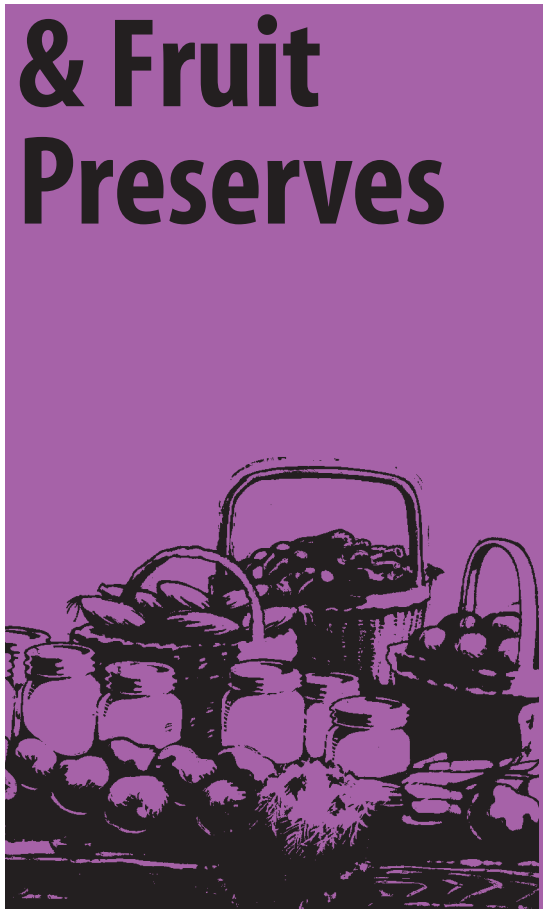


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University of Wisconsin-Extension Cooperative Extension

**Wisconsin Safe Food
Preservation Series**

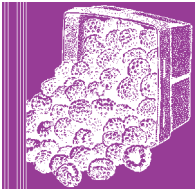
Making Jams, Jellies & Fruit Preserves



Barbara H. Ingham

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Ripe, juicy berries, fresh peaches, apples, pears and other fruits can be deliciously preserved to enjoy all year long.

Fruit jams, jellies, preserves, conserves, marmalades, syrups, honeys and butters can add zest to meals, and provide a good way to use fruits not suitable for canning or freezing. All these products are preserved by sugar, and some are jellied.

Characteristics depend on the type of fruit, how it is prepared, the proportions of ingredients in the mixtures, and the cooking methods.

This publication tells how to prepare fruit, and procedures for making various kinds of:

- **Jellies and jams** with or without added pectin.
- **Preserves, conserves and marmalades** with or without added pectin.
- **Fruit butters and syrups.**

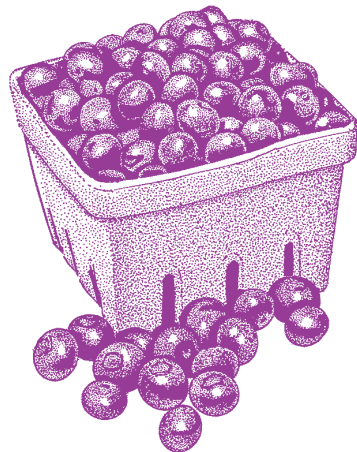
Follow these research-tested recipes for safe and easy preparation and preservation of your garden and orchard bounty.

Jellies and jams

Jellies are made by cooking fruit juice with sugar. A good product is clear and firm enough to hold its shape when turned out of its container, yet quivers when moved. When cut, jelly should be tender yet retain the angle of the cut. Jelly should taste fresh and fruity.

Jams are thick, sweet spreads made by cooking crushed or chopped fruits with sugar. They tend to hold their shape, but are generally less firm than jellies.

Not all fruits have the properties needed for making satisfactory jellied products. By adding pectin, you need not depend on the fruit's gelling quality for successful results. Follow carefully the pectin package directions and research-tested recipes.





Start with the right ingredients

Fruit gives each product its characteristic color and flavor. Use at least some flavorful, just-ripe fruit in each recipe.

Pectin is a natural plant substance that causes fruit to gel. Fruits such as apples, crabapples, currants, grapes and some plums contain enough natural pectin to form a gel; others require added pectin. Follow the manufacturer's directions or tested recipes for each type of pectin.

Acid is essential in jellied fruit products for both gel formation and flavor. Acid content varies among fruits, and is higher in under-ripe fruits.

Sugar is another essential ingredient in jellied fruit products. Added sugar preserves fruit, helps the gel to form, and contributes to flavor. Use the amount of sugar a recipe calls for, or the product will not form a gel.

To make a low-sugar or no-sugar product, choose a pectin or research-tested recipe designed for this (see "Low- and no-sugar jams and jellies," page 41). Sugar substitutes — also called artificial sweeteners — cannot replace sugar in regular recipes because the sugar is needed to form a gel.

Fruit varieties recommended for Wisconsin can be found in these publications, available from your county UW-Extension office or Cooperative Extension Publications (learningstore.uwex.edu):

Apple Cultivars for Wisconsin (A2105)

Home Fruit Cultivars for Northern Wisconsin (A2488)

Home Fruit Cultivars for Southern Wisconsin (A2582)

Preserves, conserves and marmalades

Preserves are small, whole fruit or uniform-size pieces in a clear, slightly gelled syrup. The fruit should be tender and plump.

Conserves are like jams, but may be made with a combination of fruits. They may also contain nuts, raisins or coconut.

Marmalades consist of small pieces of fruit or peel evenly suspended in soft transparent jelly. They often contain citrus fruit.

Fruit butters and syrups

Other fruit products preserved by sugar but not jellied include butters and syrups.

Fruit butters are sweet spreads made by cooking fruit pulp with sugar until thick. Spices are often added.

Fruit and berry syrups are made by cooking fruit juice or pulp with sugar to the desired thickness.

Getting started

To make a jellied fruit product, you need the proper proportions of four essential ingredients:

- Fruit
- Pectin or other gelling agent
- Acid
- Sugar

Fruit

Fruit provides the characteristic color, flavor and at least part of the acid and pectin needed for successful gels. Flavorful fruit varieties are best for any type of fruit preserve. Most recipes call for fresh, ripe fruit, but you can also use processed fruit.

Using canned, frozen or dried fruit

You can use canned or frozen fruit or juice to make jellied products. If you use commercially canned fruits, select those without added sugar, canned in their own juice.

Commercially canned or frozen products are most often made from ripe fruits. These are lower in pectin than under-ripe fruits, so you need to add pectin.

Cook dried fruit in water until tender to make jams and conserves, with or without added pectin.

Freezing fruit to use later

Many fruits used for making jam and jelly mature at about the same time. Because of this, you may find it hard to make as much jam and jelly as you would like while the fruits are in season.

Many of these fruits can be frozen in summer and made into jam during fall and winter. Whether used singly or in combination, the best fruits to freeze for later use are blueberries, cherries, red and black currants, and rhubarb stalks.

Do not add any sugar to fruit being frozen for making jam or jelly. These fruits freeze well without sugar.

Accurate measurements are important in making jam. Pack measured quantities. Label each container with the amount and kind of fruit and the date, and freeze.

To freeze juice for jelly, pour cooled, strained juice into rigid plastic freezer containers or wide-mouth freezer jars. Label with the amount and kind of juice and the date, and freeze.

When making jam or jelly from frozen fruit, thaw in the refrigerator until only a few ice crystals remain. Follow directions for the type of fruit product you wish to make, using the same proportions of frozen fruit measured before freezing, water, acid and sugar as you would use for fresh fruit.

Fruit

Most recipes call for ripe, fresh fruit.

You can also use processed fruit. If using canned fruits, choose those without added sugar, canned in their own juice.

Frozen fruits can also be used.

Blueberries, cherries, red and black currants, and rhubarb freeze well. Pack measured amounts, label and freeze.

Thaw frozen fruit in the refrigerator before using.

Dried fruit may be cooked in water until tender and used to make jams and conserves.

Ask your county UW-Extension office for these publications in this series, or order from Cooperative Extension Publications (learningstore.uwex.edu):

Canning Fruits Safely (B0430)

Freezing Fruits and Vegetables
(B3278)

Pectin and other gelling agents

Pectin is a carbohydrate that causes fruit to gel. Some fruits such as apples, crabapples, currants, grapes and some plums contain enough pectin to form a gel; others require added pectin.

You can add pectin to any fruit to ensure a good gel. Here are several advantages of doing so:

- You can use fully ripe, flavorful fruit.
- Cooking time is shorter and standardized.
- You will have more jars on the shelf from the same amount of fruit.

A disadvantage may be that large amounts of sugar added with regular pectin may mask the fruit's flavor.

Regular pectins

Regular pectins require at least $\frac{1}{2}$ cup of sugar per cup of fruit to gel. Natural fruit pectins made from apples or citrus fruits are marketed in two forms:

- **Liquid**, such as Certo[®], and
- **Powdered**, such as Sure-Jell[®]. *

Liquid pectin is added to a hot cooked fruit and sugar mixture, and the mixture is boiled for 1 more minute.

Powdered pectin is mixed with unheated fruit or juice, the mixture is brought to a boil, sugar is added, and the mixture is boiled for 1 minute.

Follow the pectin package directions and tested recipes for each form of pectin. Liquid and powdered forms are not interchangeable in recipes. Purchase fresh pectin each year. Old pectin may result in poor gels.

Low- or no-sugar pectin

Low-methoxyl pectin is extracted from the inner rinds of citrus fruits and is chemically different from regular pectin. Low-methoxyl pectin needs little or no sugar to gel, sometimes aided by calcium. Look for packages of pectin labeled "light," "less sugar" or "no sugar needed."

Because less sugar is added, low-methoxyl gels tend to be less firm, less sweet and more fruity. Follow the manufacturer's directions precisely.

Bulk powdered pectin

Bulk powdered pectin can be substituted for individual packets sold in most grocery stores. Bulk pectin, both regular and low-sugar, can be purchased at some country markets or by mail order from companies such as Kitchen Krafts* (www.kitchenkrafts.com or 1-800-776-0575). Generally, $\frac{1}{3}$ cup of bulk pectin mix replaces one standard box. Currently, there are no suppliers of bulk liquid pectin.

* Reference to products or companies is not intended to endorse them, nor to exclude others that may be similar. Examples are listed as a convenience to readers.

Gelatin — No-sugar refrigerator recipe

Prepare no-sugar jams and jellies made with **powdered gelatin** in small batches, label and date. Keep them in the refrigerator, and use within 3 weeks.

Do not freeze these jellies. The gelatin will disintegrate when frozen.

Do not can these jams and jellies, or store them at room temperature.

Keep these refrigerated.

Gelling agents

Pectin causes fruit to gel. Some fruits contain high amounts of natural pectin, others need added pectin to ensure a good gel.

Regular pectins require at least $\frac{1}{2}$ cup of sugar per cup of fruit to gel.

Low-methoxyl pectin needs little or no sugar to gel. Follow the manufacturer's directions and tested recipes for each type.

Powdered gelatin can make no-sugar jams and jellies. These must be refrigerated and used within 3 weeks, and should not be frozen or canned.

Acid

Acid is essential in jellied fruit products for flavor — and to form a good gel. Acid content varies among fruits, and is higher in under-ripe fruits. For best quality, add bottled lemon juice to fully ripe or low-acid fruits according to tested recipes.

Acid

Acid is essential in jellied fruit products for both gel formation and flavor. Acid content varies among fruits, and is higher in under-ripe fruits.

In making jellied low-acid fruits, **add bottled lemon juice** for best quality. Tested recipes will tell you how much lemon juice to add to low-acid fruits such as peaches, pears and figs. Always follow the recipe carefully, adding the correct amount of acid to any recipe.

Sugar

Sugar is another essential ingredient in jellied fruit products. Added sugar preserves jellied fruit, helps form a gel, and contributes to flavor.

A common cause of failure in making any kind of jellied fruit product is **using less sugar** than a recipe calls for. Sugar must be present in the proper proportion with pectin and acid to make a good gel.

Sugar preserves the fruit product, inhibiting the growth of bacteria. It also contributes to flavor.

White sugar, corn syrup and honey can be used to sweeten jellied fruit products. White granulated sugar is most often used, and will consistently produce an acceptable product.

Use granulated sugar in the exact proportions stated in the recipe.

Do not reduce the amount of sugar in a recipe.

Sweeteners such as brown sugar, sorghum and molasses are not recommended, because their flavors overpower the fruit flavor and their sweetness varies.

Light, mild honey or light corn syrup can replace some of the sugar in fruit preserves. Products made with honey will have a darker color than those made with sugar, and the flavor will be slightly different.

Honey

While no substitute for sugar, light, mild-flavored honey can be used in making jelly. Consider its liquid content when honey replaces part of the sugar in the recipe.

