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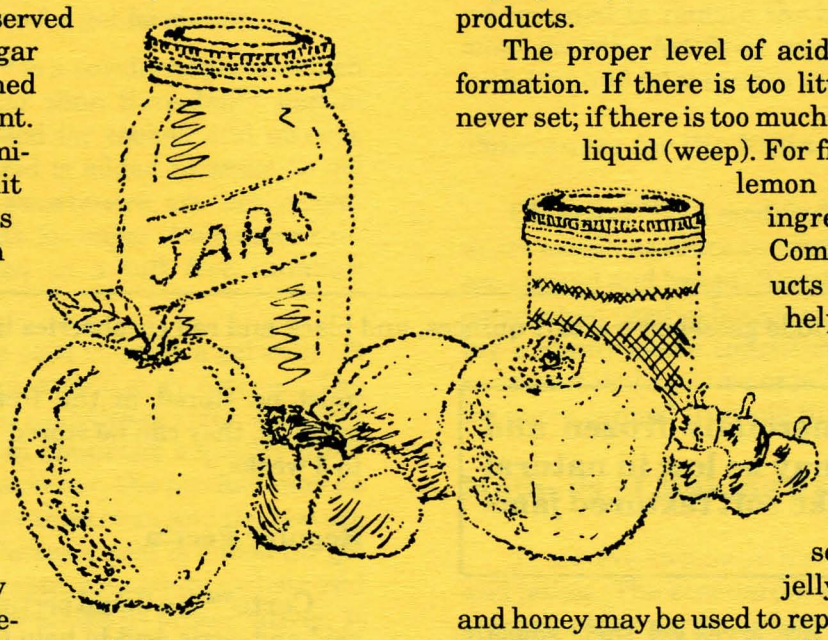
Let's Preserve
Jams, Jellies & Preserves

By Julie A. Albrecht, Extension Food Specialist

Jams, jellies and preserves are foods with many textures, flavors, and colors. They all consist of fruits preserved mostly by means of sugar and they are thickened or jellied to some extent.



Fruit jelly is a semi-solid mixture of fruit juice and sugar that is clear and firm enough to hold its shape.

Jam also will hold its shape, but it is less firm than jelly. Jam is made from crushed or chopped fruits and sugar. Jams made from a mixture of fruits are usually called conserves, especially when they include citrus fruits, nuts, raisins, or coconut.

Preserves are made of small, whole fruits, or uniform-size pieces of fruits in a clear, thick, slightly jellied syrup.

Marmalades are soft fruit jellies with small pieces of fruit or citrus peel evenly suspended in a transparent jelly.

Fruit butters are made from fruit pulp cooked with sugar until thickened to a spreadable consistency.

Ingredients

For an acceptable jam or jelly, the proper proportions of acid (in the form of fruit), pectin, and sugar are necessary. The fruit gives each spread its unique flavor and color. It also supplies the liquid to dissolve the rest of the necessary ingredients and furnishes some or all of the pectin and acid. High-quality, flavorful fruits make the best jellied products.

The proper level of acidity is critical to gel formation. If there is too little acid, the gel will never set; if there is too much acid, the gel will lose liquid (weep). For fruits low in acid, add lemon juice or other acid ingredients as directed. Commercial pectin products contain acids which help to ensure gelling.

Sugar serves as a preserving agent, contributes flavor, and aids in gelling. Cane and beet sugar are the usual sources of sugar for jelly or jam. 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.

Pectins are substances in fruits that form a gel if they are in the right combination with acid and sugar. All fruits contain some pectin. Apples, crab apples, gooseberries, and some plums and grapes usually contain enough natural pectin to form a gel. Other fruits, such as strawberries, cherries, and blueberries, contain little pectin and must be combined with other fruits high in pectin or with commercial pectin products to obtain gels. The following table lists the relative amount of pectin and acid for most fruits. Because fully ripened fruit has less pectin, one-fourth of the fruit should be underripe when making jellies without added pectin.

