



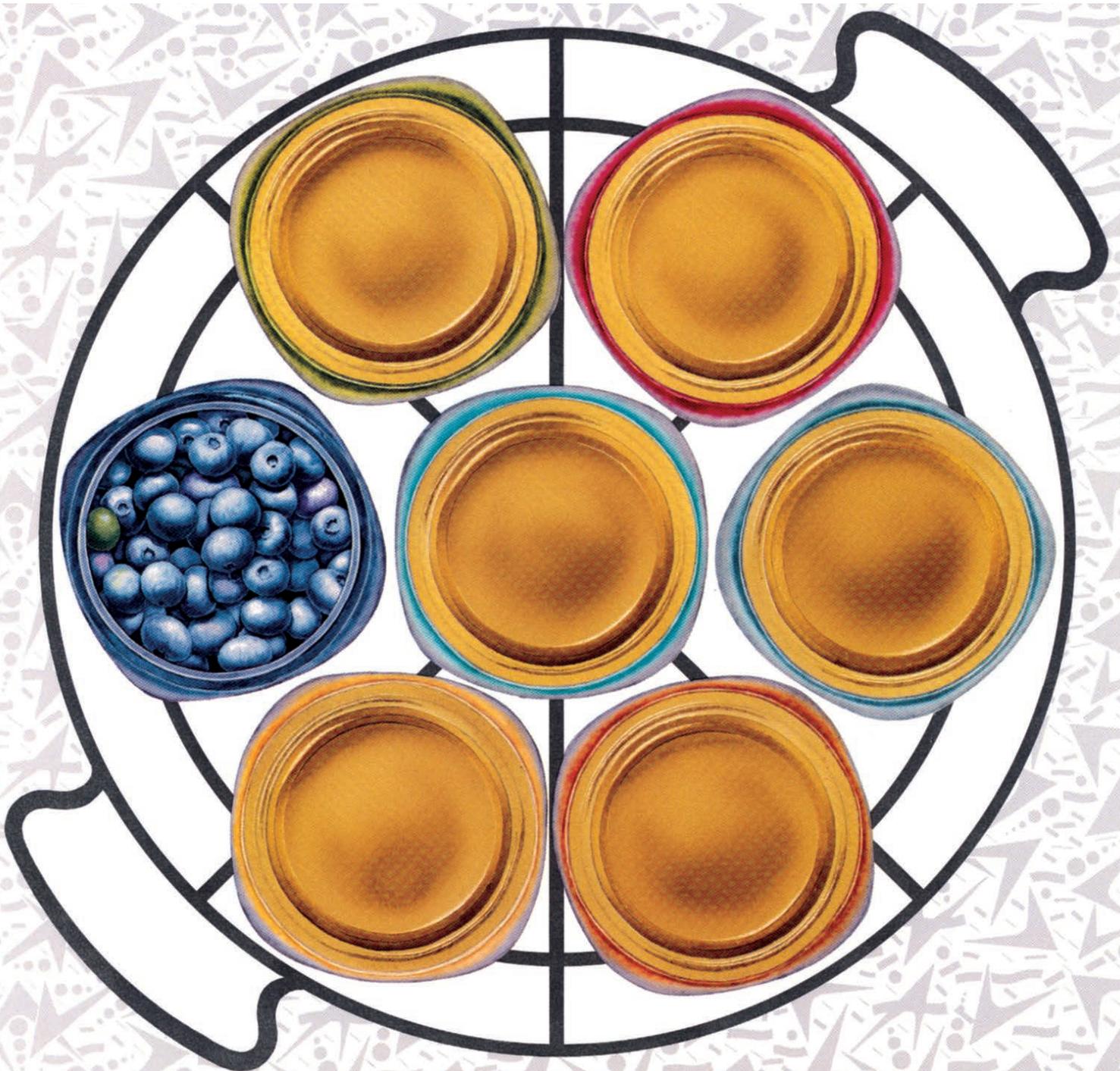
United States
Department of
Agriculture

National Institute
of Food
and Agriculture

Complete Guide to
Home Canning

Guide 7

**Preparing and Canning
Jams and Jellies**



Guide 7

Preparing and Canning Jams and Jellies

Table of Contents

Section.....	Page
Making jelly without added pectin	7-5
Extracting juices and making jelly	7-5
Making jam without added pectin	7-6
Making Jams and Jellies with Added Pectin.....	7-7
Pear-apple jam	7-8
Strawberry-rhubarb jelly	7-8
Blueberry-spice jam	7-9
Grape-plum jelly	7-10
Golden pepper jelly	7-10
Making Reduced-Sugar Fruit Spreads	7-11
Peach-pineapple spread.....	7-11
Refrigerated apple spread (made with gelatin)	7-12
Refrigerated grape spread (made with gelatin).....	7-12
Remaking soft jellies	7-13

