Jellies, Jams & Preserves

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Many people prepare home-preserved jellies, jams, preserves and fruit spreads to enhance and complement meals. Most of these jellied or thickened products are made from fruit or fruit juice, although in some locales, unusual products such as cactus or pepper jelly are popular.

Most of these traditional products are preserved with sugar, but current health concerns have led to the development of "new-generation" products using less sugar or none at all. Some of them use artificial sweeteners. These products generally require longer processing times and refrigeration or freezing for storage.

Jellies and jams

Jellies are clear jellied products usually made by cooking fruit juice with sugar. These products should be clear and firm enough to hold their shape when taken from the container, and they should be tender when cut. Jellies can be prepared with or without added commercial pectin, depending on how much pectin the fruit juice contains.

Jams are thickened products made with crushed or chopped fruits cooked with sugar. Jams are generally less firm than jelly, but they do tend to hold their shape when taken from the container. Jams also may be made with or without added commercial pectin, depending on the pectin content of the fruit.

Ingredients needed for jellied products

For traditional jellied products to be successful, you need the proper proportion of four ingredients: fruit, pectin, acid and sugar.

Fruit furnishes the product with flavor and color, as well as part of the necessary pectin and acid. Generally when using fresh fruit, choose fresh, just-ripe fruit to get the best flavor. However, if you are making jellies or jams without added pectin, a fourth of the fruit should be slightly underripe (as fruit ripens, its pectin content decreases).

Jams and jellies can also be made successfully from commercially canned or frozen unsweetened fruits and juices, but an added source of pectin will be needed, because these fruit products have little pectin.

Some jellied products are made with vegetables, such as peppers for pepper jelly. Because vegetables generally have little acid, recipes will call for an added source of acid such as vinegar.

Pectin is the substance in fruits that forms a gel if it is combined in the right proportion with acid and sugar. Fruits contain varying amounts of pectin. Some fruits contain enough natural pectin to make high-quality products; others require that you add commercial pectin, which is usually made from apple or citrus fruit.

Commercial pectin is available in powdered and liquid forms. Because the two forms require different cooking methods, they are not interchangeable in recipes.

It's best to buy fresh pectin yearly, because old pectin may not produce a proper gel. You can also buy modified pectin products to use to make jellied products with no added sugar (artificial sweeteners can be used) or with less sugar.

Many homemakers prefer to make products using commercial pectin because:

- Any type of fruit can be used.
- The fruit can be fully ripe, giving more flavor.
- Cooking time is shorter and precise.
- The yield from a given amount of fruit is higher.

However, these products may call for more sugar. The manufacturers of commercial pectin generally include recipes on an insert in the package.

Acid is needed for flavor and gel formation, particularly in products made without commercial pectin. The amount of acid varies among fruits and their degree of ripeness, with underripe fruit providing more acid. If the gel has too little acid, it will lose liquid (or weep).

Sugar is the primary preservative in traditional jellied products. It also adds flavor, firms the fruit and helps form the gel. Beet or cane sugar can be used. Do not reduce the amount of sugar in recipes that call for sugar, because they will not gel. Instead, use specially designed pectin products or recipes that call for reduced sugar.

Equipment

A large, flat-bottom 8- or 10-quart pot is preferred for cooking jellied products. To make products without added pectin, you will need a jelly, candy or deep-fat thermometer. A timer is also helpful.

To extract the juice from fruits, you can use jelly bags, which are made of closely woven cheesecloth or firm, unbleached muslin. Fruit presses may also help.

Use clean, sterilized standard canning jars, self-sealing lids and ring bands to can products. Be sure that the jars have no cracks or chips, and use new sealing lids for each jar. You will need a boiling water canner or a large kettle with tight fitting lid and rack to process canned products that are shelf-stable.

Extracting juice from fruit for jellies

Follow the recipe directions to prepare the fruit for juice extraction; the method may change for different types of fruit. However, in general, take these steps if no specific instructions are available:

- Wash the fruit thoroughly.
- Cut firmer fruits such as apples into small pieces, and add about 1 cup of water per pound of fruit to the pan. Include the peels and cores of fruits in the cooking mixture, because they are a more concentrated source of pectin.
- For soft fruits or berries, add only enough water to prevent scorching, and crush them gently to start the flow of juice.
- Bring the fruit mixture to a boil and then reduce the heat and simmer the fruits until they are soft. In general, fruits such as grapes and berries need to cook about 10 minutes or less, whereas firmer fruits such as apples need 20 to 25 minutes.
- When the fruit is tender, extract the juice by putting the cooked mixture through a damp jelly bag or fruit press.