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PECTIN - ACID CONTENT OF FRUIT

Adequate Pectin and Acid[a]	Adequate Pectin, Low Acid	Low Pectin, Adequate Acid	Low Pectin and Acid
Apples, tart	Apples, sweet	Apricots	Figs, ripe
Blackberries, sour	Bananas, unripe	Huckleberry	Nectarines
Blueberries	Cherries, sweet	Pineapple	Overripe, fruit
Cherries, sour	Figs, unripe	Rhubarb	Peaches, ripe
Crabapples	Melon, ripe	Strawberries	Pears, ripe
Cranberries	Pears		Pomegranates
Currants	Quinces, ripe		
Elderberries			
Grapefruit			
Guavas, sour			
Grapes			
Lemons			
Limes			
Loganberries			
Oranges, sour			
Plums, Damson, etc.			

[a]Some authorities include gooseberries, tart quinces, and black and red raspberries in this classification.

Caution: Commercially frozen and canned juices may be low in natural pectins and make soft textured jams and jellies.

Jams, jellies and preserves get their smooth, semisolid consistency from pectin. Pectin is a generic term for numerous pectinic acids. Commercial pectin is extracted from apple cores or the white layer of citrus fruit. Commercial pectins contain added acid to ensure jelling. With commercially available pectin, you can use various fruits, berries, and other ingredients to make a quality jam or jelly. Also, less cooking is necessary when pectin is added.

For successful products, use pectins as directed and do not exchange one type of pectin for another. Measure ingredients exactly to ensure a quality product. Prepare one batch at a time. Doubling a recipe may prevent proper jelling. Purchase fresh pectin each year. Old pectin may result in poor gels. Preservative may be included in commercial pectin to prevent microbial spoilage of the finished products.

Commercially available pectins are categorized by type: regular or modified pectin. No-cook jams and jellies may be made with most pectins, both regular and modified pectins. No-cook preserves must be stored in the freezer until use. After opening, they can be stored in the refrigerator up to 3 weeks.

Regular Pectin

Certo™ is a liquid pectin which contains lactic acid and citric acid to help form gel. Certo™ fruit pectin for cooked or no-cook freezer jams and jellies. Do not reduce the amount of sugar or substitute artificial sweeteners. Sodium benzoate is an added preservative. Consumer questions can be directed to a toll free number: 1-800-431-1001.

MCP Pectin™ is a powdered pectin which contains citric acid to aid in forming a gel. No preservatives are added. MCP Pectin™ may be used for cooked and no-cook freezer jams and jellies. Sugar should not be reduced or artificial sweeteners substituted.

Sure-Jell™ is a powdered pectin for use in making cooked and no-cook freezer jam and jellies. Fumaric acid is added to assist in gel formation. No preservatives are added. Do not reduce the amount of sugar or use artificial sweeteners. Consumer questions and comments can be directed to a toll free number: 1-800-431-1001.

Mrs. Wages Home Jell™, a powdered pectin, can be used for cooked jams and jellies and for uncooked freezer jams. Fumaric acid is added to ensure gel formation. Preservatives are not added.

Use the exact amount of sugar required in the recipe provided with the pectin.

Ball 100% Natural Fruit Pectin™ can be used to make cooked jams and jellies and no cook freezer jams. Citric acid is added to assist in gel formation. Use the amount of sugar specified in the recipes included in the package.

Modified Pectin

Two types of modified pectins are available for home use to make reduced calorie jams and jellies. One type of pectin will form a gel with 1/3 less sugar. The other type, low-methoxyl pectin, requires a calcium source for gel formation.

Sure-Jell Light™ is a powdered pectin which requires 1/3 less sugar than Sure-Jell™ pectin. This pectin can be used for cooked and no-cook preserves. Fumaric acid is added to assist in gel formation. Artificial sweeteners are not recommended as a substitute for sugar. Consumer concerns can be directed to a toll free number: 1-800-431-1001.

