hip joints snap. Slip knife under ends of shoulder blades and cut up to wings. Pull back and breast under ends of shoulder blades and separate at joints as for frying. Pack into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt per pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling hot chicken broth, leaving 1-inch [25 mm] head space. Adjust caps. Process 1 hour and 10 minutes at 10 pounds [70 kPa] pressure.

CHICKEN - BONED

Use for All Poultry

Steam or boil chicken until about ¾ done. Remove skin and bones. Pack meat into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt per pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water containing ½ teaspoon [2.5 mL] citric acid. Boil 2 minutes. Drain. Pack clams into hot pint [480 mL] jars, leaving 1-inch [25 mm] head space. Pour juice over clams. Add boiling water, if needed, to cover, leaving 1-inch [25 mm] head space. Adjust caps. Process 1 hour and 10 minutes at 10 pounds [70 kPa] pressure.

CHICKEN-ON-BONE

Use for All Poultry

Hot Pack . . . Boil, steam or bake chicken until about ¾ done. If uncut chickens were cooked, separate at joints as for frying. Pack into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt per pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling hot chicken broth, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 15 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure.

Cold or Raw Pack . . . Separate chicken at joints. Pack, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt per pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Do not add liquid. Adjust caps. Process pints [480 mL] 1 hour and 5 minutes, quarts [950 mL] 1 hour and 15 minutes, at 10 pounds [70 kPa] pressure.

SEAFODS

Prepare freshly caught, thoroughly bled fish as for cooking. Leave backbone in small fish; remove it from large ones. Use pint [480 mL] or half-pint [240 mL] jars for processing.

NOTE: The majority of these recipes are based upon information supplied by the Division of Fishery Industries, United States Department of the Interior.

CLAMS


CRAB MEAT

Add ¼ cup [60 mL] lemon juice, or white vinegar, and 2 tablespoons [30 mL] salt to 1 gallon [3800 mL] boiling water. Keep hot. Remove back shell and thoroughly clean crabs. Wash bodies through several changes of cool water. Boil 20 minutes in the acid-brine. While crabs are boiling, add 2 tablespoons [30 mL] salt, 2 cups [480 mL] lemon juice or white vinegar to 1 gallon [3800 mL] cool water. Drain cooked crabs. Remove meat from body and claws. Rinse in cool acid-brine. Squeeze meat to remove some of the liquid. Pack 6 oz. [170 g] crab meat into hot half-pint [240 mL] jars, or 12 oz. [340 g] into pint [480 mL] jars, leaving 1-inch [25 mm] head space. Do not process quarts. Add ½ teaspoon [2.5 mL] of citric acid to each half-pint [240 mL] or 1 teaspoon [5 mL] per pint [480 mL] of crab, cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process half-pints and pints for 80 minutes at 10 pounds [70 kPa] pressure.

MACKEREL, MULLET, TROUT, WHITEFISH, etc.


SALMON and SHAD


SHRIMP


SMELT in TOMATO SAUCE

6 pounds [2.7 kg] cleaned smelt
2 cups [480 mL] Barbecue Sauce (see page 34)
¾ cup [180 mL] oil
¼ cup [60 mL] vinegar
2 teaspoons [10 mL] salt


NOTE: To obtain more seafood recipes, we suggest you write Division of Fishery Industries, United States Department of Interior, Washington, D.C., or U.S. Department of Agriculture, Washington, D.C., for Home and Garden Bulletin No. 93, "Freezing Meat and Fish in the Home."
**BEAN SOUP**
2 cups [480 mL] dried navy beans (1 pound [454 g])
1 ham hock or ¼ pound [113 g] salt pork
½ cup [120 mL] chopped onion
½ hot red pepper
Salt to taste

Cover beans with cold water and soak 12 to 18 hours in a cool place. Add meat, onion and pepper; bring to boiling. Cover and simmer 2 to 3 hours or until beans are mushy. Remove meat and cut into small pieces. Press remaining ingredients through a sieve or food mill; add pieces. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 5 minutes, quarts [950 mL] 1 hour and 15 minutes, at 10 pounds [70 kPa] pressure. Yield: about 4 pints [1920 mL].

**BEEF STEW WITH VEGETABLES**
4 to 5 pounds [1.8-2.3 kg] beef stew meat
2 quarts [1900 mL] sliced small carrots (about 16)
3 cups [720 mL] chopped celery
3 cups [720 mL] chopped onions
3 quarts [2850 mL] cubed, pared potatoes (about 12 medium)
1½ tablespoons [23 mL] salt
1 teaspoon [5 mL] thyme
½ teaspoon [2.5 mL] pepper

Cut meat into ¼-inch [38 mm] cubes (about 2 quarts) [1900 mL]; brown in a small amount of fat. Combine meat, vegetables and seasonings; cover with boiling water. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour, quarts [950 mL] 1 hour and 15 minutes, at 10 pounds [70 kPa] pressure. Yield: about 7 quarts [6650 mL].

NOTE: Vegetables do not need to be precooked.

**CHICKEN A LA KING**
True Chicken a la King is made of all white meat, pure cream and sherry wine. The recipe given here is for a product suitable for canning or freezing.

7 to 8 pounds [3.2-3.6 kg] ready-to-cook stewing chickens, cut in pieces
2 stalks celery
1 onion
1 carrot
4 peppercorns
2 whole allspice
1 bay leaf
2 teaspoons [10 mL] salt or butter
½ cup [120 mL] flour
5 cups [1200 mL] chicken broth
½ cup [120 mL] chopped celery
¾ cup [60 mL] chopped pimiento
1 tablespoon [15 mL] chopped parsley
Salt and pepper to taste

To Prepare Chicken: Cook chicken in water to cover. Add celery, onion, carrot, peppercorns, allspice, bay leaf and salt. Bring to boiling, reduce heat and simmer 2 to 3 hours or until chicken is tender. Remove vegetables. Allow chicken to cool in broth. Remove chicken; spoon off excess fat; strain broth. Remove skin and bones from meat. Cut meat into 1-inch [25 mm] pieces.


To Serve: Brown mushrooms in butter; add to Chicken a la King and heat until hot through.

**CHILI**
5 pounds [2.3 kg] ground beef
2 cups [480 mL] chopped onions
1 clove minced garlic
6 cups [1440 mL] cooked or canned tomatoes and juice
½ cup [120 mL] chili powder
1½ tablespoons [23 mL] salt
1 hot red pepper
1 teaspoon [5 mL] cumin seed

Brown meat; add onions and garlic, and cook slowly until tender. Add remaining ingredients and simmer 20 minutes. If meat is fat, skim off excess fat before canning. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 15 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure. Yield: about 3 quarts [2850 mL].

To Serve: Add cooked or canned pinto or kidney beans, heat and serve.

**CLAM CHOWDER**
½ pound [227 g] diced salt pork
1 cup [240 mL] chopped onions
3 to 4 quarts [2850-3800 mL] chopped, cleaned clams with juice
2 quarts [1900 mL] diced, pared potatoes (about 8 medium)
2 quarts [1900 mL] boiling water
Salt and pepper to taste


For Manhattan Chowder, add to above ingredients before canning:
½ bay leaf
½ teaspoon [2.5 mL] thyme
½ cup [120 mL] chopped celery
2 cups [480 mL] cooked tomatoes

For New England Chowder, after canning, immediately before heating for serving, add to each jar:
2 tablespoons [30 mL] butter
2 cups [480 mL] milk
FISH CHOWDER
5 pounds [2.3 kg] cleaned fish
3 quarts [2850 mL] water
2 teaspoons [10 mL] salt
1/2 teaspoon [2.5 mL] pepper-
corns
1/4 hot red pepper
3/4 pound [340 g] diced salt pork
1 cup [240 mL] chopped onions
2 quarts [1900 mL] diced, pared potatoes (about 8 medium)


GOULASH
1 tablespoon [15 mL] salt
3 tablespoons [45 mL] paprika
2 teaspoons [10 mL] dry mustard
4 pounds [1871 kg] boned chuck, cut in 1-inch [25 mm] pieces
1/2 cup [80 mL] oil
6 stalks celery, cut in half
1 cup [240 mL] water
1/4 cup [80 mL] vinegar
3 bay leaves
20 peppercorns
2 teaspoons [10 mL] caraway seeds
3 medium onions, cut in half
4 large carrots, cut in half


MEAT SAUCE
For Spaghetti, Lasagne, or Casseroles
5 pounds [2.3 kg] ground beef
2 cups [480 mL] chopped green peppers (about 2 medium)
1 cup [240 mL] chopped onions
2 tablespoons [30 mL] brown sugar
2 tablespoons [30 mL] minced parsley
1 1/2 tablespoons [23 mL] salt
1 tablespoon [15 mL] oregano
1/2 teaspoon [2.5 mL] pepper
1/2 teaspoon [2.5 mL] ginger
1/2 teaspoon [2.5 mL] allspice
2 tablespoons [30 mL] vinegar

Brown beef; add onions and green peppers, and cook slowly until tender. Add remaining ingredients and simmer until thick enough for serving. If the meat is fat, skim off excess fat before canning. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 15 minutes, at 10 pounds [70 kPa] pressure. Yield: about 6 quarts [5700 mL].

VEGETABLE SOUP
1 1/2 quarts [1425 mL] water
2 quarts [1900 mL] peeled, cored, chopped tomatoes (about 12 large)
1 1/2 quarts [1425 mL] cubed, pared potatoes (about 6 medium)
1 quart [950 mL] green lima beans
1 quart [950 mL] cut corn, uncooked (about 9 ears)
1 1/2 quarts [1425 mL] 3/4-inch [19 mm] sliced carrots (about 12 medium)
2 cups [480 mL] 1-inch [25 mm] sliced celery
2 cups [480 mL] chopped onions
Salt

Add water to vegetables; boil 5 minutes. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Add 1/4 teaspoon [1.25 mL] salt to each pint [480 mL] or 1/2 teaspoon [2.5 mL] salt to each quart [950 mL]. Adjust caps. Process pints [480 mL] 55 minutes, quarts [950 mL] 1 hour and 25 minutes, at 10 pounds [70 kPa] pressure. Yield: about 7 quarts [6650 mL].

NOTE: Or use any mixture of vegetables preferred in soup. Process the length of time needed for vegetable requiring longest processing time. (See Figure 17.)

MINCEMEAT
5 cups [1200 mL] ground, cooked beef (about 2 pounds) [907 g]
1 quart [950 mL] ground suet (about 1 pound) [454 g]
3 quarts [2850 mL] chopped, pared tart apples (about 12 medium)
1/2 cup [80 mL] finely chopped orange peel
1 1/2 cups [360 mL] chopped orange pulp (about 2 large)
1/4 cup [60 mL] lemon juice
33 ounces [482 g] currants
3 pounds [1.4 kg] seedless raisins (mixture of light and dark)
8 ounces [227 g] chopped, candied citron
2 pounds [907 g] brown sugar (4 1/2 cups) [1080 mL]
(packed)
1 tablespoon [15 mL] salt
1 tablespoon [15 mL] cinnamon
1 tablespoon [15 mL] allspice
2 teaspoons [10 mL] nutmeg
1 teaspoon [5 mL] cloves
1/4 teaspoon [1.25 mL] ginger
1 quart [950 mL] sweet cider or grape juice

Mix together all ingredients in a large kettle; simmer 1 hour. Stir frequently to prevent sticking. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 20 minutes at 10 pounds [70 kPa] pressure. Yield: about 6 quarts [5700 mL].
**VEGETABLES**

**ASPARAGUS**

**Hot Pack** ... Wash and drain tender, tight-tipped asparagus. Remove tough ends and scales. Wash again. Leave asparagus whole or cut into 1-inch [25 mm] pieces. Boil 3 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 20 minutes, quarts [950 mL] 1 hour and 35 minutes at 10 pounds [70 kPa] pressure. Yield: about 6 pints [2880 mL].

**Cold or Raw Pack** ... Prepare as for Hot Pack. Pack as tightly as possible, without crushing, into hot jars leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 25 minutes, quarts [950 mL] 30 minutes, at 10 pounds [70 kPa] pressure.

**BEANS—BOSTON BAKED**

1 quart [950 mL] dried navy beans (about 2 pounds) [907 g]
2 teaspoons [10 mL] salt
½ pound [227 g] salt pork, cut in pieces
3 sliced small onions
⅔ cup [160 mL] brown sugar, packed
2 teaspoons [10 mL] salt
2 teaspoons [10 mL] dry mustard
⅔ cup [160 mL] molasses

Cover beans with 3 quarts [2850 mL] water; bring to boil. Cover and simmer until skins begin to crack. Drain, reserving liquid. Pour beans into a baking dish or bean pot. Add pork and onions. Combine remaining ingredients. Add 4 cups [950 mL] reserved bean liquid (adding water, if necessary, to make 4 cups [950 mL]). Pour over beans. Cover and bake in a moderate oven 350°F [177°C] 3½ hours. Add water, if necessary, as beans should be "soupy." Pack into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 20 minutes, quarts [950 mL] 1 hour and 35 minutes at 10 pounds [70 kPa] pressure. Yield: about 6 pints [2880 mL].

**BEANS—DRIED KIDNEY, ETC.**

Use kidney or any other variety of dried beans or dried peas. Cover beans or peas with cold water. Let stand 12 to 18 hours in a cool place. Boil 30 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 15 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure.

**BEANS—GREEN, SNAP and WAX**

**Hot Pack** ... See pages 66-67 for "Canning Green Beans ... Step by Step" sketches. Wash, drain, string, trim ends and break or cut freshly gathered beans into 2-inch [51 mm] pieces. Boil 5 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 20 minutes, quarts [950 mL] 25 minutes, at 10 pounds [70 kPa] pressure.

**Cold or Raw Pack** ... Wash, drain and shell tender young beans. Wash again. Pack loosely into hot jars, leaving 1-inch [25 mm] head space. Do not press or shake down. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 40 minutes, quarts [950 mL] 50 minutes, at 10 pounds [70 kPa] pressure. If beans are large process 10 minutes longer.

**BEANS—WITH PORK and TOMATO SAUCE**

1 quart [950 mL] dried navy beans (about 2 pounds) [907 g]
¼ pound [113 g] salt pork, cut in pieces
1 quart [950 mL] tomato juice
3 tablespoons [45 mL] sugar
2 teaspoons [10 mL] salt
1 cup [240 mL] chopped onions
½ teaspoon [1.25 mL] cloves
¼ teaspoon [1.25 mL] allspice

Cover beans with cold water and let stand 12 to 18 hours in a cool place. Drain and cover with boiling water; boil for 3 minutes. Remove from heat and let stand 10 minutes; drain. Pack 1 cup [240 mL] of...
beans into hot jar. Top with piece of pork and fill jar about \( \frac{3}{4} \) full with beans. Combine tomato juice, sugar, salt, onions and spices; heat to boiling. Pour hot sauce to within 1-inch [25 mm] of top of jar. Adjust caps. Process pints [480 mL] 1 hour and 5 minutes, quarts [950 mL] 1 hour and 15 minutes at 10 pounds [70 kPa] pressure. Yield: about 3 quarts [2850 mL].

**BEANS - SOY**

Use green soy beans. Follow recipe for Lima Beans. Process pints 480 mL 55 minutes, quarts 950 mL 1 hour and 5 minutes, at 10 pounds [70 kPa] pressure.

**BEETS**

Wash deep red beets. Leave 2 inches [51 mm] of stems and the tap roots. Boil until skins can be slipped. Remove skins, trim beets; leave whole, slice or dice. Pack into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{3}{8} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 25 minutes, quarts [950 mL] 30 minutes, at 10 pounds [70 kPa] pressure.

**CAULIFLOWER**

Freezing results in a better product than canning. See page 92 for proper instructions on freezing cauliflower.

**CELERY and TOMATOES**

Use equal parts celery and peeled, cored, chopped tomatoes. Mix and boil 5 minutes (no water needed). Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{3}{8} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL], if needed. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 30 minutes, quarts [950 mL] 35 minutes at 10 pounds [70 kPa] pressure.

**CORN**

Use freshly gathered corn. The kernels should be plump, shiny and filled with milk. Can as quickly as possible after gathering. Handle in small quantities. Lose no time between preparing, packing and processing.

**CORN - CREAM STYLE**

Hot Pack... Husk corn, remove silk. Wash. Cut tip ends from kernels. Scrape out pulp. Measure. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt and \( \frac{1}{4} \) cups [300 mL] boiling water to each pint [480 mL]. Boil 3 minutes. Pour boiling hot, into hot pint [480 mL] jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 25 minutes at 10 pounds [70 kPa] pressure.

Cold or Raw Pack... Husk corn; remove silk. Wash. Cut tip ends from kernels. Scrape out pulp. Pack corn loosely into hot pint [480 mL] jars, leaving 1-inch [25 mm] head space. Do not shake or press down. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL]. Cover with boiling hot water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 35 minutes at 10 pounds [70 kPa] pressure.

**CORN - WHOLE KERNEL**

Hot Pack... Husk corn; remove silk. Wash. Cut corn from cob. Do not scrape. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt and 1 cup [240 mL] boiling water to each pint [480 mL], OR 1 teaspoon [5 mL] salt and 2 cups [480 mL] boiling water to each quart [950 mL] of corn. Pack, boiling hot, into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 55 minutes, quarts [950 mL] 1 hour and 25 minutes, at 10 pounds [70 kPa] pressure.

