

JELLY MAKING

“Ideal fruit-jelly is a beautifully colored, transparent, palatable product obtained by so treating fruit-juice that the resulting mass will quiver, not flow, when removed from its mold; a product with texture so tender that it cuts easily with a spoon, and yet so firm that the angles thus produced retain their shape; a clear product that is neither syrupy, gummy, sticky, nor tough; neither is it brittle and yet it will break, and does this with distinct beautiful cleavage which leaves sparkling characteristic faces. This is that delicious, appetizing substance, a good fruit-jelly.” This word picture of a fruit jelly was painted by Goldthwaite in a 1914 publication of the University of Illinois. It makes jelly sound awfully elegant to be incorporated into a peanut butter sandwich!

Not all jellies live up to this description. Some are sweet but have little fruit flavor. Some are soft, even

runny, or conversely, tough. How can you insure a good fruit jelly?

A balance of ingredients is essential for a good jelly. Fruit, pectin, sugar, and acid are all essential ingredients of a good jelly. This may seem unusual, since we often combine only two ingredients--fruit juice and sugar--when making jelly.

How do we get by with using just 2 ingredients? It is possible because some fruits contain enough pectin and acid to make a good jelly with added sugar. Other fruits have enough pectin but not enough acid. Some are acid enough but lack pectin, while a few fruits lack both acid and pectin. Fruits have less pectin and acid when fully ripe, so it is recommended that some underripe fruit be used when extracting juice for jelly.

Adequate Pectin and Acid

Apples, tart
Blackberries, sour
Cherries, sour
Crabapples
Cranberries
Currants
Grapefruit
Grapes
Lemons
Limes
Loganberries
Plums

Adequate Pectin, Low Acid

Bananas
Cherries, sweet
Figs, unripe
Quinces

Low Pectin, Adequate Acid

Apricots
Rhubarb
Strawberries

Low Pectin and Acid

Figs, ripe
Peaches
Pears

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It is possible to add pectin and/or acid, or to combine fruit juices to get the necessary balance for a jellied product.

Fruits are usually heated to make juice extraction easier and the extraction of pectin more complete. Wash fruit carefully. Use some underripe fruit to increase the pectin and acid content. Remove caps, stems, and damaged areas. Cut large fruits such as apples into pieces but don't peel or core. Place fruit in a large pan. Add enough water to cover apples and other hard fruits. For berries and grapes, use just enough water to prevent scorching. Bring to a boil. Grapes and berries need to simmer 5 to 10 minutes; apples and other hard fruits

need 20 to 25 minutes to be soft enough to extract the juice.

Pour the cooked fruit into a jelly bag. You may buy a jelly bag or make your own using several thicknesses of closely woven cheesecloth. The clearest jelly comes from juice that drips through the jelly bag without any pressure. You can increase the yield of juice by twisting or squeezing the bag but some pulp will be extracted along with the juice. The resulting jelly will be slightly cloudy.

Any fresh fruit may be canned or frozen as fruit or juice to be used in jellied products at a later date. Both

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fruit and juice should be canned or frozen without sweetening.

Unsweetened commercially canned or frozen fruit or juice can also be used in jellied products. The pectin content of these juices may be lower than for freshly squeezed juice.

Sugar

Sugar obviously adds flavor to the jellied product, but it does much more than that. Sugar combines with pectin to form a gel. You might picture this gel as an invisible sponge which holds the fruit juice. The quantity of sugar used in jellies is sufficient to prevent bacterial growth.

Beet and cane sugars can be used with equal success. Corn sugar can be used in recipes calling for added pectin. Corn syrup or honey can be used in place of part, but not all, of the sugar.

Light corn syrup can replace up to one-fourth of the sugar in jellies without added pectin; up to one-half of sugar in recipes with added powdered pectin; and up to 2 cups of the sugar in recipes with liquid pectin.

Honey can replace up to one-half of the sugar in recipes without added pectin. In products made with added pectin, 2 cups of honey can replace 2 cups of sugar if the yield is more than 5 to 6 glasses. In smaller recipes, replace only 3/4 to 1 cup of the sugar with honey.

Artificial sweeteners cannot be used in place of sugar. They will sweeten the product but do not combine with pectin to give a gel, nor do they have a preservative effect.

Pectin

Pectin is available commercially in both powdered and liquid forms. Both forms make equally

acceptable products but they cannot be used interchangeably.

Powdered pectin will not dissolve in high sugar concentrations so it must be added to the fruit before the sugar. The liquid pectin is added after the sugar. Commercial fruit pectins are made from apples or citrus fruits. Fruit pectins should be stored in a cool, dry place and used in the year in which purchased to have maximum gel strength.

There are some new pectin products on the market which make it possible to make a jelly with less sugar or no sugar. Light and low methoxyl are descriptive words for these pectins. Jellies and jams made with these products have a shorter storage life and are better if made in small quantities as needed.

Acid

Acid is needed for gel formation. The acid content varies from fruit to fruit and with ripeness. Lemon juice is added to fruit juices low in acid to insure gel formation.