- **In products made with added pectin**, up to 1 cup of honey can replace an equal amount of granulated sugar when making about 6 half pints of jelly. Decrease the liquid in the recipe by an amount equal to the amount of added honey.
- **In recipes with no pectin added**, honey can replace up to one-half the sugar. Decrease the liquid in the recipe by an amount equal to the amount of honey added.

Corn syrup

Also consider the liquid content of light corn syrup when it replaces part of the sugar in a recipe. Decrease the liquid in the recipe by an amount equal to the amount of added corn syrup.

- **In recipes using powdered pectin**, corn syrup can replace up to one-half the sugar.
- **In recipes using liquid pectin**, corn syrup can replace 2 cups of sugar per batch.
- **In products made with no added pectin**, limit corn syrup to replace up to one-fourth of the sugar. For instance, if a recipe calls for 4 cups of sugar, you may use up to 1 cup corn syrup plus 3 cups of sugar.

Sugar substitutes

Sugar substitutes — also called artificial sweeteners — will not produce a quality jellied product. They cannot replace sugar in regular recipes because sugar is needed to form a gel.

For no- or low-sugar products, use a low-sugar or “no sugar added” pectin that requires little or no added sugar, such as low-methoxyl pectin. Follow the manufacturer’s directions exactly for quality jellied products.

If you use modified or low-methoxyl pectin:

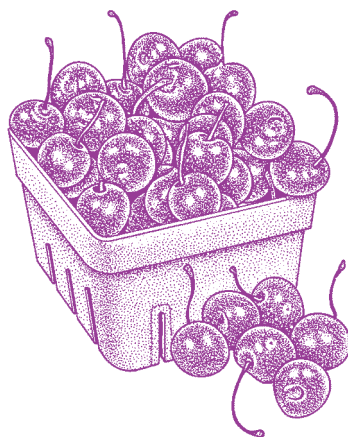
- In cooked jams or jellies, you can use a saccharin sweetener — brand names Sweet ‘N Low®, Sugar Twin®, Sweet 10®.* But this may leave a slightly bitter aftertaste.
- In cooked jams or jellies, you may also use Sucralose®, also labeled Splenda®.* Sucralose® is the only noncaloric sweetener made from sugar. This stable sweetener will not produce an aftertaste on heating.
- In recipes that require heating, **do not** use aspartame — brand names Equal® or NutraSweet®. Aspartame loses its sweetness when heated.

Sugar

Sugar is another essential ingredient in jellied fruit products. A common cause of failure in making any jellied fruit product is using less sugar than the recipe calls for.

Sugar must be present in proper proportion with pectin and acid to make a good gel. Sugar preserves the fruit product, prevents growth of microbes, and contributes to flavor.

White sugar, corn syrup and honey can be used to sweeten jellied fruit products. Sugar substitutes are not recommended for quality jellied fruit products.



* Reference to products is not intended to endorse them, nor to exclude others that may be similar. Examples are listed as a convenience to readers. If you use these products, follow the manufacturer's current label directions.

Equipment and containers

Get all the necessary equipment, utensils and containers ready before you start to make jams and jellies. Check the list below to make sure you have everything you will need on hand.

For preparing fruit

Bowl, large — for holding juice

Colander — for washing fruit

Jelly bag, square yard of unbleached muslin or cotton flannel with the napped side turned in, or **four layers of closely woven cheese-cloth** — Jelly bags or cloths should be damp when extracting juice.

Knife, paring — for peeling or cutting fruit

Potato masher, sieve, blender or food mill (grinder) — for crushing fruit, removing seeds and extracting juice

Rubber or plastic gloves — for protecting hands when preparing hot peppers

Saucepan with cover, large — for preparing fruit or juice

For measuring

Bowls — for holding measured sugar and pectin-sugar mixture when powdered pectin is added

Measuring cups, standard dry and liquid — for measuring prepared fruit, juice or sugar

Measuring spoons — for measuring lemon juice and spices

Scale — for accurately weighing fruit

For cooking

Saucepan or kettle, 8- to 10-quart size with a flat bottom — A heavy metal container is best because it allows even heating and helps prevent scorching. Kettle capacity should be four times as great as the quantity of juice cooked, because jams and jellies tend to boil over.

Spoon, long-handled — for stirring jam and jelly mixtures

Thermometer, jelly, candy or deep-fat — for determining doneness in jellied fruit products with no pectin added

Timer, or watch or clock with a second hand — for timing the boil

Wire whisk — for stirring powdered pectin into fruit mixtures to avoid lumps

For filling jars or freezer containers

Canning jars and lids, clean, hot — Standard half-pint home canning jars with standard two-piece vacuum seal lids and metal screw bands are safest and best for making jams and jellies. Sterilize jars in boiling water for 10 minutes. Pretreat lids according to package directions.

Funnel, wide or regular mouth — for filling jars

Ladle — for ladling jam and jelly into jars

Plastic containers, 1 to 2 cup size with tight-fitting lids — for freezer or refrigerator jams and jellies

Pot holders — for holding pan when pouring jelly

Small dish and metal spoon or jelly skimmer — for skimming off foam

For processing

Boiling water canner, with rack — for processing all canned jams, jellies, conserves, preserves, marmalades and butters

Labeling supplies — for labeling and dating all jars or freezer containers

Lid and jar lifters — for handling hot pretreated jar lids, and lifting jars in and out of hot water

Wire rack or folded towels — for cooling processed jars

Equipment you will need

Assemble the following items before you start a batch of fruit preserves:

Colander, knife, 1 to 2 large pans with covers, bowls, scale, measuring cups and spoons, mixing and skimming spoons, thermometer, timer, sterilized canning jars and pretreated lids, jar-filling supplies (funnel, ladle, rubber spatula, lid and jar lifters), pot holders, boiling water canner, wire rack, and labeling supplies.

Making and storing jams and jellies

Preparing canning jars and lids

Before you start to make these jams and jellies, prepare the canning jars and lids. Wash standard half-pint home canning jars in hot, soapy water and rinse well.

Sterilize the jars by boiling for 10 minutes. Keep them in hot water until you are ready to fill them, to prevent them from breaking when filled with hot fruit.

Note: Use only half-pint jars unless specified. Larger jars will not receive enough heat during processing to keep safely in the cupboard.

Wash and rinse all canning lids and bands. Pretreat new vacuum seal lids as the package directs. Remember: These lids can be used only once.

Be sure all jars and lids are perfect. Discard any with cracks or chips. Defects will prevent airtight seals.

Do not use porcelain-lined zinc caps or other lids with separate rubber rings. New rubber rings are no longer available.

For fresh flavor

For jellied fruit products at their best, make only the amount you can use within a year. Preserves stored for long periods of time lose their flavor and bright color, and darken.

For softer or firmer products

If you use fruit with average gelling properties, jellied fruit products made using this publication should be medium-firm for their type.

For best results, make only one recipe at a time. Double batches do not always gel properly.

If the first batch from a particular fruit lot is too soft or firm, adjust the fruit proportions or the cooking time for the next batch, as follows.

In products made with added pectin:

- For a softer product, use $\frac{1}{4}$ to $\frac{1}{2}$ cup **more** fruit or juice per batch.
- For a firmer product, use $\frac{1}{4}$ to $\frac{1}{2}$ cup **less** fruit or juice per batch.

In products without added pectin:

- For a softer product, **shorten** the cooking time (cook to a lower temperature).
- For a firmer product, **lengthen** the cooking time (cook to a higher temperature).

Steps at a glance

- **Make one batch at a time. Double batches do not always gel properly.**
- **Wash half-pint jars in warm, soapy water and then sterilize them by boiling 10 minutes. Pretreat lids as the package directs.**
- **Prepare fruit and pour into hot, sterilized half-pint jars, leaving 1/4-inch headspace.**
- **Remove bubbles by running a spatula or bubble freer between cooked fruit and the side of the jar. Wipe jar rims and threads with a clean, damp cloth or towel. Put on pretreated lids and screw on metal bands until you begin to feel resistance, then turn the band until firmly tight.**
- **Process in a boiling water canner for 5 minutes. Adjust time for elevation if necessary.**
- **Remove jars from the canner, and cool. Let jars sit undisturbed for 12 hours. Test seals and place sealed jars in a cool cupboard for storage.**

Processing in a boiling water canner

Canned jellied fruit products must be processed in a boiling water canner to make sure the lids seal and to prevent mold growth. A boiling water canner is sometimes called a water bath canner.

To process, pour the boiling fruit into hot, sterilized half-pint home canning jars, leaving 1/4-inch headspace. Remove bubbles by running a spatula or bubble freer between the cooked fruit and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw metal bands on firmly, but not too tightly. Over-tightening may cause the lid to buckle.

Place the jar on a rack in a canner filled with simmering water. The hot water should cover the tops of the jars by 1 to 2 inches. If you need to bring the level up to this depth, add boiling water carefully around — jars. Put the cover on the canner.

Process all jams and jellies in a boiling water canner for a safe, high quality product. University of Wisconsin-Extension does not recommend sealing jars with paraffin, or inverting sealed jars as a final step.

Begin timing as soon as all jars are in the canner and the water returns to a **full rolling boil** — one that cannot be stirred down. **Time processing for 5 minutes.** Adjust process time for elevation, if necessary (see map below).

Note: If you use unsterilized jars, process for 10 minutes in a boiling water canner. However, since these extra 5 minutes of processing can result in a weak gel, it is best to use sterilized jars.

When the processing time is complete, open the cover away from you to keep steam from escaping into your face. Carefully remove jars from the canner without tilting, using a jar lifter. Place jars upright on a rack or counter.

Do not cover the jars during cooling. Do not retighten the bands on two-piece lids, even though they may be loose. As the jar cools, the lid will snap down in the center, forming a seal.

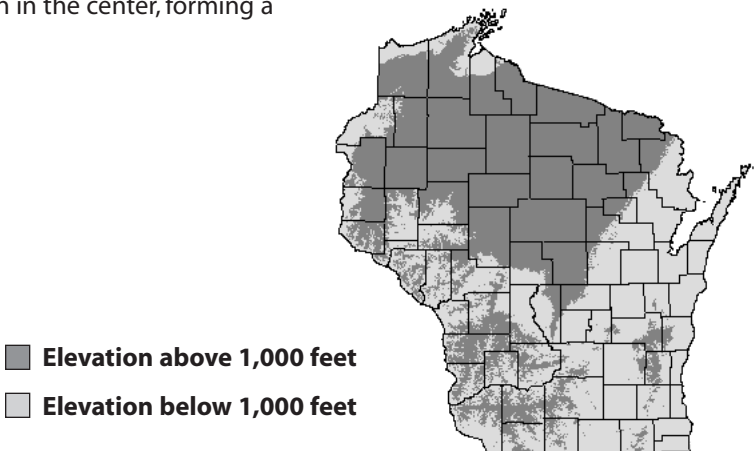
Caution! Adjust processing time for elevation

Wisconsin elevations range from 580 to 1,953 feet above sea level. Water boils at 212° F at sea level, and at lower temperatures as elevation increases. Using the processing time for sea level may lead to spoilage if you live at higher elevations.

Process jellied fruit products in sterilized jars for 5 minutes if you live at elevations up to 1,000 feet above sea level. **Add 1 more minute processing time** for each added 1,000 feet elevation.

For example, if your house is on a hillside at 1,250 feet, process for 6 minutes. If your home is on a mountaintop at 2,010 feet elevation, process for 7 minutes.

Elevation map



When jars have cooled, test the seal. Lid tops should be depressed and remain that way, and will ring when tapped with a spoon. After 12 to 24 hours, you can carefully remove the screw bands. Wash and dry the jar lids and threads before storing the jars in a cool, dry location.

Jars that fail to seal may be refrigerated for use within 3 weeks.

Storing jams and jellies

Label and date sealed jars, and store in a cool, dry, dark place for up to a year. **Remember:** The shorter the storage time, the better the flavor.

Uncooked fruit preserves or jars that failed to seal may be refrigerated at 40° F or colder for up to 3 weeks. For longer storage, label, date and freeze at 0° F or colder for up to a year. Be sure to allow enough headspace (usually $\frac{1}{2}$ -inch) in freezer containers because fruit expands when frozen.

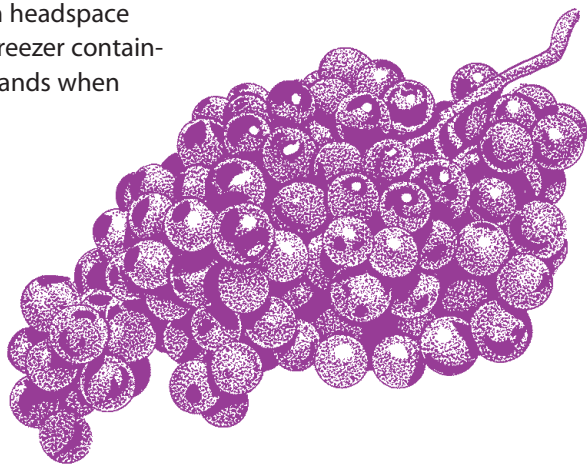
Remaking cooked jellied products

Sometimes, despite your best efforts, the jam or jelly you make will not set. This might be caused by things such as using too much over-ripe fruit, forgetting to add acid to the mixture, or not adding enough sugar.

