

# Jams, Jellies and Other Fruit Spreads

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Jams, jellies, preserves, conserves, marmalades, and butters are all gelled or thickened fruit products. Most are cooked and preserved with sugar. Their individual characteristics depend on the kind of fruit used and the way it is prepared, the ingredients and their proportions in the mixture, and the method of preparation.

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

*Jellies* are usually made by cooking fruit juice with sugar. A good product is clear and firm enough to hold its shape when turned out of the container, yet quivers when moved.

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

*Conserves* are jam-like products that may be made from a mixture of fruits. They may also contain nuts, raisins, or coconut.

*Marmalades* are soft fruit jellies containing small pieces of fruit or peel. They often contain citrus fruit.

*Fruit butters* are sweet spreads made by cooking fruit pulp with sugar to a thick consistency. Spices are often added. Butters are not gelled.

## Essential Ingredients

For successful jams, jellies, and other fruit products, a proper ratio of fruit, pectin, acid, and sugar is needed.

## Fruit or Juice

For best color, flavor, and consistency, choose ripe fruit (shape is irrelevant). Unsweetened, canned, or frozen fruit or fruit juice can also be used. Because commercially canned or frozen products are made from fully ripe fruit (which are lower in pectin than under-ripe fruit); pectin must be added. If you preserve your own fruit or fruit juice, use slightly under-ripe fruit (usually 1/4 slightly under-ripe and 3/4 fully ripe is recommended.) Fruit is best if canned in its own juice. If adding sugar, note on each jar how much sugar it contains. This will be needed to adjust recipes later.

To extract juice for jelly, follow these directions:

1. Place fruit into a flat-bottomed saucepan and add cold water. For apples and other hard fruits, add up to 1 cup per pound of fruit. For berries and grapes, use 1/4 cup or less of water per pound of fruit to prevent scorching. Crush soft fruits to start the flow of juice.
2. Bring to a boil on high heat. Stir to prevent scorching.
3. Reduce heat.
4. Grapes and berries need 5 to 10 minutes or less to cook until soft. Apples and other hard fruits may need 20 to 25 minutes, depending on the firmness of the fruit. Do not overcook; excess boiling will destroy the pectin, flavor, and color.
5. Pour everything into a damp jelly bag and suspend the bag to drain the juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing or squeezing.
6. If a fruit press is used to extract the juice, the juice should be restrained through a jelly bag.

**NOTE:** Juicy berries may be crushed and the juice extracted without heating.

## Pectin

Pectin is the natural substance found in fruit that causes the fruit juice to gel. Some fruits have enough natural pectin to gel firmly; others require added pectin. The best type of pectin is found in just-ripe fruit. Pectin



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from under-ripe or overripe fruit will not gel. Refer to the chart below for pectin and acid content of common fruits:

Group I If not overripe, has enough natural pectin and acid for gel formation with added sugar only.	Group II Low in natural acid or pectin; might need addition of either acid or pectin.	Group III Always needs added acid, pectin or both.
Apples, sour	Apples, ripe	Apricots
Blackberries, sour	Blackberries, ripe	Blueberries
Crabapples	Cherries, sour	Figs
Cranberries	Chokecherries	Grapes (Western Concord)
Currants	Elderberries	Guavas
Gooseberries	Grapefruit	Peaches
Grapes (Eastern Concord)	Grape Juice, bottled (Eastern Concord)	Pears
Lemons	Grapes (California)	Plums (Italian)
Loganberries	Loquats	Raspberries
Plums (not Italian)	Oranges	Strawberries
Quinces		

Commercial pectins are made from apples or citrus fruit and are available in both powdered and liquid forms. Be sure to follow the manufacturer’s directions when using commercial pectin. *The powdered and liquid forms are not interchangeable in recipes.*

Commercial pectins may be used with any fruit. The additional sugar required when using commercial pectin may mask the natural fruit flavor.

There are special pectins available to make jellied products with no added sugar or with less sugar than regular recipes. Recipes will be found on the package inserts and directions should be followed carefully.