Slim Set™ can be used to make a gel with 1/3 less sugar or with an artificial sweetener. The powdered pectin contains malto-dextrin, a starch-type thickener to aid in obtaining a quality product. Because of the thickener, the product may be cloudy or opaque rather than clear and the texture may not be as firm. Fumaric acid is added for gel formation. Calcium citrate, potassium sorbate and potassium benzoate are added as preservatives. It is not possible to make a no-cook freezer jam or jelly with Slim Set™ .

Mrs. Wages Light Home Jell™ is a low methoxyl powdered fruit pectin. Jams and jellies can be made without sugar, with artificial sweeteners, or with added sugar using this pectin. Calcium phosphate is added to provide calcium necessary to form a gel without added sugar. Fumaric acid is the added acid and potassium sorbate is included as a preservative. A no-cook freezer product is not recommended, although the cooked product may be stored in the freezer. The no-sugar product may be cloudy, and less firm than when compared to product made with sugar. After a no-sugar product is opened, some syneresis (weeping) may occur. This small amount of liquid won't affect the flavor or texture.

Ball 100% Natural Reduced Calorie Fruit Pectin™ contains two gums, locust bean gum and xanthin gum to help produce a thickened product. Cooked jams and jellies and no cook freezer jams may be made with reduced sugar or artificial sweeteners and Ball 100% Natural Reduced Calorie Fruit Pectin™. Follow recipes included in the package for successful products.

Gelatin

Gelatin, a protein substance derived from collagen, may be used in refrigerator fruit spreads. Products made with gelatin must be refrigerated and used within one month.

Knox Unflavored Gelatin™ contains gelatin, not pectin. Gelatin is used in some jam and jelly recipes as a thickener. These products need to be refrigerated to remain thickened and to prevent mold growth. Artificial sweeteners can be used with jam and jelly recipes made with gelatin.

Thickeners for Pie Fillings

ClearJel™ is a modified corn starch that produces excellent sauce consistency after pie fillings are canned and baked. Regular corn starch breaks down when used in home canned pie fillings, causing a runny sauce consistency. ClearJel™ is not recommended for jams or jellies but is a thickener for home canned fruit pie fillings.

Methods of Making Jams and Jellies

There are two basic methods of making jams and jellies. The standard method, which does not require added pectin, works best with fruits naturally high in pectin. The other method, which requires the use of commercial liquid or powdered pectin, is much quicker. The gelling ability of various pectins differs. To make uniformly gelled products, be sure to add the quantities of commercial pectins to specific fruits as instructed on each package. Overcooking may break down pectin and prevent proper gelling. When using either method, make one batch at a time, according to the recipe. Increasing the quantities often results in soft gels. Stir constantly while cooking to prevent burning. Recipes are developed for specific jar sizes. If jellies are filled into larger jars, excessively soft products may result.

Processing

Even though sugar helps preserve jellies and jams, molds can grow on the surface of these products. Research shows that the mold which people usually scrape off the surface of jellies may not be as harmless as is seems. Mycotoxins have been found in some jars of jelly having surface mold growth. Mycotoxins are known to cause cancer in animals; their effects on humans are still being researched.

Because of possible mold contamination, paraffin or wax seals are no longer recommended for any sweet spread, including jellies. To prevent growth of molds and loss of good flavor or color, fill products hot into sterile Mason jars, leaving 1/4-inch headspace, seal with self-sealing lids, and process five minutes in a boiling-water canner. Correct process time at higher elevations by adding one additional minute per 1,000 ft above sea level. If non-sterile jars are used, the filled jars should be processed 10 minutes. Use of sterile jars is preferred, especially when fruits are low in pectin, since the added 5-minute process time may cause weaker gels. To sterilize empty jars, see Let's Preserve: Canning Basics (EC90-435).

Water boils at 212°F at sea level. As the elevation increases, water boils at lower temperatures and foods take longer to cook. To insure safely canned foods at altitudes above sea level, lengthen the processing time for boiling-water canning methods.

