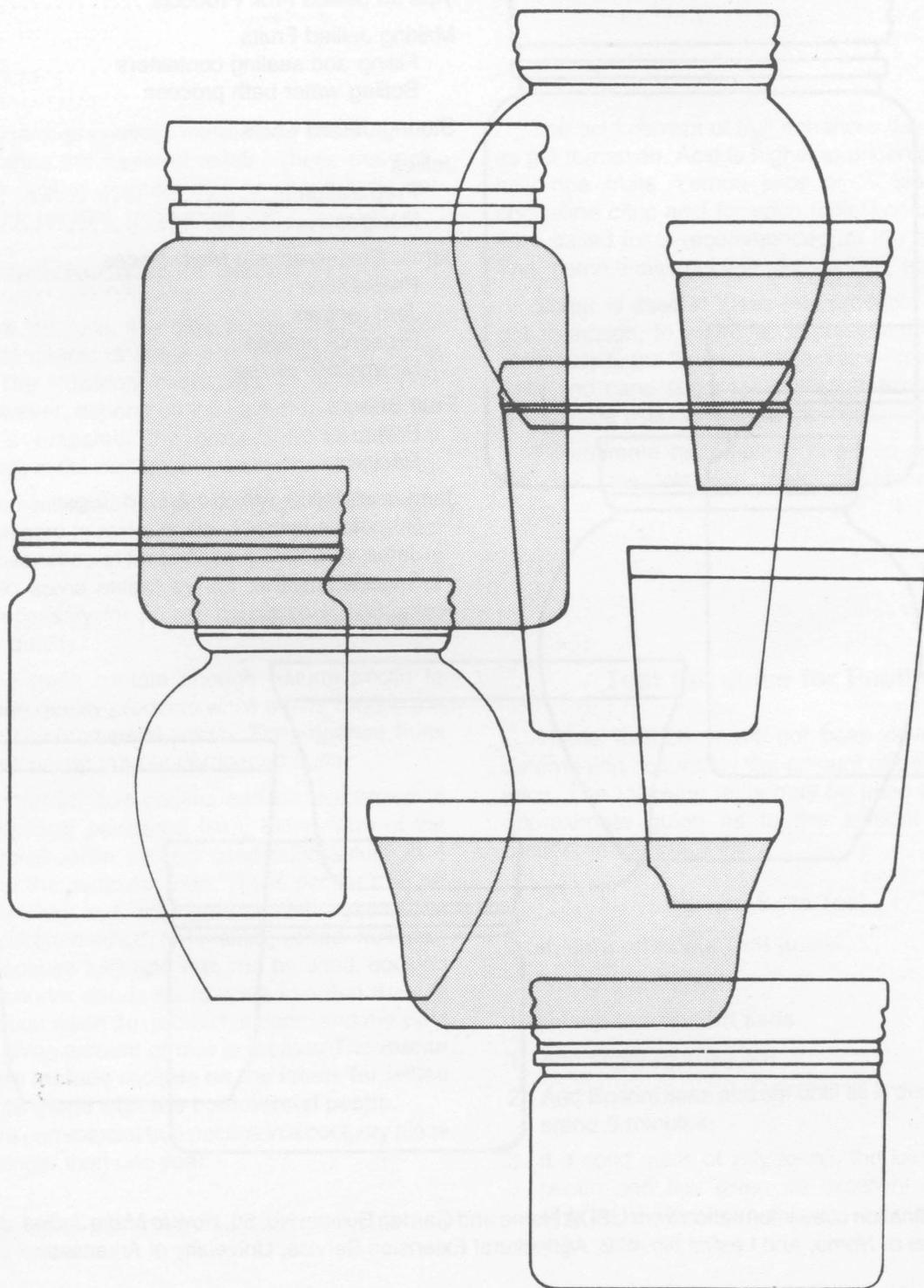