Whatever the cause, you may wish to try remaking the batch. Instructions follow for recooking:

- With powdered pectin
- With liquid pectin, or
- Without added pectin.

As a reminder, it's often a good idea to remake a small batch of jam or jelly first to make sure you will be happy with the results.



Recook with powdered pectin

Measure the jam or jelly to be recooked. For each quart (4 cups) of jam or jelly, measure:

- 1/4 cup sugar
- 1/4 cup water
- 4 teaspoons powdered pectin

Mix the pectin and water and bring to a boil, stirring constantly to prevent scorching. Add the soft jelly and sugar. Stir well. Bring to a full rolling boil over high heat, stirring constantly. Boil mixture hard for 30 seconds. Remove jelly from heat, and skim off foam. Pour into hot sterilized half-pint jars, leaving 1/4-inch headspace. Remove bubbles, wipe jar rims clean, and cap with pretreated lids.* **Process in a boiling water canner for 5 minutes.**

Recook with liquid pectin

Measure the jam or jelly to be recooked. For each quart (4 cups) of jam or jelly, measure:

- 3/4 cup sugar
- 2 tablespoons bottled lemon juice
- 2 tablespoons liquid pectin

Bring jelly to a boil over high heat. Quickly add sugar, lemon juice and pectin and return to a full rolling boil, stirring constantly. Boil mixture hard for 1 minute. Remove from heat and skim off foam. Pour into hot sterilized half-pint jars, leaving 1/4-inch headspace. Remove bubbles, wipe jar rims clean, and cap with pretreated lids.*

Process in a boiling water canner for 5 minutes.

Recook without added pectin

Bring jelly to a boil, and boil until the temperature is 220° F or 8° F above the boiling point of water where you live (jellying point). Remove from heat, and skim off foam. Pour into hot sterilized half-pint jars, leaving 1/4-inch headspace. Remove bubbles, wipe jar rims clean, and cap with pretreated lids.* **Process in a boiling water canner for 5 minutes.**

You can find remedies for other common jellied product problems on pages 62-63.

* Remember to use new pretreated lids when you reprocess jam or jelly.

Jams

Fruits suitable for jam include apples, apricots, blackberries, cherries, currants, elderberries, peaches, pears, raspberries, rhubarb and strawberries.

Jam has the natural color and flavor of the fruit from which it is made. The texture is smooth, thick, and softer than jelly.

Because jams contain fruit pulp or pieces, they tend to stick to the kettle during cooking and require constant stirring to prevent scorching.

Once cooked, remove jam from heat and stir gently for 5 minutes to prevent fruit from floating. Then quickly fill jars and process in a boiling water canner before further cooling occurs.

Basic steps for making jams follow. See jam recipes on pages 20-23 that use these three cooking methods.



Fruits such as apricots, berries, cherries, currants, strawberries and rhubarb make excellent jam. Fruit

pulp or pieces tend to stick during cooking, so stir well to avoid scorching.

Once cooked, remove from heat and stir gently for 5 minutes to prevent fruit from floating. Then quickly fill jars, remove bubbles, wipe jar rims clean, and cap with pretreated lids.

Process in a boiling water canner for 5 minutes. Adjust time for elevation if necessary (see page13).



Process all jams and jellies in a boiling water canner for a safe, high quality product. University of Wisconsin-Extension does not recommend sealing jars with paraffin, or inverting sealed jars as a final step.



Cooking methods for jam

Method A:

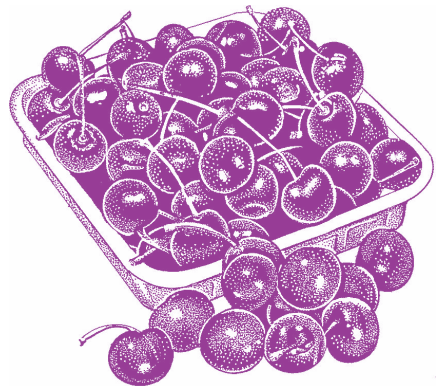
Basic steps for making jam without added pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
4. Select firm, ripe fruit, and prepare as directed. Remove stems and pits or cores. Measure the amount of prepared fruit the recipe specifies, and pack solidly in cup.
5. Precook all fruits **except apricots, peaches and pears** before adding sugar, according to recipe directions. Put fruit in a kettle, add water if the recipe indicates, bring to a boil, and cook uncovered for the required time. Count time from the moment the fruit begins to boil vigorously, stirring often to prevent sticking.
6. After precooking, add sugar and bring to a boil. Boil uncovered for the required time, stirring often. Count time from the moment the jam begins to boil vigorously. If desired, add $\frac{1}{4}$ teaspoon butter or margarine during cooking to help decrease foaming.
7. Test jams for doneness with a cooking thermometer. When the temperature reaches 220° F — or 8° F above the boiling temperature of water where you live (jellying point) — remove from heat. This and other ways to test for doneness are explained in the jelly section on pages 26-27.
8. Remove from heat and skim off foam. Stir gently for 5 minutes to prevent fruit from floating, but no more than that to avoid excess cooling.
9. Quickly ladle hot fruit mixture into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between the jam and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands on firmly, but not too tightly.
10. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Method B:

Basic steps for making jam with liquid pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
4. Select firm, ripe fruit, and prepare as the recipe directs. Remove stems and pits or cores. Measure the amount of prepared fruit the recipe specifies, and pack solidly in cup.
5. Put fruit in a kettle, and stir in lemon juice if the recipe indicates. Add $\frac{1}{4}$ teaspoon butter or margarine, if desired, to reduce foaming.
6. Measure sugar, and stir into prepared fruit.
7. Quickly bring to a full rolling boil, stirring constantly to prevent scorching or burning. Boil hard for 1 minute, stirring constantly.
8. At once, stir in liquid pectin and boil for the exact time stated. Remove from heat and skim off foam. Stir gently for 5 minutes to prevent fruit from floating.
9. Quickly ladle hot fruit mixture into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between the jam and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands on firmly, but not too tightly.
10. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).



Method C: Basic steps for making jam with powdered pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
4. Select fruit, and prepare as the recipe directs. Measure the amount of prepared fruit the recipe specifies, and pack solidly in cup. Put fruit in a kettle.
5. Measure sugar and set aside.
6. Stir powdered pectin into prepared fruit. Add lemon juice if the recipe indicates. Add $\frac{1}{4}$ teaspoon butter or margarine, if desired, to reduce foaming.
7. Quickly bring fruit-pectin mixture to a full rolling boil, stirring constantly. At once, stir in sugar. Continue stirring and bring back to a full boil. Boil hard for 1 minute, stirring constantly.
8. Remove from heat and skim off foam. Stir gently for 5 minutes to prevent fruit from floating.
9. Quickly ladle hot fruit mixture into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between the jam and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands on firmly, but not too tightly.
10. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).



Cooking directions for preparing fruit in the jam recipes on pages 20-23 are in addition to, and do not replace, the cooking methods on pages 17-19. Use both the recipe directions and method A, B or C as noted to ensure successful jellied fruit products.

Note: lb. = pound oz. = ounce
tbsp. = tablespoon

2 cups = 1 pint 2 pints = 1 quart
tsp. = teaspoon

JAM RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Apple preserves Powdered pectin added	6 cups peeled, cored, sliced apples 1 cup water 1 tbsp. bottled lemon juice 1/2 lemon, thinly sliced (optional) 4 cups sugar 2 tsp. ground nutmeg 1 box powdered pectin	Combine apples, water and lemon juice in a large saucepot. Cover and simmer for 10 minutes.	C, p. 19	6
Apricot No pectin added	2 qts. crushed, peeled apricots 1/4 cup lemon juice 6 cups sugar	Combine ingredients, let stand for at least 1 hour. Slowly bring to boil, stirring until sugar dissolves. Cook until thick, about 25 minutes.	A, p. 17	10
Berry Blackberry Blueberry Boysenberry Dewberry Gooseberry Loganberry Raspberry No pectin added	9 cups crushed berries 6 cups sugar	Sort and wash berries. Select 1/4 firm ripe and 3/4 fully ripe berries. Crush berries and combine with sugar in a kettle.	A, p. 17	7 to 8
Berry Powdered pectin added	4 cups crushed berries (3 pints whole berries) 2 tbsp. bottled lemon juice 4 cups sugar 1 box powdered pectin	Sort and wash ripe berries. Crush or grind.	C, p. 19	5 to 6
Blueberry-spice Powdered pectin added	5 cups ripe berries 1 tbsp. lemon juice 1/2 tsp. nutmeg or cinnamon 5 1/2 cups sugar 3/4 cup water 1 box powdered pectin	Wash and crush berries, one layer at a time. Add lemon juice, spice and water.	C, p. 19	5

JAM RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Blueberry-peach, spiced No pectin added	4 cups chopped ripe peaches 4 cups blueberries 2 tbsp. lemon juice 1/2 cup water 5 1/2 cups sugar 1/2 tsp. salt 1 stick cinnamon 1/2 tsp. whole cloves 1/4 tsp. whole allspice	Sort and wash fruit. Peel peaches, remove pits, chop. Remove stems from berries. If frozen, thaw. Add lemon juice, water. Cover, bring to a boil, simmer 10 min. Stir constantly. Add sugar, salt. Add spices tied in cheesecloth. Boil, stir constantly to the jellying point.	A, p. 17	6 to 7
Cherry, Liquid pectin added	4 1/2 cups sour cherries, pitted and chopped 7 cups sugar 2 pouches liquid pectin	Sort and wash. Remove stems and pits. Grind cherries or chop fine. Measure into a kettle.	B, p. 18	8
Cherry, tart red Powdered pectin added	4 cups sour cherries, chopped (3 lbs.) 5 cups sugar 1 box powdered pectin	Sort and wash fully ripe cherries. Remove stems and pits. Grind or finely chop.	C, p. 19	6
Peach, nectarine or pear Liquid pectin added	4 cups crushed fruit (3 lbs. whole) 1/4 cup bottled lemon juice 7 1/2 cups sugar 1 pouch liquid pectin	Sort and wash fully ripe fruit. Remove stems, peel, and pits or cores. Crush fruit.	B, p. 18	8
Peach, nectarine or pear Powdered pectin added	4 cups crushed fruit (3 lbs. whole) 2 tbsp. bottled lemon juice 5 cups sugar 1 box powdered pectin	Sort and wash fully ripe fruit. Remove stems, peel, and pits or cores. Crush fruit.	C, p. 19	6 to 7

Note: May add 1 to 2 oz. finely chopped candied ginger to crushed fruit (optional).

JAM RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Pear-apple Liquid pectin added	2 cups pears 1 cup apples 6 1/2 cups sugar 1/4 tsp. cinnamon 1/3 cup bottled lemon juice 1 pouch liquid pectin	Peel, core and finely chop fruit. Crush fruit in a large saucepan and stir in cinnamon.	B, p. 18	7 to 8
Pepper, hot* Powdered pectin added	3 medium red peppers 2 medium green peppers 10 large jalapeño peppers 1 cup cider vinegar (5% acetic acid) 5 cups sugar 1 box powdered pectin	Wash and cut all peppers in half; discard seeds and stems. Finely chop peppers. Measure 4 cups prepared peppers.	C, p. 19	6
Plum Liquid pectin added	4 1/2 cups plums (2 1/2 lbs.) 7 1/2 cups sugar 1 pouch liquid pectin	Sort and wash fully ripe fruit. Cut into pieces, remove pits. If flesh clings tightly to pits, cook slowly in a small amount of water for a few min. until soft. Crush fruit.	B, p. 18	8
Plum Powdered pectin added	6 cups chopped plums (3 lbs.) 1/2 cup water 8 cups sugar 1 box powdered pectin	Sort and wash ripe plums. Pit but do not peel. Chop finely, measure, and place in saucepan with 1/2 cup water. Bring to a boil. Reduce heat, cover and simmer 5 min.	C, p. 19	9 to 10
Plum No pectin added	2 qts. tart plums, chopped (4 lbs.) 6 cups sugar 1 1/2 cups water 1/4 cup lemon juice	Chop fruit. Combine ingredients; bring slowly to boil, stirring occasionally until sugar dissolves. Cook to jelling point.	A, p. 17	8

***Caution:** Wear rubber gloves when preparing hot peppers. Do not touch your face, particularly near your eyes. Wash hands well with soap and water if you do handle hot peppers.

