



Make Jelly, Jam, and Spread at Home

Guide E-314

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FOUR ESSENTIAL INGREDIENTS

Fruit

Fruit gives jams and jellies their characteristic flavor and furnishes at least part of the pectin and acid required for successful gels. Flavorful fruits are best for jellied products, because the fruit flavor is diluted by large proportions of sugar.

Sweeteners

Sugar helps gel formation, serves as a preserving agent, contributes to the flavor of the jellied product, and has a firming effect on fruit. Beet and cane sugar can be used with equal success.

Corn syrup and honey may be used to replace part of the sugar in recipes, but too much will mask the fruit flavor and alter the gel structure. Use tested recipes for replacing sugar with honey and corn syrup. Do not try to reduce the amount of sugar in traditional recipes. Too little sugar prevents gelling and may allow yeasts and molds to grow.

Low-calorie and low-sugar recipes may call for non-nutritive sweeteners, such as saccharin or aspartame. However, jellied products made with nonnutritive sweeteners must either be frozen or refrigerated and used within two or three weeks.

Pectin

Most jellies require added pectin, although some fruits, such as apples, grapes and some berries, have enough natural pectin to make high-quality products. All underripe fruits have more pectin than ripe fruits. Many people prefer the added-pectin method for making jams and jellies, because fully ripe fruit and a shorter cooking time can be used.

Commercial fruit pectins made from apples or citrus fruits are available in both liquid and powder forms. The two forms are not interchangeable. Commercial pectins may be used with any fruit.

Fruit pectins should be stored in a cool, dry place to keep their gel strength. Liquid pectin should be refrigerated after opening. Use commercial pectins by the date stamped on the label.

Acid

Acid provides flavor and assists gel formation. Acid content varies among fruits and is higher in underripe fruits. Lemon juice and citric acid are commonly added to low-acid fruits. Some commercial fruit pectins contain acid.

GENERAL CANNING PROCEDURES

Use regular and wide-mouth Mason jars with self-sealing lids held in place by screw-on metal bands. The bands hold the lids in place during the processing and cooling periods.

Mason jars are made from tempered glass to resist high temperatures. Jars are available in 1/2 pint, pint, 1-1/2 pint, and quart sizes. Larger jars are not recommended for home canning.

Inspect jars carefully for cracks or chips and discard faulty ones. Wash jars in hot, soapy water and rinse thoroughly or in the dishwasher. Keep jars hot in the dishwasher, a sink of hot water, or a warm oven until they are filled.

Check metal screw bands for signs of rust or dents. Discard badly corroded or dented bands. Use only new lids and follow the manufacturer's directions for preparing lids for canning.

Prepare ingredients as described in the following pages. All mixtures should be boiling when ladled into clean half-pint or pint canning jars. Leave 1/4 inch of headspace.

Fill jars one at a time. Clean top of jar with a clean, damp cloth or paper towel. Cover with new two-piece canning lids. Tighten screw bands. Place each jar in canner immediately after filling.

Steps for Successful Boiling-Water Canning:

1. Fill the canner halfway with water.
2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods.
3. Load filled jars, fitted with lids, into the canner rack and use the handles to lower the rack into the water; or fill the canner, one jar at a time, with a jar lifter.
4. If necessary, add more boiling water so the water level is at least 1 inch above jar tops.

5. Turn heat to its highest position until water boils vigorously.
6. Set a timer for the minutes required for processing the food.
7. Cover with the canner lid and lower the heat setting to maintain a gentle boil throughout the process.
8. If necessary, add more boiling water to keep the water level above the jars.
9. When jars have been boiled for the recommended time, turn off the heat and remove the canner lid.
10. Using a jar lifter, remove the jars straight up without tipping and place them on a towel, leaving at least 1-inch spaces between the jars during cooling.

Do not touch lid or ring until completely cooled.

Table 1. Processing times

Product	Pack	Jar size	Process time (in minutes) at	
			1,000–6,000 ft	6,000–10,000 ft
All jellies and jams with or without added pectin	Hot	Half-pints and pints	10	15
Peach-pineapple spread	Hot Hot	Half-pints Pints	20 30	25 35

Test for Jar Seals

Remove screw bands when jars have cooled and test for vacuum seals by these methods:

- Press the lid center with finger. If the lid springs up when released, it is not sealed.
- Tap the lid with a teaspoon. A sealed jar lid will make a ringing sound.
- Hold the jar at eye level and look across the lid. A sealed jar lid curves down slightly in the center.

Reprocessing Unsealed Jars

Remove lids from unsealed jars and discard. Check sealing surface of jar for tiny nicks or cracks. If jar has defects, discard it and replace with another jar. If not, add new lid and process for the same amount of time within 24 hours. Unsealed jars can be kept in the refrigerator and the food used within three weeks.

Storing Canned Foods

Clean the outsides of sealed, cooled jars. Label with date and contents and store in a cool (50–70°F), dark, dry place away from sun, light or dampness.