The clearest jelly comes from juice that has dripped through a jelly bag without pressing. You can extract more juice if you squeeze the bag, but the juice will contain some pulp. One pound of fruit will generally yield about 1 cup of clear juice.

Making the product

Jellies can be made with or without added pectin.

Making jelly without commercial pectin

To determine if you can make successful products without added commercial pectin, test the fruit juice for pectin acid content.

How to test for pectin content: For jellied

products to be successful without added pectin, the fruit must have enough pectin to form a gel. To test the pectin content of fruit juice, combine 1 teaspoon of cooked fruit juice and 1 tablespoon of rubbing alcohol. Mix or stir it in a closed container. **Do not taste this mixture–it is poisonous.**

If the juice has enough pectin, it will form a jellylike mass that you can pick up with a fork. Juices low in pectin will form only a few pieces of jellylike material; you probably will need to use a commercial source of pectin to produce a gel with this juice.

Test for acid content: For products without added pectin, the acid content of fruit juice is also important. To test your juice for acid, taste your cooked juice and compare the flavor with that of a mixture of 1 teaspoon bottled lemon juice, 3 tablespoons of water and 1 teaspoon sugar. If your juice is not as tart as this lemon mixture, add 1 tablespoon of lemon juice per cup of fruit juice before cooking.

Cook the jelly: You may need to experiment to make successful jelly products from appropriate juices, tested using the above tests, without adding commercial pectin. Experience helps.

Using no more than 6 to 8 cups of juice at a time, pour the juice into a large flat-bottom pot. Bring the juice to boiling, add the sugar and stir it until it is dissolved. Follow the recipe ingredients for the amount of sugar to add per cup of juice. If you don't have a recipe, use 3/4 cup of sugar per cup of juice. Boil the mixture rapidly to the jellying point.

Use one of these methods to determine the jellying point:

- Thermometer test: Measure the temperature of the mixture with a candy or jelly thermometer. When the mixture reaches 220 degrees F at sea level, it's ready. (For each 1,000 feet above sea level, subtract 2 degrees from 220 for the correct doneness temperature.)
- Refrigerator test: Remove the pan from the heat. Put about a tablespoon of the boiling jelly onto a chilled plate. Place it in the freezing compartment of the refrigerator for 3 minutes. If it gels, it's done.
- Spoon or sheet test: Dip a cool metal spoon into the boiling fruit juice. Lift

the spoon out of the steam and turn it so that the juice runs off the side. When the juice slides off the spoon in a sheet, it is done. Remove it from the heat immediately.

Muscadine or Scuppernong Jelly

(Yield: 3 or 4 half-pint jars)

Muscadine and scuppernong are types of grapes.

4 cups muscadine juice

3 cups sugar

To prepare the juice: Select grapes that are in the just-ripe stage. Wash and crush them. Without adding water, boil and simmer them for about 10 minutes, stirring constantly. Press the juice from the heated grapes. Let the juice cool, then pour it into glass containers and set them in the refrigerator. The next day, strain the juice through a jelly bag. Do not squeeze the bag.

To make the jelly: Sterilize the canning jars. In a saucepan, heat 4 cups of the juice to boiling. Add 3 cups of sugar, and stir it until the sugar dissolves. Then boil it rapidly over high heat to 8 degrees F above the boiling point of water (220 degrees F at sea level) or until the jelly mixture sheets from a spoon.

Remove the saucepan from the heat; quickly skim off the foam. Immediately pour the jelly into hot canning jars, leaving 1/4-inch of headspace. Wipe the jar rims and adjust the lids. Process them for 5 minutes in a boiling water canner. (Adjust the time for altitudes above sea level.)