Cold or Raw Pack... Husk corn; remove silk. Wash. Cut corn from cob. Do not scrape. Pack corn loosely into hot jars, leaving 1-inch [25 mm] head space. Do not shake or press down. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling hot water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 55 minutes, quarts [950 mL] 1 hour and 25 minutes, at 10 pounds [70 kPa] pressure.

**EGGPLANT**

Freezing results in a better product than canning. See page 92 for proper instructions on freezing eggplant.
GREENS
Chard, Kale, Mustard, Spinach, Turnip, Beet Tops, Poke and Other Wild Greens
Wash greens thoroughly through several changes of water. Discard large, tough stems. Heat greens until wilted in just enough water to prevent sticking. To hasten wilting and prevent over-cooking, turn greens over when steam begins to rise around the edges of pan. Cut through greens several times with a sharp knife before packing. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour and 10 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure.

LYE HOMINY
Prepare lye hominy in a well-ventilated room.
For each quart [950 mL] dry shelled white or yellow field corn: dissolve 2 tablespoons [30 mL] lye slowly in 1 gallon [3800 mL] warm water, then bring to boil. (Use enameled ware or iron kettle. Do not use aluminum, copper, tin or zinc.) Add corn. Boil about 30 minutes, or until hulls loosen. Rinse corn through several changes of hot water to remove lye, then cover with cold water. Stir the kernels briskly in cold water to remove hulls and black tips. Let stand in fresh water 2 to 3 hours. Change water 3 or 4 times. Drain. Cover with boiling salted water, \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Boil until almost tender. Pour, hot, into hot jars, leaving 1 inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour, quarts [950 mL] 1 hour and 10 minutes, at 10 pounds [70 kPa] pressure.

CANNING GREEN BEANS—STEP BY STEP
Green beans may be hot packed as shown here, or raw (cold) packed as described on page 64.


5. Stand hot jar on wood or cloth. Add 1 teaspoon (5 mL) salt per quart, \( \frac{1}{2} \) teaspoon (2.5 mL) per pint. Pack beans, leaving 1 inch (25 mm) head space, and cover with boiling water. Eliminate air bubbles with non-metallic kitchen utensil.

9a. Leave vent open until steam escapes steadily for 10 minutes.

9b. Close vent. At altitudes less than 2,000 feet (610 m) above sea level, bring pressure to 10 pounds (70 kPa). Keep pressure steady for 20 minutes for pints, 25 minutes for quarts.

6. Wipe top and threads of jar with clean damp cloth. If using vacuum lids with metal screw bands, put lid on with sealing compound next to jar. Screw band down evenly and tightly.
2. Use freshly gathered beans which are young, tender and crisp. Wash beans thoroughly and rinse carefully. Lift beans out of water and drain.

3. Trim ends; remove any strings; cut or break into pieces. Prepare only enough for one canner load.

4. Cover beans with boiling water and boil for five minutes. Drain.

7. Place jars into steam pressure canner containing two to three inches of water, or the amount recommended by the manufacturer.

8. Place canner over heat. Lock cover according to the manufacturer's instructions.

10. Remove canner from heat. Let pressure fall to zero naturally. Wait 2 minutes, then slowly open petcock. Unfasten cover; slide cover slightly toward you, allowing steam to escape on opposite side, or according to manufacturer's instructions. Lift cover. Let set 10 minutes and remove jars, placing jars on cloths, out of drafts with space between jars. Do not tighten bands on jars after processing.

11. Stand jars several inches apart and out of drafts. Allow to cool for about 12 hours.

12. Test seal by pressing center of lid. If dome is down, or stays down when pressed, jar is sealed. Remove metal screw bands and store jars in dry, dark, cool place.
MUSHROOMS
Use only edible fresh mushrooms. Freezing results in a better product than canning. See page 92 for proper instructions on freezing mushrooms.

OKRA
Use young, tender okra. If to be added to soup, it should be sliced; otherwise can pods whole. Wash and drain okra. Remove stem and blossom ends without cutting into pod. Boil 2 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. If needed, add boiling water to cover, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 25 minutes, quarts [950 mL] 40 minutes, at 10 pounds [70 kPa] pressure.

PARSNIPS
Freezing results in a better product than canning. See page 92 for proper instructions on freezing parsnips.

PEANUT BUTTER
4 quarts [3800 mL] skinned, shelled, roasted Virginia peanuts
2 quarts [1900 mL] skinned, shelled, roasted Spanish peanuts
2 tablespoons [30 mL] salt
Grind nuts in a food chopper or blender; add salt and regrind until smooth and creamy. Pack into hot jars, leaving 1-inch [25 mm] head space. Adjust caps. Process half-pints [240 mL] and pints [480 mL] 1 hour at 190° F [88° C] in a boiling water bath. Yield: about 6 pints [2880 mL].

NOTE: If shelled, salted nuts are used, do not add salt.

PEAS—BLACKEYE, CROWDER and FIELD
Hot Pack . . . Shell and wash freshly gathered green peas. Boil 3 minutes. Pour, hot, into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Add boiling water, if needed to cover, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 35 minutes, quarts [950 mL] 40 minutes, at 10 pounds [70 kPa] pressure.

Cold or Raw Pack . . . Shell and wash freshly gathered green peas. Pack loosely into hot jars, leaving 1-inch [25 mm] head space. Do not shake or press down. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 35 minutes, quarts [950 mL] 40 minutes, at 10 pounds [70 kPa] pressure.

PEAS—BLACKEYE SNAP
Follow recipe for canning Green Beans.

PEAS—GREEN or “ENGLISH”
Hot Pack . . . Wash, drain and shell freshly gathered peas. Wash again. Boil small peas 3 minutes; larger ones 5 minutes. Drain, rinse in hot water, drain, fill hot into hot jars. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Add boiling water to cover, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 40 minutes at 10 pounds [70 kPa] pressure. If peas are extra large, process 10 minutes longer.

Cold Pack . . . Wash, drain and shell freshly gathered peas. Wash again. Pack loosely into hot jars, leaving 1-inch [25 mm] head space. Do not shake or press down. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] and quarts [950 mL] 40 minutes, at 10 pounds [70 kPa] pressure.

PEPPERS—GREEN
Wash and drain sweet bell peppers. (These do not taste bitter when cooked.) Remove stems and seeds. Boil 3 minutes. Drain. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add 1 tablespoon [15 mL] vinegar and \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 tablespoon [8 mL] vinegar and \( \frac{1}{4} \) teaspoon [1.25 mL] salt to each half-pint [240 mL]. If needed, add boiling water to cover, leaving 1-inch [25 mm] head space. Adjust caps. Process half-pints [240 mL] and pints [480 mL] 35 minutes, at 10 pounds [70 kPa] pressure.

PIMIENTOS
Freezing results in a better product than canning. See page 93 for proper instructions on freezing pimientos.

POTATOES—WHITE or IRISH
Wash and scrape freshly dug potatoes. Wash again. Boil 10 minutes. Drain. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add \( \frac{1}{2} \) teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 30 minutes, quarts [950 mL] 40 minutes, at 10 pounds [70 kPa] pressure.

POTATOES—SWEET
Dry Pack . . . Use freshly dug potatoes of uniform size and color. Wash. Boil or steam slowly until skins can be rubbed off. (Do not puncture with fork.) Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Pack tightly, pressing to fill spaces. Do not add liquid. Adjust caps. Process pints [480 mL] 1 hour and 5 minutes, quarts [950 mL] 1 hour and 35 minutes, at 10 pounds [70 kPa] pressure.

Wet Pack . . . Use freshly dug potatoes of uniform size and color. Wash. Boil or steam slowly until skins can be rubbed off. (Do not puncture with fork.) Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Cover with boiling water or medium or light syrup, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 55 minutes, quarts [950 mL] 1 hour and 30 minutes, at 10 pounds [70 kPa] pressure.
PUMPKIN and WINTER SQUASH
Freezing results in a better product than canning. See page 93 for proper instructions on freezing pumpkin and winter squash.

RUTABAGAS

NOTE: Rutabagas usually discolor when canned, and also develop a strong flavor.

SAUCE—CREOLE
3 quarts [2850 mL] peeled, cored, chopped tomatoes (about 1½ dozen)
2 cups [480 mL] chopped onions
1 cup [240 mL] chopped sweet red peppers (about 2 medium)
1 clove minced garlic
1 hot red pepper
1 tablespoon [15 mL] chopped parsley
1 tablespoon [15 mL] sugar
2 teaspoons [10 mL] salt
½ teaspoon [2.5 mL] marjoram
¼ teaspoon [1.25 mL] chili powder


To Serve: Cook a small amount of chopped celery in oil, add Creole Sauce and heat to blend. Serve over rice, meatballs or shrimp.

SUCCOTASH
Boil fresh corn 5 minutes. Cut from cob. Do not scrape. Mix with ½ to equal measure of green string, or green lima beans, which have been boiled 3 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 1 hour, quarts [950 mL] 1 hour and 25 minutes, at 10 pounds [70 kPa] pressure.

SUMMER SQUASH
Wash squash. Do not pare. Cut into small pieces. Steam or boil 2 or 3 minutes. Pack, hot, into hot jars, leaving 1-inch [25 mm] head space. Add ½ teaspoon [2.5 mL] salt to each pint [480 mL], OR 1 teaspoon [5 mL] salt to each quart [950 mL]. Cover with boiling water, leaving 1-inch [25 mm] head space. Adjust caps. Process pints [480 mL] 30 minutes, quarts [950 mL] 40 minutes at 10 pounds [70 kPa] pressure.

TOMATOES—STEWED
4 quarts [3800 mL] peeled, cored, chopped tomatoes (about 2 dozen large)
1 cup [240 mL] chopped celery
½ cup [120 mL] chopped onion
¼ cup [60 mL] chopped green pepper
1 tablespoon [15 mL] sugar
2 teaspoons [10 mL] salt

Combine all ingredients; cover and cook 10 minutes, stirring occasionally to prevent sticking. Pour, hot, into hot jars, leaving ½-inch [13 mm] head space. Adjust caps. Process pints [480 mL] 15 minutes, quarts [950 mL] 20 minutes, at 10 pounds [70 kPa] pressure. Yield: about 7 pints [3360 mL].

To Serve: Add 1 tablespoon [15 mL] butter, cubes of bread and cornstarch or flour to thicken before heating.
SPECIAL DIET FOODS

Commercially prepared special diet foods are often costly, thereby reducing the weekly food budget for the members of the family who are not required to eat specially prepared foods. Low-sugar, low-salt and baby foods may be canned at home by following the easy directions below.

General Instructions
1. Have your doctor give you a list of the foods permitted and needed for the member of your family on a special diet.
2. Half-pint [240 mL] and pint [480 mL] jars are usually the best size to use when canning special foods for one member of the family.
3. Use care in selecting, preparing, packing and processing all foods. Lose no time between these steps.
4. When canning fruits and acid vegetables, read pages 17 through 25. When canning low acid vegetables, read pages 59 through 69. When canning meats, poultry and seafoods, but omit salt. Canned meats and vegetables keep just as well without salt as with it. The amount called for in the recipes is too small to help prevent spoilage; it is there only for seasoning purposes.
5. Flavor of vegetables can be easily improved. If there is no medical reason to prevent it, add ½ to 1 tablespoon [7.5-15 mL] of lemon or orange juice and a tiny piece of peel to each pint [480 mL] of carrots, beets or asparagus. Green beans and peas are given a lift by adding a bit of mace, nutmeg or curry powder. Any green vegetable is improved by adding a spoonful of chopped celery and a sliver of pimiento to each jar.
6. If the amount of food in a jar is too much for one meal, remove the amount needed, and refrigerate the rest. The food should keep 2 or 3 days, depending upon the type of food and the temperature at which it is stored.

TO CAN FRUITS WITHOUT SUGAR

Use fully ripe, firm fruit. Prepare fruit for canning as explained in the recipes found on pages 17 through 25. Then add a little water and cook the fruit until it is boiling hot. Pack, hot, into hot jars. If needed, add boiling water to cover. Adjust caps and process in a boiling water bath canner for the recommended time for the fruit being canned.

TO CAN LOW ACID FOODS WITHOUT SALT

Follow the recipes for canning low-acid vegetables for meats, poultry and seafoods, but omit salt. Canned meats and vegetables keep just as well without salt as with it. The amount called for in the recipes is too small to help prevent spoilage; it is there only for seasoning purposes.

APPLE JELLY from BOTTLED JUICE

2 packages or 2 tablespoons [30 mL] unflavored gelatin
1 quart [950 mL] unsweetened apple juice
2 tablespoons [30 mL] unsweetened lemon juice
2 tablespoons [30 mL] liquid sweetener
Food coloring, if desired.

In a saucepan soften gelatin in apple juice and lemon juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in liquid sweetener and food coloring. Pour into hot sterilized jars. Seal. Store in refrigerator. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 11 calories.

APPLE JELLY with GELATIN

4 teaspoons [20 mL] unflavored gelatin
3 to 4 teaspoons [15-20 mL] liquid artificial sweetener
1 tablespoon [15 mL] unsweetened lemon juice
1½ teaspoon [2.5 mL] ascorbic acid
1¾ ounce [21 g] package powdered fruit pectin

Crush peaches in saucepan. Stir in sweetener, fruit pectin, lemon juice and ascorbic acid. Bring to a boil; boil 1 minute. Remove from heat. Continue to stir 2 minutes. Pour into freezer containers. Cover; freeze. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 10 calories.

GRAPE JELLY from BOTTLED JUICE

2 packages or 2 tablespoons [30 mL] unflavored gelatin
1 bottle (24 ounces [720 mL]) unsweetened grape juice
2 tablespoons [30 mL] unsweetened lemon juice
2 tablespoons [30 mL] liquid sweetener
Food coloring, if desired.

In a saucepan, soften gelatin in grape juice and lemon juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in liquid sweetener. Pour into hot sterilized jars. Seal. Store in refrigerator. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 11 calories.

GRAPE JELLY with GELATIN

2 packages or 2 tablespoons [30 mL] unflavored gelatin
1 bottle (24 ounces [720 mL]) unsweetened grape juice
2 tablespoons [30 mL] unsweetened lemon juice
2 tablespoons [30 mL] liquid sweetener
Food coloring, if desired.

In a saucepan, soften gelatin in grape juice and lemon juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in liquid sweetener. Pour into hot sterilized jars. Seal. Store in refrigerator. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 11 calories.

BLACKBERRY JAM

(Boiling Water Bath Method)

4 cups [960 mL] crushed blackberries
8 tablespoons [120 mL] liquid sweetener

Measure crushed blackberries into a kettle. Add sweetener and stir well. Boil rapidly, stirring constantly until the mixture thickens. Pour, boiling hot, into hot jars, leaving ¼-inch [6 mm] head space. Adjust caps. Process 15 minutes in boiling water bath. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 10 calories.

PEACH JAM with PECTIN

4 cups [960 mL] peeled peaches
3 to 4 teaspoons [15-20 mL] liquid artificial sweetener
1 tablespoon [15 mL] unsweetened lemon juice
½ teaspoon [2.5 mL] ascorbic acid

Crush peaches in saucepan. Stir in sweetener, fruit pectin, lemon juice and ascorbic acid. Bring to a boil; boil 1 minute. Remove from heat. Continue to stir 2 minutes. Pour into freezer containers. Cover; freeze. Yield: about 1 pint [480 mL], 1 tablespoon [15 mL] = 10 calories.

boiling water bath method
steam pressure method
RASPBERRY JAM
(Long-Boil Method)

4 cups [960 mL] crushed raspberries
8 tablespoons [120 mL] liquid sweetener


RASPBERRY JAM with PECTIN
1 quart [950 mL] cleaned raspberries
3 to 4 teaspoons [15-20 mL] liquid artificial sweetener
1¾ ounce [21 g] package powdered fruit pectin
1 tablespoon [15 mL] lemon juice

Red food coloring as desired


STRAWBERRY JAM
(Long-Boil Method)

4 cups [960 mL] crushed strawberries
8 tablespoons [120 mL] liquid sweetener


STRAWBERRY JAM with PECTIN
1 quart [950 mL] cleaned strawberries
3 to 4 teaspoons [15-20 mL] liquid artificial sweetener
1¾ ounce [21 g] package powdered fruit pectin
1 tablespoon [15 mL] lemon juice

Red food coloring as desired

Crush strawberries in saucepan. Stir in artificial sweetener, food coloring, powdered fruit pectin, and lemon juice. Bring to a boil and boil 1 minute. Remove from heat. Continue to stir 2 minutes. Pour into freezer containers, cover and freeze. Thaw before serving. Store in refrigerator after opening. Yield: about 2⅔ cups [640 mL]. 1 tablespoon [15 mL] = 5 calories.