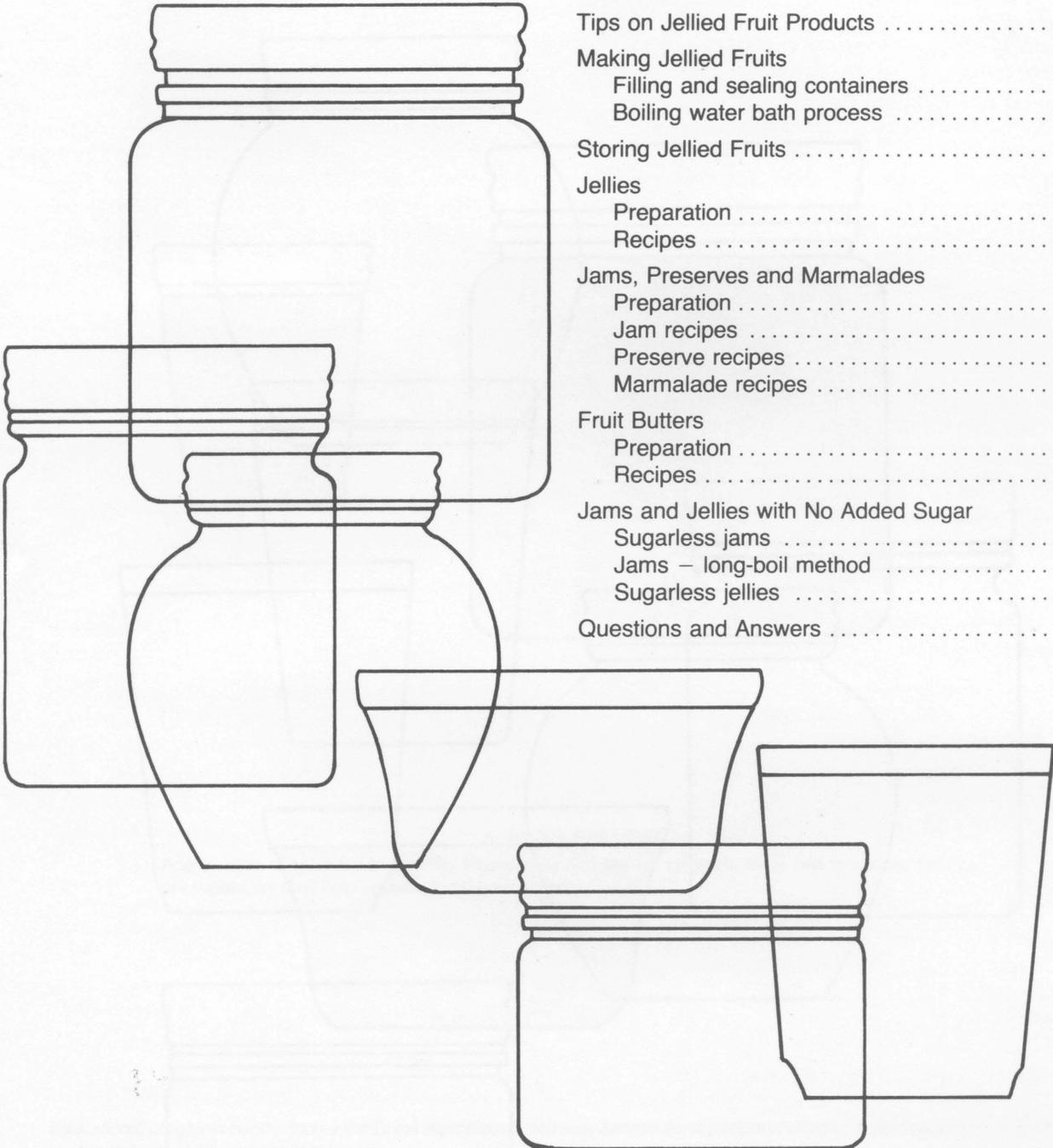