Apricot Jam

(Yield: 10 half-pint jars)

2 quarts crushed, peeled apricots

1/4 cup lemon juice

6 cups sugar

Sterilize the canning jars. Combine all of the ingredients, and slowly bring the mixture to boiling, stirring occasionally until the sugar dissolves. Cook it rapidly until it is thick, about 25 minutes. As the mixture thickens, stir it frequently to prevent sticking. Pour the hot jam into hot jars, leaving 1/4-inch of headspace. Wipe the jar rims and adjust the lids. Process the jam in the jars for 5 minutes in a boiling water canner. (Adjust the time for altitudes above sea level.)

Making jelly with commercial pectin

Fully ripe fruit can give rich, full flavor to products made with commercial pectin, in liquid or powdered forms. You can extract juice from fruit, or you can use canned or frozen juice. Follow the manufacturer's instructions on the package inserts in the commercial pectin packages. For the best results, follow the cooking times exactly. Process according to instructions in the recipe insert or in this publication.

Preserves

Preserves are thickened products made from small, whole fruit or uniform-sized pieces suspended in a slightly gelled syrup. The fruit pieces should be plump and tender.

Fig Preserves

(Yield: 10 half-pint jars)

3 quarts figs

3 quarts boiling water

4 cups sugar

1 1/2 quarts water

2 lemons, thinly sliced (optional)

Pour 3 quarts of boiling water over the figs. Let them stand for 15 minutes. Drain and discard the liquid. Rinse the figs in cold water, and drain them. Prepare the syrup by mixing sugar, 1 1/2 quarts water and the lemons. Boil the mixture rapidly for 10 minutes. Skim the syrup, and remove and discard the lemon slices. Drop the figs into the syrup, a few at a time. Cook the mixture rapidly until the figs are transparent.

Remove the figs, and place them in a shallow pan. Boil the syrup until it is thick; then pour it over the figs and let the mixture stand for 6 to 8 hours. Sterilize the canning jars. Reheat the figs and syrup to boiling. Pour the hot preserves into hot jars, leaving 1/4-inch of headspace. Wipe the jar rims and adjust the lids. Process the preserves in the jars for 5 minutes (at sea level) in a boiling water canner. (Add 1 minute of processing time for each 1,000 feet of additional altitude.)

Special tips and techniques

Recipe yields: Always prepare recipes exactly

as they are written. Don't double a recipe, because larger volumes take longer to heat. Because heat destroys pectin, the product may not gel.

Storage: To maintain the product's quality, make up only the amount that can be used in a few months; jellied products lose flavor in storage.

Microwaved products: To produce quick, fresh-tasting products, use special recipes developed for cooking in the microwave. The proportion of ingredients varies from traditional products because less liquid evaporates with this method. To be shelf-stable, microwave-cooked products must still be processed in a boiling water canner.

Safe sealing and processing

Unless you plan to refrigerate or freeze jellies, jams and preserves, process them in sterilized standard canning jars with self-sealing lids and ring bands. Although generally you should process these products according to the recipe instructions, the U.S. Department of Agriculture recommends that you process them no less than 5 minutes in a boiling water canner.

Because these products are processed for less than 10 minutes, the USDA recommends that you sterilize the jars before filling by boiling them in water for 10 minutes. (For altitudes of 1,000 feet or above, add 1 minute for each 1,000 feet altitude for sterilizing time.)

When the product is done, skim the foam from the cooked hot product and pour it into hot sterilized jars, leaving 1/4 inch of space at the top (headspace). Wipe the jar rims and close them with ring bands and lids treated according to the manufacturer's instructions. Place them on a rack in canner filled with boiling water. The water should cover the jars by 1 to 2 inches.

Cover the container, bring the water back to a boil, and boil it gently for 5 minutes or for the amount of time specified in the recipe instructions. (For altitudes above 1,000 feet, add 1 minute of processing time for each 1,000 feet of additional altitude.) Remove the jars to a protected surface and cool them away from drafts. Do not move the jellied

products until they have set for 12 hours; this could break the gel.

Paraffin is no longer recommended for sealing, because air can enter beneath the paraffin and encourage molding. Discard jellied products with extensive mold on them.

Remaking soft jellies and jams

Jellies and jams that did not gel and are too soft can be recooked. To remake a soft batch, measure the amount of jelly to be recooked. Work with no more than 4 to 6 cups at a time.