JAM RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Raspberry, red or black Liquid pectin added	4 cups berries (2 quarts) 6 ¹ / ₂ cups sugar 1 pouch liquid pectin	Sort, wash and crush berries.	B, p. 18	7 to 9
Strawberry Liquid pectin added	4 cups crushed strawberries (about 2 quarts berries) 7 cups sugar 1 pouch liquid pectin	Sort and wash fully ripe strawberries, remove stems. Crush.	B, p. 18	7
Strawberry Powdered pectin added	5 cups strawberries 7 cups sugar 1 box powdered pectin	Sort and wash fully ripe strawberries, remove stems. Crush.	C, p. 19	8 to 9
Strawberry-kiwi Powdered pectin added	3 cups strawberries 3 kiwi 1 tbsp. lemon juice 1 tbsp. minced crystallized ginger 5 cups sugar 1 box powdered pectin	Crush berries. Peel and dice kiwi. Combine all ingredients.	C, p. 19	6
Strawberry-rhubarb Liquid pectin added	2 ¹ / ₂ cups strawberries (about 1 quart) 1 cup cooked red-stalked rhubarb (1 lb. in 1/2 cup water) 6 ¹ / ₂ cups sugar 1 pouch liquid pectin	Sort, wash and crush berries. Discard rhubarb leaves. Wash stalks and slice thinly or chop; do not peel. Place in 2-quart saucepan with 1/2 cup water. Bring to a boil. Reduce heat and simmer 2 minutes, or until rhubarb is soft.	B, p. 18	7
Caution: Rhubarb leaves are poisonous. Use stalks only.				
Tomato, spiced Powdered pectin added	3 cups tomatoes 1/2 tsp. grated lemon rind 1/2 tsp. allspice 1/2 tsp. cinnamon 1/4 tsp. ground cloves 1/4 cup lemon juice 4 ¹ / ₂ cups sugar 1 box powdered pectin	Wash, scald, peel, and chop tomatoes. Bring to simmer in saucepan stirring constantly. Cover, simmer for 10 min., stirring occasionally. Measure tomatoes into a saucepan. Add remaining ingredients.	C, p. 19	5

Jellies

There are two basic types of jellies, those made:

- Without added pectin, or
- With added pectin.

Jelly made without added pectin contains less sugar and has a fruitier taste. Apples, crabapples, gooseberries, currants, grapes and some plums contain enough natural pectin to form a gel. Be sure to test for pectin content, acid and doneness (see directions on pages 26-27).

Adding pectin simplifies jelly making, and yields more jelly per volume of juice. Adding pectin makes jelly more quickly, and makes it easier to test for doneness.



Jelly is made from juice, sugar and pectin (natural or added). Juice from apples, berries, currants,

grapes and peaches makes excellent jelly.

If you are not planning to add pectin to the juice, make sure you use $\frac{1}{4}$ under-ripe fruit and $\frac{3}{4}$ just-ripe fruit. Be sure to test for pectin content, acid and doneness.

For very ripe or overly ripe fruit, follow a recipe for added pectin.

Preparing fruit

If not adding pectin: Use $\frac{1}{4}$ slightly under-ripe fruit and $\frac{3}{4}$ just-ripe fruit.

If adding pectin: You may use all fully ripe fruit.

- Prepare fruit in small batches, enough for one recipe.
- Sort fruit, discarding all damaged portions.
- Wash all fruits in cold running water or in several changes of cold water, lifting them out of the water each time. Wash berries carefully to prevent loss of juice. Do not let fruit stand in water.
- Cut fruit into small pieces. Leave skins on, since pectin is more concentrated there.

Extracting juice

- Extract juice as the recipe directs. The method varies depending on the kind of fruit.
 - **Juicy berries** may be crushed and the juice drained out without heating. Strain through a damp jelly bag.
 - **Firm fruits** require heating, usually with some water, as follows:

- Place firm fruit in a flat-bottomed saucepan and crush to start juice flow. Add a little cold water:
 - **Apples and other hard fruits:** Add only enough water to cover.
 - **Grapes and berries:** Use only enough water to prevent scorching.
- Bring to a boil on high heat. Stir to prevent scorching.
- Reduce heat.
- Cook until just soft:
 - **Apples and other hard fruits** need 20 to 25 minutes, depending on the firmness of the fruit.
 - **Grapes and berries** need 10 minutes or less.

Do not overcook. Excess boiling destroys pectin, flavor and color.
- Pour cooked fruit into a damp jelly bag and suspend over a large bowl to drain juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing or squeezing.
- Juice can also be extracted from either firm or soft fruit with a steam juicer. Steam juicers, such as Mehu-Liisa* are available online at www.ezjuicers.com or 1-800-728-1238.

- A fruit press, or manual juicer, is not recommended for extracting juice for jelly.

Jelly without added pectin

Jellies made without added pectin require less sugar — $\frac{1}{4}$ cup less per cup of fruit juice — than do those with added pectin. But the longer cooking process yields less jelly per cup of juice.

To make jelly without added pectin, be sure to test for doneness.

Testing fruit juice for pectin

There are two reliable ways to find out if fruit juice contains enough natural pectin to make good jelly without adding pectin. The cooking test is easier, and very reliable.

■ Cooking test

Measure $\frac{1}{3}$ cup juice and $\frac{1}{4}$ cup sugar into a small saucepan. Heat slowly, stirring constantly until all the sugar is dissolved. Bring the mixture to a boil, and boil rapidly until it gives the spoon or sheet test for doneness (see next page).

Pour the jelly into a clean, hot jelly glass or sauce dish, and cool. If the cooled mixture gels, your fruit juice contains enough natural pectin. If not, use a recipe calling for added pectin.

* Reference to products or companies is not intended to endorse them, nor to exclude others that may be similar. Examples are listed as a convenience to readers.

■ Alcohol test

Add 1 tablespoon juice to 1 tablespoon of 70 percent rubbing alcohol. To mix, stir or shake a closed container slightly so all the juice comes in contact with the alcohol.

Do not taste; this mixture is poisonous.

Fruit high in pectin will form a solid jelly-like mass you can pick up with a fork. If the juice shows little clumping, there is not enough pectin for jelly.

Discard test results down the drain.

Testing fruit juice for acid

There is no home test to determine the exact amount of acid present. But you can do a simple comparison taste-test for tartness by mixing:

1 teaspoon bottled lemon juice

3 tablespoons water

1/2 teaspoon sugar

If your fruit juice does not taste as tart as this mixture, it is not tart enough and needs more acid.

Add 1 tablespoon bottled lemon juice or 1/8 teaspoon citric acid per cup of fruit juice.

If your fruit juice tastes too tart, use more fully ripe fruit. Too much acid can make pectin unstable.

Testing for doneness

The biggest problem in making jelly without added pectin is knowing when it is done. It is very important to remove the mixture from the heat before it overcooks.

Although undercooked jelly can sometimes be recooked to make a satisfactory product, little can be done to improve an overcooked mixture. Signs of overcooking are a change in color, and a taste or odor of caramelized sugar. Too much boiling destroys pectin, flavor and color.

Three methods for testing doneness of jelly made at home are described below. Of these, the temperature test is probably the most dependable.

■ Temperature test

Before cooking the jelly, measure the temperature of boiling water with a jelly or candy thermometer. At elevations from sea level to 1,000 feet, water boils at 212° F. Water boils at lower temperatures as elevation increases. Measure and record the temperature of boiling water where you live shortly before making jelly.

Measure jelly temperature accurately as the mixture cooks. The thermometer bulb must be completely submerged in the jelly mixture, but must not touch the bottom of the kettle.

Cook the jelly mixture to 220° F — or 8° F higher than the boiling point of water where you live (jellying point). At that point, the sugar will be concentrated enough that the mixture should form a satisfactory gel.

■ **Freezer test**

Pour a small amount of boiling jelly on a plate and put it in the freezer for a few minutes. If the mixture gels, it should be done.

During this test, remove the rest of the jelly mixture from the heat. If the mixture does not gel, return the jelly to the heat and boil several more minutes. Continue to boil the jelly, checking for doneness every few minutes until a satisfactory gel forms.

■ **Spoon or sheet test**

Dip a cool metal spoon into the boiling jelly mixture. Then raise it at least a foot above the kettle, out of the steam. Turn the spoon so the syrup runs off the side. If the syrup forms two drops that blend together and fall off the spoon as one “sheet,” the jelly should be done.

Although this test is widely used, it is not entirely dependable.

Jelly with added pectin

Jellies made with powdered or liquid pectin are prepared differently from those made without added pectin. You do not need to test for pectin, acid or doneness when you add pectin.

Be sure to follow the pectin package directions carefully.

Processing jelly

After the jelly is done, quickly skim off all the foam with a cold metal spoon or jelly skimmer. Then quickly pour the hot jelly into hot sterilized half-pint canning jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between cooked fruit and the side of the jar. Wipe jar rims and threads clean with a damp cloth or towel. Cap with hot pretreated lids. Screw the metal bands on firmly, but not too tightly.

Process the jelly for 5 minutes in a boiling water canner. Adjust processing time for elevations above 1,000 feet, adding 1 minute to the processing time for each added 1,000 feet elevation (see the map on page 13).

Basic steps follow for making jelly without added pectin, or with liquid or powdered pectin added. See pages 31-36 for jelly recipes using these three cooking methods.

Caution! Adjust processing for elevation

The processing time of 5 minutes in this publication is for elevations up to 1,000 feet above sea level. Add 1 more minute processing time for each added 1,000 feet elevation.



Process all jams and jellies in a boiling water canner for a safe, high quality product. University of Wisconsin-Extension does not recommend sealing jars with paraffin, or inverting sealed jars as a final step.

Cooking methods for jelly

Method D:

Basic steps for making jelly without added pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
4. Measure sugar and set aside. Measure juice into a large kettle. For amounts of sugar and juice to use in making jelly without added pectin, see the table below.

Amount of sugar and juice to use in making jelly without added pectin — Use with Method D

Fruit	Cups juice	Cups sugar
Apple	1	$\frac{3}{4}$
Crabapple	1	1
Blackberries	1	$\frac{3}{4}$ to 1
Gooseberries	1	1
Grapes, Concord	1	$\frac{3}{4}$ to 1
Grapes, wild	1	1
Plums, wild	1	$\frac{3}{4}$
Other fruit high in pectin	1	$\frac{3}{4}$

5. Bring juice to a boil. Add sugar to juice. Stir until sugar dissolves.
 6. Boil rapidly to the **jellying point** — 220° F or 8° F above the boiling point of water where you live. Test for jellying point (220° F), or doneness (see pages 26-27).
 7. Remove jelly from heat and quickly skim off foam.
 8. Quickly pour hot jelly into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between jelly and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands until firmly tight, but not too tight.
 9. **Process in a boiling water canner for 5 minutes.** Adjust processing time for elevation, if necessary (see map on page 13).
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
 4. Measure juice and sugar into a large kettle. Add lemon juice if the recipe indicates. Mix. If desired, add $\frac{1}{4}$ teaspoon butter or margarine to reduce foaming.
 5. Bring to a rolling boil on high heat, stirring constantly.
 6. Add liquid pectin and bring back to a full rolling boil. Boil hard for 1 minute, stirring constantly.
 7. Remove from heat and quickly skim off foam.
 8. Quickly pour hot jelly into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between jelly and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands until firmly tight, but not too tight.
 9. **Process in a boiling water canner for 5 minutes.** Adjust processing time for elevation, if necessary (see map on page 13).

Method E:

Basic steps for making jelly with liquid pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.

Method F:

Basic steps for making jelly with powdered pectin

1. Check the recipe, and assemble equipment.
2. Wash half-pint home canning jars in warm, soapy water and sterilize by boiling for 10 minutes. Keep hot until filled.
3. Pretreat two-piece vacuum seal canning lids according to package directions to ensure a good seal.
4. Measure sugar and set aside.
5. Measure juice and mix with pectin in a large kettle. Add lemon juice if the recipe indicates. If desired, add $\frac{1}{4}$ teaspoon butter or margarine to reduce foaming. Bring to a full rolling boil.
6. Add sugar all at once. Return to a full rolling boil and boil for exactly 1 minute, stirring constantly.
7. Remove from heat and quickly skim off foam.
8. Quickly pour hot jelly into hot sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Remove bubbles by running a spatula or bubble freer between jelly and the side of the jar. Wipe jar rims and threads clean, and cap with hot pretreated lids. Screw the bands until firmly tight, but not too tight.
9. **Process in a boiling water canner for 5 minutes.** Adjust processing time for elevation, if necessary (see map on page 13).



Cooking directions for preparing juice in the jelly recipes on pages 31-36 are in addition to, and do not replace, cooking methods D, E or F. Use both the recipe directions and the appropriate method to ensure successful jellied fruit products. Use the table on page 28 with Method D. For directions on extracting juice, see pages 24-25.