Commercial fruit pectin should be stored in a cool, dry place and used by the date indicated on its package. *Do not hold commercial fruit pectin over from one year to the next.*

## Acid

When a recipe calls for added acid (lemon juice or citric acid), it is needed for successful gel formation.

## Sugar



Sugar must be present in the proper proportions with pectin and acid to make a good gel. Sugar also prevents the growth of microorganisms in the product and contributes to the taste.

Granulated white sugar is usually used in homemade fruit products. Sweeteners such as brown sugar, sorghum, and molasses are not recommended because their flavors overpower the fruit and sweetness may vary. Extra fine sugar or sugar blends with dextrose, fructose, or other sweetener added should not be used. You can replace part but not all of the sugar with light corn syrup or light, mild honey. For best results, use tested recipes that specify honey or corn syrup. *Never change the amount of sugar in a recipe.*

*Artificial sweeteners cannot be substituted for sugar in regular recipes because sugar is needed for gel formation.* Jellied fruit products without added sugar must be made using special recipes or special jelling products.

## Equipment and Containers

An 8 or 10 quart saucepan is best for jelly making because it allows even heat distribution and volume control.

A jelly bag or suitable cloth is needed when extracting juice for jelly. Firm unbleached muslin or cotton flannel with the napped side turned in or four thicknesses of closely woven cheesecloth may be used. Jelly bags or cloths should be damp when extracting juice.

A jelly, candy, or deep-fat thermometer should be used to determine doneness in jellied fruit products without added pectin.

A boiling water bath canner is necessary for processing all unrefrigerated or unfrozen fruit spreads.

## General Directions

### Amount to Prepare

To enjoy jams, jellies, and other fruit products at their best, make only a quantity that you can use within a year. Jellies lose flavor and color during storage. For best results, make only one recipe at a time, using no more than 6 to 8 cups juice. Double batches do not always gel properly.

### Altitude Adjustment

The processing times given for most fruit products are for processing at altitudes of 0–1,000 feet. Add 1 minute to the processing time for each additional 1,000 feet of altitude.

### Preparing the Containers

Prepare the canning jars before you start to make the fruit product. Half-pint jars work best, unless a recipe specifies another size. Using larger jars can result in a weak gel. Pint jars should be the largest used.

Wash the containers in hot, soapy water and rinse, or wash in dishwasher. Sterilize the jars by boiling them for 10 minutes. Keep the jars in the hot water until they are

used to prevent the jars from breaking when filled with the hot product. If you are at an altitude of 1,000 feet or more, add one minute to the sterilizing time.

Wash and rinse all canning lids and bands. Prepare the lids as directed by the manufacturer.

### Testing for Doneness

There are three ways to test jams, jellies and other fruit spreads for doneness prior to processing the final product.

#### Temperature Test

Use a jelly or candy thermometer and boil until mixture reaches the temperatures at the altitudes listed in the chart below:

Sea Level	220 F
1,000 ft	218 F
2,000 ft	216 F
3,000 ft	214 F
4,000 ft	212 F
5,000 ft	211 F
6,000 ft	209 F
7,000 ft	207 F
8,000 ft	205 F

#### Sheet or Spoon Test

Dip a cool metal spoon into the boiling jelly mixture. Raise the spoon about 12 inches above the pan (out of the steam). Turn the spoon so the liquid runs off the side. The jelly is done when the syrup forms two drops that flow together and sheet or hang off the edge of the spoon.

#### Refrigerator/Freezer Test



Remove the jam mixture from the heat. Pour a small amount of the jam on a cold plate and put it in the freezing compartment of a refrigerator for a few minutes. If the mixture gels, it is ready to fill the jars for processing.