STRAIN ED (PURE D) FRUITS

Apples, Apricots, Peaches and Pears may be cooked and canned as a sauce or purée. When making sauce, follow recipe for Applesauce on page 18. Pack in half-pints [240 mL] or pints [480 mL]. Adjust caps and process as recommended. For strained fruits, follow recipes for Apricot or Peach Purée, page 88. Pack. Adjust caps and process as recommended. Follow manufacturer's instructions when using a blender to

CALORIE COUNTER

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple butter</td>
<td>1 tablespoon</td>
<td>15 mL</td>
</tr>
<tr>
<td>Applesauce sweetened</td>
<td>1/2 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Applesauce, unsweetened</td>
<td>1/2 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Apricots</td>
<td>4 medium halves</td>
<td>30 mL</td>
</tr>
<tr>
<td>Apricots canned in syrup</td>
<td>2 tablespoons syrup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Asparagus</td>
<td>4 medium stalks</td>
<td>120 mL</td>
</tr>
<tr>
<td>Beans</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Kidney, canned</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Wax, canned</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Beef, uncooked, lean meat</td>
<td>4 oz.*</td>
<td>113 g*</td>
</tr>
<tr>
<td>Beef, uncooked, lean meat</td>
<td>4 oz.*</td>
<td>113 g*</td>
</tr>
<tr>
<td>Beef stew, canned</td>
<td>1 serving (1 cup)</td>
<td>240 mL</td>
</tr>
<tr>
<td>Beets</td>
<td>2 (1/2 cup diced)</td>
<td>120 mL</td>
</tr>
<tr>
<td>Blackberries</td>
<td>1/2 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Blueberries</td>
<td>1/2 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Broccoli, cooked</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Cabbage, cooked</td>
<td>1 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Cantaloupe</td>
<td>1/2 (5&quot; diam.)</td>
<td>127 mm</td>
</tr>
<tr>
<td>Carrots, cooked</td>
<td>1/2 cup diced</td>
<td>120 mL</td>
</tr>
<tr>
<td>Carrots, chili sauce</td>
<td>1 tablespoon</td>
<td>15 mL</td>
</tr>
<tr>
<td>Cauliflower, cooked</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
<tr>
<td>Cherries</td>
<td>1/2 cup</td>
<td>120 mL</td>
</tr>
<tr>
<td>Cherries, canned in syrup</td>
<td>3 tablespoons syrup</td>
<td>45 mL</td>
</tr>
<tr>
<td>Cherries, canned in syrup</td>
<td>1 cup</td>
<td>240 mL</td>
</tr>
</tbody>
</table>

* 4 oz. (113 g) raw meat will make 3 oz. (85 g) cooked.
Chopped Beef, Lamb, Liver, Veal

Trim fresh raw meat free of fat, gristle and heavy connective tissue. Chop meat. Pack into hot jars, leaving \( \frac{3}{4} \)-inch [19 mm] head space. Add boiling water to cover, leaving \( \frac{3}{4} \)-inch [19 mm] head space. Adjust caps. Process half-pints [240 mL] 60 minutes, pints [480 mL] 90 minutes, at 10 pounds [70 kPa] pressure. Yield: about 3 half-pints [720 mL].

Stew

Use \( \frac{1}{2} \) cup [120 mL] each chopped green beans, carrots and potatoes to each cup [240 mL] chopped raw beef. Thoroughly wash and drain young, tender vegetables. Peel carrots and potatoes before chopping; mix vegetables with the meat. Pack, loosely into hot jars, leaving \( \frac{3}{4} \)-inch [19 mm] head space. Add boiling water to cover, leaving \( \frac{3}{4} \)-inch [19 mm] head space. Adjust caps. Process half-pints [240 mL] 60 minutes, pints [480 mL] 90 minutes, and quarts [950 mL] 75 minutes at 10 pounds [70 kPa] pressure. Yield: \( \frac{1}{2} \) cup [120 mL] each chopped beans, carrots and potatoes and 1 cup [240 mL] chopped meat yield about 3 half-pints [720 mL].

Chili Sauce

18 medium, peeled, chopped tomatoes
2 chopped green peppers
2 medium chopped onions
7\% teaspoons [38 mL] salt
\( \frac{1}{4} \) teaspoon [4 mL] ground cinnamon
\( \frac{3}{4} \) teaspoon [4 mL] ground cloves
2 cups [480 mL] vinegar
3 tablespoons [45 mL] liquid artificial sweetener

Combine all ingredients and boil slowly. It may require 3 to 4 hours of cooking time. When the mixture reaches the desired thickness, pour hot mixture into hot jars leaving \( \frac{3}{4} \)-inch [6 mm] head space. Adjust caps and process in a boiling water bath canner for 15 minutes. Yield: about 6 half-pints [1440 mL].

Pepper-Onion Relish

1 quart [950 mL] chopped onions
\( \frac{1}{2} \) cups [360 mL] chopped red peppers
\( \frac{1}{2} \) cups [360 mL] chopped green peppers
3 teaspoons [15 mL] salt
1 quart [950 mL] vinegar
2 tablespoons [30 mL] liquid artificial sweetener

Combine all ingredients and bring to a boil. Cook until vegetables are tender and the mixture is slightly thickened. Pour hot mixture into hot jars, leaving \( \frac{3}{4} \)-inch [6 mm] head space. Adjust caps. Process in a boiling water bath canner for 10 minutes. Yield: about 5 pints [2400 mL].

<table>
<thead>
<tr>
<th>CALORIE COUNTER</th>
<th>Food</th>
<th>Amount</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange juice, fresh frozen or canned</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>55</td>
</tr>
<tr>
<td>Oysters, eastern uncooked</td>
<td>6 to 8 medium (4 oz. meat only)</td>
<td>113 g</td>
<td>75</td>
</tr>
<tr>
<td>Peach nectar</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>60</td>
</tr>
<tr>
<td>Peaches canned, syrup pack</td>
<td>( \frac{1}{2} ) cup with syrup</td>
<td>454 g</td>
<td>100</td>
</tr>
<tr>
<td>Peanuts, roasted</td>
<td>8 to 10</td>
<td>227 g</td>
<td>55</td>
</tr>
<tr>
<td>Peanut butter</td>
<td>1 tablespoon</td>
<td>15 mL</td>
<td>95</td>
</tr>
<tr>
<td>Pear nectar</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>65</td>
</tr>
<tr>
<td>Peas canned, syrup pack</td>
<td>( \frac{1}{2} ) cup with syrup</td>
<td>454 g</td>
<td>100</td>
</tr>
<tr>
<td>Peas green, canned</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>80</td>
</tr>
<tr>
<td>Pickles</td>
<td>1 medium</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>1 large</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 small</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pineapple sliced, canned</td>
<td>1 large or</td>
<td>2 small slices</td>
<td>90</td>
</tr>
<tr>
<td>Plums canned, syrup pack</td>
<td>( \frac{1}{2} ) cup with syrup</td>
<td>120 mL</td>
<td>100</td>
</tr>
<tr>
<td>Pork loin chop, uncooked</td>
<td>4 oz. (lean meat)</td>
<td>113 g</td>
<td>210</td>
</tr>
<tr>
<td>Potatoes, boiled</td>
<td>1 medium (1 cup diced)</td>
<td>240 mL</td>
<td>90</td>
</tr>
<tr>
<td>sweet, baked / boiled</td>
<td>1 medium (5&quot; x 2&quot;)</td>
<td>127 mm x 51 mm</td>
<td>155</td>
</tr>
<tr>
<td>Rabbit, uncooked no bones</td>
<td>4 oz.</td>
<td>113 g</td>
<td>180</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CALORIE COUNTER</th>
<th>Food</th>
<th>Amount</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raspberries</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>35</td>
</tr>
<tr>
<td>Rhubarb stewed/sweetened</td>
<td>( \frac{1}{2} ) cup flaked (3 oz.)</td>
<td>120 mL</td>
<td>85 g</td>
</tr>
<tr>
<td>Salmon, canned meat sauce</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>100</td>
</tr>
<tr>
<td>Tomato puree</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>45</td>
</tr>
<tr>
<td>Sauerkraut</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>20</td>
</tr>
<tr>
<td>Sausage brown and serve</td>
<td>4 oz. uncooked</td>
<td>113 g</td>
<td>445</td>
</tr>
<tr>
<td>Shrimp, canned meat sauce</td>
<td>3 oz.</td>
<td>85 g</td>
<td>100</td>
</tr>
<tr>
<td>Spinach or other greens, cooked</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>20</td>
</tr>
<tr>
<td>Squash hard-shell, cooked</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>65</td>
</tr>
<tr>
<td>Strawberries</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>25</td>
</tr>
<tr>
<td>Tomato juice</td>
<td>( \frac{1}{2} ) cup (4 oz.)</td>
<td>113 g</td>
<td>25</td>
</tr>
<tr>
<td>Tomatoes, canned</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>25</td>
</tr>
<tr>
<td>Turnips, White cooked</td>
<td>( \frac{1}{2} ) cup</td>
<td>120 mL</td>
<td>15</td>
</tr>
<tr>
<td>Veal, cooked roast, no bone</td>
<td>1 slice (3 oz.)</td>
<td>85 g</td>
<td>180</td>
</tr>
<tr>
<td>Vegetable juice, canned</td>
<td>( \frac{1}{2} ) cup (4 oz.)</td>
<td>113 g</td>
<td>20</td>
</tr>
<tr>
<td>Whitefish uncooked fillets</td>
<td>4 oz.</td>
<td>113 g</td>
<td>175</td>
</tr>
</tbody>
</table>

THE PROBLEM SOLVER

This guide lists some conditions which might occur in home canned food, the causes for them and how they may be remedied. When the condition might indicate spoilage, it is so noted. Spoiled food should never be served or eaten.

Signs of spoilage include spurting liquid and gas bubbles; soft, mushy, slimy or moldy food; cloudy liquid; sediment in the liquid; leaking jars, bulging caps and an unnatural odor or color. All low acid foods should be boiled for 15 minutes before tasting. If the liquid foams or the food has an unnatural odor when heated, spoilage is indicated.

### Condition (Product Usable Unless Spillage Is Indicated)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cause</th>
<th>Prevention</th>
</tr>
</thead>
</table>
| Foods darken in top of jar. | 1. Liquid did not cover food product.  
2. Food not processed long enough to destroy enzymes.  
3. Manner of packing and processing did not produce a high vacuum.  
4. Air was sealed in the jars either because head space was too large or air bubbles were not removed. | 1. Cover food product with liquid before capping jar. (See “Loss of liquid” reference).  
2. Process each food by recommended method and for recommended length of time.  
3. Pack and process as recommended.  
4. Use head space recommended in Blue Book. Remove air bubbles by running non-metallic kitchen utensil between food and jar. |
| Fruits darken after they have been removed from jar. | Fruits have not been processed long enough to destroy enzymes. | Process each fruit by recommended method and for recommended length of time. Time is counted when water reaches a full boil in the canner. |
| Corn is brown. | 1. Corn was too mature for canning.  
2. Liquid did not cover corn.  
3. Jars were processed at too high a temperature.  
4. Variety of corn used. | 1. Use freshly picked corn which has plump, shiny kernels filled with milk.  
2. Cover corn with liquid before capping jar. (See “Loss of liquid” reference).  
3. Keep pressure in canner at recommended pounds; gauge may be faulty and it should be checked.  
4. Use different variety next time. |
| Pink, red, blue or purple color in canned apples, pears, peaches and quinces. | A natural chemical change which occurs in cooking the fruit. | None |
| Green vegetables lose their bright green color. | Heat breaks down chlorophyll, the green coloring matter in plants. | None |
| Some foods become black, brown or gray. | Natural chemical substances (tannins, sulfur compounds and acids) in food react with minerals in water or with metal utensils used in preparing food. | Use soft water. Avoid using copper, iron or chipped enameled ware, also utensils from which tinplate has worn. |
| Green vegetables turn brown. | 1. Vegetables were overcooked.  
2. Vegetables were too mature for canning. | 1. Time precooking and processing exactly.  
2. Asparagus tips should be tight and the entire green portion tender. Pods of green beans should be crisp and meaty and the beans tiny. Peas, lima beans and all other beans and peas which are shelled should be green. |
<p>| Crystals in grape products. | Tartaric acid which is naturally found in grapes. | In juice, carefully ladle juice into clean hot jars, cap and reprocess original length of time. In jelly, see “Jelly contains glass-like particles.” |</p>
<table>
<thead>
<tr>
<th>CONDITION</th>
<th>CAUSE</th>
<th>PREVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow crystals on canned green vegetables.</td>
<td>Glucoside, natural and harmless substance, in vegetables.</td>
<td>None</td>
</tr>
<tr>
<td>White crystals on canned spinach.</td>
<td>Calcium and oxalic acid in spinach combine to form harmless calcium oxalate.</td>
<td>None</td>
</tr>
<tr>
<td>White sediment in bottom of jars of vegetables. May denote spoilage.</td>
<td>1. Starch from the food. 2. Minerals in water used. 3. Bacterial spoilage...liquid is usually murky, food soft. (Do not use.)</td>
<td>1. None 2. Use soft water. 3. Process each food by recommended method and for recommended length of time.</td>
</tr>
<tr>
<td>Fruit floats in jar.</td>
<td>Fruit is lighter than the syrup.</td>
<td>Use firm, ripe fruit. Heat fruit before packing it. Use a light to medium syrup. Pack fruit as closely as possible without crushing it.</td>
</tr>
<tr>
<td>Loss of liquid during processing. (Food may darken, but will not spoil. Do not open jars to replace liquid.)</td>
<td>1. Food not heated before packing. 2. Food packed too tightly. 3. Air bubbles not removed before capping the jar. 4. Pressure canner not operated correctly. 5. Jars not covered with water in boiling water bath canner. 6. Starchy foods absorbed liquid.</td>
<td>1. Heat food before packing. 2. Pack food more loosely. 3. Remove air bubbles by running non-metallic kitchen utensil between food and jar. 4. Pressure should not be allowed to fluctuate during processing time. Allow pressure to drop to zero naturally; wait 2 minutes before opening lid. 5. Jars should be covered 1 inch [25 mm] with water in canner throughout the processing period. 6. None.</td>
</tr>
<tr>
<td>Jar seals, then comes open. Spoilage evident. (Do not use.)</td>
<td>1. Food spoilage from under-processing. 2. Disintegration of particles of food left on the sealing surface. 3. Hairline crack in the jar.</td>
<td>1. Process each food by recommended method and for recommended length of time. 2. Use soft water. 3. None 4. None, except by using a pure refined salt.</td>
</tr>
<tr>
<td>Jar of food fails to seal. (Correct cause and reprocess the full time or use the food immediately.</td>
<td>Many factors could be involved, such as failure to follow instructions for using jar and cap, or a bit of food may have been forced up between the jar and lid during processing.</td>
<td>Carefully follow methods and instructions for using jars and caps and for foods to be canned. For more information, write Consumer Service Department, Ball Corporation, Muncie, Indiana 47302, and request the pamphlet “Successful Home Canning.”</td>
</tr>
<tr>
<td>Hollow pickles.</td>
<td>1. Faulty growth of cucumbers. 2. Cucumbers were stale when pickling was begun.</td>
<td>1. None. In washing cucumbers, hollow cucumbers usually float. They may be used in relishes. 2. Pickling process should be started within 24 hours of picking cucumbers.</td>
</tr>
<tr>
<td>CONDITION</td>
<td>CAUSE</td>
<td>PREVENTION</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Zinc caps bulge. May denote spoilage.</td>
<td>1 Cap screwed too tight before processing. (Condition is evident as jar is removed from canner.) 2 Food spoils from underprocessing. (Condition evident after jar has cooled and has been stored from a day to a few months.) Do not use.</td>
<td>1 Screw cap tight, then loosen about ¼-inch [6 mm] before putting jar in canner. 2 Process each food by recommended method and for recommended length of time.</td>
</tr>
<tr>
<td>Black spots on underside of metal lid. (If jar has been sealed and then comes open, spoilage is evident. Do not use.)</td>
<td>Natural compounds in some foods cause a brown or black deposit on the underside of the lid. This deposit is harmless, and does not mean the food is unsafe to eat.</td>
<td>None</td>
</tr>
<tr>
<td>Soft or slippery pickles. Spoilage evident. (Do not use.)</td>
<td>1 Brine or vinegar used was too weak. 2 Pickles were not kept covered with liquid. 3 Scum was not kept removed from top of brine. 4 Pickles were not heated long enough to destroy spoilage microorganisms. 5 Jars were not sealed airtight while boiling hot.</td>
<td>1 Use pure refined salt. Use vinegar of 4-6% acidity. Use a recipe developed for modern day use. 2 Pickles should be covered with liquid at all times, during the brining process and when in the jar. 3 Scum should be removed daily during the brining process. 4 See “Pickles and Relishes.” 5 Each jar should be filled boiling hot and capped immediately before filling next jar, except if processed.</td>
</tr>
<tr>
<td>Darkened and discolored pickles.</td>
<td>1 Minerals present in hard water used in making the pickles. 2 Brass, iron, copper or zinc utensils were used in making the pickles. 3 Ground spices used. 4 Whole spices left in jars of pickles.</td>
<td>1 Use soft water. 2 Use enameled ware, glass, aluminum, stainless steel or stoneware utensils. 3 Use whole spices. 4 Whole cloves, stick cinnamon and other whole spices should be used only to flavor the pickling liquid; they should not be packed in the jars.</td>
</tr>
<tr>
<td>White sediment in bottom of jars of firm pickles. (If pickles are soft, spoilage is evident. Do not use.)</td>
<td>Harmless yeasts have grown on the surface and then settled.</td>
<td>None. The presence of a small amount of the white sediment is normal.</td>
</tr>
<tr>
<td>Shriveled pickles.</td>
<td>Too much salt, sugar or vinegar was added to the cucumbers at one time.</td>
<td>Start with a weaker solution of brine, sugar or vinegar and gradually add the full amount called for in recipe. Use recipe developed for modern day use.</td>
</tr>
<tr>
<td>Jelly is tough or stiff.</td>
<td>1 Too much pectin in fruit. 2 Jelly was overcooked. 3 Too little sugar, so mixture had to be cooked too long to reach jelling stage.</td>
<td>1 Use fruit which is riper. If adding pectin, don’t add as much. 2 See jelly test. 3 When pectin is not added, ¾ cup [180 mL] sugar to 1 cup [240 mL] juice is the right amount for most fruits. When measuring, use graduated dry measuring cups; level off sugar with straight edge of a knife.</td>
</tr>
<tr>
<td>Jelly ferments. Spoilage evident. (Do not use.)</td>
<td>Yeasts grow on jelly when seal is not airtight (usually noticeable on jars sealed with paraffin) causing the jelly to break through paraffin and to weep.</td>
<td>Use vacuum sealing next time. Test for seal before storing jelly.</td>
</tr>
<tr>
<td>CONDITION</td>
<td>CAUSE</td>
<td>PREVENTION</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
</tbody>
</table>
| Jelly contains glass-like particles. | 1 Too much sugar was used.  
2 The mixture may have been cooked too little.  
3 The mixture may have been cooked too slowly or too long.  
4 Undissolved sugar, which was sticking to the pan, washed into the jelly as it was poured.  
5 If jelly is grape, the crystals may be tartaric acid, the natural substance in grapes from which cream of tartar is made. | 1 See instructions for jelly.  
2 Too short a cooking period results in the sugar not dissolving completely and not mixing thoroughly with the fruit juice.  
3 Long, slow cooking results in too much evaporation of the water content of the fruit.  
4 Ladle juice into jars instead of pouring it.  
5 Allow juice to stand in refrigerator for several days; then strain it through two thicknesses of damp cheesecloth before preparing jelly. Use canned juice; if sediment is in bottom of jar, carefully pour juice off so not to disturb sediment. |
| Jelly is low in fruit flavor. | 1 Fruit used had little flavor.  
2 Jelly stored too long.  
3 Storage area too warm. | 1 Use full-flavored fruit; tree-ripened is the best.  
2 Jelly should not be stored over a year.  
3 Storage area should be cool, dark and dry. |
| Jelly "weeps." | 1 Syneresis or "weeping" usually occurs in quick-setting jellies and is due to the quantity of acid and the quality of pectin in the fruit.  
2 Storage conditions were not ideal. | 1 None  
2 Store in cool, dark and dry place. |
| Jelly is too soft. | 1 Proportions of sugar and juice not correct.  
2 Too large a batch made at one time. | 1 See instructions for jelly.  
2 Use not more than 4 to 6 cups [960-1440 mL] of juice in each batch of jelly. Never increase the recipe supplied by the manufacturer of pectin. |
| Jelly is cloudy. | 1 Fruit used was too green.  
2 Fruit may have been cooked too long before straining.  
3 Juice may have been squeezed from fruit.  
4 Jelly poured into jars too slowly.  
5 Jelly mixture was allowed to stand before it was poured into the jars. | 1 Fruit should be firm-ripe.  
2 Fruit should be cooked only until it is tender.  
3 To obtain the clearest jelly possible, let juice drip through cotton flannel bag.  
4 Next time, work more quickly.  
5 Immediately upon reaching jellying point, pour into jars and seal. |
| Bubbles are in jelly. May denote spoilage. | 1 If bubbles are moving, jelly is spoiling; usually the airtight seal has been broken. (Do not use.)  
2 If bubbles are standing still, utensil from which jelly was poured was not held close to top of jar or jelly was poured slowly and air was trapped in the hot jelly. | 1 Use vacuum sealing with two-piece caps. Be sure to test for seal before storing jars.  
2 Hold utensil close to top of jar and pour into jar quickly. |
| Jelly molds. May denote spoilage; if growth of mold is heavy, do not use. | 1 Jar was not sealed properly, allowing mold to grow on surface of jelly. | Use vacuum sealing next time. Test for seal before storing jelly. |
GETTING STARTED