JELLY RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Apple or crabapple No pectin added	4 cups apple juice (about 3 lbs. apples and 3 cups water) 2 tbsp. lemon juice (if desired) 3 cups sugar (may use up to 4 cups for crabapple jelly)	Select about 1/4 firm ripe and 3/4 fully ripe tart apples. Wash and core, but do not peel. Cut into small pieces, add water, cover and quickly bring to a boil. Reduce heat and simmer 20 to 25 min., or until apples are soft. Extract juice.	D, p. 28	4 to 5
Apple, bottled juice Powdered pectin added	4 cups apple juice, unsweetened 5 cups sugar 1 box powdered pectin	Measure juice and mix with pectin in a saucepan. Measure sugar and set aside. Cook as directed.	F, p. 30	6
Berry Blackberry Blueberry Huckleberry Strawberry Liquid pectin added	4 cups berry juice (about 2 quarts berries) 7 1/2 cups sugar 2 pouches liquid pectin	Select ripe berries, wash and crush. Cover, slowly bring to a boil, stirring to prevent scorching. Reduce heat and simmer 5 to 10 min., stirring occasionally. Extract juice.	E, p. 29	7 to 8
Blackberry Powdered pectin added	3 1/2 cups blackberry juice (3 quarts) 4 1/2 cups sugar 1 box powdered pectin	Sort and wash berries. Remove stems and caps. Crush berries and extract juice.	F, p. 30	5 to 6
Blackberry No pectin added	4 cups blackberry juice (about 2 1/2 quarts berries and 1/2 cup water) 3 cups sugar	Select about 1/4 firm ripe and 3/4 fully ripe berries. Crush, add water, cover and quickly bring to a boil. Reduce heat and simmer 5 to 10 min. Extract juice.	D, p. 28	5 to 6

JELLY RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Cherry, sour Liquid pectin added	3 cups cherry juice (3 lbs. or 2 qt. whole and 1/2 cup water) 7 cups sugar 2 pouches liquid pectin	Select ripe fruit. Sort, wash, remove stems; do not pit. Crush cherries, add water, bring to boil quickly. Reduce heat and simmer 10 minutes. Extract juice.	E, p. 29	8
Cherry, sour Powdered pectin added	3 1/2 cups cherry juice (3 lbs or 2 qt. whole and 1/2 cup water) 4 1/2 cups sugar 1 box powdered pectin	Select ripe fruit. Sort, wash, remove stems; do not pit. Crush cherries, add water, bring to boil quickly. Reduce heat and simmer 10 min. Extract juice.	F, p. 30	6
Currant, red Liquid pectin added	6 1/2 cups currant juice (4 lbs. red currants and 1 cup water) 7 cups sugar 1 pouch liquid pectin	Select fully ripe fruit. Crush, cover, quickly bring to a boil. Reduce heat and simmer 10 minutes. Extract juice.	E, p. 29	9
Gooseberry No pectin added	4 cups gooseberry juice (2 lbs. berries and 1/2 cup water) 4 cups sugar	Select about 3/4 green and 1/4 fully ripe berries. Wash and crush. Add water, cover and quickly bring to a boil. Reduce heat and simmer 5 to 10 min. Extract juice.	D, p. 28	5 to 6
Grape No pectin added	4 cups grape juice (3 1/2 lbs. grapes and 1/2 cup water) 3 cups sugar	Select about 1/4 firm ripe and 3/4 fully ripe grapes. Wash and crush. Add water, cover and quickly bring to a boil. Reduce heat and simmer 10 minutes. Extract juice.*	D, p. 28	3 to 4

JELLY RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Grape, bottled juice Powdered pectin added	3 cups grape juice 1 cup water 4 1/2 cups sugar 1 box powdered pectin	Measure juice and mix with pectin in a saucepan. Measure sugar and set aside. Cook as directed.	F, p. 30	6
Grape, Concord Powdered pectin added	5 cups grape juice (3 1/2 lbs. grapes and 1 1/2 cups water) 7 cups sugar 1 box powdered pectin	Wash and crush grapes, one layer at a time. Add water, cover and bring to a boil. Reduce heat and simmer 10 minutes, stirring occasionally. Extract juice.*	F, p. 30	8
Grape-plum Powdered pectin added	3 1/2 lbs. ripe plums 3 lbs. ripe Concord grapes 1 cup water 8 1/2 cups sugar 1 box powdered pectin	Wash and pit plums; do not peel. Crush plums and grapes, one layer at a time, in saucepan with water. Bring to a boil, cover and simmer 10 min. Extract juice.*	F, p. 30	9 to 10
Mint Liquid pectin added	1 3/4 cups mint juice (1 1/2 cups firmly packed fresh mint leaves and 2 1/4 cups water) 3 1/2 cups sugar 2 tbsp. bottled lemon juice green food coloring (optional) 1 pouch liquid pectin	Wash and crush or finely chop mint leaves and stems. Place in saucepan, add water and quickly bring to a boil. Remove from heat, cover and let stand 10 minutes. Strain through a damp jelly bag. Add a few drops of food coloring, if desired.	E, p. 29	3 to 4

***Note:** To prevent tartrate crystals, refrigerate grape juice overnight. Strain through double layers of damp cheesecloth to remove crystals.

JELLY RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Mulberry Liquid pectin added	3 cups mulberry juice (3 lbs. ripe berries) 1/2 cup lemon juice 7 cups sugar 2 pouches liquid pectin	Sort and wash fruit; remove stems. Place in saucepan, crush. Heat gently until juice starts to flow. Cover and simmer for 15 min. Extract juice.	E, p. 29	8
Mulberry Powdered pectin added	3 1/2 cups mulberry juice (1 1/2 qt. ripe and 1/2 qt. red berries) 5 cups sugar 1 box powdered pectin	Sort and wash berries; remove stems. Place in saucepan, crush. Heat gently until juice starts to flow. Cover and simmer for 10 min. Extract juice.	F, p. 30	6 to 7
Orange, from frozen juice concentrate Powdered pectin added	12 oz. frozen orange juice concentrate, 2 1/2 cups water 4 1/2 cups sugar 1 box powdered pectin	Thaw juice and mix with water in a saucepan.	F, p. 30	5 to 6
Orange, spiced Powdered pectin added	2 cups orange juice (5 medium) 1/3 cup lemon juice 2/3 cup water 1 box powdered pectin 2 tbsp. orange peel, finely chopped 1 tsp. whole allspice 1/2 tsp. whole cloves 4 sticks cinnamon, 2 inches long 3 1/2 cups sugar	Mix juices and water in a large saucepan. Stir in pectin. Tie peel and spices in clean, white cloth. Add to juice mixture. Remove spice bag before ladling into jars.	F, p. 30	4
Peach Powdered pectin added	3 cups peach juice (3 1/2 lbs. ripe peaches, and 1/2 cup water) 5 cups sugar 1/2 cup bottled lemon juice 1 box powdered pectin	Wash and pit peaches but do not peel. Slice or chop, and crush. Mix fruit and water in a saucepan and cover. Quickly bring to a boil and simmer 5 minutes, occasionally stirring. Extract juice.	F, p. 30	5 to 6

JELLY RECIPES

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Pepper, golden Liquid pectin added Caution: Wear rubber gloves when preparing hot peppers.	3 large yellow bell peppers 1 to 4 serrano chile peppers 1 1/2 cups white vinegar (5% acetic acid) 7 cups sugar 1 pouch liquid pectin	Wash peppers; remove stems and seeds. Leave membrane in hot peppers. Add enough vinegar to purée in a blender or food processor. Combine purée with remaining vinegar. Boil 20 minutes. Extract juice.	E, p. 29	7
Pepper, hot Liquid pectin added Caution: Wear rubber gloves when preparing hot peppers.	4 to 5 hot peppers, cored and cut in pieces 4 sweet green peppers, cored and cut in pieces 1 cup white vinegar (5% acetic acid) 5 cups sugar 1 pouch liquid pectin	Put half the peppers and half the vinegar into a blender, cover and process until peppers are liquified. Pour into a large saucepan. Blend remaining peppers and vinegar. Mix sugar with peppers and vinegar in the saucepan and boil slowly 10 minutes. Remove from heat. Add liquid pectin.	E, p. 29	5
Plum Liquid pectin added	4 cups plum juice (4 1/2 lbs. plums and 1/2 cup water) 7 1/2 cups sugar 1 pouch liquid pectin	Sort and wash plums. Cut into pieces; do not peel or pit. Crush fruit, add water, cover, and bring to boil. Simmer for 10 min. Extract juice.	E, p. 29	7 to 8
Plum Powdered pectin added	5 cups plum juice (4 1/2 lbs. plums and 1 cup water) 7 cups sugar 1 box powdered pectin	Sort and wash plums. Cut into pieces; do not peel or pit. Crush fruit, add water, cover, and bring to boil. Simmer for 10 min. Extract juice.	F, p. 30	7 to 8

Freezer or refrigerator jams & jellies

You can make jams and jellies out of fruits such as strawberries, cherries and grapes with little or no cooking. Freezer jams and jellies taste more like fresh fruit than cooked products, and retain a brighter color. And you don't have to spend as much time over a hot stove.

Since these are not processed in a boiling water canner, **they must be stored in the freezer or refrigerator.**

As with other jam and jelly recipes, **do not change:**

- The type of pectin each recipe calls for, or
- The amount of sugar or fruit.

If you wish to reduce the sugar, use a modified low- or no-sugar pectin that allows you to do so (see recipes on pages 43-50). Follow pectin package directions exactly.

Basic steps follow for making freezer or refrigerator jam and jelly with liquid or powdered pectin.

Cooking methods for freezer jam and jelly

Method G: Freezer jam and jelly with powdered pectin

1. Check the recipe, and assemble equipment.
2. Wash and rinse plastic containers. Use 1 to 2 cup containers with tight-fitting lids.
3. Prepare fruit as directed. Measure the **exact** amount into a large bowl. Add bottled lemon juice, if required.
4. Measure sugar into a separate bowl, and stir into fruit or juice. Mix well. Let stand 10 minutes, stirring occasionally.



Freezer jams and jellies take about half the time to prepare as cooked jams and jellies. The resulting product is less firm, but has more fresh fruit taste.

Plastic freezer containers with tight-fitting lids work well for storing freezer jams and jellies. Be sure to leave enough space at the top of the container for expansion during freezing.

5. Mix pectin and $\frac{3}{4}$ cup water in a small saucepan. Stir to dissolve pectin. Bring to a boil on high heat, stirring occasionally. Boil 1 minute, stirring constantly. Remove from heat.
6. Add pectin mixture to prepared fruit or juice. Stir constantly until sugar is completely dissolved and no longer grainy, about 3 minutes.
7. Pour into clean containers, leaving $\frac{1}{2}$ -inch headspace for expansion during freezing. Cover tightly, label and date.
8. Let stand at room temperature 24 hours or until set. Refrigerate for up to 3 weeks, or freeze up to 1 year. Thaw in the refrigerator, then store refrigerated for up to 1 month.



Directions for preparing fruit in the recipes for freezer or refrigerator jam and jelly on pages 39-40 are in addition to and do not replace these two methods. Use both the recipe directions and method G or H as noted to ensure successful jellied fruit products.

Method H: Freezer jam and jelly with liquid pectin

1. Check the recipe, and assemble equipment.
2. Wash and rinse plastic containers. Use 1 to 2 cup containers with tight-fitting lids.
3. Prepare fruit as directed. Measure the **exact** amount into a large bowl.
4. Measure sugar into a separate bowl, and stir into fruit or juice. Mix well. Let stand 10 minutes, stirring occasionally.
5. In a small bowl, stir pectin into water and bottled lemon juice, if required. Add pectin mixture to prepared fruit or juice. Stir constantly until sugar is completely dissolved and no longer grainy, about 3 minutes.
6. Pour into clean containers, leaving $\frac{1}{2}$ -inch headspace for expansion during freezing. Cover tightly, label and date.
7. Let stand at room temperature 24 hours or until set. Refrigerate for up to 3 weeks, or freeze up to 1 year. Thaw in the refrigerator, then store refrigerated for up to 1 month.

FREEZER OR REFRIGERATOR JAM & JELLY

Product	Ingredients	To prepare fruit:	Cooking method	Yield in 1/2-pints
Grape jelly, Concord Powdered pectin added	3 cups grape juice (3 lbs. ripe grapes, or use bottled grape juice) ** 5 ³ / ₄ cups sugar 3/4 cup water 1 box powdered pectin	Select and wash fully ripe grapes, or use bottled grape juice. Thoroughly crush grapes. Place in a damp jelly bag and allow juice to drain. Measure 3 cups juice.**	G, p. 37	7
<p>Note: May take 1 week to set. Refrigerate after 24 hours until set, then freeze if desired. **If you use fresh Concord grapes, refrigerate juice overnight. Strain through double layers of damp cheesecloth to remove tartrate crystals.</p>				
Peach jam Powdered pectin added	3 cups mashed peaches (2 lbs. ripe peaches) 2 tbs. bottled lemon juice 4 ¹ / ₂ cups sugar 3/4 cup water 1 box powdered pectin	Sort and wash. Peel, pit and mash peaches. Measure ingredients.	G, p. 37	6
Raspberry-peach jam Powdered pectin added	2 cups crushed raspberries (1 ¹ / ₂ pt. ripe red raspberries) 1 ¹ / ₂ cups mashed peaches (1 ¹ / ₄ lbs. ripe peaches) 7 cups sugar 3/4 cup water 1 box powdered pectin	Sort, wash and crush berries. Select and wash ripe peaches. Peel, pit and mash peaches.	G, p. 37	7 to 8
Strawberry jam Liquid pectin added	2 cups crushed strawberries (1 qt. berries) 2 tbs. bottled lemon juice 4 cups sugar 1 pouch liquid pectin	Select and wash fully ripe berries. Remove stems, and crush. Measure ingredients.	H, p. 38	4

Low- and no-sugar jams and jellies

Eliminating sugar when making jams and jellies can result in failure — unless you use special recipes and pectin products.

