Bulletin #4039

1865 THE UNIVERSITY OF MAINE Cooperative Extension

Let's Preserve

Jellies, Jams, Spreads

General Canning Procedures

To sterilize empty jars, put them open-side-up on a rack in a boiling-water canner. Fill the canner and jars with water to one inch above the tops of the jars. Boil jars 10 minutes. Remove and drain hot sterilized jars one at a time and fill with food as follows.

Prepare products according to the instructions in this fact sheet or your recipe. Fill sterile half-pint or pint canning jars with prepared food while it is still hot, leaving 1/4-inch headspace. Remove food residue from the jar, sealing edge with a clean, damp paper towel. Use new two-piece canning lids, prepared according to the manufacturer's directions. After tightening the screw bands, process the filled jars in a boiling-water canner.

To process in a boiling-water canner, fill the canner halfway with water and preheat to 180°F. Load sealed jars into the canner rack and use the handles to lower the rack. Or, load the canner one jar at a time with a jar lifter. Add water (if needed) to a level of one inch above jars, and cover with the canner lid. When the water boils vigorously, reduce heat to maintain a gentle boil. Boil the jars of each product for the time specified in Table 1 (below).

After processing is completed, remove jars from the canner with a jar lifter and place on a towel or rack. Do not retighten screw bands. Air-cool jars 12 to 24 hours. Remove screw bands and check lid seals. If the center of the lid is indented, wash, dry, label, and store the jar in a clean, cool, dark place. If any lids are unsealed, examine the jars for defects and replace them if necessary, use new lids, and reprocess as before. Wash screw bands and store them separately. Jellies, jams, and spreads are best if eaten within a year. They are safe as long as the lids remain vacuum–sealed.

Making Jelly Without Added Pectin

Use only firm fruits naturally high in pectin. Select a mixture of about three-quarters ripe and one-quarter underripe fruit. One pound of fruit should yield at least one cup of clear juice. Do not add commercially

Process Times

Table 1. Recommended Processing Times in a Boiling-Water Canner for Jellies, Jams, and Spreads

Product	Style of pack	Jar size	Minutes of processing time at altitudes of 0 to 1000 ft	1001 to 6000 ft	Above 6000 ft
All jellies and jams with or without added pectin	Hot	Half-Pints Pints	5 5	10 10	15 15
Peach-pineapple spread	Hot	Half-Pints Pints	15 20	20 30	25 35

canned or frozen fruit juices because their pectin content is too low. Use peels and cores during cooking: they add pectin to the juice and increase jelly firmness.

Wash all fruits thoroughly. Cut firm, larger fruits into small pieces. Crush soft fruits or berries. Add water to fruits as listed in Table 2 (below). Put fruit and water in a large saucepan and bring to a boil. Simmer, stirring occasionally, for the amount of time listed or until the fruit is soft.

When the fruit is tender, press it lightly through a colander. Then, let the juice drip through a double layer of cheesecloth, or a jelly bag. Excessive pressing or squeezing of cooked fruit will create cloudy jelly.

Using no more than six to eight cups of extracted fruit juice at a time, measure and combine the amounts of juice, sugar, and lemon juice listed in Table 2 and heat to boiling. Stir until the sugar is dissolved. Boil over high heat, stirring frequently, until the gelling point is reached.

To tell when jelly is done, use one of the following methods:

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.

Temperature test: Use a jelly or candy thermometer and boil to temperatures appropriate for your elevation.

Elevation (feet above sea level)	Temperature (degrees F)
sea level	220
1000	218
2000	216
3000	214
4000	212
5000	211
6000	209
7000	207
8000	205

When the jelly is done, remove it from the heat and quickly skim off foam. Using a wide-mouthed funnel, ladle the jelly into sterile jars, leaving 1/4-inch headspace. Adjust lids and process the jars as described in Table 1 (page 1).

Making Jam Without Added Pectin

For the best flavor, use fully ripened fruit. Wash and rinse all fruits thoroughly before cooking. Do not soak. Remove stems, skins, and pits; cut fruit into pieces and crush. For berries, remove stems and blossoms, then crush. Seedy berries may be put through a sieve or food mill. Measure crushed fruit and lemon juice into a large saucepan, using the amounts indicated in Table 3 (opposite page). Add the specified amount of sugar and bring the mixture to a boil while stirring rapidly and constantly. Continue to boil until mixture thickens. As you test for thickness, remember that additional thickening occurs during cooling.