To Add Pectin or Not?

Many homemakers prefer the added-pectin method as fully ripe fruits can be used and the cooking time is shorter and standardized. Because of the shorter cooking time, the yield is greater and the product tastes more like the fresh fruit.

Others prefer the concentrated flavor of jelly cooked for a longer period of time. And they point out the greater quantity of sugar needed in recipes with added pectin.

Let's compare recipes as to cost and yield. Commercially canned juice was used in this example.

Without Pectin	Grape Jelly	With Pectin
4 cups \$1.40	Ingredient	5 cups \$1.75
3 cups 0.42	Grape Juice	7 cups 0.85
	Sugar	1 pkg. <u>1.39</u>
	Powdered Pectin	\$3.99
<u>\$1.82</u>		11 or 12 6-oz. glasses
Yield: 5 6-oz. glasses		@ 33 to 36¢ each
@ 36¢ each		

Tests for Doneness

Products made with added pectin start with a higher proportion of sugar; thus the time needed to reach the desired concentration of sugar is shorter and more predictable.

Judging when products made without pectin are done can be a problem. There are three tests which are used for determining doneness. Probably the most reliable is the temperature test. The boiling point of a sugar-water mixture is a reflection of the sugar concentration. Water will boil at approximately 212°F, but add sugar and the temperature at which the mixture boils goes up. A mixture that's 65% sugar will boil at about 220° F. Candies which have a higher sugar content have even higher boiling points.

1.Temperature Test: Check the temperature of boiling water with a jelly, candy, or deep-fat thermometer. The temperature at which water boils differs at different altitudes and may change with atmospheric conditions. Cook jelly until temperature of mixture is 8° F. above the boiling point of water; cook jam to 9° F. above the boiling point of water.

2.Refrigerator Test: Remove the jam or jelly mixture from the heat. Pour a small amount of the boiling mixture on a chilled plate. Put the plate in the freezer for a few minutes. If jelly sets up, the mixture has cooked long enough. Jam will not be as firm when done as jelly.

3.Spoon or Sheet Test: Dip a cold metal spoon in the boiling jelly mixture. Lift the spoon out so that the jelly mixture runs off the side. When the drops run together and fall off the spoon in a sheet, the jelly is done.

Containers for Jellies

Containers for jellies have not merited much attention until recent years. Jelly glasses and odd jars were considered adequate for storing jelly. This was possible because the high sugar content of jellied products inhibits the growth of most spoilage organisms with the exception of mold.

Jelly makers have minimized mold growth by using sterilized jars and by covering the jelly with a thin layer of paraffin. Even so there was often some mold growth on top of and even through the paraffin. Consumers removed the mold with the paraffin and ate the jelly. In recent years there has been evidence that some molds produce toxins which can be injurious to health. Such a toxin has not been found in jelly, but in light of the evidence, USDA now recommends packaging jellied products in jars which can be sealed and processing the jars for a few minutes in a boiling water bath. The heat treatment is short--5 minutes after the water returns

to a full rolling boil. It is sufficient to destroy mold but won't hurt the consistency of the jellied product.

Jams, Preserves, Marmalades, Etc.

There are a number of jellied products which have the same basic ingredients. The following glossary of terms may help you understand the differences between products.

Jelly - Clear or translucent, contains no pieces of fruit. A jelly is firm enough to hold its shape, soft enough to spread.

Jam - Made with chopped or crushed fruit and sugar with a consistency looser than that of jellies.

Marmalade - clear, transparent jellylike mixtures with slivers of fruit and/or peel evenly suspended in the jelly. Marmalade generally contains citrus.

Conserves - A mixture of two or more fruits having a jamlike consistency and containing nuts or raisins or both.

Preserves - Whole fruits or large chunks of fruit suspended in a thick, transparent syrup.

Fruit Butter - Velvety-smooth near relative to jam, made by cooking fruit pulp with sugar until the texture is thick enough for spreading.

Your Assignment

If you were making a decision about whether to make freezer jam or to make a cooked jam to be stored on the shelf, what factors would you consider? You may need to look back at some previous lessons to get the needed information regarding these points:

Quality including color and flavor

Cost

Safety

Ease of preparation

My Assignment

(Questions You Asked)

Q.Is it necessary to sterilize jars used in canning?

A.It is not necessary to sterilize jars for food which will be processed for more than 10 minutes. The jar and the food will be sterilized at the same time.

Q.Why can't lids be reused?

A. There is a high failure-to-seal rate for reused lids. You will sometimes get a seal, but it is not a sure thing. The sealing compound deteriorates. Lids are often bent in the process of removing them from jars. Certainly if you've invested the time and effort to can something, you'd like to maximize your chances for success.

The high sugar content is a preservative, so freezing doesn't add much in terms of safety.

There's not much difference in preparation time. The most time is used in preparing the berries which would be the same for both products.

Answers to Your Assignment

The flavor and color of freezer jam will be more like the fresh product because of the limited heating.

Freezing will add to the cost.

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