Making jelly without added pectin

Use only firm fruits naturally high in pectin. Select a mixture of about 3/4 ripe and 1/4 underripe fruit. Do not use commercially canned or frozen fruit juices. Their pectin content is too low. Wash all fruits thoroughly before cooking. Crush soft fruits or berries; cut firmer fruits into small pieces. Using the peels and cores adds pectin to the juice during cooking. Add water to fruits that require it, as listed in the table of ingredients below. Put fruit and water in large saucepan and bring to a boil. Then simmer according to the times below until fruit is soft, while stirring to prevent scorching. One pound of fruit should yield at least 1 cup of clear juice.

Extracting juices and making jelly

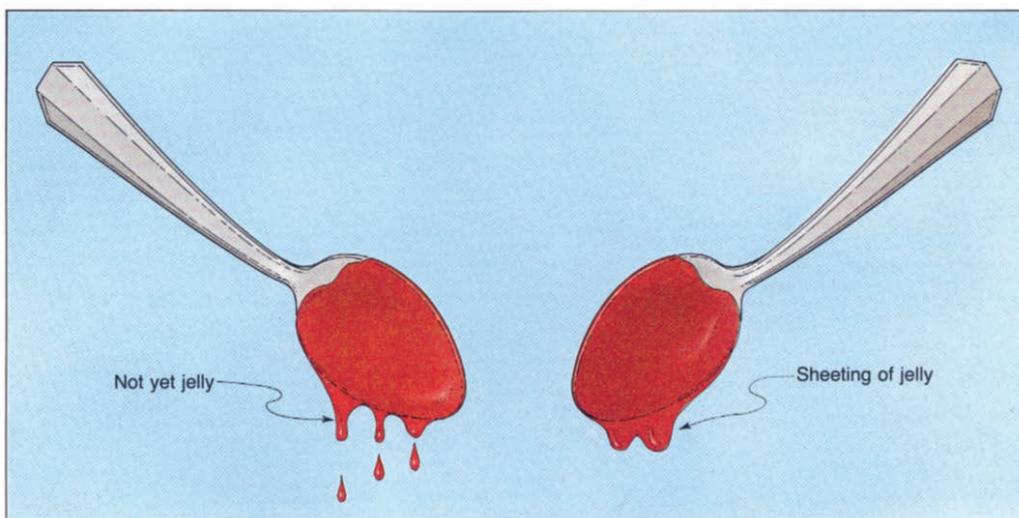
	Cups of Water to be Added per Pound of Fruit	Minutes to Simmer Fruit before Extracting Juice	Ingredients Added to Each Cup of Strained Juice		Yield from 4 Cups of Juice (Half-pints)
			Sugar (Cups)	Lemon Juice (Tsp)	
Apples	1	20 to 25	3/4	1-1/2 (optional)	4 to 5
Blackberries	None or 1/4	5 to 10	3/4 to 1	None	7 to 8
Crab apples	1	20 to 25	1	None	4 to 5
Grapes	None or 1/4	5 to 10	3/4 to 1	None	8 to 9
Plums	1/2	15 to 20	3/4	None	8 to 9

When fruit is tender, strain through a colander, then strain through a double layer of cheesecloth or a jelly bag. Allow juice to drip through, using a stand or colander to hold the bag. Pressing or squeezing the bag or cloth will cause cloudy jelly.

Using no more than 6 to 8 cups of extracted fruit juice at a time, measure fruit juice, sugar, and lemon juice according to the ingredients in the table above and heat to boiling. Stir until the sugar is dissolved. Boil over high heat to the jelling point. To test jelly for doneness, use one of the following methods.