Table 2. Measures for Preparing Jellies Without Added Pectin

	Water to be added per pound of fruit (cups)	Time to simmer before extracting juice (minutes)	Sugar (cups)	Lemon juice (optional)	Jelly yield from 4 cups of juice (half-pints)
Apples	1	20 to 25	3/4	1 1/2 tsp.	4 to 5
Blackberries	0 to 1/4	5 to 10	3/4 to 1	—	7 to 8
Crabapples	1	20 to 25	1	—	4 to 5
Grapes	0 to 1/4	5 to 10	3/4 to 1	—	8 to 9
Plums	1/2	15 to 20	3/4	—	8 to 9

To test for thickness, use one of the following methods:

Temperature test: Use a jelly or candy thermometer and boil to a temperature of 216°F at an elevation of 2000 feet, or 214°F at 3000 feet.

Freezer test: Remove jam from heat for this test. Pour a small amount of boiling jam on a cold plate and put it in the freezer for a few minutes. The mixture gels when done.

When jam is done, remove it from heat and quickly skim off foam. Using a wide-mouthed funnel, ladle the jam into sterile jars, leaving 1/4-inch headspace. Adjust the lids and process the jars as described in Table 1 (page 1).

Jellies and Jams With Added Pectin

Fresh fruits and juices, as well as some commercially canned or frozen fruit juices, may be used with commercially prepared powdered or liquid pectins. The order of combining ingredients depends on the type of pectin used. Complete directions for a variety of fruits are provided with packaged pectin. Jelly or jam made with added pectin requires less cooking, generally gives a larger yield, and has more natural fruit flavor. In addition, adding pectin eliminates the need to test for doneness. The following recipes are normally available with packaged pectins:

Jellies: Apple, crabapple, blackberry, boysenberry, dewberry, currant, elderberry, grape, mayhaw, mint, peach, plum, black or red raspberry, loganberry, rhubarb and strawberry.

Jams: Apricot, blackberry, boysenberry, dewberry, loganberry, red raspberry, youngberry, blueberry, cherry, currant, fig, gooseberry, grape, orange marmalade, peach, pear, plum, rhubarb, strawberry and spiced tomato.

Be sure to use mason canning jars and self-sealing, two-piece lids, and process the jars in boiling water as described on page 1. Purchase packaged pectins each year. Old pectins may produce poor gels. The following special jelly and jam recipes use packaged pectin.

Table 3. Measures for Preparing Jams Without Added Pectin

	Crushed fruit (cups)	Sugar (cups)	Lemon juice (tbsp)	Jam yield (half-pints)
Apricots	4 to 4 1/2	4	2	5 to 6
Berries	4	4	0	3 to 4
Peaches	5 1/2 to 6	4 to 5	2	6 to 7

Grape-Plum Jelly With Pectin

Ingredients

3 1/2 lb ripe plums
3 lb ripe Concord grapes
1 cup water
1/2 tsp butter or margarine (optional ingredient to reduce foaming)
8 1/2 cups sugar
1 box (1 3/4 oz) powdered pectin

Yield: about 10 half-pints

Preparation

Wash and pit plums; do not peel. Thoroughly crush plums and grapes, one layer at a time, in a saucepan. Add water. Bring to a boil, cover, and simmer 10 minutes. Strain juice through a jelly bag or double layer of cheesecloth. Measure sugar and set aside. Combine 6 1/2 cups of juice with butter and pectin in a large saucepan. Bring to a hard boil over heat, stirring constantly. Add the sugar and return to a full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, skim off foam, and quickly transfer into sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids and process the jars using times given in Table 1 (page 1).

Blueberry-Spice Jam With Pectin

Ingredients

2 1/2 pt ripe blueberries
1 tbsp lemon juice
1/2 tsp ground nutmeg or cinnamon
5 1/2 cups sugar
3/4 cup water
1 box (1 3/4 oz) powdered pectin

Yield: about 5 half-pints

Preparation

Wash and thoroughly crush blueberries, one layer at a time, in a large saucepan. Add lemon juice, spice, and water. Stir in pectin and bring to a full rolling boil over high heat, stirring frequently. Add the sugar and return to a full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and transfer into sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids and process the jars using times given in Table 1 (page 1).