Decreasing sugar and replacing sugar with more fruit often results in a fruitier-tasting jam or jelly.

Jams and jellies made without sugar may be softer than conventional jams and jellies. Often, no-sugar jams and jellies resemble a fruited-gelatin dessert rather than a true jam or jelly. The gelling compound may be unflavored gelatin or a modified commercial pectin.

Jams and jellies made with gelatin are heated, and then poured into hot, sterilized jars. They are **not processed** in a boiling water canner, since the gel will break down with excess heat. Jams and jellies preserved in this way must be stored in the refrigerator for use within 3 weeks.

Jams and jellies made with low-methoxyl pectins will gel with little or no sugar added. These can be prepared as directed and frozen — or processed in a boiling water canner and stored in the cupboard, depending on the recipe. Follow pectin package directions exactly.

In no-sugar pectin recipes, use:

- Unsweetened apple juice or white grape juice when the recipe calls for juice.
- Varieties of fruit known for their sweetness. See the fruit publications listed on the back cover.
- Very ripe, high quality fruit.

Very ripe fruit has more natural sugars and will help sweeten the final product. Under-ripe or just-ripe fruit tends to produce a bland, tart product.

Use the tested recipes on pages 43-50 for making successful low- and no-sugar jams and jellies.

Other recipes for low- and no-sugar pectin jam and jelly can be found in each pectin package. *Canning and Preserving Without Sugar* by Norma M. MacRae (Globe Pequot Press, 2000), also contains additional research-tested recipes for low- and no-sugar jams and jellies.

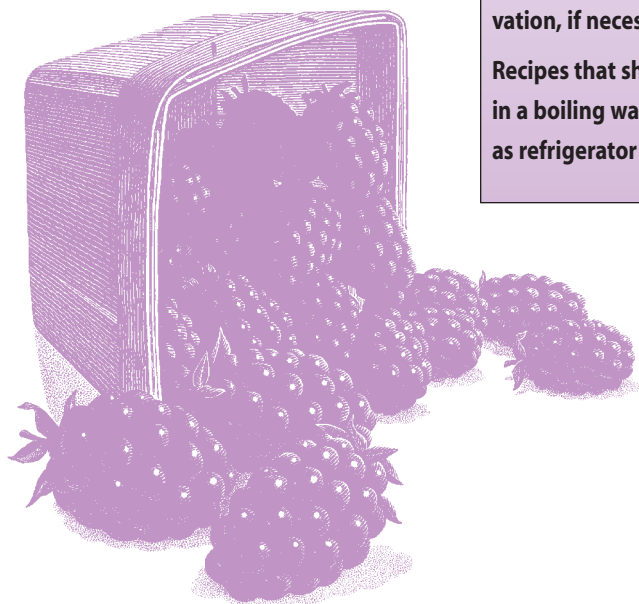


Jam and jelly can be made with little or no added sugar if special gelling agents are used. Jams and jellies made without sugar may be softer than conventional products, but can be just as flavorful.

For a high quality product, use very ripe, high quality fruit in low- and no-sugar recipes. Follow pectin package directions exactly.

Unless noted, recipes require processing for 5 minutes in a boiling water canner. Adjust processing time for elevation, if necessary.

Recipes that should not be processed in a boiling water canner are marked as refrigerator or freezer recipes.



LOW- & NO-SUGAR JAM & JELLY RECIPES

Apple jelly — Low sugar

Freezer recipe

5 cups bottled apple juice

3¹/₂ cups sugar

1 cup water

1 box low-sugar pectin

To make jelly:

1. Measure apple juice into a large bowl.
2. Measure sugar. Stir pectin into sugar until thoroughly mixed.
3. Stir 1 cup water into pectin-sugar mixture. Bring mixture to a boil on medium-high heat, stirring constantly. Boil and stir 1 minute. Remove from heat.
4. Stir juice into hot pectin-sugar mixture. Mix well, 1 minute.
5. Ladle quickly into freezer containers, leaving ¹/₂-inch headspace. Cover tightly at once, label and date.
6. Let stand at room temperature until gel sets (up to 24 hours), then store in the freezer for up to 1 year.
7. Thaw in the refrigerator, then keep refrigerated. Small amounts may be stored in the refrigerator for up to 3 weeks.

Yield: 8 half-pints



Apple jelly — No sugar

Refrigerator recipe

2 cups unsweetened apple juice

4 tsp. unflavored gelatin

2 tbsp. liquid sugar substitute*

1¹/₂ tbsp. bottled lemon juice

food coloring (optional)

1. Sterilize jars. Soften gelatin in ¹/₂ cup of apple juice.
2. Bring remaining 1¹/₂ cups juice to a boil; remove from heat. Add softened gelatin, stirring to dissolve. Add liquid sweetener, lemon juice, and coloring, if desired.
3. Bring to a full rolling boil. Pour into hot sterilized jars, leaving ¹/₄-inch headspace.
4. Cover, cool, and store in the refrigerator for up to 3 weeks.

Yield: 2 half-pints



*The sugar substitute used in this recipe is liquid saccharin. One-eighth teaspoon liquid saccharin equals the sweetening power of 1 teaspoon sugar. If you use other sweeteners, read the label to determine their sweetening power. Aspartame — brand names NutraSweet® or Equal® — cannot be used to sweeten jellies or jams, since this loses its sweetness on heating.

LOW- & NO-SUGAR JAM & JELLY RECIPES

Apple or crabapple jelly — Low sugar

6 cups juice (6 lbs. apples)

4 cups sugar

1 box low-sugar pectin

To prepare fruit:

Wash apples, remove stems and cores, and cut into small pieces. Do not peel.

To make jelly:

1. Place prepared fruit in a saucepan. Add 6 cups water, and bring to a boil. Reduce heat, cover and simmer 10 minutes. Crush cooked apples; cover and simmer 5 minutes. Strain juice through damp cheesecloth or jelly bag. Measure 6 cups juice.
2. Measure sugar into a separate bowl. In another small bowl, mix pectin with $\frac{1}{4}$ cup sugar from the measured amount.
3. Stir pectin-sugar mixture into juice. Add $\frac{1}{2}$ teaspoon butter or margarine to reduce foaming, if desired. Bring mixture to a full rolling boil on high heat, stirring constantly.
4. Quickly stir in remaining sugar. Return to a full boil and boil for exactly 1 minute, stirring constantly. Remove from heat and skim off foam.

5. Pour at once into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.

6. Remove bubbles, wipe jar rims clean, and adjust lids.

7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 9 half-pints



Cherry jam — Low sugar

5 cups prepared fruit

(3 lbs. sour cherries)

3 cups sugar

1 box low-sugar pectin

To prepare fruit:

Wash, pit and chop cherries.

To make jam:

1. Measure prepared fruit into a kettle.
2. Measure sugar into a separate bowl. In another small bowl, mix pectin with $\frac{1}{4}$ cup sugar from the measured amount.
3. Stir pectin-sugar mixture into fruit. Bring to a full rolling boil on high heat, stirring constantly.
4. Quickly stir in remaining sugar. Return to a full boil and boil for exactly 1 minute, stirring constantly. Remove from heat and skim off foam.

LOW- & NO-SUGAR JAM & JELLY RECIPES

5. Pour at once into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
6. Remove bubbles, wipe rims and threads clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints



Cherry jam — Low sugar

Freezer recipe

5 cups chopped cherries
(4 lbs. sour cherries)

2 $\frac{1}{2}$ cups sugar

1 box low-sugar pectin

1 cup water

To prepare fruit:

Wash, pit and chop cherries.

To make jam:

1. Measure chopped cherries into a bowl.
2. Measure sugar and stir in pectin, mixing thoroughly. Stir in 1 cup water.
3. Bring sugar-pectin mixture to a boil on medium-high heat and boil for 1 minute, stirring constantly. Remove from heat.

4. Stir cherries into hot pectin-sugar mixture. Stir 1 minute or until thoroughly mixed.
5. Pour quickly into clean freezer containers, leaving $\frac{1}{2}$ -inch headspace. Cover tightly, label and date.
6. Let stand at room temperature overnight, then store in the freezer for up to 1 year.
7. Thaw in the refrigerator and store refrigerated for up to 3 weeks.

Yield: 7 half-pints



Grape jelly — With gelatin

Refrigerator recipe

3 cups unsweetened grape juice

2 tbsp. unflavored gelatin
(2 packages)

2 tbsp. bottled lemon juice

2 tbsp. liquid saccharin*

1. Wash half-pint canning jars and sterilize by boiling for 10 minutes. Keep hot until filled.
2. In a saucepan, soften gelatin in lemon juice and grape juice. Bring to a rolling boil, dissolving gelatin. Boil 1 minute.
3. Remove from heat. Stir in liquid sweetener.

* To substitute other sweeteners, refer to note on page 43.

LOW- & NO-SUGAR JAM & JELLY RECIPES

4. Pour into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace. Cover at once, label and date.
5. When cool, store in the refrigerator for up to 3 weeks.

Yield: 3 half-pints



Grape jelly, Concord — Low sugar

5 $\frac{1}{2}$ cups juice (5 lbs. grapes and 2 cups water)

3 $\frac{1}{2}$ cups sugar

1 box low-sugar pectin

To prepare juice:

Sort, wash, remove stems and crush grapes. Place in a saucepan. Add 2 cups water. Bring to a boil. Reduce heat; cover and simmer 10 minutes. Strain juice through 3 or 4 layers of damp cheesecloth or jelly bag. To prevent tartrate crystals, refrigerate juice overnight. Strain through double layers of damp cheesecloth to remove crystals.

To make jelly:

1. Measure juice into a large saucepan, and sugar into a separate bowl.
2. In another small bowl, mix pectin with $\frac{1}{4}$ cup sugar from the measured amount.

3. Stir pectin-sugar mixture into juice. Bring mixture to a full rolling boil on high heat, stirring constantly.
4. Quickly stir in remaining sugar. Return to a full boil and boil exactly 1 minute, stirring constantly. Remove from heat and skim off foam.
5. Ladle at once into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 7 half-pints



Peach jam — Low sugar

4 $\frac{1}{2}$ cups chopped peaches (4 lbs. ripe peaches)

2 tbsp. bottled lemon juice

3 cups sugar

1 box low-sugar pectin

To prepare fruit:

Wash, peel, pit and finely chop ripe fruit.

LOW- & NO-SUGAR JAM & JELLY RECIPES

To make jam:

1. Measure exact amount of fruit into a large saucepan. Add lemon juice. Measure sugar into a separate bowl.
2. In another small bowl, mix pectin with $\frac{1}{4}$ cup sugar from the measured amount.
3. Gradually whisk pectin-sugar mixture into fruit to avoid lumps. This will take several minutes. Add $\frac{1}{4}$ teaspoon butter or margarine to reduce foaming, if desired. Bring mixture to a full rolling boil on high heat, stirring constantly.
4. Quickly stir in remaining sugar. Return to a full boil and boil exactly 1 minute, stirring constantly. Remove from heat and skim off foam.
5. Ladle at once into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints



Peach jam — No sugar

5 cups crushed peaches (4 lbs. peaches)

1 cup fruit juice

$\frac{1}{4}$ cup bottled lemon juice

1 box no-sugar pectin

To prepare fruit:

Wash, peel and pit peaches, coarsely crush.

To make jam:

1. Combine fruit, juice and lemon juice in a large saucepan.
2. Gradually whisk no-sugar pectin into prepared fruit to avoid lumps. This will take several minutes.
3. Bring to a boil over medium-high heat. Boil 1 minute, stirring constantly.
4. Remove from heat and skim off foam, if necessary.
5. Carefully ladle into hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints



LOW- & NO-SUGAR JAM & JELLY RECIPES

Raspberry jam — No sugar

5 cups crushed red raspberries
(3 pts. whole berries)

1 cup fruit juice

1 box no-sugar pectin

To prepare fruit:

Sort, wash and crush berries.