Freezing has many advantages over other methods of preservation because frozen foods are more like fresh foods than those either canned or dried. Freezing keeps the natural color, fresh flavor and nutritive qualities of most foods better than any other known method of preservation. It also is one of the simplest and least time-consuming ways to preserve foods.

To be successful in freezing foods, start with a quality product that has been handled under the most sanitary conditions. The quality of the original product is the most important single factor in determining its quality when it is served.

Foods for freezing should be fully prepared for serving or cooking so that little or no preparation is required after they are taken from the food freezer.

For economical use of your freezer, all foods should be used within a year, and most of them should be held for much less time. By continuously using foods from the freezer, and replacing them with others in season, the space in the freezer may be used many times during a year. The higher the rate of turnover, the lower the cost per pound of frozen food.

Store like foods together; place most recently frozen foods at the bottom or back. At the same time move foods that have been in freezer storage longer toward the top or front.

It's a good idea to keep a record of the frozen foods that are in storage. If pasted near the freezer, a list can be easily kept up to date by regular posting as you put foods in or take them out. Such a list will let you know exactly what foods you have and how long they have been in storage — thus helping you use all frozen foods within the recommended storage period.

THE SPOILERS

Preservation by freezing is based on the principle that extreme cold retards growth of microorganisms and slows down enzyme activity and oxidation. Freezing does not sterilize food.

Testing has been done by researchers to determine effective and safe methods for freezing fruits, vegetables, meats and precooked foods. Directions for each product have been established to prevent changes in frozen food caused by:

a) bacteria, yeast and molds;

b) enzymes;

c) "freezer burn";

d) formation of large ice crystals;

e) oxidation.

Bacteria, Yeasts and Molds: All fresh foods contain bacteria, yeasts and molds. These will multiply rapidly and cause spoilage if not stopped. This can be accomplished by...

a) using only quality products;

b) preparing the food under the most sanitary conditions;

c) storing the food at a specific low temperature.

Enzymes: Foods contain enzymes which cause chemical changes in them. Some of these changes are desirable. Beef, for example, is aged in a chill room about a week to give the enzymes a chance to make the meat more tender. Enzymes can cause an off-color product and destroy the fresh flavor in vegetables if they are not inactivated before food is frozen. Enzyme control is most easily obtained by a short heat treatment (blanching) prior to freezing and storage. Since blanching may have a softening effect on the texture of fruits, control of enzyme activity is usually accomplished by the addition of sugar and antioxidants after blanching.

"Freezer Burn": This condition occurs when food is improperly wrapped. Dry air in freezer circulates over exposed surfaces, removing moisture from the food and causing a dry, pithy, tough surface to develop. Moisture/vapor-resistant packaging materials prevent drying and protect from contact with air. Be sure package is free of air and sealed air tight.

Formation of Large Ice Crystals: Freeze the packages as quickly as possible. When foods are frozen quickly, at 0°F [-18°C] or lower, the cells in the fiber retain their normal places. Slower freezing causes moisture from the fibers to form ice crystals between the groups of fiber, and the product will lose liquid and may darken.

Oxidative Changes: Are commonly encountered chemical changes in frozen foods. If the product is exposed to oxygen as the result of storage in direct contact with air or in packages permeable to air, it may suffer losses in quality as the result of direct participation of the oxygen in chemical reaction with other substances in the product.

EQUIPMENT NEEDED FOR FREEZING FOODS AT HOME

The equipment needed for freezing at home is little more than the pots, pans, strainers and other utensils required in the kitchen for preparing everyday meals.

TIP: as with all food storage methods, it is important to keep bacterial contamination to a minimum by using clean equipment and working surfaces.

FREEZER CONTAINERS

Proper packaging is very important to prevent:

1. Chemical changes which result from exposure to the air, thus causing loss of color, development of off-flavors, absorption of odors and loss of vitamins.

2. Physical changes which result in loss of box weight and fresh appearance due to loss of moisture.

While it is not necessary for frozen foods to be hermetically sealed (as with canned foods), the package must be moisture/vapor-proof, odorless, tasteless, grease-proof and capable of being tightly closed.

Boxes, Bags & Jars

There are two types of packaging materials for home freezing use—rigid containers and flexible bags or wrappers.
**Rigid Containers**

Excellent results can be achieved in home freezing with either can or freeze jars with large mouths and slightly tapering sides or plastic freezer boxes. (See Figure 23). Can or freeze jars may be purchased in three sizes: half-pint, pint and 1½ pint [240-480-720 mL]. Plastic freezer boxes may be found in pint, 1½ pint, quart and 2 quart [480-720-950-1900 mL] sizes. Both can be reused many times. Rigid containers should be used for most frozen foods, and are recommended for all foods that are soft or "runny" at room temperatures, such as fruits packed in syrup or sugar, butter, eggs, stews, creamed foods and meats with gravy.

**Flexible Bags and Wrappers**

Flexible bags are best for packaging products with irregular shapes, such as roasting turkeys or hens, fish and all cuts of meat. They can be used for vegetables, some fruits—grapes, raspberries, blueberries without syrup or added sugar and precooked foods that are not liquid at room temperature.

Plastic freezer bags come in the following sizes: pint, 1½ pint, quart, two quart, one gallon and two gallon [480, 720, 950, 1900, 3800 and 7600 mL]. These are closed by pressing out the air, then twisting the top, doubling it over, and wrapping it several times with handy ties included in the package.

Wrapping materials are similar to flexible bags except they are available in rolls and are cut to the desired size as they are used.

**For Trouble Free Freezing:**

Package so as to leave no air pockets. For dry pack, leave no head space. For packs that are "runny" at room temperature, leave ¾-inch [13 mm] head space in quart [950 mL] containers and ¼-inch [6 mm] head space in pint [480 mL] containers. (Some plastic freezer boxes have the fill line marked.) Wipe mouth of container with a clean wet cloth. Seal container so it is air tight. Keep record of storage times. Label with name of product, date and any other information needed.

**Reuse of Containers:** Wash can or freeze jars in hot, soapy water. Rinse and drain. Invert the containers on a clean towel to cool before filling them. Wash and rinse lids. Wash plastic boxes in hot, soapy water, rinse well and drain.

**THE FREEZER**

There are three types of freezers on the market. The type you choose will depend on floor area available and the amount of freezer space you desire.

Any true freezer maintains 0°F [—18°C] or lower, for fast freezing and proper low temperature storage of foods.

The frostless feature eliminates the messy, tedious chore of defrosting, and frost doesn't build up on food packages.

1. **The Upright Freezer:** Ranges in size from 6 to 22 cubic feet [.17 to .62 m³] and has from 3 to 7 shelves for storing food.

2. **Chest Freezer:** Ranges in size from 6 to 32 cubic feet [.17 to .91 m³].

3. **Refrigerator-Freezer Combination:** The freezer space contains from 2 to 16 cubic feet [.06 to .45 m³], has separate door and is located at top or bottom or side.

Regardless of the type of freezer selected, it should be placed in a convenient, cool, dry and well-ventilated place. The temperature should be held at 0°F [—18°C] or lower at all times. Keeping the temperature at —10°F [—23.5°C] will help keep the temperature below 0°F [—18°C] when unfrozen food is placed in the freezer. It's good insurance to use a freezer thermometer and check it often.

Defrost once a year (if not a frostless one) or as often as ice on the sides reaches a thickness of ¼-inch [19 mm]. Defrosting is accomplished by turning off the current, opening the door or lid, removing all the food from the freezer (protecting frozen food by covering with a blanket or quilt), and turning an electric fan on the interior of the freezer for a few minutes. Or, place pans of hot water inside. The ice loosens and then may be scraped off. After thawing, wash the inside with a warm baking soda solution (3 tablespoons [45 mL] baking soda with 1 quart [950 mL] water). Wipe dry and turn on electricity. Replace food.

Frostless freezers do not need defrosting. However, such a freezer should be cleaned at least once a year in the same way as above. If odors develop in freezer, place charcoal on paper in freezer for several days.

**LOADING THE FREEZER**

The quantity of food that can be frozen successfully at one time depends on the kind of food, its size, kind of package and design of freezer. Put no more unfrozen food into a food freezer than will freeze within 24 hours (usually about 2 or 3 pounds of food per cubic foot of capacity). Overloading slows down the rate of freezing and foods that freeze too slowly may lose quality or spoil. Also, overloading can raise the temperature above 0°F [—18°C] and this affects the quality of the frozen food already in the freezer. Place each package in direct contact with a refrigerated surface and leave a little space between. The original fresh flavor, color, texture and nutritive value of the frozen product will reach the table if it is properly prepared and protected at 0°F [—18°C] during storage.

**FROZEN FOOD "MUSTS"**

1. The home freezer should be placed in the most convenient, coolest, driest, best-ventilated place and defrosted or thawed at least once each year.

2. Foods must be in the best condition. If not, they are not worth freezing.

3. Vegetables must be properly blanched* to preserve quality. Exceptions are rhubarb and those used exclusively for flavoring, such as peppers, onions, horseradish, mint, sage and thyme.

4. For best quality, all meats and poultry must have been chilled quickly after killing. Beef must be aged about a week at 33° to 38°F [5°-3.5°C] to become tender and flavorsome.

5. Everything must be properly packaged. Fruits in syrup, stews and other "runny" products should be tightly closed in rigid freezer containers such as can or freeze jars and plastic freezer boxes. Vegetables packed "loose" should be in moisture/vapor-resistant containers such as plastic freezer bags or boxes or can or freeze jars. Meats should be wrapped "skin tight" as nearly as

*If you live 5,000 feet [1,524 m] or more above sea level, blanch one minute longer than times specified in recipes.
possible in moisture/vapor-proof materials.

6. Freezing must be rapid to preserve the natural color, flavor and texture of delicate fruits and vegetables, and to prevent spoilage of meats and prepared foods.

7. Frozen foods must be stored at 0°F [—18°C] or lower. Only in rare cases should they be refrozen if allowed to thaw. Meats and cooked foods may be refrozen if it is certain that the temperature did not rise above 32°F [0°C] nor remain at this point longer than a few hours.

8. Frozen foods must be used within a reasonable time since there is gradual loss of quality of all frozen foods. Most cooked foods have a relatively short shelf life.

   Pork should be used within six months; ground meat and liver should be used within three months; while most fruits, vegetables and other meats may be held in good condition for almost a year.

9. Frozen foods must be cooked and served properly. For best quality, meats and vegetables must be cooked and served immediately upon thawing; most vegetables (and some meats) are cooked in the frozen stage; fruits to be eaten as dessert should be served while in the sherbet stage; and precooked main dishes should be thawed, reheated and served in rapid succession.

THESE DO NOT FREEZE WELL

Cake icings made with egg whites become frothy or "weep" when thawed.

Cream fillings and soft frostings are unsatisfactory when frozen.

Custards and cream pie fillings become watery and lumpy.

Egg whites become cracked, tough and rubbery when frozen.

Fat may separate from gravy if too much is used in proportion to the starch or flour. Use less fat when making gravy to be frozen. Stir it well when reheating.

Sausages and other foods fried lose their crispness and become soggy. (Exceptions are French fried potatoes and onion rings.)

Fruit jelly in sandwiches may soak into the bread.

Meringue thickens and sticks to paper after a few days of freezing.

Pepper, onions, cloves and synthetic vanilla become strong and bitter when used in frozen prepared food.

Potatoes (Irish) cooked in stews and soups become mushy and may darken. Salt loses flavor.

Sauces tend to separate unless beaten or stirred when reheated. Vegetables (raw) lose their crispness.

**Time and Temperature:** The relationship between temperature of storage and the length of time foods are frozen is highly important. Deterioration in frozen foods accelerates rapidly with a rise in storage temperature. Figures 24 and 25 show times and temperatures for storing food.

**LABELING**

Label with the name of the product and a description of how it was prepared, the number of servings and the shelf life date.

**THAWING and PREPARING**

**Methods of Thawing**

By careful thawing and serving at exactly the right stage, it is possible to prepare attractive servings of products that would be rejected if served without thawing or if completely thawed. Do not thaw more food at one time than is actually needed because once frozen food is thawed it spoils more readily than fresh foods. Thaw each product to the desired point by placing it (in the unopened package):

a) in the refrigerator (this is the best method);

b) on a table in the kitchen for three to four hours;

c) before an electric fan for ½ to one hour;

d) in the microwave oven on the thaw cycle, following manufacturer's instructions.

e) place sealed package in cold water. Never thaw by holding product in hot water. In most cases the thawed product can be used the same as the fresh.