Temperature test—Use a jelly or candy thermometer and boil until mixture reaches the following temperatures at altitudes of:

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

Remove from heat and quickly skim off foam. Fill sterile jars (see page 1-14) with jelly. Use a measuring cup or ladle the jelly through a wide-mouthed funnel, leaving 1/4 inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Jelly without Added Pectin in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

Making jam without added pectin

Wash and rinse all fruits thoroughly before cooking. Do not soak. For best flavor, use fully ripe fruit. Remove stems, skins, and pits from fruit; cut into pieces and crush. For berries, remove stems and blossoms and crush. Seedy berries may be put through a sieve or food mill. Measure crushed fruit into large saucepan using the ingredient quantities specified in the table below.

Ingredient Quantities				
Fruit	Cups Crushed Fruit	Cups Sugar	Tbsp Lemon Juice	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

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

Add sugar and bring to a boil while stirring rapidly and constantly. Continue to boil until mixture thickens. Use one of the following tests to determine when jams and jellies are ready to fill. Remember to allow for thickening during cooling.

Temperature test—Use a jelly or candy thermometer and boil until mixture reaches the temperature for your altitude (see page 7-5).

Refrigerator test—Remove the jam mixture from the heat. Pour a small amount of boiling 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.

Remove from heat and skim off foam quickly. Fill sterile jars (see page 1-14) with jam. Use a measuring cup or ladle the jam through a wide-mouthed funnel, leaving 1/4 inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Jam without Added Pectin in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

Making Jams and Jellies with Added Pectin

Fresh fruits and juices as well as commercially canned or frozen fruit juice can 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 and generally gives a larger yield. These products have more natural fruit flavors, too. In addition, using added pectin eliminates the need to test hot jellies and jams for proper gelling. Adding 1/2 teaspoon of butter or margarine with the juice and pectin will reduce foaming. However, these may cause off-flavor in long-term storage of jellies and jams. Recipes available using packaged pectin include:

Jellies—Apple, crab apple, 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 pre-sterilized Mason canning jars, self-sealing two-piece lids, and a 5-minute process (corrected for altitude, as necessary) in boiling water. (See page 1-30 about spoilage of jams and jellies.)

Purchase fresh pectin each year. Old pectin may result in poor gels. Follow the instructions with each package and process as below:

Recommended process time for Jellies and Jam with Added Pectin in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

Following are a few additional jelly and jam recipes for use with packaged pectin.

PEAR-APPLE JAM

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

1 cup peeled, cored, and finely chopped apples

6-1/2 cups sugar

1/4 tsp ground cinnamon

1/3 cup bottled lemon juice

6 oz liquid pectin

Yield: About 7 to 8 half-pints

Procedure: Crush apples and pears in a large saucepan and 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, and fill sterile jars (see page 1-14) leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Pear-Apple Jam in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

STRAWBERRY-RHUBARB JELLY

1-1/2 lbs red stalks of rhubarb

1-1/2 qts ripe strawberries

1/2 tsp butter or margarine to reduce foaming (optional)

6 cups sugar

6 oz liquid pectin

Yield: About 7 half-pints

Procedure: Wash and cut rhubarb into 1-inch pieces and blend or grind. Wash, stem, and crush strawberries, one layer at a time, in a saucepan. Place both fruits in a jelly bag or double layer of cheesecloth and gently squeeze out juice. Measure 3-1/2 cups of juice into a large saucepan. Add butter and sugar, thoroughly mixing into juice. 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, and fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Strawberry-Rhubarb Jelly in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

BLUEBERRY-SPICE JAM

2-1/2 pints 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

Procedure: Wash and thoroughly crush blueberries, one layer at a time, in a 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 fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Blueberry-Spice Jam in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

GRAPE-PLUM JELLY

3-1/2 lbs ripe plums

3 lbs ripe Concord grapes

1 cup water

1/2 tsp butter or margarine to reduce foaming (optional)

8-1/2 cups sugar

1 box (1-3/4 oz) powdered pectin

Yield: About 10 half-pints

Procedure: Wash and pit plums; do not peel. Thoroughly crush the plums and grapes, one layer at a time, in a saucepan with 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 large saucepan. Bring to a hard boil over high heat, stirring constantly. 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 fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Grape-Plum Jelly in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15

GOLDEN PEPPER JELLY

5 cups chopped yellow bell peppers (about 4 large fleshy peppers as purchased)