Altitude Adjustments

All communities in New Mexico are above sea level, varying from 3,000 to 10,000 feet with differences even within a county. Use table 4 to determine the elevation of your community and then select safe processing times for canning your fruit. The boiling temperature of liquids is lower at higher elevations, therefore food must be processed longer at high altitudes.

MAKING JELLY WITHOUT ADDED PECTIN

Use only firm fruits naturally high in pectin, such as apples, grapes and some berries. Select a mixture of 3/4 ripe and 1/4 underripe fruit. One pound of fruit should yield at least 1 cup of clear juice. Do not use commercially canned or frozen fruit juices as the pectin content is too low.

Wash all fruits thoroughly before cooking. Cut firm, larger fruits into small pieces. Include peels and cores as they add pectin to the juice. Crush soft fruits or berries. Put fruit and water (see table 2 for amount of water) in a large saucepan and bring to a boil. Simmer, stirring occasionally, for the amount of time listed in table 2 or until the fruit is soft.

When fruit is tender, press *lightly* through a colander—too much pulp makes a cloudy jelly. Let the juice drip through a double layer of cheesecloth or a jelly bag.

Using no more than 6 to 8 cups of juice at a time, measure and combine the proper quantities of juice, sugar and lemon juice (see table 2). Heat to boiling. Stir until the sugar is dissolved. Boil over high heat, stirring frequently, until the mixture reaches its gelling point.

Table 2. Measures for preparing jellies without added pectin

	To extract juice		Add to each cup of strained juice:		Jelly yield from 4 cups of juice (half-pints)
	Cups of water to add per pound of fruit	Minutes to simmer before extracting juice	Sugar (cups)	Lemon (optional)	
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
Crab apples	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

Tests for Doneness

The trick to making jelly without added pectin is knowing when it is thick enough. Use one of the three methods listed below.

Temperature test. Before cooking the jelly, measure the temperature of boiling water with a jelly, candy or deep-fat thermometer. Cook the jelly mixture to a temperature 8°F higher than the boiling point of water. At that point, the concentration of sugar should form a satisfactory gel. For example, if water boils at 203°F at 5,000 feet altitude, cook jelly to 211°F. This is the most dependable test.

Spoon or sheet test. Dip a cool metal spoon in the boiling jelly mixture. Raise the spoon one foot above the kettle out of the steam and turn the spoon so the syrup runs off the side. If the syrup forms two drops that flow together and fall off the spoon as a sheet, the jelly is done. Although widely used, this test is not entirely dependable.

Refrigerator test. Remove jelly mixture from the heat during this test. Pour a small amount of boiling jelly on a cold plate, and place in the freezer for a few minutes. If the mixture gels, it should be done.

When jelly is done, remove from heat and allow to stand about 1 minute. Bubbles will rise to top. Use a large metal spoon to skim foam off the jelly. Fill hot, clean jars one at a

time. Complete each seal and screw band and place completed jar in hot water canner before proceeding to next jar.

MAKING JAMS WITHOUT ADDED PECTIN

For best flavor, use fully ripened fruit. Wash and rinse all fruits thoroughly before cooking. Do not soak. Remove stems, skins, pits and blossoms. Cut fruit into pieces and crush. Seedy berries may be put through a sieve or food mill. Measure crushed fruit into large saucepan (see table 3 for measures). Add sugar and bring to a boil while stirring rapidly. Continue to boil until mixture thickens. Allow for thickening during cooling.

Test for doneness using one of the methods listed above. When jam is done, remove from heat and quickly skim off foam. Using a wide-mouth funnel, ladle the jam into hot, clean jars, leaving 1/4-inch headspace. Adjust lids and process jars as described in table 1.

Table 3. Measures for preparing jams without added pectin

	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, gooseberries, raspberries and strawberries.

MAKING JELLIES AND JAMS WITH ADDED PECTIN

Jelly or jam made with added pectin requires less cooking, provides a larger yield and has more natural fruit flavor. Using added pectin also reduces the need to test for doneness. However, at altitudes above 3,000 feet, jellies or jams with added pectin may need to be boiled a minimum of 2 minutes to reach gelling point.

Fresh fruits and fresh, canned or frozen juices may be used with commercial powdered or liquid pectins. Follow complete directions provided with commercial pectins. The following recipes usually are available with packaged pectins:

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

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

Use Mason canning jars and self-sealing, two-piece lids and process jars in boiling water (see table 1).

MAKING REDUCED-SUGAR FRUIT SPREADS

You can make a variety of tasty fruit spreads that are lower in sugar and calories than regular jams and jellies. Recipes for reduced-sugar fruit spreads follow.

Peach-Pineapple Spread

Yield: 5 to 6 half-pints

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

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 prepared fruit in a 2-quart saucepan. Heat slowly to release juice. Stir 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. Combine 4 cups of fruit 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. Stir to prevent sticking. Fill hot, sterile jars quickly, leaving 1/4-inch headspace. Adjust lids and process jars (see table 1).