---

**FIGURE 24**

**LENGTH OF STORAGE**

<table>
<thead>
<tr>
<th>Product</th>
<th>Recommended Length of Storage at 0°F [—18°C] (Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef, Lamb, Mutton, Veal, Venison</td>
<td>8-12</td>
</tr>
<tr>
<td>Breads, Quick, baked</td>
<td>2</td>
</tr>
<tr>
<td>Breads, Yeast, baked</td>
<td>4-8</td>
</tr>
<tr>
<td>Breads, Yeast, uncooked</td>
<td>½</td>
</tr>
<tr>
<td>Butter</td>
<td>6-6</td>
</tr>
<tr>
<td>Cakes</td>
<td>6</td>
</tr>
<tr>
<td>Cakes, Fruit</td>
<td>12</td>
</tr>
<tr>
<td>Candies</td>
<td>12</td>
</tr>
<tr>
<td>Cheese, cottage</td>
<td>1</td>
</tr>
<tr>
<td>Cheese, hard or semi-hard</td>
<td>6-12</td>
</tr>
<tr>
<td>Cheese, soft</td>
<td>4</td>
</tr>
<tr>
<td>Cookies, baked</td>
<td>6</td>
</tr>
<tr>
<td>Cookies, uncooked</td>
<td>4</td>
</tr>
<tr>
<td>Eggs</td>
<td>12</td>
</tr>
<tr>
<td>Fish</td>
<td>2-3</td>
</tr>
<tr>
<td>Fruits, Citrus</td>
<td>3-4</td>
</tr>
<tr>
<td>Fruits, except citrus</td>
<td>12</td>
</tr>
<tr>
<td>Gravy</td>
<td>2</td>
</tr>
<tr>
<td>Ground Meat</td>
<td>3-4</td>
</tr>
<tr>
<td>Ice Cream, Sherbet</td>
<td>1-3</td>
</tr>
<tr>
<td>Liver</td>
<td>3</td>
</tr>
<tr>
<td>Milk</td>
<td>1</td>
</tr>
<tr>
<td>Onions</td>
<td>3-6</td>
</tr>
<tr>
<td>Opossum, Rabbit, Squirrel</td>
<td>6-8</td>
</tr>
<tr>
<td>Oysters, Crab, Fish, Roe, Lobster</td>
<td>3-4</td>
</tr>
<tr>
<td>Pastry, unbaked</td>
<td>2</td>
</tr>
<tr>
<td>Pies, baked</td>
<td>1</td>
</tr>
<tr>
<td>Pies, uncooked</td>
<td>3</td>
</tr>
<tr>
<td>Pizza</td>
<td>1</td>
</tr>
<tr>
<td>Pork Cured</td>
<td>1-2</td>
</tr>
<tr>
<td>Pork Fresh</td>
<td>6-8</td>
</tr>
<tr>
<td>Poultry, Turkey</td>
<td>12</td>
</tr>
<tr>
<td>Prepared Main Dishes</td>
<td>3-6</td>
</tr>
<tr>
<td>Salads</td>
<td>2</td>
</tr>
<tr>
<td>Sandwiches</td>
<td>1</td>
</tr>
<tr>
<td>Sausage</td>
<td>4-6</td>
</tr>
<tr>
<td>Shrimp</td>
<td>6</td>
</tr>
<tr>
<td>Soups, Stews</td>
<td>6</td>
</tr>
<tr>
<td>Vegetables, cooked</td>
<td>1</td>
</tr>
<tr>
<td>Vegetables, except onions</td>
<td>12</td>
</tr>
</tbody>
</table>

---

**FIGURE 25**

**HOW STORAGE TEMPERATURE AFFECTS STORAGE TIME OF FROZEN FOODS**

<table>
<thead>
<tr>
<th>Storage Temperature Degrees</th>
<th>Sensitive Fruits and Vegetables*</th>
<th>Other Fruits and Vegetables**</th>
<th>Turkeys and Cut-up Chicken***</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>—18</td>
<td>1 year</td>
<td>1 year</td>
</tr>
<tr>
<td>5</td>
<td>—15</td>
<td>5 months</td>
<td>5 months</td>
</tr>
<tr>
<td>10</td>
<td>—12</td>
<td>6 weeks</td>
<td>2 months</td>
</tr>
<tr>
<td>15</td>
<td>—9</td>
<td>3 weeks</td>
<td>1 month</td>
</tr>
<tr>
<td>20</td>
<td>—7</td>
<td>1 week</td>
<td>2 weeks</td>
</tr>
<tr>
<td>25</td>
<td>—4</td>
<td>2 days</td>
<td>3 days</td>
</tr>
<tr>
<td>30</td>
<td>—3</td>
<td>1 day</td>
<td></td>
</tr>
</tbody>
</table>

* Where discoloration occurs, such as in peaches and cauliflower.

** Where discoloration is not as critical, but does occur and flavor changes take place.

*** Whole chicken is more stable than turkey.
Cooking and Serving
Prepared or cooked foods may be thawed and made ready for serving by either one of the following ways:

1. Served while still frozen: layer cakes, fruit pies, cookies, candies, ice cream, salads and similar foods.
2. Served immediately after thawing (at room temperature): cakes, sandwiches and similar foods.
3. Heated only to serving temperature: soups, meat dishes, stews and sandwiches and similar foods.

REFREEZING
Occasionally, foods are partially or completely thawed before it is discovered that the freezer is not operating.

If foods have thawed only partially and there are still ice crystals in the package, they may be safely refrozen. Even this partial thawing reduces quality. If some of the high quality has already been lost during previous partial thawing, the additional loss may result in very low quality. Refrozen foods should be used as soon as possible.

If foods have slowly thawed and have warmed gradually over a period of several days to a temperature of 40°F [4°C] they are not likely to be suitable for refreezing. Under these conditions meats, poultry, fish, most vegetables and some prepared foods may become unsafe to eat; most fruits and fruit products soon develop an undesirable flavor.

If in doubt about any thawed foods, it is better not to take any chances with them. Eating spoiled food can be very dangerous.

CARE OF FOODS IN EMERGENCIES
If you know or suspect that power will be off in your home, set the freezer control at its coldest setting right away. The lower temperature of freezer and food will delay thawing if power does go off.

If the freezer stops operating because of power outage or any other reason, try to find out how long it will be inoperative.

If normal operation will not be resumed before the food will thaw, use dry ice to keep the food cold or transfer the food in insulated boxes to a freezer plant or other low-temperature storage space. If the trouble is freezer breakdown, your neighbors may have enough space in their freezers to solve your problem.

A fully loaded freezer at 0°F [−18°C] usually will stay cold enough to keep foods frozen for a couple of days; in one with half a load, food may not stay frozen for more than a day.

If dry ice is put in the freezer soon after power goes off, 50 pounds [22 kg] should keep the temperature of food in a 20-cubic-foot [57 m³] cabinet below freezing—for three to four days; in a cabinet with half a load or less, for two or three days. Tip: Keep the phone number and address of a source of dry ice handy.

Work quickly when you put in dry ice. Place it on thick cardboard or boards on top of the frozen food or on shelves—not directly on the packages. Handle dry ice with care. Be sure the room is well ventilated when you use it. Never touch it with bare hands.

Do not open the freezer door while the freezer is not operating, except as part of food-saving procedure.

STEP-BY-STEP FREEZING

1. Use only quality fresh products. Freezing retains quality, but cannot improve it.
2. Work under the most sanitary conditions.
3. Have everything needed organized to save time and energy.
4. Use only approved packaging materials.
5. Be an expert. Follow proper freezing instructions and . . .
   (a) Blanch or scald all vegetables; cool quickly.
   (b) Use ascorbic acid for certain fruits to prevent discoloration.
   (c) Use dry sugar or syrup pack for fruits.
   (d) Keep meats cold while preparing for freezing.
6. Package to remove all air; fasten packages airtight.
7. Label with date and name of product.
8. Promptly place packages in food freezer in single layers.
10. Keep an inventory.
11. Use all products within recommended storage period.

DAIRY PRODUCTS

MILK
Preparation: Freeze only pasteurized milk. Package in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

CREAM
Preparation: Freeze only heavy cream containing 40 percent or more of butterfat. Heat to from 170° to 180°F [77-82°C] for 15 minutes. Add three tablespoons [45 mL] sugar per pint [480 mL] of cream. Cool quickly and package in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

BUTTER
Preparation: Freeze only high quality butter made from pasteurized cream. Mold into desired shapes. Wrap tightly in freezer film and package in plastic freezer bags. Seal, label and freeze.

ICE CREAM and SHERBET
Homemade: Prepare your favorite recipe and freeze in a hand or electrically turned ice cream freezer. Package in plastic freezer boxes. Seal, label and freeze.

Commercially Made: Place original carton in plastic freezer bags. Seal, label and freeze.

CHEESE
Preparation: Hard or semi-hard cheese—cut in ½ to 1 pound [227-454 g] pieces. Wrap tightly in a freezer film and package in plastic freezer bags. Seal, label and freeze.


Cottage Cheese: Use uncreamed cheese. Package in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.
THAWING and PREPARING DAIRY PRODUCTS
Place the frozen product in the refrigerator to thaw. After thawing, it may be used as fresh.

EGGS

Selection: Select eggs as fresh as possible.
Preparation: Wash eggs, then break each egg separately into a clean, small bowl and examine by smell and appearance before mixing with others.

Whole Eggs: Gently mix the whites and yolks by putting them through a sieve or colander without forming air bubbles. Package in tapered half-pint [240 mL] jars or can or freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Pie Apples: Place the apple slices in boiling water for two minutes and cool in ice water. Pack in plastic freezer bags. Seal, label and freeze.

Applesauce: Wash apples, peel if desired, core and slice. To each quart [950 mL] of apples, add ⅔ cup [186 mL] sugar. Fill can or freeze jars or plastic freezer boxes, leaving ⅜-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅜-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Yolks: Gently mix the yolks without forming air bubbles. To each six yolks add one teaspoon [2.5 mL] salt to cover, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Syrup Pack: Gently mix one part sugar with four parts berries until fruit is coated with the sugar. Package in plastic freezer bags. Seal, label and freeze.

Apples: Select fully ripe, firm berries. Wash in ice water, stem and pit. Mix one part sugar to four parts berries until fruit is coated with the sugar. Package in can or freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

BLUEBERRIES, HUCKLEBERRIES, ELDERBERRIES and GOOSEBERRIES
Remove leaves, stems and immature or defective berries. Wash thoroughly but quickly in ice water. Drain the berries. Pack in one of the following ways:

Sugar Pack: Place freshly made, cool cider or juice in can or freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

No-Sugar Pack: Place drained berries in plastic freezer bags. Seal, label and freeze.

CHERRIES, SOUR
Select tender-skinned, bright, red cherries with a characteristic tart flavor. Wash in ice water, stem and pit. Mix one part sugar to four parts fruit. Package in can or freeze jars.
or plastic freezer boxes leaving 1/4-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes.

Seal, label and freeze. These may also be frozen in a 50% syrup.

**CHERRIES, SWEET**
Select bright, fully ripened cherries of dark colored varieties. Wash, stem and pit. To retain the natural fruit flavor, add ½ teaspoon [2.5 mL] ascorbic acid to 1 quart [950 mL] of the 50% syrup. Package the same as berries (syrup pack).

**COCONUT**
Grate the coconut by hand or in food blender. Prepare in one of the following ways:
Method I: Mix grated coconut with its own milk and pack in can or freeze jars or in plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.
Method II: Mix one part sugar to eight parts shredded coconut. Pack in plastic freezer bags. Seal, label and freeze.

**CRANBERRIES**
Select deep red, uniform color, firm with glossy skins. Wash thoroughly in cold water, stem, sort and drain. Pack in plastic freezer bags. Seal, label and freeze.

**Berry Sauce:** Prepare as for table: cool; pack in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**CURRANTS**
Select fully ripe berries. Sort, stem, wash carefully to avoid bruising. Prepare in one of the following ways:
**Sugar Pack:** Crush the fruit lightly and mix three parts fruit with one part sugar. Allow to stand until sugar dissolves. Package the same as peaches (sugar pack).
**Whole (No Sugar):** Package the same as strawberries (whole).

**FIGS**
Select fully ripe fruit, wash and peel. Prepare in one of the following ways:
**Sugar Pack:** Roll whole or halved figs in one part sugar to four parts fruit and pack in plastic freezer bags. Seal, label and freeze.

**Syrup Pack:** Pack whole or halved figs in can or freeze jars or plastic freezer boxes, and cover with 50% syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Whole (No Sugar):** Place the figs in plastic freezer bags, attempting to fill all space. Seal, label and freeze.

**FRUIT JUICES**
Most fruit juices make excellent frozen products and retain their fresh flavor from one season to another. Prepare the juice by your favorite recipe; cool, pack in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Grapefruit and oranges**
Select firm, tree-ripened fruit. Heaviness indicates maturity. Wash the fruit; chill in refrigerator; peel; section, removing all membranes and seed.

**Syrup Pack:** Prepare a 40% syrup (using juice as part of liquid). Add ½ teaspoon [2.5 mL] ascorbic acid. Pack fruit in can or freeze jars or plastic freezer boxes and cover with syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**GRAPES, BUNCH**
Choose fully ripe, firm, sweet grapes. Sort, stem, wash and prepare in one of the following ways:
**Whole Grapes:** Put grapes in can or freeze jars or plastic freezer boxes and cover with 40% syrup, leaving ¼-inch [6 mm.] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**GRAPEFRUIT and ORANGES**
Select firm, tree-ripened fruit. Heaviness indicates maturity. Wash the fruit; chill in refrigerator; peel; section, removing all membranes and seed.

**Syrup Pack:** Prepare a 40% syrup (using juice as part of liquid). Add ½ teaspoon [2.5 mL] ascorbic acid. Pack fruit in can or freeze jars or plastic freezer boxes and cover with syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**GRAPEFRUIT and ORANGES**
Select firm, tree-ripened fruit. Heaviness indicates maturity. Wash the fruit; chill in refrigerator; peel; section, removing all membranes and seed.

**Syrup Pack:** Prepare a 40% syrup (using juice as part of liquid). Add ½ teaspoon [2.5 mL] ascorbic acid. Pack fruit in can or freeze jars or plastic freezer boxes and cover with syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**GRAPES, MUSCADINE**
Select fully ripe firm sweet grapes. Sort, stem, wash and prepare in one of the following ways:
**Whole Grapes:** Same as bunch grapes.

**DE-SEEDER Grapes:** Separate pulps, heat to boiling, remove seed and hulls with food mill. Mix juice and pulps with hulls and boil until the hulls are tender (15 to 20 minutes). Add one part sugar to six parts grapes, stirring until sugar is dissolved. Cool and package in can or freeze jars or plastic freezer boxes. Seal, label and freeze. Serve before completely thawed.

**PEACHES, NECTARINES and APRICOTS**
Select well-ripened fruit and handle carefully to avoid bruising. Wash them in several changes of cold water. Peel the fruit by hand, and drop it into ascorbic acid-citric acid mixture. Prepare in one of the following ways:
**Sugar Pack:** Thoroughly mix 2% cup [160 mL] sugar and ¼ teaspoon [1.25 mL] ascorbic acid.
for each quart [950 mL] of fruit. Pit the fruit, slice it into a bowl and sprinkle the sugar-ascorbic acid mixture. Continue until you have 1 quart [950 mL] sliced fruit mixed with the ¼ cup [160 mL] sugar. Allow these to stand until sugar dissolves (about ten minutes). Pack the sliced fruit into can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Crumple a piece of freezer wrap and place it in top of the container. Seal, label and freeze.

**Syrup Pack:** Prepare a 50% syrup and add ½ teaspoon [2.5 mL] ascorbic acid for each quart [950 mL] of syrup. Pour ½ cup [120 mL] syrup into can or freeze jars or plastic freezer boxes. Pit the fruit; slice into the container, shaking container to fill all space; add more syrup if needed; leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Puree:** Pit and slice 1 pound [454 g] fruit; add 2 tablespoons [30 mL] sugar and ¼ teaspoon [1.25 mL] ascorbic acid. Place the mixture in a food blender and convert into a liquid. Pour the mixture into pint [480 mL] can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Place a disc made from aluminum foil or plastic over the top of puree to prevent discoloration. Seal, label and freeze.

**PEARS**

Select full-flavored pears that are crisp and firm, not mealy in texture. Wash, peel, core and drop into ascorbic acid-citric acid mixture. Leave in halves or cut in quarters or slice. Prepare a 40% syrup and boil. Blanch drained pears two minutes, cool and pack in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Cover with cool syrup. Seal, label and freeze.

**For Pies:** Pack cooked filling in plastic freezer bags. Seal, label and freeze.

**PINEAPPLE**

Select fruit of bright appearance, dark yellow-orange color, with fragrant odor. If top pulls out easily, pineapple is ripe for freezing. Peel, core, dice, slice or cut in wedges. Prepare in one of the following ways:

**Slices:** Pack slices in can or freeze jars with two pieces of freezer paper between slices. Seal, label and freeze.

**Syrup Pack:** Pack in can or freeze jars or plastic freezer boxes and cover with a 50% syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Sugar Pack:** Mix 1 cup [240 mL] sugar to 8 cups [1920 mL] pineapple. Allow to set until sugar is dissolved. Pack in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Syrup Pack:** Prepare a 50% syrup.

**Puree:** Pit the fruit, slice into a bowl and freeze. Allow these to stand until sugar dissolves (about ten minutes). Pack the sliced fruit into can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Crumple a piece of freezer wrap and place it in top of the container. Seal, label and freeze.