JELLIES, JAMS, PRESERVES, MARMALADES AND BUTTERS



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JELLIES, JAMS, PRESERVES, MARMALADES AND BUTTERS

Mary K. Sweeten*

Jelly, jam, preserves, marmalade and fruit butters enhance the flavor of meals. These fruit products can utilize irregular size or shape fruits not suitable for canning or freezing.

Characteristics of Jellied Fruits

These products are alike in that they are preserved by means of sugar and are jellied to some extent. The individual characteristics of each product, however, depend on the kind of fruit used, the way it is prepared, the proportions of different ingredients in the mixture and the method of cooking.

Proper amounts of fruit, pectin, acid and sugar are necessary to make a jellied fruit product. Select flavorful varieties of fruits because the fruit flavor is diluted to some extent by the large proportion of sugar necessary for proper consistency and good keeping quality.

Some fruits contain enough natural pectin to make high quality products while others require the addition of commercial pectin. Fully ripened fruits have less pectin than underripened fruits.

Commercial fruit pectins can be purchased in either liquid or powdered form. Either form of the commercial pectin can be used successfully in a recipe for the particular form. These pectins may be used with any fruit. Many homemakers prefer the added-pectin method for making jellied fruit products because fully ripe fruit can be used, cooking time is shorter and is standardized so that there is no question when the product is done, and the yield from a given amount of fruit is greater. **The manufacturers include recipes on the labels for jellied products made with the commercial pectin.**

Store commercial fruit pectins in a cool, dry place for no longer than one year.

The acid content of fruit enhances flavor as well as gel formation. Acid is higher in underripe than in fully ripe fruits. Lemon juice or $\frac{1}{8}$ teaspoon of crystalline citric acid for each tablespoon of lemon juice called for is recommended for low acid fruits. The commercial pectins do contain some acid.

Sugar is used in these fruit products to hasten gel formation, to serve as a preserving agent, to contribute to the flavor and to act as a firming agent. Beet and cane sugar have the same composition and can be used with equal success.

To estimate the amounts of pectin and acid of the fruit, the following tests are recommended.

Test the Juice for Pectin

Home methods have not been developed for determining accurately the amount of pectin in fruit juice. The following tests may be used only as an approximate guide as to the amount of pectin present in the fruit juice.

Epsom Salts Test

2 tablespoons cool fruit juice

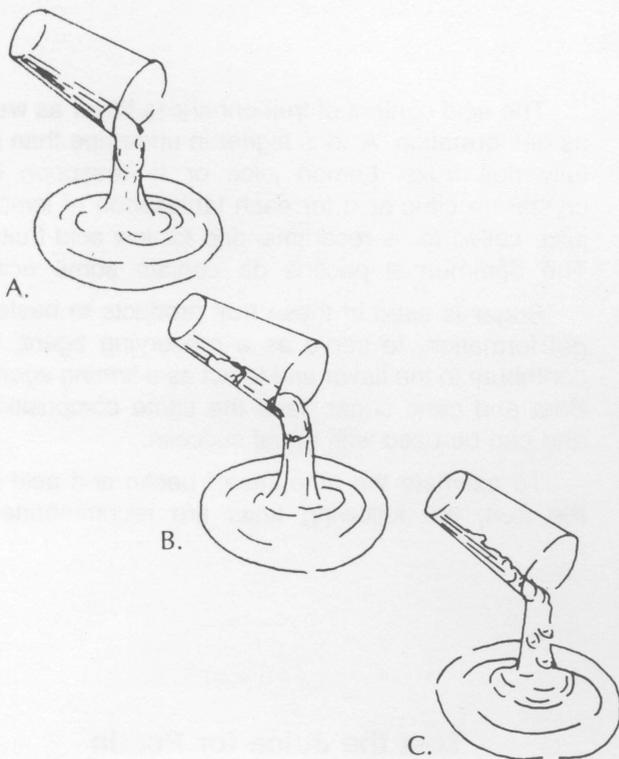
2 teaspoons sugar

1 tablespoon Epsom salts

1. Add sugar to fruit juice.
2. Add Epsom salts and stir until all is dissolved. Let stand 5 minutes.
3. If a solid mass of jelly forms, the juice is rich in pectin and has given an excellent pectin test (Figure A). Use 1 cup of sugar to 1 cup of juice in jelly recipes.