To remake with powdered pectin: For each quart of jelly, use 1/2 cup of sugar, 1/4 cup of water and 6 teaspoons of powdered pectin. Bring the pectin and water to a boil while stirring. Add the jelly and sugar and bring to a rolling boil over high heat, stirring constantly. Boil it hard for 1/2 minute. Remove from heat, quickly skim the foam from the jelly and fill sterile jars, leaving 1/4 inch of headspace. Adjust the new lids, and process.

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

To remake without added pectin: For each quart of jelly, add 2 tablespoons of bottled lemon juice. Heat the mixture to boiling and boil it for 3 to 5 minutes. Test it to determine if the jelly is done. Remove it from the heat; quickly skim off the foam, and fill sterile jars, leaving 1/4 inch of head space. Adjust the new lids, and process.

Table 1. Recommended process times for pints or half-pints of remade soft jellies in a boiling water canner.

Process Time	Altitude
5 minutes	0 to 1,000 feet
10 minutes	1,001 feet to 6,000 feet
15 minutes	Above 6,000 feet

Uncooked jams, jellies and spreads

Uncooked jams, jellies and spreads are easy to prepare and have a fresh fruit taste. They can be made from most fresh or frozen fruits or fruit juices. In addition to the fruit, they require pectin, sugar and sometimes lemon juice. They must be stored in the refrigerator or freezer, but should not be put in the freezer until after the gel is formed. After the gel is formed, these products can be refrigerated up to 3 weeks or frozen up to a year. They generally yield less than traditional products and use more sugar.

Uncooked Orange Jelly from Frozen Concentrated Juice With Powdered Pectin

(Yield: about 6 half-pint jars)

1 box powdered pectin

2 cups lukewarm water

6-ounce can frozen orange juice concentrate

4 1/2 cups sugar

1/4 cup fresh lemon juice

Mix the pectin slowly into the lukewarm water in a two-quart mixing bowl. Stir it constantly until the pectin is dissolved. Let it stand for 45 minutes, stirring occasionally, but do not beat.

Thaw the juice by placing the can in cold water. When the juice is thawed, pour it into a 1 quart bowl. Add the lemon juice and 2 1/2 cups of the sugar. Mix thoroughly. All of the sugar will not dissolve. Add the remaining 2 1/2 cups of sugar to the dissolved pectin. Stir until all the sugar is dissolved. Mix the juice mixture with the pectin mixture. Stir constantly until all sugar is dissolved.

Pour the mixture into freezer containers or freezer jars, leaving 1/2 inch of headspace. Cover with appropriate lids. Let stand at room temperature until the mixture is set (up to 24 hours). Freeze or refrigerate.

Reduced-sugar or sugarless products

The health-conscious and those with special diets can make reduced sugar or sugarless products, but they will not be exactly like traditional products.

Use the special modified pectin products that are on market today and follow the manufacturer's directions on the package insert exactly for cooking and processing. Because these products do not have sugar as their preservative, some will need to be processed longer and others may need refrigeration. These products also may have less of a gel and less pronounced flavor than traditional products.

If you choose to experiment and develop your own all-fruit spreads, try boiling fruit pulp or finely chopped fruit with frozen unsweetened juice concentrates (thawed). Lengthy boiling makes these mixtures thicken to resemble jams, conserves or fruit butters. If you like, add a little sugar or artificial sweetener. Recipes for products firmed with gelatin are also available.

Refrigerated Apple Spread (made with gelatin)

(Yield: 4 half-pints)

2 tablespoons unflavored gelatin powder

1 quart bottled unsweetened apple juice

2 tablespoons bottled lemon juice

2 tablespoons liquid low-calorie sweetener

Food coloring, if desired

In a saucepan, soften the gelatin in the apple and lemon juices. To dissolve the gelatin, bring the mixture to a full rolling boil and boil for 2 minutes. Remove from the heat. Stir in the sweetener and food coloring. Fill the jars, leaving 1/4-inch headspace. Adjust the lids. Do not process or freeze. Caution: Store in the refrigerator and use within 4 weeks.

Optional: For spiced apple jelly, add 2 sticks of cinnamon and 4 whole cloves to the mixture before boiling it. Remove both spices before adding the sweetener and food coloring.

Some information and recipes come from the USDA *Complete Guide to Home Canning* and the "So Easy to Preserve" materials from Cooperative Extension Service, The University of Georgia. The Home Canning Guide is available on the web at *www.foodsaftety.ufl.edu/cmenu/can/canning.htm*

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