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

Non-nutritive sweeteners may be substituted for sugar. However, the spread *must* either be frozen or refrigerated and used within two to three weeks.

Reduced-Sugar Fruit Spreads with Gelatin

Sweet fruits, apple juice, spices and a liquid, low-calorie sweetener provide sweetness in the next two recipes. Gelatin is the thickening agent. Spreads with gelatin are not processed in a water bath. Refrigerate and use within four weeks. Note: Gelatin spreads tend to become watery when spread on warm toast.

Refrigerated Grape Jelly with Gelatin

Yield: 3 half-pints

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

Preparation. Soften gelatin in the grape and lemon juices in a saucepan. Bring to a full rolling boil and boil 1 minute. Remove from heat. Stir in sweetener. Pour quickly into hot, clean half-pint jars, leaving 1/4-inch headspace. Adjust lids. Refrigerate and use within four weeks.

Refrigerated Apple Jelly with Gelatin

Yield: 4 half-pints

2 Tbsp unflavored gelatin powder
1 qt bottled unsweetened apple juice
2 Tbsp bottled lemon juice
2 Tbsp liquid artificial sweetener
Food coloring (optional)

Preparation. Soften gelatin in apple and lemon juices in a saucepan. Bring to a full rolling boil and boil 2 minutes to dissolve gelatin. Remove from heat. Stir in sweetener and food

coloring. Pour into hot, clean half-pint jars, leaving 1/4-inch headspace. Adjust lids.

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. Refrigerate and use within two weeks.

REMAKING SOFT JELLIES

If your jelly comes out too soft or watery, it can be remade. Measure jelly to be recooked. Work with no more than 4 cups at a time.

To remake products without added pectin: For each cup of jelly, add 1-1/2 teaspoons bottled lemon juice. Heat to boiling and boil until jelling point is reached. Remove from heat, and quickly skim off foam. Fill hot, clean jars, leaving 1/4-inch headspace. Adjust new lids and process. (See table 4 for processing times.)

To remake products with powdered pectin: For each cup of jelly, mix 1 tablespoon sugar, 2 tablespoons of water, 1-1/2 teaspoons bottled lemon juice and 1 teaspoon powdered pectin. Bring to a boil while stirring. Add jelly and bring to a rolling boil over high heat. Stir constantly. Boil hard 1/2 minute. Remove from heat, quickly skim foam off jelly, and fill hot, clean jars, leaving 1/4-inch headspace. Adjust lids and process. (See table 4 for processing times.)

To remake products with liquid pectin: For each cup of jelly, measure 3 tablespoons sugar, 1-1/2 teaspoons bottled lemon juice and 1-1/2 teaspoons liquid pectin. Bring jelly only to a boil while stirring. Remove from heat and quickly add the sugar, lemon juice and pectin. Bring to a full, rolling boil while stirring constantly. Boil hard for 1 minute. Remove from heat, quickly skim off foam, and pour into hot, clean jars, leaving 1/4-inch headspace. Adjust new lids and process. (See table 4 for processing times.)

Table 4. Recommended process time for remade soft jellies in a boiling-water canner

Pack	Jar size	Process time (in minutes) at	
		1,000–6,000 ft	6,000–10,000 ft
Hot	Half-pints	10	15

Elevation of towns in New Mexico

City/Town	Elevation (Feet)	City/Town	Elevation (Feet)
Alamogordo	4,350	Logan	3,830
Albuquerque	5,000	Lordsburg	4,250
Artesia	3,350	Los Alamos	7,400
Aztec	5,650	Los Ranchos de Albuquerque	4,950
Bayard	5,800	Lovington	3,900
Belen	4,800	Magdalena	6,556
Bernalillo	5,050	Melrose	4,599
Bosque Farms	4,864	Mora	7,200
Carlsbad	3,100	Mosquero	5,550
Carrizozo	5,450	Mountainair	6,500
Chama	7,900	Portales	4,010
Cimarron	6,450	Raton	6,650
Clayton	5,050	Reserve	5,749
Cloudcroft	8,650	Rio Rancho	5,290
Clovis	4,300	Roswell	3,600
Columbus	4,020	Roy	5,900
Corona	6,664	Ruidoso	7,000
Corrales	5,005	San Jon	4,200
Cuba	7,000	Santa Fe	7,000
Deming	4,300	Santa Rita	6,300
Dexter	3,500	Santa Rosa	4,600
Eagle Nest	8,250	Silver City	5,900
Elida	4,345	Socorro	4,600
Española	6,100	Springer	5,800
Farmington	5,400	Taos	7,000
Fort Sumner	4,050	Texico	4,150
Gallup	6,500	Tierra Amarilla	7,460
Grants	6,450	Truth or Consequences	4,250
Hobbs	3,650	Tucumcari	4,100
Hurley	5,700	Tularosa	4,500
Jemez Springs	6,200	Vaughn	5,950
Las Cruces	3,900	Wagon Mound	6,200
Las Vegas	6,450		

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