**PEACHY-BERRY CONSERVE**

10 ounces [284 g] frozen, sweetened strawberries
½ teaspoon [2.5 mL] ascorbic acid
1 cup [240 mL] drained, canned peaches
1 package powdered fruit pectin
½ cup [120 mL] water
3 cups [720 mL] sugar
¼ cup [60 mL] water
¼ cup [60 mL] slivered almonds
1 tablespoon [15 mL] lemon rind

When thawed, sprinkle ascorbic acid over berries. Add peaches and let stand 20 minutes, stirring occasionally. Combine pectin and ½ cup [120 mL] water; boil rapidly one minute, stirring constantly. Remove from heat and immediately add sugar and ¼ cup [60 mL] water, stirring to dissolve sugar. Add fruit to pectin, stir for two minutes. Add almonds and lemon rind. Pour into freezer jars; cover with tight fitting lids. Let stand at room temperature 24 hours. If conserve does not set properly, refrigeration will hasten the process. Freeze at 0°F [—18°C] or lower. Yield: about 4 half-pints [950 mL].

**RHUBARB**

Select stalks that are crisp, tender and well colored with red; early spring cuttings are best for freezing. Remove leaves and woody ends; discard blemished and tough stalks. Wash rhubarb well under running water and cut into 1-inch [25 mm] lengths. Prepare in one of the following ways:

**Dry Pack:** Pack in plastic freezer bags. Seal, label and freeze.

**Sugar Pack:** Mix 1 cup [240 mL] sugar to 4 cups [950 mL] rhubarb. Allow to stand until sugar is dissolved. Pack in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Syrup Pack:** Pack rhubarb in can or freeze jars or plastic freezer boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

**Slices:** Pack slices in can or freeze jars or plastic freezer boxes and cover with a 50% syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Cover, label and freeze.
STRAWBERRIES
Select fully ripe, firm berries with a deep red color. Sort out immature and defective fruit. Gently wash the berries in several changes of cold water. Remove caps and place berries in jars or plastic freezer boxes. Cover one of the following ways:

Sugar Pack: Slice the berries in halves or thirds, lengthwise. Mix six parts sliced berries with one part sugar. Allow to stand until sugar dissolves (about ten minutes). Gently stir. Package the same as peaches.

Syrup Pack: Leave the berries whole or slice. Pack in can or freeze jars or plastic freezer boxes. Cover with 50% syrup, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ¼-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Whole (No-Sugar): Pack berries in plastic freezer bags. Seal, label and freeze.

Puree: Put 1 pint [480 mL] strawberries, 4 tablespoons [60 mL] sugar and 1 teaspoon [5 mL] lemon juice in food blender and convert into a liquid. Package the same as peach puree.

THAWING and PREPARING FRUITS
When serving frozen fruits for dessert, open the package just when you are ready to serve while there are still a few ice crystals in the fruit. Frozen fruits may be used the same as fresh fruits in most recipes. When using frozen fruits in cooking, allowance should be made for any sugar that was added at the time of freezing.

Some fruits, especially young berries and boysenberries, make better jellies when frozen than when fresh because freezing and thawing cause the juices to be released from the cells and the natural fruit color dissolves in the juice. Freshly made jellies, jams, marmalades and preserves from frozen berries are superior in flavor, color and texture to those made from fresh berries.

JELLIES & SEMI-SOFT SPREADS

APRICOT JAM
Follow recipe for Strawberry Jam, except 1 teaspoon [5 mL] powdered citric acid is added to the finely mashed apricots.

BLACKBERRY JAM
Follow recipe for Red Raspberry, except a reduction of sugar from 6 cups [1440 mL] to 5½ cups [1320 mL].

BLACK RASPBERRY JAM
Follow recipe for Strawberry Jam.

CHERRY JAM
Follow recipe for Strawberry Jam, except sour cherries are pitted and put through a food chopper before measuring.

CHERRY JAM
3 cups [720 mL] pitted, ground cherries
5 cups [1200 mL] sugar
1 box powdered pectin and 1 cup [240 mL] water OR
½ bottle liquid pectin
Let cherries thaw. Mix cherries and sugar. Let stand about 20 minutes, stirring occasionally. If powdered pectin is used, combine it with water, boil 1 minute stirring constantly. Add pectin to cherries and sugar. Stir about 2 minutes.

Pour jam into freezer containers or canning jars, leaving ¼-inch [13 mm] head space. Cover container and refrigerate until set. Store in the refrigerator or freezer.

GRAPE JAM
Follow recipe for Red Raspberry jam, except seeds are separated after heating Concord Grapes. Simmer grapes without adding water until skins are broken and grapes have softened. Put pulp through a colander or food mill before measuring.

PEACH JAM
2 cups [480 mL] finely mashed or sieved red raspberries
4 cups [960 mL] sugar
1 package powdered pectin
1 cup [240 mL] water
24 ounces [680 g] sliced frozen berries
4 tablespoons [60 mL] lemon juice
3 cups [720 mL] sugar
1 package powdered pectin
1 cup minus 2 tablespoons [210 mL] water

NOTE: To use liquid pectin for this jam, omit the powdered pectin and water and use ½ bottle of liquid pectin (½ cup) [120 mL]. No cooking necessary.

STRAWBERRY JAM
3 cups [720 mL] mashed peaches
3 tablespoons [45 mL] lemon juice
5 cups [1200 mL] sugar
1 box powdered pectin and 1 cup [240 mL] water OR
½ bottle liquid pectin
Let the peaches thaw. Mix peaches and sugar. Let stand about 20 minutes, stirring occasionally. If powdered pectin is used, combine it with water, boil 1 minute stirring constantly. Add pectin to peaches and sugar. Stir about 2 minutes.

Pour jam into freezer containers or canning jars, leaving ¼-inch [13 mm] head space. Cover container and refrigerate until set. Store in the refrigerator or freezer.

PEACH JAM
Follow recipe for Strawberry Jam, except 1 teaspoon [5 mL] powdered citric acid is added to the finely mashed peaches.

PEACH JAM
Follow recipe for Strawberry Jam, except plums are pitted and put through a food chopper or blender before measuring.

MILD PLUM (PRUNE PLUM) JAM
Follow recipe for Strawberry Jam, except plums are pitted and put through a food chopper before measuring.

RED RASPBERRY JAM
3 cups [720 mL] finely mashed or sieved red raspberries
6 cups [1440 mL] sugar
1 cup [240 mL] water
1 package powdered pectin
Combine berries and sugar. Let stand about 20 minutes, stirring occasionally. Stir the pectin into the water, bring to boiling and boil rapidly for 1 minute, stirring constantly. Remove from heat, add the berries and stir about 2 minutes. Pour into jelly glasses. Cover and let stand at room temperature 24 to 48 hours, or until jelled. Seal with paraffin and store in a freezer. Or it will keep several weeks at refrigerator temperature. Yield: about 9 glasses.
Combine berries, lemon juice and sugar. Let stand about 20 minutes, stirring occasionally. Stir the pectin into the water, bring to boiling and boil rapidly for 1 minute, stirring constantly. Remove from heat. Add the berries and stir about 2 minutes. Pour into sterilized jelly glasses or frozen food containers. Cover and let stand at room temperature 24 to 48 hours or until jelled. Seal with paraffin and store in a freezer. Or it will keep several weeks at refrigerator temperature. Yield: about 6 glasses.

**NOTE:** To use liquid pectin for this jam, omit the powdered pectin and water and use ½ bottle of liquid pectin (½ cup) [120 mL]. No cooking necessary.

### JAMS from FROZEN FRUIT

**20 ounces** [567 g] frozen blackberries, raspberries or strawberries

3 cups [720 mL] sugar
1 box powdered pectin
1 cup [240 mL] water OR ½ bottle liquid pectin

Let the berries thaw. Mix berries and sugar. Let stand about 20 minutes, stirring occasionally. If powdered pectin is used, combine it with water, boil 1 minute stirring constantly. Add pectin to berries and sugar. Stir about 2 minutes. Pour jam into freezer containers or canning jars, leaving ½-inch [13 mm] head space. Cover container and refrigerate until set. Store in the refrigerator or freezer.

### JAMS MADE with BERRIES

3 cups [720 mL] crushed blackberries, raspberries or strawberries (about 1½ quarts) [1425 mL]
5 cups [1200 mL] sugar
1 box powdered pectin and 1 cup [240 mL] water OR ½ bottle liquid pectin

Measure 3 cups [720 mL] of prepared berries in extra large mixing bowl. Add sugar, mix well, and let stand for 20 minutes, stirring occasionally.

If using powdered pectin, dissolve the pectin in the water, bring to a boil, and boil for 1 minute.

Add pectin to berries and sugar and stir for 2 minutes. Pour the jam into freezer containers or canning jars, leaving ½-inch [13 mm] head space. Cover container and let stand for 24 hours.

**Yield:** about 7 one-half pint jars [1680 mL].

**NOTE:** If blackberries are very seedy, put part or all of them through a sieve or food mill.

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### BERRY JELLY

3 cups [720 mL] fresh or frozen berry juice
4½ cups [1080 mL] sugar
1 box powdered pectin
½ cup [120 mL] water

Mix the pectin slowly into the lukewarm water in a 2 quart [1900 mL] mixing bowl. Stir constantly until completely dissolved. Let stand 45 minutes. Stir occasionally but do not beat. Thaw juice by placing can in cold water. When juice is thawed, pour into a 1 quart [950 mL] bowl. Add the lemon juice and 2½ cups [600 mL] of the sugar. Mix thoroughly. All the sugar will not dissolve. Add the remaining 2 cups [480 mL] of sugar to the dissolved pectin. Stir until all sugar is dissolved. Mix the juice mixture with the pectin mixture. Stir constantly until all sugar is dissolved. Pour into containers. Cover with a tight lid. Let stand at room temperature until set. Freeze or refrigerate.

### GRAPE JELLY

2 cups [480 mL] lukewarm water
1 box pectin
6 ounces [170 g] frozen grape juice concentrate
3¼ cups [780 mL] sugar

Mix the pectin slowly into the lukewarm water in a 2 quart [1900 mL] mixing bowl. Stir constantly until completely dissolved. Let stand 45 minutes. Stir occasionally but do not beat. Thaw juice by placing can in cold water. When juice is thawed, pour into a 1 quart [950 mL] mixing bowl. Add 1¾ cups [420 mL] sugar. Mix thoroughly. All the sugar will not be dissolved. Add the remaining 1½ cups [360 mL] of sugar to the dissolved pectin. Stir until all sugar is dissolved. Mix the juice mixture with the pectin mixture. Stir constantly until all sugar is dissolved. Pour into containers. Cover with a tight lid. Let stand at room temperature until set. Freeze or refrigerate.

### ORANGE JELLY

1 box powdered pectin
2 cups [480 mL] lukewarm water
6 ounces [170 g] frozen orange juice concentrate
4½ cups [1080 mL] sugar
¼ cup [60 mL] fresh lemon juice

Mix the pectin slowly into the lukewarm water in a 2 quart [1900 mL] mixing bowl. Stir constantly until completely dissolved. Let stand 45 minutes. Stir occasionally but do not beat. Thaw juice by placing can in cold water. When juice is thawed, pour into a 1 quart [950 mL] bowl. Add the lemon juice and 2½ cups [600 mL] of the sugar. Mix thoroughly. All the sugar will not dissolve. Add the remaining 2 cups [480 mL] of sugar to the dissolved pectin. Stir until all sugar is dissolved. Mix the juice mixture with the pectin mixture. Stir constantly until all sugar is dissolved. Pour into containers. Cover with a tight lid. Let stand at room temperature until set. Freeze or refrigerate.

### MEATS

#### General Information

Freezing preserves the natural fresh qualities of meat better than any other method of preservation. Freezing may tenderize meat slightly, but it will not make tough meat tender. While beef, lamb, pork, chickens and turkeys may be produced on the farm and frozen in the home, it is advisable for slaughtering, chilling and preparation of beef, lamb and pork to be done in commercial establishments. The advantages are that animals may be slaughtered at any time of the year, and the meat can be handled under sanitary conditions, controlled temperatures and inspected by local authorities.

Equipment for handling meat products should be as free of seams and cracks as possible and should be scrubbed in hot water with a good detergent and sanitizer after each use. Many families prefer to select cuts of their choice from the market and freeze these at home. All store-packaged fresh meats should be repackaged in freezer materials at home, since "butcher paper" usually is not moisture/vapor-proof and contains air pockets.
Beef, Lamb, Mutton, Veal and Venison Cuts: Roasts, rolled roasts, steaks, chops, stew meat, frying meat and ground meat. All may be stored frozen for one year if desired, except ground meat. Three to four months is the maximum time to freeze ground meat. Three months is the maximum time to freeze liver.

Preparation: Use only good quality meat from carcasses that have been aged about one week, in a relatively dry room, at about 35°F [2°C]. Cut meats as for cooking, removing as much bone and other waste as possible, and package in family-size servings. Keep meat cold while it is being cut and wrapped. Large pieces should be wrapped individually in freezer foil, film or paper. Steaks or chops should be wrapped the same way except a double layer of moisture/vapor-proof material should be placed between each piece of meat to make separation for cooking easier. Ground meat should be packaged in family-size servings and wrapped as large pieces. For short storage periods, the cuts may be frozen in plastic freezer bags.

Pork, Opossum, Rabbit and Squirrel Cuts: Suitable for roasting, broiling, frying, stewing and ground meat. Use frozen pork and opossum in about six months; after that long, it could become rancid.

Preparation: Pork meat products should be frozen or prepared for curing as soon as chilled; that is, second day after slaughter.

Fresh Meat: All of the cuts of this type should be frozen fresh except hams, bacon, jowls and sausage, which may be cured instead. While cutting into cooking-size pieces, as much bone and fat should be removed as possible. Wrap the same as beef, as explained under “preparation” above.

Cured Pork: Freshly cured pork loses desirable color and flavor during freezer storage. Therefore, it has a very short shelf life in the freezer.

Sausage: Make sausage from trimmings of lean portions of pork. Sausage to be frozen should contain approximately three times as much lean as fat. Prepare the sausage, using your favorite recipe. Pack sausage tightly in can or freeze jars or plastic freezer boxes. Seal, label and freeze. It may also be stuffed into casings and smoked. For country-style flavor, cure stuffed sausage for five days at 35°F [2°C] before freezing. Wrap tightly in family-size servings in freezer foil, film or paper. Seal, label and freeze.

THAWING AND PREPARING BEEF, PORK, LAMB, MUTTON, VEAL and VENISON
Leave package wrapped until ready to cook. The refrigerator is the best place to thaw meats. Slow thawing allows the meat to absorb the thawed ice crystals. Also the meat is less likely to spoil and develop off-flavor. If you must thaw meat fast, use an electric fan. Thaw frozen meats just long enough for the ice to disappear in the center. Never thaw meat and allow it to return to room temperature. It is best to put meat on to cook while it still contains a few ice crystals. Usually roasts and steaks over 1½ inches [38 mm] thick should be thawed before cooking. Thin steaks, chops or patties may be cooked from the frozen stage, but the cooking time must be longer to allow for thawing the meat. Use a recommended meat cooking chart for accurate times and temperature for completely thawed meats. Add from 12 to 21 minutes per pound [454 g] for roasting meats that are still frozen.

POULTRY

CHICKEN
Chicken (Fryers, Broilers, Roasters and Hens) Selection: Select choice birds that have grown rapidly and are well fattened. If practical, starve birds overnight before killing.

Fryers and Broilers (Whole): For short storage, pack the whole bird in plastic freezer bags and seal air tight. For long storage, wrap the bird in a freezer film and overwrap with a freezer paper. Seal, label and freeze.

Cut Up: Disjoint or otherwise cut birds suitable for cooking and pack closely in can or freeze jars or plastic freezer boxes. Seal, label and freeze. If several birds are prepared at one time, package the various pieces separately. Place livers in a separate package and use within three months.

Halves: Split the birds in halves, package in family-size packages with a double layer of moisture/vapor-proof material between each piece. Package same as whole birds.

Roasters and Hens: Prepare same as whole fryers.

TURKEY
Preparation: Allow carcass to chill two days; then prepare same as whole fryers.

THAWING and PREPARING CHICKENS and TURKEYS
Frying Chicken: Thaw cut-up fryers in the refrigerator until the pieces can be separated easily. They should then be prepared and cooked as fresh.

Roasting Chickens and Turkeys: Thaw unwrapped roasters completely either in refrigerator or closed brown paper bag or cold water—never at room temperature. They should then be prepared and cooked as fresh.

PREPARED FOODS

BREADS—QUICK

Fruit and Nut Breads, Muffins and Waffles: Prepare and cook as usual. Cool. Package same as biscuits.

BREADS—YEAST
Loaves and rolls, baked—Prepare as muffins. “Brown and serve” rolls—bake 20 minutes at 275°F [135°C]. Cool. Package same as breads—quick.

ROLLS, UNBAKED
Shape rolls. Freeze on baking sheet. Put in plastic freezer bags for storage.

PIZZA
Prepare. Do not bake. Freeze. Wrap in freezer film, foil or paper. Seal, label and freeze.

GRAVY
It is better to freeze broth and thicken while heating than to freeze gravy. Pour cool broth into can or freeze jars or plastic freezer boxes, leaving ¾-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

CAKES—BAKED
Layer, Loaf, Cupcakes, Angel, Chiffon, Sponge and Fruit: Prepare, bake and cool. May be frozen whole or in meal-size portions or slices. Package in plastic freezer bags. Seal, label and freeze.
FROSTED CAKES
Prepare, bake and cool. Place in freezer to harden the frosting. Then remove and place in plastic freezer bags. Seal, label and freeze.