To make jam:

1. Measure 5 cups crushed berries into a large bowl. Press half of the berries through a sieve to remove some seeds, if desired.
2. Combine fruit and juice in a large saucepan.
3. Follow directions for no-sugar peach jam on page 47.

Yield: 6 half-pints



Refrigerator jelly with Splenda®

2 packages or 2 tbsp. unflavored gelatin

4¼ cups bottled unsweetened fruit juice
(1 quart plus ¼ cup)

½ cup Splenda® granular

1. Sterilize jars.
2. In a saucepan soften gelatin in juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in Splenda® granular. Skim foam if needed.

3. Pour into hot sterilized jars, leaving at least ¼-inch headspace. Apply lids, cool and store in refrigerator. (Do not process in a canner or freeze.)

Yield: About 4 half-pint jars

Note: Sterilized jars are not required for this recipe; it can be filled into hot, clean jars or plastic refrigerator containers. However, sterilized jars would be best for avoiding spoilage during storage. Refrigerator jellies made with gelatin typically last 1 month in the refrigerator until opened.



Strawberry jam — Low sugar

6 cups crushed strawberries
(6 pts. whole berries)

4 cups sugar

1 box low-sugar pectin

To prepare fruit:

Sort, wash, remove stems and crush berries.

To make jam:

1. Measure strawberries into a large saucepan.
2. Follow directions for low-sugar peach jam on page 46.

Yield: 8 half-pints

LOW- & NO-SUGAR JAM & JELLY RECIPES

Strawberry jam — Low sugar

Freezer recipe

4 cups crushed strawberries

3 cups sugar

1 box low-sugar pectin

1 cup water

To prepare fruit:

Sort, wash, remove stems and crush berries.

To make jam:

1. Measure 4 cups crushed berries into a large bowl.
2. Measure sugar into a large saucepan. Stir pectin into sugar until thoroughly mixed. Stir in 1 cup water.
3. Bring mixture to a boil on medium-high heat and boil 1 minute, stirring constantly. Remove from heat, skim off foam.
4. Stir fruit into hot pectin-sugar mixture. Stir 1 minute or until thoroughly mixed.
5. Pour quickly into clean freezer containers, leaving $\frac{1}{2}$ -inch headspace. Cover tightly, label and date.
6. Let stand at room temperature overnight, then store in freezer for up to 1 year.
7. Thaw in the refrigerator and store refrigerated for up to 3 weeks.

Yield: 6 half-pints

Strawberry jam — No sugar

Freezer recipe

4 cups crushed strawberries

3 to 4 tsp. liquid saccharine*

1 tbsp. bottled lemon juice

1 box low-sugar pectin

To prepare fruit:

Sort, wash, remove stems and crush berries.

To make jam:

1. Measure 4 cups crushed berries into a large saucepan. Stir in amount of liquid sugar substitute to taste, pectin and lemon juice.
2. Bring to a boil and boil 1 minute, stirring constantly. Remove from heat and skim off foam.
3. Continue to stir 2 minutes. Pour into clean freezer containers, leaving $\frac{1}{2}$ -inch headspace. Cover tightly, label and date. Allow to stand at room temperature for 2 hours so the gel sets, then store in the freezer for up to 1 year.
4. Thaw in the refrigerator and store refrigerated for up to 3 weeks.

Yield: 6 half-pints

*To substitute other sweeteners, refer to note on page 43.



LOW- & NO-SUGAR JAM & JELLY RECIPES

Strawberry jam — No sugar

5 cups crushed strawberries

1 cup fruit juice

1 box no-sugar pectin

To prepare fruit:

Sort, wash, remove stems and crush berries.

To make jam:

1. Measure crushed berries and fruit juice into a large saucepan.
2. Follow directions for no-sugar peach jam on page 47.

Yield: 6 to 7 half-pints



Sugar is not required to prepare jams and jellies when using low-methoxyl pectin. However, adding a small amount of sugar or an equivalent amount of sugar substitute will improve the taste. To sweeten berries and fruits, add $\frac{1}{2}$ to $\frac{3}{4}$ cup sugar or an equivalent amount of sugar substitute to the recipe, to suit your taste. To sweeten sour fruits, add 1 cup sugar or equivalent sugar substitute to the recipe.



Reference to products is not intended to endorse them, nor to exclude others that may be similar. Examples are listed as a convenience to readers. If you use these products, be sure to follow the manufacturer's current label directions.

Preserves, conserves, marmalades, fruit butters and syrups

Preserves, conserves, marmalades and fruit butters are all rich in natural fruit. These products require longer cooking time and only their own natural pectin to thicken properly.

Fruit or berry syrups can be prepared from juice of fresh or frozen fruit. These syrups are delicious all year round, as toppings for pancakes, pastries and ice cream.

You will find recipes for such traditional favorites as strawberry preserves, peach conserves, orange marmalade, and apple butter on the following pages.

Yields can vary considerably due to length of cooking time, so yours may differ from those stated in recipes.

To ensure a safe product, process in a boiling water canner for 5 minutes. Adjust time for elevation, if necessary (see map on page 13).

Follow the guidelines for selecting fruit on pages 3-4, and for processing in a boiling water canner on page 12.

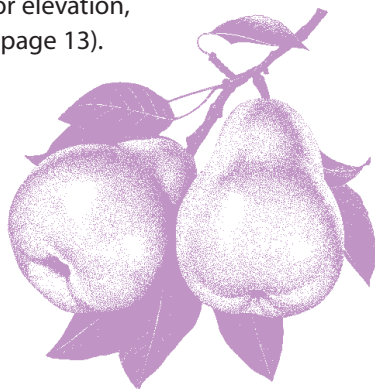


Process for 5 minutes in a boiling water canner for a safe, high quality product. University of Wisconsin-Extension does not recommend sealing jars with paraffin, or inverting sealed jars as a final step.



Caution! Adjust processing for elevation

The processing time of 5 minutes in this publication is for elevations up to 1,000 feet above sea level. Add 1 more minute processing time for each added 1,000 feet elevation.



PRESERVES RECIPES

Peach preserves, old-fashioned

2 qts. sliced peaches
(10 large peaches)

6 cups sugar

To prepare fruit:

Select hard, ripe peaches. Wash, peel, pit and slice.

To make preserves:

1. Combine fruit and sugar. Let stand 12 to 18 hours in the refrigerator.
2. Bring slowly to a boil, stirring often. Boil gently until fruit becomes clear and syrup thick, about 40 minutes.
3. Fill hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
4. Remove bubbles, wipe jar rims clean, and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 7 to 10 half-pints



Pear preserves

6 medium pears (2 lbs.)

3 cups sugar

2 $\frac{1}{2}$ cups water

1 thinly sliced lemon

To prepare fruit:

Select hard ripe pears. Wash, core and peel fruit. Cut into halves or quarters.

To make preserves:

1. Combine 1 $\frac{1}{2}$ cups sugar with water. Cook on high heat for 2 minutes, stirring constantly.
2. Add pears and boil gently for 15 minutes.
3. Add remaining 1 $\frac{1}{2}$ cups sugar and lemon slices, stirring until sugar dissolves. Cook over high heat until fruit is clear, about 25 minutes, stirring constantly.
4. Cover and let stand 12 to 24 hours in the refrigerator.
5. Heat fruit and syrup to a boil. Strain out fruit and pack hot fruit into hot, sterilized half-pint jars.
6. Pour syrup over fruit, leaving $\frac{1}{4}$ -inch headspace.
7. Remove bubbles, wipe jar rims clean, and adjust lids.
8. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints

PRESERVES RECIPES

Plum preserves

5 cups tart plums (2¹/₂ lbs.)

4 cups sugar

1 cup water

To prepare fruit:

Wash plums and remove pits.

To make preserves:

1. Combine all ingredients in a saucepan.
2. Bring slowly to a boil, stirring until sugar dissolves.
3. Cook almost to jelling point (220° F), about 15 minutes, stirring constantly.
4. Fill hot, sterilized half-pint jars, leaving ¹/₄-inch headspace.
5. Remove bubbles, wipe jar rims clean, and adjust lids.
6. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints



Note:

lb. = pound

oz. = ounce

tbsp. = tablespoon

2 cups = 1 pint

2 pints = 1 quart

Strawberry preserves

6 cups prepared strawberries

(1¹/₂ quarts)

5 cups sugar

¹/₃ cup bottled lemon juice

To prepare fruit:

Select firm, red, ripe strawberries. Wash, remove stems, slice berries.

To make preserves:

1. Combine sliced berries with sugar in a large saucepan. Let stand 3 to 4 hours in the refrigerator.
2. Bring slowly to a boil, stirring occasionally until sugar dissolves.
3. Add lemon juice. Cook rapidly until berries are clear and syrup is thick, about 10 to 12 minutes.
4. Pour into a shallow pan. Let stand, uncovered, 12 to 24 hours in the refrigerator. Shake pan occasionally to distribute berries through syrup.
5. Heat mixture almost to boiling. Pour at once into hot, sterilized half-pint jars, leaving ¹/₄-inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 to 6 half-pints

CONSERVES RECIPES

Apple conserve

4¹/₂ cups finely chopped red apples
(3 lbs. apples)

1/2 cup water

1/4 cup lemon juice

1/2 cup raisins

1 box powdered pectin

5¹/₂ cups sugar

1/2 cup chopped nuts

To prepare fruit:

Select tart apples. Sort and wash apples. Core but do not pare apples; finely chop.

To make conserve:

Combine apples, water, lemon juice, and raisins in a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Add sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly. Add nuts. Remove from heat. If desired, add 3 or 4 drops red food coloring. Skim.

Immediately fill hot, sterile jars, leaving 1/4-inch headspace. Wipe jar rims clean and adjust lids. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 6 or 7 half-pint jars

Apricot-orange conserve

3¹/₂ cups chopped, drained apricots
(2 20-oz. cans unpeeled or 1 lb. dried apricots)

1¹/₂ cups orange juice (3 or 4 oranges)

Peel of 1/2 orange, shredded very fine

2 tbsp. lemon juice

3¹/₄ cups sugar

1/2 cup chopped nuts

To prepare fruit:

Cook dried apricots uncovered in 3 cups water until tender (about 20 minutes); drain and chop.

To make conserve:

1. Combine all ingredients except nuts.
2. Cook to 9° F above the boiling point of water, or until thick, stirring constantly.
3. Add nuts; stir well. Remove from heat; skim.
4. Immediately fill hot, sterile jars, leaving 1/4-inch headspace. Wipe jar rims clean and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pint jars



CONSERVES RECIPES

Blueberry or huckleberry conserve

4 cups berries (1 quart)

1/2 thinly sliced lemon

1/2 thinly sliced orange

1/2 cup seedless raisins

2 cups water

4 cups sugar

To prepare fruit:

Wash berries and remove stems. Wash and thinly slice lemon and orange.

To make conserve:

1. Bring water and sugar to a boil, stirring to dissolve sugar.
2. Add berries, lemon, orange and raisins. Simmer for 5 minutes, and then cook rapidly until thick, about 30 minutes, stirring to prevent sticking.
3. Fill hot, sterilized half-pint jars, leaving 1/4-inch headspace.
4. Remove bubbles, wipe jar rims clean, and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 4 to 5 half-pints



Cranberry conserve

4 cups cranberries (1 quart)

1 orange, unpeeled and finely chopped

1 cup raisins, chopped

3 cups sugar

1/2 cup nuts, chopped

To prepare fruit:

Sort, wash and measure cranberries. Wash orange and finely chop. Measure and chop raisins.

To make conserve:

1. Combine orange and water; cook rapidly until peel is tender (about 20 minutes).
2. Add cranberries, sugar and raisins. Bring to a boil, stirring occasionally until sugar dissolves.
3. Cook rapidly almost to jelling point (220° F), about 8 minutes. As the mixture thickens, stir often to prevent sticking.
4. Add chopped nuts to the mixture a few minutes before cooking is complete.
5. Fill hot, sterilized half-pint jars, leaving 1/4-inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 4 to 5 half-pints

CONSERVES RECIPES

Peach conserve

7 cups firm, ripe peaches, chopped
(10 to 12 large peaches)

1 orange, chopped

5 cups sugar

1/2 tsp. ground ginger

1/2 cup blanched, slivered almonds

To prepare fruit:

Wash, peel, pit and chop firm, ripe peaches. Wash and chop unpeeled, seeded orange.

To make conserve:

1. Cook fruit gently 15 to 20 minutes.
2. Add sugar and ginger.
3. Slowly bring to a boil, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 15 minutes.
4. Add nuts the last 5 minutes of cooking.
5. Fill hot, sterilized half-pint jars, leaving 1/4-inch headspace.
6. Remove bubbles, wipe jar rims clean, and adjust lids.
7. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 9 to 10 half-pints



Plum conserve

2 1/2 qt. chopped, pitted plums (4 1/2 lbs.)