Pear-Apple Jam With Pectin

Ingredients

2 cups peeled and crushed fully ripe pears
1 cup peeled and finely chopped apples
1/4 tsp ground cinnamon
6 1/2 cups sugar
1/3 cup bottled lemon juice
6 oz liquid pectin

Yield: about 7 to 8 half-pints

Preparation

Wash, peel, and core pears. Crush well and measure 2 cups into a large saucepan. Wash, peel, core, and finely chop 1 cup of apples. Add apples to pears and stir in cinnamon. Thoroughly mix sugar and lemon juice into fruits and bring to a boil over high heat, stirring constantly. Immediately stir in pectin. Bring to a full rolling boil, and boil 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and transfer into sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids and process the jars using times given in Table 1 (page 1).

Strawberry-Rhubarb Jelly With Pectin

Ingredients

1 1/2 lb red stalks of rhubarb
1 1/2 qt ripe strawberries
1/2 tsp butter or margarine (optional ingredient to reduce foaming)
6 cups sugar
6 oz liquid pectin

Yield: about 7 half-pints

Preparation

Wash and cut rhubarb into 1-inch pieces and chop or grind in a food processor or blender. Wash, stem, and crush strawberries, one layer at a time, in a large saucepan and simmer 10 minutes. Strain juice with a jelly bag or double layer of cheese cloth. Combine and mix 3 1/2 cups of juice and sugar. Add butter if desired. 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 and quickly skim off foam, and transfer into sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids and process the jars using times given in Table 1 (page 1).

The following recipes use reduced amounts of sugar:

Grape Jelly With Gelatin

Ingredients

2 tbsp unflavored gelatin powder
1 bottle (24 oz) unsweetened grape juice
2 tbsp bottled lemon juice
2 tbsp artificial sweetener

Yield: 3 half-pints

Preparation

In a saucepan, soften the gelatin in the grape and lemon juices. Bring to a full rolling boil to dissolve gelatin. Boil 1 minute and remove from heat. Stir in sweetener. Fill quickly into hot sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids. Do not process or freeze—store in refrigerator and use within 4 weeks.

Apple Jelly With Gelatin

Ingredients

2 tbsp unflavored gelatin powder
1 qt bottled unsweetened apple juice
2 tbsp bottled lemon juice
2 tbsp artificial sweetener
Food coloring, if desired

Yield: 4 half-pints

Preparation

In a saucepan, soften gelatin in apple and lemon juices. To dissolve gelatin, bring to a full rolling boil and boil 2 minutes. Remove from heat. Stir in sweetener and food coloring, if desired. Pour into sterile half-pint jars, leaving 1/4-inch headspace. Adjust lids. Do not process or freeze—store in refrigerator and use within 4 weeks.

Variation: For spiced apple jelly, add two 3-inch sticks of cinnamon and four whole cloves to mixture before boiling. Remove spices before adding the sweetener and food coloring.

Peach-Pineapple Spread

Ingredients

4 cups drained peach pulp
2 cups drained, unsweetened crushed pineapple
1/4 cup bottled lemon juice
2 cups sugar (optional)

Yield: 5 to 6 half-pints

Preparation

Thoroughly wash 4 to 6 pounds of firm, ripe peaches. Drain well. Peel and remove pits. Grind fruit flesh with a medium or coarse blade, or crush with a fork. Do not use a blender. Place ground or crushed peaches in a 2-quart saucepan. Heat slowly to release juice, stirring constantly, until fruit is tender. Place cooked fruit in a jelly bag or strainer lined with four layers of cheesecloth. Allow juice to drip about 15 minutes. Save the juice for jelly or other uses. Measure 4 cups of drained fruit pulp for making spread. Combine the 4 cups of pulp with pineapple and lemon juice in a 4-quart saucepan. Add up to 2 cups of sugar, if desired, and mix well. Heat and boil gently for 10 to 15 minutes, stirring often. Transfer quickly into jars, leaving 1/4-inch headspace. Adjust lids and process jars using times given in Table 1 (page 1).

Variation: The above recipe may also be made with any combination of peaches, nectarines, apricots, and plums. It may also be made without sugar, or with less than 2 cups sugar. Nonnutritive sweeteners may be added; however, the sweetening power of aspartame may be lost within 3 to 4 weeks.

Nutritional Information

Average Nutritional Content of a Tablespoon Serving of Jam or Jelly

	Canned jam	Canned jelly
Calories	54	49
Carbohydrates	14 g	12.7 g
Fat	—	—
Sodium	2 mg	3 mg

Adapted from Penn State College of Agricultural Sciences, *Let's Preserve Jelly, Jam, Spreads* (University Park, PA: The Pennsylvania State University, 2004).

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