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4. If several small particles of jelly-like materials form, the juice is only moderately rich in pectin and has given a moderate pectin test (Figure B). Use $\frac{3}{4}$ cup sugar to 1 cup of juice in jelly recipes.
5. If many small pieces form, the juice is a poor source of pectin and has given a poor pectin test (Figure C). This juice should be used with commercial pectin or used as a beverage.



Test the Juice for Acid

If there is doubt as to whether the juice contains sufficient acid for jelly, test as follows. Mix 1 teaspoon of lemon juice with 9 teaspoons of water in a cup. Compare the taste of this with the juice to be tested. If the fruit is as tart as the diluted lemon juice, it will make satisfactory jelly. In tasting for acid, disregard fruit flavor and concentrate on acidity.

If the fruit juice is low in acid, add strained lemon juice or powdered citric acid. One tablespoon of lemon juice for each cup of the fruit juice, or 1 to $1\frac{1}{2}$ teaspoons of the powdered citric acid for 6 cups of juice generally gives sufficient acidity. Syrup that has failed to make jelly because of lack of acidity may be cooked again. Add lemon juice or citric acid and cook until jelly test is obtained.

Equipment

A large kettle, with a rack and tight-fitting lid, deep enough to hold jars upright and permit the water to boil gently 1 to 2 inches over the top of them is essential. To bring the mixture to a full boil without boiling over, use an 8- or 10-quart kettle with a broad flat bottom. Water bath containers also can be purchased.

Use a jelly bag or fruit press for extracting fruit juice for jellies. The bag may be made of several thicknesses of closely woven cheesecloth, firm unbleached muslin or a canton flannel with the napped side in. Strain the pressed juice through a jelly bag or cheesecloth on a special stand or colander.

A jelly, candy or deep-fat thermometer is an aid in making fruit products without added pectin.

Other kitchen equipment that may be useful includes a quart measure, measuring cup and spoons, paring and utility knives, food chopper, masher, juicer, grater, bowls, wire basket, colander, long-handled spoon, ladle, clock with second hand, and household scale.

Containers

Jelly glasses or canning jars may be used as containers for jellied fruit products. Be sure all jars and closures are perfect. Discard any with cracks or chips; defects prevent airtight seals.

For jellies and for fruit products firm enough to be sealed with paraffin, use glasses or straight-sided containers that will make an attractive mold.

For preserves and soft jams, use canning jars with lids that can be tightly sealed. (Paraffin tends to loosen and break the seal on such products.) In warm, humid climates, put all jams, preserves and marmalades in canning jars with lids that can be sealed tightly.

Get glasses or jars ready before you start to make the jellied product. Wash containers in warm, soapy water and rinse with hot water. Keep them hot — either in a slow oven or in hot water — until they are used. This will prevent containers from breaking when filled with hot jelly or jam.

Wash and rinse all lids and bands. Metal lids with sealing compound may need boiling or holding in boiling water for a few minutes — follow the manufacturer's directions.

Tips on Jellied Fruit Products

For freshness of flavor. To have jellied fruit products at their best, make up only the quantity that can be used within a few months; they lose flavor in storage.

For softer or firmer products. If fruit with average jelling properties is used, the jellied products made according to directions in this publication should be medium firm for their type. However, because various lots of fruit differ in composition, it is not possible to develop formulas that will always give exactly the same results.

If the first batch from a particular lot of fruit is too soft or too firm, adjust the proportions of fruit or the cooking time for the next batch.

In products made with added pectin –

For a softer product, use $\frac{1}{4}$ to $\frac{1}{2}$ cup *more* fruit or juice.

For a firmer product, use $\frac{1}{4}$ to $\frac{1}{2}$ cup *less* fruit or juice.

In products made without added pectin –

For a softer product, *shorten* the cooking time.

For firmer product, *lengthen* the cooking time.

Using canned, frozen or dried fruits. Any fresh fruit may be canned or frozen as fruit or juice and used in jellied products later. Both fruit and juice should be canned or frozen unsweetened; if sweetened – the amount of sugar should be noted and subtracted from the amount in the jelly or jam recipe. Fruit should be canned in its own juice or with only a small amount of water. If you plan to use canned or frozen fruit without added pectin, it is best to use part underripe fruit, especially for jelly.