The map below shows Nebraska altitudes. Find your area and check the tables for the correct processing time for your altitude.

To test jelly for doneness, use one of the following methods.

Test for Proper Gelling

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
	220°F	218°F	216°F	214°F	212°	211°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.

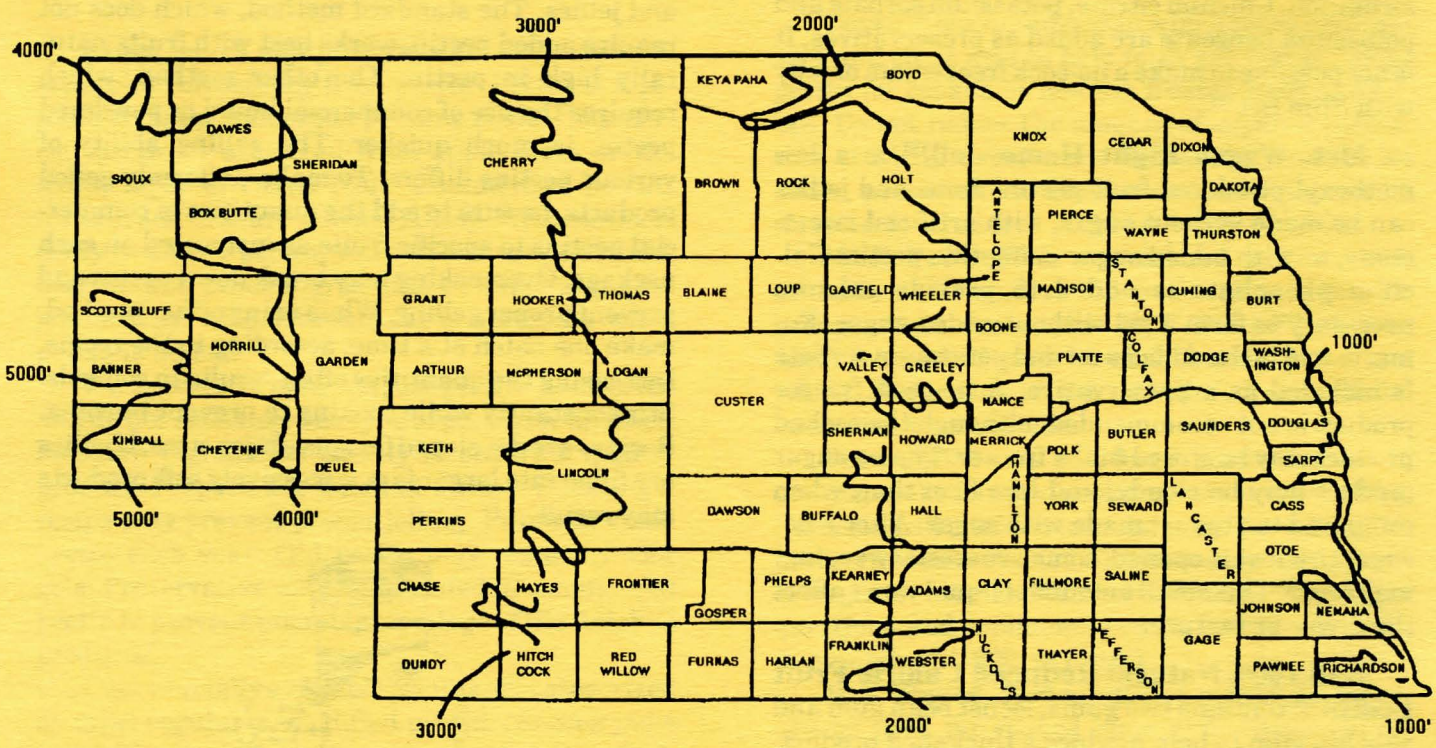
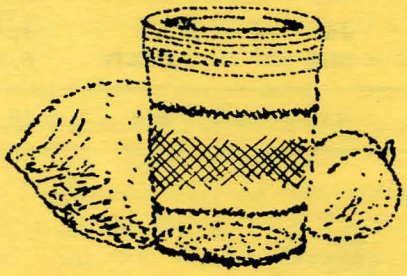


Figure 1. Altitude Ranges in Nebraska *(Map was prepared by Les Howard, cartographer, UNL Geography Department).*

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.