1/2 cup chopped Serrano chile peppers (about 5 peppers as purchased)

1-1/2 cups white distilled vinegar (5%)

5 cups sugar

1 pouch (3 oz.) liquid pectin

Yield: About 5 half-pint jars

Procedure: Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes. Wash all peppers thoroughly; remove stems and seeds from the peppers. Do not remove the membrane from the hot peppers, since the remaining capsaicin for pepper heat is located there. Place sweet and hot peppers in a blender or food processor. Add enough of the vinegar to puree the peppers, then puree. Combine the pepper-vinegar puree and remaining vinegar into an 8- or 10-quart saucepan. Heat to a boil; then boil 10 minutes to extract flavors and color. 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.) Measure 2-1/4 cups of the strained pepper-vinegar juice back into the saucepan. Stir in sugar until dissolved and return mixture 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 jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Notes: The use of yellow peppers gives this jelly a light golden color. Other colored sweet peppers can be substituted, but these will provide a different jelly color. Other hot peppers can also be substituted. It is best to start with a mild hot pepper flavor and increase it to suit personal tastes. If properly prepared, the jelly will have a mildly firm set; it is best to use half-pint jars.

Recommended process time for Golden Pepper Jelly in a boiling-water canner				
Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints	5 min	10	15

Making Reduced-Sugar Fruit Spreads

A variety of fruit spreads may be made that are tasteful, yet lower in sugars and calories than regular jams and jellies. The following are recipes for reduced-sugar fruit spreads. Gelatin may be used as a thickening agent, as indicated in two of the following recipes. Sweet fruits, apple juice, spices, and/or a liquid, low-calorie sweetener are used to provide the sweet flavor of the fruit spreads. When gelatin is used in the recipe, the jars of spread should not be processed. They should be refrigerated and used within 4 weeks.

PEACH-PINEAPPLE SPREAD

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

This recipe may be made with any combination of peaches, nectarines, apricots, and plums.

This recipe may be made without sugar or with up to 2 cups, according to taste or preference. Non-nutritive sweeteners may be added. If aspartame (a low-calorie nutritive sweetener) is used, the sweetening power of aspartame may be lost within 3 to 4 weeks.

Yield: 5 to 6 half-pints

Procedure: 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 fruit 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, 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 enough to prevent sticking. Fill hot jars quickly, leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

Recommended process time for Peach-Pineapple Spread in a boiling-water canner

Style of Pack	Jar Size	Process Time at Altitudes of			
		0–1,000 ft	1,001–3,000 ft	3,001–6,000 ft	Above 6,000 ft
Hot	Half-pints	15 min	20	20	25
	Pints	20	25	30	35

REFRIGERATED APPLE SPREAD (made with gelatin)

2 tbsp unflavored gelatin powder
 1 qt bottle unsweetened apple juice
 2 tbsp bottled lemon juice
 2 tbsp liquid low-calorie sweetener
 Food coloring, if desired

Yield: 4 half-pints

Procedure: In a saucepan, soften the gelatin in the 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. Fill jars, leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids. Do not process or freeze. **Caution: Store in refrigerator and use within 4 weeks.**

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

REFRIGERATOR GRAPE SPREAD (made with gelatin)

2 tbsp unflavored gelatin powder
 1 bottle (24 oz) unsweetened grape juice
 2 tbsp bottled lemon juice
 2 tbsp liquid low-calorie sweetener

Yield: 3 half-pints

Procedure: 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 hot jars quickly, leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids. Do not process or freeze. **Caution: Store in refrigerator and use within 4 weeks.**

Remaking soft jellies

Measure 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, mix 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 (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust new lids and process.

To remake 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 only 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 off foam and fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust new lids and process.

To remake without added pectin: For each quart of jelly, add 2 tablespoons bottled lemon juice. Heat to boiling and boil for 3 to 4 minutes. Use one of the tests described on page 7-5 to determine jelly doneness. Remove from heat, quickly skim off foam, and fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust new lids and process.

Recommended process time for Remade Soft Jellies in a boiling-water canner

Style of Pack	Jar Size	Process Time at Altitudes of		
		0–1,000 ft	1,001–6,000 ft	Above 6,000 ft
Hot	Half-pints or Pints	5 min	10	15