### Sealing the Containers and Processing

All jams, jellies, and other fruit spreads must be processed in a boiling water bath to prevent mold growth. Paraffin is no longer recommended as a method for sealing jams and jellies. Air can seep in around the edges and cause spoilage and mold. To process jams and jellies in a boiling water bath, pour the boiling product into a hot, sterilized canning jar, leaving 1/4- inch headspace. Wipe the jar rim thoroughly with a wet paper towel or cloth and close with a canning lid and screw band. Place on a rack

in a canner filled with boiling water. The water should cover the jars by at least 1 inch. Cover the canner. Bring the water back to a boil and boil gently for 5 minutes. Remove the jars to a protected surface and cool upright away from drafts.

### Storage

Do not move products, especially jellies, for at least 12 to 24 hours. Moving them could break the gel. After the products have cooled for 12 to 24 hours, check the seal, remove the screw band, and wash the outsides of jars, label, and store in a cool, dry, dark place. Place any unsealed jars in the refrigerator. Uncooked jams must be stored in the refrigerator (up to 4 weeks) or freezer (up to 1 year).

### Making Jams and Jellies

There are basically two types of jams and jellies: those made with added pectin and those without. The use of commercial pectin simplifies the procedure and yields more jelly per volume of juice or fruit. Jams and jellies can be made more quickly using added pectin, and their doneness is easier to determine. Follow the directions included with the commercial pectin.

If making jelly without added pectin, use no more than 6 to 8 cups of fruit juice at a time. Using the following chart, measure the recommended amount of fruit juice, sugar and lemon juice, heat to boiling. Stir until the sugar is dissolved. Boil over high heat to the gelling point. Test for doneness. Remove from heat and quickly skim off foam. Fill sterile jars. Adjust lids and process.

Fruit Juice (1 cup)	Sugar (cups)	Lemon Juice (tsp)	Yield From 4 Cups of Juice (half-pints)
Apples	¾	1½ (optional)	4–5
Blackberries	¾ to 1	None	7–8
Crabapples	1	None	4–5
Grapes	¾ to 1	None	8–9
Plums	¾	None	8–9

If making jam without added pectin, wash and rinse fruits thoroughly before cooking. Do not soak. Use fully ripe fruit. Remove stems, skins and pits from fruit; cut into pieces and crush. For berries, remove the stems and blossoms, and then crush.

Fruit	Cups of Crushed Fruit	Sugar (cups)	Lemon Juice (tsp)	Yield (half-pints)
Apricots	4–4½	4	2	5–6
Berries*	4	4	0	3–4
Peaches	5½–6	4–5	2	6–7

\*Includes blackberries, boysenberries, dewberries, gooseberries, loganberries, raspberries and strawberries.

Use the chart below to determine recommended ingredient quantities. Add sugar to crushed fruit and bring to a boil. Continue boiling until the mixture thickens. Test for doneness. Remove from heat and quickly skim off foam. Fill sterile jars with jam. Adjust lids and process.

Recommended Processing Time (in minutes) for Jam or Jelly Without Added Pectin in a Boiling Water Canner				
Style of Pack	Jar Size	Processing Time at Altitudes of:		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-Pints or Pints	5	10	15

### Jellied Products Without Added Sugar or With Reduced Sugar

Jellied products without sugar or with reduced sugar cannot be made by omitting the sugar in regular jelly recipes. However, they can be made by the following methods:

- *Special modified pectins:* These pectins are not the same as regular pectin. They will say “light,” “less sugar,” or “no sugar needed” on the label. Follow the directions on the package. Some products are made with less sugar and some with artificial sweeteners.
- *Regular pectin with special recipes:* These special recipes have been formulated so that no added sugar is needed. However, each package of regular pectin does contain some sugar. Artificial sweetener is often added.
- *Recipes using gelatin:* Some recipes use unflavored gelatin as the thickener for the jam or jelly. Artificial sweetener is often added.
- *Long-boil methods:* Boiling fruit pulp for extended periods of time will cause a product to thicken and resemble a jam, preserve, or fruit butter. Artificial sweetener may be added.

Follow the directions on the modified pectin package or in a no-sugar recipe exactly. Alterations in the recipe could result in product failures. Because these products do not use sugar as a preservative, be sure to process or store them as directed. Some require longer processing in a boiling water bath and some require refrigeration.