Remove from heat and quickly skim off foam. Fill sterile jar with jelly. Use a measuring cup or ladle the jelly through a wide-mouthed funnel, leaving 1/4-inch headspace. Adjust lids and process.



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

To Extract Juice

	Cups of Water to be Added per Pound of Fruit	Minutes to Simmer Fruit before Extracting Juice	Ingredients Added to Each 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 (opt)	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.

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
Hot	Half-pints	5 min	10 min

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 on the next page.

Ingredient Quantities

Fruit	Cups Crushed Fruit	Cups Sugar	Tbsp Lemon	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.

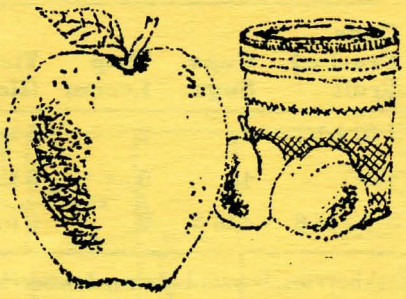
Add sugar and bring to a boil while stirring rapidly and constantly. Continue to boil until mixture thickens. Use one of the tests on page 4 to determine when jams and jellies are ready to fill or refrigerator test, below. Remember to allow for thickening during cooling.

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 compartments 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 with jam. Use a measuring cup or ladle the jam through a wide-mouthed funnel, leaving 1/4-inch headspace. Adjust lids and process.

Recommended process time for Jams without Added Pectin in a boiling-water canner

	Process Time at Altitudes of		
Style of Pack	**Jar Size**	**0- 1,000 ft**	**1,001 - 6,000 ft**
Hot	Half-pints	5 min	10



Making Jams and Jellies With Added Pectin

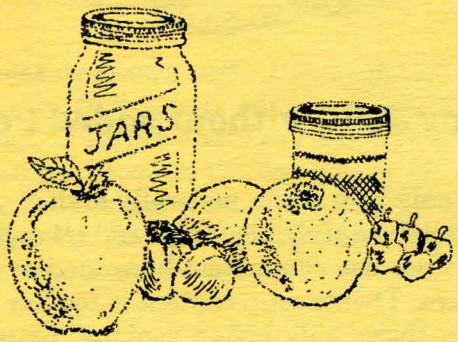
Fresh fruits and juices, as well as commercially canned or frozen fruit juice, can be used with commercially prepared powdered or liquid pectins. The order of combining ingredients depends on the type of pectin used. Complete directions for a variety of fruits are provided with packaged pectin.

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.

Use Mason canning jars, self-sealing two-piece lids, and process in a boiling water bath according to the chart below.

Recommended process time for Jellies and Jam with Added Pectin in a boiling-water canner

	Process Time at Altitudes of		
Style of Pack	**Jar Size**	**0- 1,000 ft**	**1,001- 6,000 ft**
Hot	Half-pints	5 min	10



Recipes

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

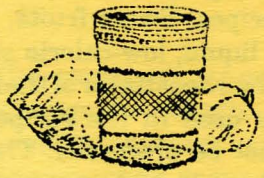
Procedure: Crush apples and pears in a large saucepan and stir in cinnamon. Thoroughly mix sugar and lemon juice with fruits and bring to a boil over high heat, stirring constantly. Immediately stir in pectin. Bring to a full rolling boil and boil hard 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and fill sterile jars leaving 1/4-inch headspace. Adjust lids and process according to the chart on page 7.

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 leaving 1/4-inch headspace. Adjust lids and process according to the chart on page 7.