CANDIES
All homemade candies such as fudge, divinity, brittle, taffy, creams and caramels may be frozen. Wrap each piece individually in freezer film and pack in plastic freezer boxes to avoid crushing. Allow to thaw in the package.

CHICKEN
(Also Turkey and Fish)
Frozen creamed chicken, chicken a la king, pies, baked chicken, broth, chicken chopped for salad, barbecued... all keep well. Do not freeze stuffed poultry. Cover chicken with a cream sauce or gravy if possible. Cool the product and package in can or freeze jars or plastic freezer boxes.

COMBINATION DISHES
Creamed Meat, Poultry and Fish: Prepare product. Cool quickly. Package in can or freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Baked Beans, Stew, Ravioli and Meat Sauce Casseroles: Prepare as usual, keeping fat to minimum. Cool quickly and package same as creamed meat.

PIES
Double-crust fruit and mince pies, raw or cooked, as well as single-crust, coconut, rug, potato and similar pies may be frozen. The filling for pies to be frozen should be slightly thicker than usual. Freeze pies before packaging. Package the same as breads.

MEATS
Stews, creamed meats, meat sauces, casseroles dishes, meat with vegetables, pies, roasted and baked meats, meat balls and meat loaf may be frozen. Package the same as chicken.

Meat, Poultry and Shell Fish: Prepare the meat. Cool. Package in can or freeze jars or in plastic freezer boxes. Seal, label and freeze. Ready to use, thaw meat and mix with other ingredients.

FROZEN FROSTED CAKES

Prepare, bake and cool. Place in freezer to harden the frosting. Then remove and place in plastic freezer bags. Seal, label and freeze.

FRUITS
Such cooked fruits as baked apples, baked pears and applesauce may be prepared for the freezer. Cool quickly and package in can or freeze jars or plastic freezer boxes. Seal, label and freeze.

SANDWICHES
Sandwiches suitable for freezing include those made with cheese, chicken, meat, peanut butter, nut pastes, egg yolk mixtures and fish. Use day-old bread spread with butter. Wrap sandwiches individually in freezer film or foil. Freeze and store in plastic freezer bags.

Mousse, Steamed:
Cool and package in covered can or baking mold and seal with freezer tape; or put into plastic freezer bags. Seal, label and freeze.

Open-Face Canapés: Make as usual. Be sure to spread to very edge. Space out and freeze. Pack in layers in top-opening box separating layers with freezer paper.

Baked or Stuffed: Prepare as usual, top with melted cheese. Cool quickly. Wrap individually in freezer foil or film. Freeze. Put in plastic freezer bags.

French Fried: Cut and scald potatoes two minutes; cool and dry in clean cloth. Fry in fresh, first grade fat (370°F [188°C]) until a very light brown. Drain. Cool quickly and package in plastic freezer bags. Seal, label and freeze.

Scalloped: Prepare and place in baking dish that can withstand wide variations in temperature. Bake as usual until pale in color and not quite done. Leave in baking dish and cool quickly. Slip dish into plastic freezer bags. Seal, label and freeze.

PUDDINGS
Pudding, Steamed:
Cool and package in covered can or baking mold and seal with freezer tape; or put into plastic freezer bags. Seal, label and freeze.

Meat Sauce Casseroles:
Prepare as usual, keeping fat to minimum. Both dessert sauces and meat sauces freeze successfully. Package in serving portions in can or freeze jars or in plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

CHICKEN

COMBINATION DISHES
Creamed Meat, Poultry and Fish: Prepare product. Cool quickly. Package in can or freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

PIES
Double-crust fruit and mince pies, raw or cooked, as well as single-crust, coconut, nut, potato and similar pies may be frozen. The filling for pies to be frozen should be slightly thicker than usual. Freeze pies before packaging. Package the same as breads.

MEATS
Stews, creamed meats, meat sauces, casseroles dishes, meat with vegetables, pies, roasted and baked meats, meat balls and meat loaf may be frozen. Package the same as chicken.

Meat, Poultry and Shell Fish: Prepare the meat. Cool. Package in can or freeze jars or in plastic freezer boxes. Seal, label and freeze. Ready to use, thaw meat and mix with other ingredients.

PIES
Prepare as usual, top with melted cheese. Cool quickly. Wrap individually in freezer foil or film. Freeze. Put in plastic freezer bags.

French Fried: Cut and scald potatoes two minutes; cool and dry in clean cloth. Fry in fresh, first grade fat (370°F [188°C]) until a very light brown. Drain. Cool quickly and package in plastic freezer bags. Seal, label and freeze.

Scalloped: Prepare and place in baking dish that can withstand wide variations in temperature. Bake as usual until pale in color and not quite done. Leave in baking dish and cool quickly. Slip dish into plastic freezer bags. Seal, label and freeze.

SANDWICHES
Sandwiches suitable for freezing include those made with cheese, chicken, meat, peanut butter, nut pastes, egg yolk mixtures and fish. Use day-old bread spread with butter. Wrap sandwiches individually in freezer film or foil. Freeze and store in plastic freezer bags.

Open-Face Canapés: Make as usual. Be sure to spread to very edge. Space out and freeze. Pack in layers in top-opening box separating layers with freezer paper.

SAUCES
Both dessert sauces and meat sauces freeze successfully. Package in serving portions in can or freeze jars or in plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

SALADS

Fruit salads which freeze well are those served with a base of cream, cottage cheese, whipped cream or mayonnaise. Gelatin combined with those items just mentioned also freeze well. Prepare in large or individual serving containers. Fit a piece of freezer paper over the top and wrap total container of salad in freezer paper. Muffin tins or other individual serving containers may be lined with a freezer film, or foil, or a paper-lined dish may be used. Fill with mixture, freeze, remove from container to free use of container, wrap individually and store in plastic freezer bags. Or, you may pour mixture in can or freeze jars, leaving ¼-inch [6 mm] head space for pint [480 mL] jars or boxes, or ⅛-inch [13 mm] head space for quart [950 mL] jars or plastic freezer boxes. Seal, label and freeze.

SOUPS
Most soups freeze well. These include dried beans, split pea, oyster and those made from chicken, meats and vegetables. They should be concentrated before freezing to about one-half the strength at which they are to be served. Cool. Package in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

SANDWICHES

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Sandwiches suitable for freezing include those made with cheese, chicken, meat, peanut butter, nut pastes, egg yolk mixtures and fish. Use day-old bread spread with butter. Wrap sandwiches individually in freezer film or foil. Freeze and store in plastic freezer bags.

Open-Face Canapés: Make as usual. Be sure to spread to very edge. Space out and freeze. Pack in layers in top-opening box separating layers with freezer paper.

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Both dessert sauces and meat sauces freeze successfully. Package in serving portions in can or freeze jars or in plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

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VEGETABLES

Some fully cooked vegetables, such as baked beans and candied sweet potatoes, when frozen, keep in excellent condition for many months; but most fully cooked vegetables lose flavor rapidly and should be stored for only a few days. Loss of flavor may be retarded by covering the vegetables with a cream sauce.

SEAFOODS

FISH

Selection: Select any kind of desirable fish, as fresh as possible.

Preparation: Prepare fish for freezing the same as for cooking. Freeze small fish whole. Large fish may be cut into steaks or fillets or left whole. Steaks and fillets need a 30 second dip in a 5 percent salt solution (⅛ cup [160 mL] salt in one gallon [3800 mL] water). Wrap each fish tightly in a freezer film, foil or paper, then place in a plastic freezer bag. Seal, label and freeze. Fish may also be frozen by placing them in a plastic freezer box and covering with water, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ⅛-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

OYSTERS

Preparation: Prepare the oysters as for using fresh. Package in meal-size can or can freeze jars or plastic freezer boxes, leaving ⅛-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

SHRIMP

Preparation: Several methods are recommended for freezing shrimp:

1. Remove the shrimp head and freeze.
2. Remove the shrimp head, shell, clean and freeze.
3. Cooked shrimp—Boil five minutes in salt solution (2½ ounces [71 g] salt per gallon [3800 mL] of water).
4. Breaded shrimp—Peel the raw shrimp, de-vein it, bread with your favorite breading method and freeze.
5. Precooked shrimp.

Package in can or freeze jars, plastic freezer boxes, or plastic bags. Allow head space when freezing in a liquid. Seal, label and freeze.

CRAB

Preparation: Prepare crabs as for using fresh. Grade the meat by size. Package in meal-size can or freeze jars or plastic freezer boxes. Seal, label and freeze.

FISH ROE

Preparation: Thoroughly wash roe, package same as crab meat.

LOBSTER

Same as crab.

Fish, Oysters, Shrimp, Crab, Fish Roe and Lobsters: It is important that only strictly fresh products be used for freezing. Being a perishable commodity, it should be kept under refrigeration at all times. The freezing of these products shortly after catching is very important.

THAWING AND PREPARING SEAFOOD PRODUCTS

Fish, Oysters, Shrimp, Crab and Lobsters: Place the unopened package in the refrigerator until thawing begins and the product softens slightly, then remove the food and cook as fresh.

SPECIAL FOODS AND BABY FOODS

1. Foods for diabetics can be prepared and frozen without sugar or sweetened with a non-caloric sweetener. Consult physician and follow manufacturer's instructions.
2. Dietetic. It is often a convenience to freeze individual portions without salt or without fat for persons on special diets. These can be frozen in ice trays, then removed and stored in plastic freezer bags or boxes.
3. Purées of vegetables and fruits and meats for babies and convalescents may be made and frozen when the foods are in season. The half-pint [240 mL] can or freeze jars are excellent containers for storing these items in the freezer.

VEGETABLES

GENERAL INFORMATION

Excellent frozen products may be had from most vegetables when:
(a) the proper varieties are used;
(b) they are harvested at the right time;
(c) they are adequately scalded and cooled; and
(d) they are packaged correctly. Many frozen vegetables are fresher than those purchased on the "fresh market." Practically all frozen vegetables may be stored for one year.

Choose a variety that is recommended for eating fresh, or a newer variety which has been found to be especially suitable for freezing.

If you grow your own, harvest tender vegetables at the best stage to be eaten fresh, or slightly younger. Process on the day harvested or bought, and never use if allowed to become over-mature either before or after harvesting. The fresher the vegetables when frozen, the more satisfactory the product.

If it is necessary to store vegetables for a short time, spread them in a cool, well-ventilated place or in the refrigerator. Prompt cooling in ice water followed by storage in the refrigerator will help retain flavor and other qualities.

SCALDING OR BLANCHING

Scalding is a critical step in preparing vegetables for freezing and must be done carefully. (This is a "must" for all vegetables to be stored frozen for more than four weeks, except those used exclusively for their flavor such as green onions, hot peppers, and herbs.) Scalding cleanses the surface of dirt and organisms, brightens the color, helps retain vitamins, and reduces the action of enzymes which otherwise would destroy the fresh flavor after about four weeks. It also shrinks the product, making packing easier.

Immediately before scalding, wash, drain, sort, trim and cut the vegetables as for cooking fresh. Use one gallon [3800 mL] water per pound (454 g) vegetables—two gallons [7600 mL] for leafy greens. Put vegetables into blancher (wire basket, coarse mesh bag, or perforated metal container) and lower it into vigorously boiling water. Begin
counting the time as soon as vegetable is placed in the boiling water. Keep the heat on high and stir water, or keep container covered during blanching. Follow the scalding time given in the recipe for each vegetable. This is very important because underscalding stimulates the activity of enzymes and is worse than no scalding. Prolonged scalding causes loss of vitamins, minerals, flavor and color.

COOLING
As soon as scalding is complete the vegetables should be cooled quickly to stop the cooking process. This may be done by immersing the vegetables in ice water or spreading them thinly on a wet cloth in front of a fan. They should be stirred several times during cooling which should not be longer than the scalding time. If water is used it should be as cold as possible in order to reduce the time of immersion. Otherwise nutrients, flavor, and color will be lost. To aid cooling, pour hot vegetables into a cool colander—leaving hot basket to scald more vegetables.

With a large quantity, determine how many vegetables can be blanched in fifteen minutes. Prepare this amount, leaving the others in the refrigerator; blanch and cool these before packaging. Package, label and place in freezer. Continue until all vegetables are frozen. The same scalding water may be reused for the same product, but keep the water at the proper level.

PACKAGING
Vegetables usually are packaged loosely without seasoning. Immediately after scalding and cooling, pack the vegetables in meal-size, air-tight, moisture/vapor-proof containers. Quart or pint [950-480 mL] size plastic freezer bags have been found most suitable for home packaging of many frozen vegetables. After placing the vegetables in bag, press out all of the air possible, twist the top of the bag so as to form a spiral, bend spiral back to form a gooseneck, and then wrap it with a fastener. Bags closed in this manner need not be sealed and can therefore be used again. Can or freeze jars and plastic freezer boxes also are excellent.

FREEZE QUICKLY
Place sealed packages in freezer in single layers, leaving 1-inch [25 mm] space between packages. Use coldest part of freezer for freezing foods. Foods should freeze in 12 to 24 hours.

STORAGE
When completely frozen, packages may be compactly stacked. Keep the freezer at 0°F [−18°C] or lower at all times.

THAWING and PREPARING VEGETABLES
Most vegetables can be cooked without thawing. The exception to this is corn-on-the-cob, the only vegetable which should be completely thawed before being cooked. All greens should be partially thawed so as to separate them before cooking. Precooked vegetables should also be partially thawed.

To maintain quality, cook frozen vegetables as you would fresh ones—but cook them for a shorter period of time because they were blanched before freezing. Use the smallest amount of water possible. Time the cooking so the vegetables may be served immediately, because nutrients are lost if the vegetable is allowed to stand after cooking. Cook only the amount that can be consumed at one meal.

ARTICHOKE, GLOBE
Select those with uniformly green color, compact globes and tightly adhering leaves. Size has little to do with quality or flavor. Remove outer bracts until light yellow or white bracts are reached. Cut off tops of bud and trim to a cone. Wash the hearts in cold water as soon as trimming is completed. Drain.
Scald 7 minutes. Cool, drain and package in plastic freezer bags or can or freeze jars or plastic freezer boxes. Seal, label and freeze.

ARTICHOKE, JERUSALEM
Handle like Irish potatoes.

ASPARAGUS
Select young tender tips. Wash thoroughly and sort into sizes. Trim stalks by removing scales with a sharp knife. Cut into even lengths to fit freezer containers. Scald small spears 1½ minutes, medium spears 2 minutes and large spears 3 minutes. Cool, drain and package in plastic freezer bags, can or freeze jars or plastic freezer boxes. Seal, label and freeze.

BEANS, LIMA
Harvest while the seed is in the green stage. Wash in cold water, shell, wash and sort according to size. Scald small beans 1 minute, medium beans 2 minutes and large beans 3 minutes. Cool, drain and package in plastic freezer bags or can or freeze jars or plastic freezer boxes. Seal, label and freeze.

BEANS, SNAP
Select young tender pods when the seed is first formed. Wash in cold water, snip and cut 2-4 inch [51-102 mm] lengths or lengths to fit freezer container. The longer cuts are best quality. Scald 3 minutes. Cool, drain and package in plastic freezer bags or can or freeze jars or plastic freezer boxes. Seal, label and freeze.

BEANS, SOY
Harvest when the beans are just newly-formed and in the green stage. Wash in cold water. Boil pods 5 minutes. Cool, squeeze the beans out of the pod, rinse and drain. Package same as lima beans.

BEETS
Select deep, uniformly-red, tender, young beets. Remove tops, wash and cook until tender. Cool and remove skins. Leave whole, quarter, slice or dice. Package same as lima beans.

BROCCOLI
Select firm, young, tender stalks with compact heads. Wash and remove leaves and woody portions. Separate heads into convenient-size sections and immerse in brine (1 cup [240 mL] salt to 1 gallon [3800 mL] water) for 30 minutes to remove insects. Rinse and drain.
Scald medium-size sections 3 minutes and large size sections 4 minutes. Cool, drain and package same as lima beans.

BRUSSELS SPROUTS
Select dark green, compact heads. Remove coarse outer leaves, wash and sort into small, medium and large sizes. Scald small size 3 minutes, medium size 4 minutes, and large size 5 minutes. Cool, drain and package same as lima beans.
CABBAGE
Select solid, green heads with crisp leaves. Wash, discard the coarse outer leaves and cut the head into wedges or shred rather coarsely. Scald wedges 3 minutes; shredded cabbage 1½ minutes. Cool, drain and package the same as lima beans. Frozen cabbage is not suitable for use in coleslaw or salad.

CARROTS
Select young, tender, coreless, medium length carrots. Wash, scrape, wash and dice or section lengthwise. Small carrots may be frozen whole. Scald carrot sections 3 minutes and whole carrots 5 minutes. Cool, drain and package same as lima beans.

CAULIFLOWER
Choose compact heads. Trim, break into flowerets of uniform size, about 1-inch [25 mm] across; wash carefully and drain. Prepare and package same as broccoli.