### Remaking Cooked Jam or Jelly

Measure jam or jelly to be recooked. Work with no more than 4 to 6 cups at a time.

#### With Powdered Pectin

For each quart of jelly, combine 1/4 cup sugar, 1/2 cup water, 2 tablespoons bottled lemon juice, and 4 teaspoons powdered pectin. Bring to a boil while stirring. Add jelly and bring to a rolling boil over high heat, stirring constantly.

Boil hard 1/2 minute. Remove from heat, quickly skim foam off jelly, and fill sterile jars, leaving 1/4-inch headspace. Adjust new lids and process.

#### With Liquid Pectin

For each quart of jelly, measure 3/4 cup sugar, 2 tablespoons bottled lemon juice, and 2 tablespoons liquid pectin. Bring jelly to boil over high heat while stirring. Remove from heat and quickly add the sugar, lemon juice, and pectin. Bring to a full rolling boil, stirring constantly. Boil hard for 1 minute. Quickly skim foam off jelly and fill sterile jars, leaving 1/4-inch headspace. Adjust new lids and process.

#### Without Added Pectin

For each quart of jelly, add 2 tablespoons bottled lemon juice. Heat to boiling and boil for 3 to 4 minutes. (Refer back to making jam or jelly without added pectin.) Remove from heat, quickly skim foam off jelly and fill sterile jars, leaving 1/4-inch headspace. Adjust new lids and process.

### Recipes

#### Golden Pepper Jelly

*Yields about 7 half-pint jars*

3 large, fleshy yellow bell peppers

1–4 Serrano chile peppers

1½ cups white distilled vinegar (5%)

7 cups sugar

1 pouch (3 oz.) liquid pectin

Yellow peppers give this jelly a light golden color. You may use other colored peppers but these will produce a different jelly color. Other hot peppers may also be used. It is best to start with a mild hot pepper flavor and increase it as to suit personal tastes. When prepared properly, the jelly will have a mildly firm set. It is recommended to process this jelly in half-pint jars.

Caution: Wear plastic or rubber gloves and do not touch your face while when handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

*To prepare the pepper juice:* Wash all peppers thoroughly; remove stems and seeds from the peppers. Do not remove the membranes from the hot peppers because the remaining capsaicin for the pepper heat is located there. Place the hot and sweet peppers in a blender or food processor. Add enough vinegar to puree the peppers, then puree. Combine the pepper-vinegar puree and remaining vinegar into an 8 to 10 quart saucepan. Heat to a boil; then boil 10 minutes to extract flavors and colors. Remove from heat and strain through a jelly bag into a bowl. (The jelly bag is preferred; several layers of cheesecloth may also be used.)

*To make jelly:* Add the 2 ¼ cups of strained pepper-vinegar juice back into the saucepan. Stir in sugar until dissolved and return to a boil. Add the pectin, return to a full rolling boil and boil hard for 1 minute, stirring constantly. Remove from heat, quickly skim off any foam, and fill into sterile half-pint jars, leaving ¼ -inch headspace. Wipe rims of jars with dampened clean paper towel. Adjust lids and process for 5 minutes in a boiling water bath canner.

### **Pear-Apple Jam**

*Yields 7 or 8 half-pint jars*

2 cups peeled, cored and finely chopped pears (about 2 pounds)

1 cup peeled, cored, and finely chopped apples

1/4 teaspoon ground cinnamon

6½ cups sugar

1/3 cup bottled lemon juice

1 pouch (6 ounces) liquid pectin

Sterilize canning jars. Crush apples and pears in a large saucepan. Stir in cinnamon. Thoroughly mix sugar and lemon juice with fruits and bring to a boil over high heat, stirring constantly. Immediately stir in pectin. Bring to a full rolling boil and boil hard 1 minute, stirring constantly. Remove from heat; quickly skim off foam. Pour jam immediately into hot jars, leaving 1/4-inch headspace. Wipe jar rims with a dampened clean paper towel. Adjust lids and process 5 minutes in a boiling water bath.

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