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 leaving 1/4-inch headspace. Adjust lids and process according to the chart on page 7.

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 a 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 leaving 1/4-inch headspace. Adjust lids and process according to the chart on page 7.

Recommended process time for Jam and Jelly Recipes in a boiling water canner

	Process Time at Altitudes of			
	Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft
Pear-Apple Jam	Hot	Half-pints	5 min	10
Strawberry-Rhubarb Jelly	Hot	Half-pints	5 min	10
Blueberry-Spice Jam	Hot	Half-pints	5 min	10
Grape-Plum Jelly	Hot	Half-pints	5 min	10

Chokecherry Syrup and Jelly

Extracting Fruit Juice

Extraction of juice from the fruit is the first step in the preparation of a fruit syrup or fruit jelly. Use ripe fruit or berries for syrup or pectin-added jelly. If the juice is to be used for traditional or long boil method jelly, use 1/4 underripe and 3/4 ripe fruit.

Wash fruit, remove seeds then crush berries. The seeds of chokecherries contain a cyanide-forming compound which can cause illness or death if eaten in large amounts. Chokecherries give about 2 cups of juice per pound of fruit. Place pitted crushed fruit in a large heavy kettle, add water to cover fruit, and place cover on the kettle. Bring mixture to a boil and simmer 15 minutes or until soft. Use the juice in the following recipes.

CHOKECHERRY SYRUP

4 cups chokecherry juice
4 cups sugar
1/2 cup lemon juice
1/2 cup package powdered pectin (3 tablespoons)

Extract chokecherry juice as directed. Mix and boil ingredients for 2 minutes in a large heavy kettle, stirring constantly. Fill hot, sterilized half-pint jars with hot liquid; leave 1/4 inch headspace. Adjust two-piece lids, and process according to the chart on page 8.

CHOKECHERRY JELLY

3 cups chokecherry juice
6 1/2 cups sugar
1 container of liquid pectin (3 ounces)
1/4 teaspoon almond extract (optional)

Extract chokecherry juice as directed. Pour juice into a large heavy kettle. Add sugar and stir to mix. Place over high heat. Bring to a boil, stirring constantly. Add pectin while stirring. Bring to a full, rolling boil and boil hard for 1 minute, stirring constantly. Remove from heat. Stir and skim for 5 minutes. Add almond extract, if desired. Pour into hot, sterilized half-pint jars; leave 1/4 inch headspace. Adjust two-piece lids and process according to the chart on page 8.

	Process Time at Altitudes of			
	Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft
Chokecherry Syrup	Hot	Half-pints	5 min.	10 min.
Chokecherry Jelly	Hot	Half-pints	5 min.	10 min.

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, apples 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.

Jellies and jams that contain modified pectin, gelatin, or gums may be made with noncaloric sweeteners. Jams with less sugar than usual also may be made with concentrated fruit pulp, which contains less liquid and less sugar.

Two types of modified pectin are available for home use. One gels with one-third less sugar. The other is a low-methoyxl pectin which requires a source of calcium for gelling. To prevent spoilage, jars of these products must be processed longer in a boiling-water canner. Recipes and processing times provided with each modified pectin product must be followed carefully. The proportions of acids and fruits should not be altered, as spoilage may result.

Fruit spreads may be made which are lower in sugar and calories than regular jams and jellies. Low calorie jams and jellies cannot be made by leaving the sugar out of regular jam or jelly recipes. However, reduced sugar fruit spreads can be made using the following methods or products:

1. **Special Modified Pectins** -- These pectins have been modified to gel with reduced sugar or no sugar. The label on these pectins will say "light," "lite," or "low or no sugar." Follow the directions on the package. Some pectin products are made for recipes which call for less sugar and some for use with artificial sweetener.

2. **Regular Pectin With Special Recipes** -- These special recipes have been formulated so that no added sugar is needed. However, each package of commercial regular pectin does contain some sugar. Artificial sweetener is often added in the recipe.