CORN
Select only tender, freshly gathered corn in the milk stage. Husk and trim the ears, remove silks and wash. Corn-On-The-Cob: Scald ears 1½ inches [38 mm] in diameter 6 minutes; 2 inches [51 mm] in diameter 8 minutes, and larger ears 10 minutes. Cool, drain and wrap individually, tightly in moisture/vapor-proof film and place in plastic freezer bags. Seal, label and freeze. Whole Kernel: Scald 5 or 6 minutes, depending on size of ears. Cool, drain and cut from cob. Package same as lima beans.

CREAM STYLE CORN: Scald ears the same as for whole grain. Cool and drain. Cut kernel tips and scrape rest of kernels from cob. Package in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space. Seal, label and freeze.

PRECOOKED CORN: Cut and scrape the corn from the cob without blanching. Put small amount of water in sauce pan, add cut corn and cook over low heat (stirring constantly) for about 10 minutes or until it thickens. Pour in a pan, set in ice water to cool. Do not cook more than 3 quarts [2850 mL] at a time. Package same as cream style corn.

EGGPLANT
Harvest before seeds become mature and when color is uniformly dark. Wash, peel and slice ⅛-inch [9 mm]. Prepare quickly, just enough eggplant for 1 scalding at a time. Scald 4 minutes in 1 gallon [3800 mL] boiling water containing 4½ teaspoons [23 mL] citric acid OR ½ cup [120 mL] lemon juice. Cool, drain and package the same as lima beans.

GREENS
Pick young, tender, green leaves. Wash thoroughly and cut off woody stems. Scald 2 minutes and avoid matting of leaves. Cool, drain and package same as cream style corn.

HERBS, GARDEN
Many garden herbs may be frozen. Wash, drain, but do not scald. Wrap a few sprigs or leaves in freezer film and place in plastic freezer bags. Seal, label and freeze. These usually are not suitable for garnish, as the frozen product becomes limp when it thaws. It can be chopped and used in cooked dishes.

KOHLRABI
Select stems when fully grown but tender. Trim top and bottom, wash, peel off the tough bark and wash. Slice the tender centers, crosswise ¼-inch [6 mm] thick. The small roots may be left whole. Scald slices 2 minutes; whole ones 3 minutes. Cool, drain and package same as lima beans.

MUSHROOMS
Select young, firm mushrooms and process quickly. Mushrooms deteriorate rapidly. Wash and remove the base of the stem. Sort the mushrooms into sizes. Smaller mushrooms may be frozen whole; larger mushrooms should be cut into smaller pieces.

Mushrooms tend to darken. To prevent discoloration, use 3 teaspoons [15 mL] lemon juice OR ½ teaspoon [2.5 mL] ascorbic acid to each quart [950 mL] of water when scalding the mushrooms. Scald small whole mushrooms 4 minutes, and larger mushrooms 3 minutes. Chill at once in cold water, drain, package and freeze. Mushrooms can be cut into slices and sautéed in butter for about 3 minutes. Cool quickly, pack and freeze. If mushrooms are sautéed, no scalding is required.

OKRA
Select young tender pods. Wash and separate into two sizes: 4 inches [102 mm] or under, and larger. Remove stems at the end of the seed cells. Scald the small pods 3 minutes, cool, drain and package same as lima beans. Scald the larger pods 5 minutes. Cool, cut into 1-inch [25 mm] lengths and package same as lima beans.

ONIONS
Choose mature bulbs and clean as for eating. Scald for 3 to 7 minutes, or until the center is heated. Cool, drain and package same as lima beans. These are suitable for cooking only. Young green onions may be washed and chopped for salads and sandwiches and frozen without scalding. They will not be crisp. These will be highly flavored but may be slightly tough.

PARSNIPS
Choose smooth, firm roots free from woodiness. Remove tops, wash thoroughly and peel. Slice, dice or cut lengthwise. Scald 3 minutes, cool, drain and package same as lima beans.

PEANUTS
Green In The Shell
Select fully mature peanuts, thoroughly wash and clean. Leave in shell. Scald 10 minutes, cool, drain and package same as lima beans.

PEANUTS, SHELLED
Select fully mature peanuts, shell and package same as lima beans. These peanuts may be removed from the freezer, thawed, then used as fresh shelled peanuts in any recipe.

PEAS, FIELD (BLACKEYED)
Select pods when seeds are tender and barely grown. Wash, shell and discard over-mature and immature seeds and those injured by insects. Wash and scald smaller sizes 1 minute and larger sizes 2 minutes. Cool, drain and package same as lima beans.

PEAS, GREEN or GARDEN
Harvest when pods are filled with young tender peas that have not become starchy. Wash, shell, wash, scald 2 minutes. Cool, drain and package same as lima beans.

PEPPERS, SWEET
Select crisp, tender, green or bright red pods. Wash, cut out stems and remove seeds. Freeze whole, as halves, strips or diced. Do not scald. Package same as lima beans.
PEPPERS, PIMENTOS
Select well-ripened pods of deep red color. Wash, cut out stems and remove seeds. Peel by roasting in oven 400°F [204°C] or cover with water and boil until peppers are tender. Cool and package same as red color. Wash, cut out stems and put through a food mill and add one part sugar to six parts puree. Cool and package same as pureed sweet potatoes (sugar may be omitted).

PEPPERS, HOT
Select crisp, tender, green or bright red pods. Wash and drain. Package same as lima beans.

POTATOES, IRISH
Select smooth new potatoes directly from the garden. Wash thoroughly, drain and place in plastic freezer bags. Seal, label and freeze.

POTATOES, SWEET
Allow potatoes to cure for at least one week. Wash thoroughly, drain and sort for sizes.
Baked: Grease surface with fresh cooking oil, bake in a preheated oven [350°F] [177°C] until slightly soft. Cool. Wrap potatoes individually in freezer film or foil and place in plastic freezer bags. Seal, label and freeze.
Sliced: Preheat the unpeeled potatoes in water at 130°F [54°C] for 30 minutes. Peel and cut lengthwise into ⅛-inch [6 mm] slices. Scald 3 minutes in boiling syrup made with 1½ cups [360 mL] water to 1 cup [240 mL] sugar and 1 tablespoon [15 mL] lemon juice—prepare enough syrup to cover the slices. Cool quickly (slices and syrup). Pack closely in can or freeze jars or plastic freezer boxes. Cover with syrup, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

Purée: Bake the potatoes in a preheated oven [350°F] [177°C] until soft. Remove peel and put potatoes through a food mill. For each 5 pounds [2.3 kg] of pureed potatoes, add ½ cup [120 mL] sugar, ⅛ cup [120 mL] cold water and 1 tablespoon [15 mL] lemon juice. Cool and pack closely in can or freeze jars or plastic freezer boxes, leaving ¼-inch [6 mm] head space for pint [480 mL] can or freeze jars or boxes, OR ½-inch [13 mm] head space for quart [950 mL] can or freeze jars or plastic freezer boxes. Seal, label and freeze.

PUMPKINS
Pick at optimum maturity, indicated by good color and stem that breaks loose easily. Wash thoroughly, peel, remove seeds, cut into sections, steam until soft, put through a food mill and add one part sugar to six parts puree. Cool and package same as pureed sweet potatoes (sugar may be omitted).

SQUASH, SUMMER
Choose young squash with tender skin. Wash, slice, scald 3 minutes. Cool, drain, and package same as lima beans.

SQUASH, WINTER
Harvest fully mature squash with a hard rind. Wash, cut in halves and scoop out seeds and membrane. Place cut side down on baking sheet and bake at 375°F [191°C] until tender. Scoop out pulp, put through a food mill, cool and package same as pureed sweet potatoes.

SQUASH, WINTER
Harvest fully mature squash with a hard rind. Wash, cut in halves and scoop out seeds and membrane. Place cut side down on baking sheet and bake at 375°F [191°C] until tender. Scoop out pulp, put through a food mill, cool and package same as pureed sweet potatoes.

TOMATOES, COOKED
Select firm, sound, ripe tomatoes. Wash, core, cut and cook until soft. Put through a food mill, cool and package same as pureed sweet potatoes. Puree may be concentrated by boiling to one-half volume; cool and package.

TOMATO JUICE
Select firm, sound, red ripe tomatoes. Wash, core and cut into pieces. Simmer about 5 minutes, put through a food mill. Cool and package same as pureed sweet potatoes.

TOMATOES, GREEN SLICED
Select firm, sound green tomatoes. Wash, core and slice ¼-inch [6 mm] thick. Pack the slices with freezer wrap between slices. Seal, label and freeze.

TURNIPS
Select young, tender turnips. Remove tops, wash, peel, slice or dice. Scald 3 minutes. Cool and package same as lima beans.

GLOSSARY OF CANNING AND FREEZING TERMS

acid: Food which normally contains from 0.36 to 2.35 percent or more natural acid. Foods which may contain very little natural acid, but which are preserved in vinegar, are treated as acids in canning. Acid foods may safely be processed in a boiling water bath canner at 212°F [100°C]. Included are fruits, rhubarb, tomatoes, sauerkraut, pickles and relishes.

antioxidant: A chemical agent that inhibits oxidation, such as ascorbic acid (Vitamin C), and which controls discoloration of fruits.

ascorbic acid: White, crystalline Vitamin C found in some fruits and vegetables. A commercially available brand is used to control discoloration of fruits.

bacteria: Microorganisms, some of which are harmful, found in the soil, water and air around us. Certain bacteria produce harmful toxins and must be destroyed in food that is to be preserved. Some bacteria thrive in conditions common in low acid canned food, and can be conveniently neutralized only by superheating to 240°F [116°C]. For this reason, low acids must be processed in a steam pressure canner.

band: (See metal band.)

blanch: To loosen the skin of fruits and vegetables by scalding. Also, to scald vegetables in boiling water or steam to slow the actions of enzymes.

boil: Water or food heated to 212°F, [100°C]. Boiling water, when referring to the boiling water bath canner, means a full rolling boil for the entire processing time. Water which is simmering reaches only about 180°-185°F [82°-85°C] and is not hot enough to sterilize the food and jars.

boiling water bath canner: A kettle large enough to immerse completely and fully surround canning jars for processing of food. The boiling water bath canner is used for sterilizing acid foods and their containers.

botulism: A poisoning caused by a toxin produced by the growth of spores of Clostridium botulinum. The spores are usually present in dust, wind and soil clinging to raw foods. The spores can grow in a tightly sealed jar of any low acid food because they belong to a species of bacteria which cannot grow in the presence of air and which do not normally thrive in acid foods. The spores are destroyed when low acid foods are correctly processed in a pressure canner. Home canners who use the correct methods of selecting, preparing, packing and processing foods have no reason to worry about botulism. As an extra precaution, all low acid foods should be boiled for 15
GLOSSARY (continued)

minutes before tasting to destroy any toxin which could be present if some error were made in processing. Thick masses, such as greens, should be stirred while boiling.

can n. A tin-coated steel container in which food is preserved. Tr. v. canned, canning, cans. To seal foods in a can or jar to preserve for future use.
cap Any of various closure devices for sealing mason canning jars. Of the most popular today are the metal screw bands which are used to hold vacuum lids in place during processing, and the zinc caps with porcelain liners used with rubber rings to seal mason jars.
citric acid An acid derived from citrus fruits, such as lemons and limes, and used as an antioxidant to control discoloration of fruits.
cold pack Filling jars with raw, rather than hot, food prior to processing. Sometimes called raw pack. Preferred where foods are delicate to handle after cooking.
cool place Used when referring to storage of canned jars of food. Ideally, a cool place should be around 50° F [10° C].
dry pack When freezing food, to pack without added liquid sugar.
enzyme A protein that functions as a catalyst in organisms. In food, enzymes start the process of decomposition, changing the flavor, texture and color. Enzyme action slows down in frozen food, increases quickly at temperatures between 85° and 120° F [29° and 49° C], and stops at temperatures above 140° F [60° C]. Thus, both freezing and processing during canning neutralize the action of enzymes.
exhausting See venting.
fermentation Caused by yeasts which have not been destroyed during processing of canned food, or yeasts which enter the food before it is sealed. With the exception of some pickles, fermented canned food should not be used. If pickles begin to ferment in the jar and some of the liquid runs out, the pickles should be rinsed and packed in clean hot jars, fresh pickling solution should be made and poured boiling hot over the pickles. The jars of pickles should then be processed in a boiling water bath canner to prevent further fermentation.
flat-sour A heat-resistant organism common in canned vegetables, caused by bacteria, which gives food an unpleasant, sourish flavor. Flat-sour is easily avoided by the use of correct and sanitary methods of selecting, handling, preparing, packing, processing and cooling foods.
freezer burn Dehydration of improperly packed food for freezing, leading to loss of flavor, texture and color.
head space An area left unfilled between the top of the food in a jar and the inside bottom of the lid. In canning, too little space can cause food to boil out of the top of the jar, possibly ruining the seal; too much head space can cause exposed food at the top of the jar to discolor and can prevent a proper seal, since all of the air may not be vented, preventing the formation of a vacuum. In freezing, inadequate head space may cause the jar to break when the food expands from the cold.
hot pack Filling jars with precooked hot food prior to processing during canning. Preferred method where food is firm; permits tighter pack and requires fewer jars.
jar A glass container, sometimes called a mason jar, which is specially designed and heat-treated for use in home canning.
lid Usually refers to the flat metal disc with a flanged edge and a sealing compound on its underside, used in combination with metal screw bands for sealing jars. Also, the notched glass top used with old style wire bail jars.
low acid Food which contains less than 0.36 percent natural acid. All vegetables, except tomatoes, and all meats, poultry, seafood, mushrooms and soups are in the low acid group. Bacteria thrive in low acid foods and can be conveniently neutralized only by superheating to 240° F [116° C] for the prescribed time in a pressure canner.
microorganism A living plant or animal of microscopic size, including molds, yeasts and bacteria, which can cause spoilage in canned or frozen food.
metal band A threaded screw band that is used with a metal vacuum lid to form a two-piece metal cap.
mold Microscopic fungi that grow as silken threads and appear as fuzz on food. Molds thrive on acids and can produce toxins, but are easily destroyed at processing temperatures between 140° and 190° F [60° and 88° C].
open kettle An old style method of canning, no longer considered safe, in which food is cooked in an open pan and then quickly put into jars and sealed without further processing. The open kettle method can be safely used only when canning jellies.
overnight About 12 hours.
pectin A complex colloidal substance found in ripe fruits, such as apples. Pectin is available commercially in powdered and liquid form and is used to make jellies and soft spreads gel.
ph Potential of hydrogen. A measuring system in chemistry for determining the acidity or alkalinity of a solution. In canning, foods are separated into acids and low acids, and different processing techniques must be used for each.
pickling Preserving food, especially cucumbers, in a solution of brine or vinegar, often with spices added. Processing of pickled products is recommended, since harmful microorganisms may enter the food when transferring from pickling container to jars.
pressure canner A heavy kettle with a lid which can be clamped on to make a steam-tight fit. The lid is fitted with a safety valve, a petcock (vent) and a pressure gauge. The steam pressure canner is used for processing low acid foods, since the steam under pressure reaches 240° F [116° C], adequate for destroying harmful bacteria which thrive in these foods.
processing Sterilizing jars and the food they contain in a pressure or boiling water bath canner to destroy harmful molds, yeasts, bacteria and enzymes.
raw pack See cold pack.
rubber A flat rubber ring used as a gasket between a zinc cap or glass lid and a canning jar. Rubber rings should not be unduly stretched and should be placed on the jar while wet. They should not be reused. Deteriorated rubber rings should be discarded.
scald See blanch.
simmer To cook gently just below the boiling point in the range between 180° and 200° F [82° and 93° C]. At these temperatures, bubbles rise gently from the bottom of the pot and the surface is slightly disturbed.
superheating Heating above the boiling point under pressure without causing vaporization. The pressure canner superheats water to 240° F [116° C] to kill harmful bacteria in low acid foods.
syrup A mixture of water or juice and sugar used to add liquid to canned or frozen products.
vacuum seal The absence of normal atmospheric (air) pressure in jars which are airtight. When a jar is closed at room temperature, the atmospheric pressure is the same inside and outside the jar. When the jar is heated, the air and food inside expand, forcing air out and decreasing the inside pressure. As the jar cools and the contents shrink, a partial vacuum forms, and atmospheric pressure of almost 15 pounds per square inch [105 kPa] holds the lid down to keep the jar sealed. The sealing compound on lids and the rubber rings used as gaskets with zinc and glass caps prevent the air from reentering.
venting Forcing air to escape from a jar by applying heat, or permitting air to escape from a pressure canner. Also called exhausting.
wet pack To pack fruits in sugar syrup or plain sugar for freezing.
yeast Microscopic fungi grown from spores that cause fermentation in food. Yeasts are inactivated in food that is frozen and are easily destroyed by processing at temperatures from 140° to 190° F [60° to 88° C].
Dear Consumer:

Down through the near-century of Ball Corporation’s existence, our affection has been with those who preserve food in their own homes. You have made us the world’s largest and best known manufacturer of home preserving jars and closures. You’ve also helped us become a widely diversified, multi-industry company with worldwide operations. We will never forget, however, that it was you who gave us our first substantial recognition and who sustained us through good years and bad.

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Some day there likely will be a 31st Edition of the *Blue Book*, and we’d like it to be even better than this one. In the meantime, Ball Corporation, no doubt, will develop many new food preservation products. With your help we can make them better, too.

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Sincerely,

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