3/4 cup thinly sliced orange peel

2 cups seedless raisins

1 3/4 cups chopped orange pulp
(2 large oranges)

6 cups sugar

2 cups broken pecan or other nuts

To make conserve:

1. Combine plums, orange pulp and peel, raisins, and sugar.
2. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly, about 15 to 20 minutes, almost to the jelling point (which is 8° F above the boiling point of water, or 220° F at sea level). As the mixture thickens, stir frequently to prevent sticking.
3. Add nuts during the last 5 minutes of cooking.
4. Fill hot, sterile jars, leaving 1/4-inch headspace. Wipe jar rims clean and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 10 half-pint jars



MARMALADE RECIPES

Apple marmalade

8 cups thinly sliced apples (3 lbs.)

1 orange

1¹/₂ cups water

5 cups sugar

2 tbsp. lemon juice

To prepare fruit:

Select tart apples. Wash, pare, quarter, and core the apples. Slice thin. Quarter the orange, remove any seeds, and slice very thin.

To make marmalade:

1. Heat water and sugar until sugar is dissolved.
2. Add the lemon juice and fruit.
3. Boil rapidly, stirring constantly, to 9° F above the boiling point of water, or until the mixture thickens. Remove from heat; skim.
4. Fill hot, sterile jars, leaving ¹/₄-inch headspace. Wipe jar rims clean and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 6 or 7 half-pint jars



Citrus marmalade

1¹/₂ cups grapefruit peel (1 grapefruit)

¹/₂ cup orange peel (1 orange)

¹/₂ cup lemon, thinly sliced (1 lemon)

pulp of 1 grapefruit

pulp of 4 medium oranges

6 cups (1¹/₂ quarts) water

1 cup sugar per cup of fruit mixture

To prepare fruit:

1. Wash and peel fruit.
2. Cut fruit peel in thin strips about 1 inch long, and place in a saucepan. Add water.
3. Bring to a boil, then drain. Repeat.
4. To drained peel, add fruit pulp, thinly sliced lemon and 6 cups water. Boil 5 minutes. Let stand 12 to 18 hours in the refrigerator.

To make marmalade:

1. Bring fruit and peel to a boil and cook rapidly until peel is tender, about 30 to 40 minutes. Measure fruit and liquid.
2. Add 1 cup sugar for each cup of fruit mixture.
3. Stir to dissolve sugar and cook rapidly to the jelling point (220° F), about 30 minutes.
4. Fill hot, sterilized half-pint jars, leaving ¹/₄-inch headspace.
5. Remove bubbles, wipe jar rims clean, and adjust lids.

MARMALADE RECIPES

6. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 5 half-pints



Cranberry marmalade

2 oranges

1 lemon

3 cups water

1 lb. cranberries (4 cups)

1 box powdered pectin

7 cups sugar

To prepare fruit:

1. Peel oranges and lemon; remove half of white part of rinds. Finely chop or grind the remaining rinds. Put rind in large saucepan.
2. Add water, bring to a boil. Cover and simmer 20 minutes, stirring occasionally.
3. Chop peeled fruit. Sort and wash fully ripe cranberries. Add fruit to rind; cover and cook slowly 10 minutes longer.

To make marmalade:

1. Measure 6 cups of fruit into a large kettle. Add water to make 6 cups if necessary. Add pectin and stir well.
2. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.
3. Add sugar, continue stirring, and heat again to full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.
4. Immediately fill hot, sterile jars, leaving $\frac{1}{4}$ -inch headspace. Wipe jar rims clean and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 10 or 11 half-pint jars



Orange marmalade

4 cups orange peel, thinly sliced
(about 6 large oranges)

4 cups orange pulp, cut up
(about 6 large oranges)

1 cup lemon, thinly sliced
(about 2 medium lemons)

6 cups water (1 $\frac{1}{2}$ quarts)

1 cup sugar per cup of fruit mixture
(about 6 cups)

MARMALADE / FRUIT BUTTER RECIPES

To prepare fruit:

1. Wash and slice fruit. Place water, fruit and peel in a saucepan.
2. Simmer 5 minutes. Cover and let stand 12 to 18 hours in the refrigerator.
3. Heat and cook rapidly until peel is tender, about 1 hour.

To make marmalade:

1. Measure fruit and liquid. Add 1 cup sugar for each cup of fruit mixture.
2. Bring slowly to a boil, stirring until sugar dissolves.
3. Cook rapidly to jelling point (220° F), about 25 minutes, stirring often.
4. Fill hot, sterilized half-pint jars, leaving $\frac{1}{4}$ -inch headspace.
5. Remove bubbles, wipe jar rims clean, and adjust lids.
6. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 7 half-pints



Tomato marmalade

- 3 qt. ripe tomatoes (5 $\frac{1}{2}$ lbs.)
- 3 oranges
- 2 lemons
- 4 sticks cinnamon (3-inch pieces)
- 6 whole allspice
- 1 tbsp. whole cloves
- 6 cups sugar
- 1 tsp. salt

To prepare fruit:

Peel tomatoes and cut into small pieces. Drain. Slice oranges and lemons very thin; quarter the slices. Tie cinnamon, allspice and cloves in a cheesecloth bag.

To make marmalade:

1. Place tomato pieces in a large kettle. Add sugar and salt; stir until dissolved. Add oranges, lemons and spice bag.
2. Bring to a boil, stirring constantly. Continue to boil rapidly, stirring constantly, until thick and clear (about 50 minutes). Remove from heat; skim off foam.
3. Immediately fill hot, sterile jars, leaving $\frac{1}{4}$ -inch headspace. Wipe jar rims clean and adjust lids.
4. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: About 9 half-pint jars

FRUIT BUTTER RECIPES

Apple butter

8 lbs. apples

2 cups sweet cider

2 cups vinegar

2¹/₄ cups white sugar

2¹/₄ cups brown sugar

2 tbsps. ground cinnamon

1 tbsps. ground cloves

To prepare pulp:

1. Wash and quarter apples; core but do not peel.
2. Cook apples in cider and vinegar until tender.
3. Press through a sieve or food mill.

To make fruit butter:

1. Cook fruit pulp with sugar and spices until thick, about 1 hour, stirring often.
2. To test for doneness, remove a spoonful and hold it away from steam for 2 minutes. It is done if the butter remains mounded on the spoon.
3. Fill hot, sterilized half-pint jars, leaving ¹/₄-inch headspace.
4. Remove bubbles, wipe jar rims clean, and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 9 to 10 half-pints

Peach butter

8 cups peach pulp (18 medium fully ripe peaches)

4 cups sugar

¹/₂ to 1 tsp. ground ginger (optional)

¹/₂ to 1 tsp. ground nutmeg (optional)

To prepare pulp:

1. Wash, scald, pit, peel and chop peaches.
2. Cook peaches until soft, adding only enough water to prevent sticking. Stir often.
3. Press through a sieve or food mill.

To make fruit butter:

1. Measure 8 cups peach pulp.
2. Add sugar and optional spices to pulp mixture.
3. Cook slowly until thick, about 30 minutes, stirring often to prevent sticking.
4. Fill hot, sterilized half-pint jars, leaving ¹/₄-inch headspace.
5. Remove bubbles, wipe jar rims clean, and adjust lids.
6. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 8 half-pints



FRUIT BUTTER/FRUIT SYRUP RECIPES

Pear butter

8 cups pear pulp (20 medium fully ripe pears)

4 cups sugar

1 tsp. grated orange rind

1/3 cup orange juice

1/2 tsp. ground nutmeg

To prepare pulp:

1. Wash, quarter and core pears.
2. Cook until soft, adding only enough water to prevent sticking. Stir often.
3. Press through a sieve or food mill.

To make fruit butter:

1. Measure 8 cups pear pulp.
2. Add remaining ingredients.
3. Cook over medium-high heat until thick, about 15 minutes, stirring often to prevent sticking.
4. Fill hot, sterilized half-pint jars, leaving 1/4-inch headspace.
5. Remove bubbles, wipe jar rims clean, and adjust lids.
6. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 8 half-pints



Berry syrup

4 1/2 to 5 cups juice (6 1/2 cups fresh or frozen berries)

6 3/4 cups sugar

1 to 2 cups whole fruit or pieces (optional)

To prepare juice:

1. Sort and wash berries and remove stems. Crush in a saucepan. Heat to boiling and simmer until soft, 5 to 10 minutes.
2. Strain hot fruit through a colander and drain until cool enough to handle. Strain juice.

To make fruit syrup:

1. Measure juice into a large saucepan. Add sugar. Bring to a boil and simmer 1 minute, stirring constantly.
2. Add fruit or pieces, if desired. Heat through. Remove from heat and skim off foam.
3. Fill hot, sterilized half-pint jars, leaving 1/4-inch headspace.
4. Remove bubbles, wipe jar rims clean, and adjust lids.
5. **Process in a boiling water canner for 5 minutes.** Adjust time for elevation, if necessary (see map on page 13).

Yield: 8 to 9 half-pints



Remedies for jellied product problems

Problem	Cause	Prevention
Bubbles	Jelly poured slowly, trapping air in hot jelly May denote spoilage — Do not use if bubbles are moving.	Pour jelly quickly into jar. Remove air bubbles with a rubber spatula or bubble freer before processing. Follow recommended methods to process.
Cloudy	Green or unripe fruit Imperfect straining Jelly allowed to stand before poured into jars, or poured too slowly	Use firm, ripe or slightly under-ripe fruit. Do not squeeze juice, let it drip through jelly bag. Hold jar close to top of kettle and fill quickly.
Crystals form	Excess sugar Undissolved sugar sticking to side of kettle Mixture cooked too little Mixture cooked too slowly or too long Tartrate crystals in Concord grape juice	Follow recipe exactly. Wipe side of pan free of crystals with a damp cloth before filling jars. Cook until sugar has completely dissolved and mixed with fruit juice. Cook at a rapid (hard) boil. Remove from heat immediately when jelling point is reached (220° F). Refrigerate juice from fresh Concord grapes overnight. Strain through double layers of damp cheesecloth to remove crystals before making jelly.
Fading	Storage place too warm or too light Stored too long	Store in a cool, dark, dry place. Use oldest products first. Use jellied products within 1 year.
Fruit floats	Mixture ladled into jars too soon Not thoroughly crushed Over-ripe fruit Undercooking	Stir fruit mixture for 5 minutes (no more) before ladling into hot jars. Crush fruit uniformly. Use just-ripe fruit. Cook rapidly, following instructions.

Problem	Cause	Prevention
Mold	<p>Imperfect seal</p> <p>Lack of proper sanitation</p> <p>Jelly allowed to stand before poured into jars, or poured too slowly</p> <p>Storage place too warm and damp</p>	<p>Wipe jar rims clean, seal with pretreated standard two-piece lids, and process in a boiling water canner as directed.</p> <p>Sterilize canning jars and all equipment used by boiling 10 minutes.</p> <p>Pour into jars immediately upon reaching jelling point (220° F). Work quickly.</p> <p>Store in a cool, dark, dry place.</p>
Syneresis or “weeping”	<p>Excess acid in juice makes pectin unstable</p> <p>Storage place too warm or storage temperature fluctuated</p> <p>Use of a thick paraffin seal — not recommended</p> <p>Mold growth, denotes spoilage — Do not use.</p>	<p>Maintain proper acidity of juice. Test acid in juice. Use more fully ripe fruit.</p> <p>Store in a cool, dark, dry place.</p> <p>Seal with pretreated standard two-piece vacuum seal canning lids and process in a boiling water canner.</p> <p>See mold prevention above.</p>
Too stiff	<p>Overcooking</p> <p>Too much pectin in fruit</p>	<p>Cook jelly to 8° F higher than the boiling point of water (jelling point), or until it sheets off a spoon.</p> <p>Use some ripe fruit as well as under-ripe.</p>
Too soft	<p>Incorrect proportions of sugar and juice</p> <p>Insufficient acid</p> <p>Overcooking fruit to extract juice</p> <p>Undercooking fruit in recipes without added pectin</p> <p>Making too large a batch at one time</p>	<p>Follow directions exactly. Do not reduce sugar in recipes with added pectin.</p> <p>Avoid using over-ripe fruit. Add bottled lemon juice to increase acid, if needed.</p> <p>Avoid overcooking, as this lowers the pectin’s jelling capacity.</p> <p>Cook long enough to extract natural pectin. Test for pectin (see page 25).</p> <p>Make only a single recipe at a time.</p>

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Resources

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Complete Guide to Home Canning. Agriculture Information Bulletin No. 539 (Washington, D.C.: U.S. Department of Agriculture), 2008.

MacRae, Norma M., *Canning and Preserving Without Sugar* (Globe Pequot Press), 2000.

To start with the right ingredients, see also:

Apple Cultivars for Wisconsin (A2105)

Home Fruit Cultivars for Northern Wisconsin (A2488)

Home Fruit Cultivars for Southern Wisconsin (A2582)

Vegetable Cultivars and Planting Guide for Wisconsin Gardens (A1653)

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