3. **Recipes Using Gelatin** -- Some recipes use unflavored gelatin as the thickener for the jelly or jam. Artificial sweetener is often added. Jams and jelly made with gelatin should not be processed. Products made with gelatin must be refrigerated and used within 4 weeks.

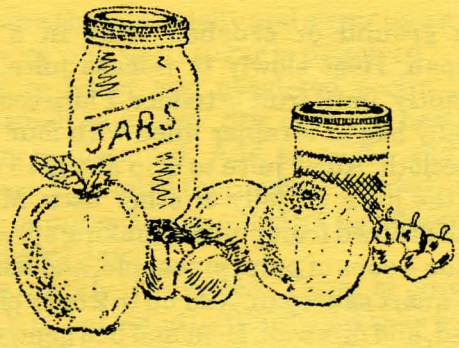
4. **Long-Boil Methods** -- Boiling fruit pulp for extended period of time will make a product thicken and resemble a jam, preserve or fruit leather. Artificial sweetener may be added. For best results, add artificial sweetener after heating.

NOTE: The sweetener recommended in most of the recipes is liquid saccharin. One-eighth (1/8) teaspoon of liquid saccharin equals the sweetening power of one teaspoon of sugar. If you use other sweeteners, read the label to determine their sweetening power.

Aspartame (a low calorie nutritive sweetener, Equal™, NutraSweet™) loses its sweetness with heating. Aspartame is used in the two recipes made with gelatin. Additional sweetener is added to compensate for loss of sweetness during heating. Do not heat longer than recommended.

Acceptable gelled refrigerator fruit spreads also may be made with gelatin and sugar substitutes. Such products spoil at room temperature, must be refrigerated, and should be eaten within 1 month.

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.



Recipes

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 jars quickly, leaving 1/4-inch headspace. Adjust lids. Do not process or freeze. Caution: Store in refrigerator and use 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. Nonnutritive 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 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 jars quickly, leaving 1/4-inch headspace. Adjust lids and process.

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

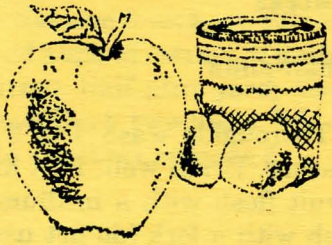
		Process Time at Altitudes of		
Style of Pack	**Jar Size**	**0-1,000 ft**	**1,001-3,000 ft**	**3,001-6,000 ft**
Hot	Half-pints	15 min	20	20
	Pints	20 min	25	30

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. Adjust lids. Do not process or freeze. **Caution: Store in refrigerator and use within 4 weeks.**

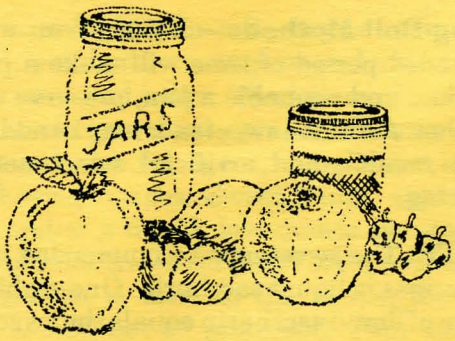


STRAWBERRY JAM WITH GELATIN

1 1/2 teaspoons unflavored gelatin
1 1/2 tablespoons cold water
3 cups strawberries, crushed
1 1/2 tablespoons liquid sweetener
1/4 teaspoon ascorbic acid powder
Red food coloring as desired.

Yield: 1 pint

Procedure: Soften gelatin in cold water. Combine strawberries and sweetener in a saucepan. Place over high heat and stir constantly until mixture comes to a boil. Remove from heat; add softened gelatin. Return to heat and continue to cook for 1 minute. Remove from heat; blend in ascorbic acid powder and food coloring. Fill 2 half-pint jars; seal. Store in refrigerator or freezer.



Remake Instructions for Cooked Jams or Jellies

It is best to recook only four to six cups of jelly or jam at one time.

Using Powdered Pectin:

Measure the jelly or jam to be recooked. For each quart of jelly or jam measure 1/4 cup sugar, 1/4 cup water and four teaspoons powdered pectin. Mix the pectin and water and bring to boiling, stirring constantly to prevent scorching. Add the jelly or jam and sugar. Stir thoroughly. Bring to a full rolling boil over high heat, stirring constantly. Boil mixture hard for 1/2 minute. Remove jelly or jam from the heat, skim, pour into hot jars and process accordingly to original recipe.

Using Liquid Pectin:

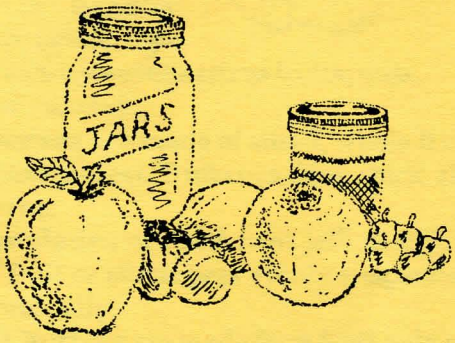
Measure the jelly or jam to be recooked. For each quart of jelly or jam, measure 3/4 cup sugar, two tablespoons lemon juice and two tablespoons liquid pectin. Bring the jelly or jam to boiling or high heat. Quickly add the sugar, lemon juice and pectin, and bring to a full rolling boil, stirring constantly. Boil mixture hard for one minute. Remove jelly or jam from the heat, skim, pour into hot jars and process according to original recipe.

Without Adding Pectin:

Heat jelly or jam to boiling and boil for a few minutes. Use one of the tests to determine just how long to cook it. Remove jelly or jam from the heat, skim, pour into hot jars and process according to original recipe.

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

	Process Time at Altitudes of		
Style of Pack	**Jar Size**	**0-1,000 ft**	**1,001-6,000 ft**
Hot	Half-pints	5 min	10



Remake Instructions for Freezer Jams or Jellies

Using Powdered Pectins:

For Trial

1 cup your jam or jelly
2 tablespoons sugar
1 tablespoon water
1/2 tablespoon powdered pectin*

1. Measure the jam or jelly and sugar into a bowl. Stir very well until sugar is dissolved.
2. Measure water and powdered pectin into a very small saucepan. Stir over low heat until pectin is dissolved. Add to sugar and fruit mixture. Stir until thoroughly blended - about three minutes (two minutes for Blackberry and Raspberry Jams).
3. Ladle quickly into glasses. Cover at once with tight lids. Let stand until set (may take up to 24 hours). Then store in freezer. For use within three weeks, may be stored in refrigerator.
   *Stir contents of powdered pectin thoroughly before measuring.
   If trial is satisfactory, remake balance using above proportions, but bring water and pectin to a boil and boil for one minute, stirring constantly. **DO NOT REMAKE MORE THAN EIGHT CUPS AT ONE TIME.**

Using Liquid Pectins:

For Trial

1 cup your jam or jelly
2 tablespoons sugar
1 1/2 teaspoons lemon juice
1/2 tablespoon liquid pectin

1. Measure jam or jelly into bowl.
2. Add sugar and lemon juice. Stir very well until sugar is dissolved (about three minutes).
3. Add liquid and stir until well blended - about three minutes.
4. Ladle quickly into glasses. Cover at once with tight lids. Let stand until set (may take up to 24 hours). Then store in freezer. For use within three weeks, may be stored in refrigerator.
   If trial is satisfactory, remake the balance using the above proportions. **DO NOT REMAKE MORE THAN EIGHT CUPS AT ONE TIME.**

References:

Using Minnesota's Wild Fruits. Minnesota Extension Service. 1987.

USDA Complete Guide to Home Canning. 1988.

Manufacturers' information provided with commercial products.

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