Unsweetened commercially canned or frozen fruit or juice can also be used in jellied products. Concentrated frozen juices make very flavorful jellies. Commercially canned or frozen products are made from fully ripe fruit, and require added pectin if used for jelly.

Dried fruit may be cooked in water until tender and used to make jams and conserves, with or without added pectin as required.

Making Jellied Fruits

Directions for making different kinds of jellied fruit products are given in this publication. The formulas selected take into account the natural pectin and acid content of the specified fruit.

FILLING AND SEALING CONTAINERS

Prepare canning jars and lids or jelly glasses as directed above.

To seal with paraffin, use this method for firm jellies. Use only enough paraffin to make a $\frac{1}{8}$ -inch thick layer. A single, thin layer – which can expand or contract readily – gives a better seal than one thick layer or two thin layers. Prick air bubbles in paraffin. Bubbles cause holes as paraffin hardens and may prevent a good seal. A double boiler is best for melting paraffin and keeping it hot without reaching smoking temperature.

For jelly, pour hot mixture immediately into hot glass containers to within $\frac{1}{2}$ inch of top and cover with hot paraffin.

To seal with lids, use only standard home canning jars and lids. For jars with two-piece lids, fill hot jars to $\frac{1}{8}$ inch of top with hot jelly or $\frac{1}{2}$ inch of top with other jellied fruits. Wipe jar rim clean; place hot metal lid on jar with sealing compound next to glass; screw metal band down firmly; and stand jar upright to cool.

BOILING WATER BATH PROCESS

Use the boiling water bath method for jams, preserves, marmalades and fruit butters. The following steps for processing in a boiling water bath apply to these fruit products.

1. Wipe off the sealing surface of the container. Close according to the type of lid being used.
2. Place the closed containers in the water bath canner or large kettle with wire rack. Have the water boiling. Add additional boiling water to the water bath canner to cover the containers 1 to 2 inches. Do not pour boiling water directly on glass jars.
3. Place the tight-fitting lid on the water bath canner or kettle.
4. Process for 5 minutes, the recommended length of time for jellied fruit products. Count the processing time as soon as the water comes to a rolling boil. Reduce the heat but maintain a boiling temperature. Adjust the processing time for altitudes according to the following table.

Feet Elevation	Minutes added
1000	1
2000	2
3000	3
4000	4

5. Remove the containers from the water bath at the end of the processing time. Place the jars

right side up on a rack far enough apart to cool quickly. To keep fruit from floating to the top, gently shake jars of jam occasionally.

Storing Jellied Fruits

Let products stand overnight to avoid breaking gel. For jelly sealed with paraffin, cover glasses with metal or paper lids. Label with name, date and lot number if you make more than one lot a day. Store in a cool, dry place to prevent discoloration of jellied fruit (p. 19). The shorter the storage time, the better the eating quality of the product.

Uncooked jams (p.11) may be kept as long as 3 weeks in a refrigerator. For longer storage, but no more than one year, place in a freezer. Once the jar is opened, the jam should be used within a few days.

Jellies

PREPARATION

Jelly is made from fruit juice. The product is clear and firm enough to hold its shape when turned out of the container. When making jelly, whether with or without added pectin, it is best to prepare small cooking lots, as indicated in the recipes that follow. The evaporation rate is faster with smaller amounts of liquid. There is less loss of flavor when smaller quantities are prepared. Increasing the quantities given is not recommended.

Prepare fruit for juice extraction as directed in the specific recipe as the method differs with various varieties of fruit. Put the prepared fruit in a damp jelly bag or fruit press to extract juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing. But a greater yield of juice can be obtained by twisting the bag of fruit tightly and squeezing or pressing, or by using a fruit press. Pressed juice should be re-strained through a double thickness of damp cheesecloth or a damp jelly bag which should not be squeezed.

To make jelly with added pectin, use fully ripe fruit for best flavor. Use either liquid or powdered pectin in recipes developed for the particular form. For making jellied fruit products with added pectin, the recipes on the label developed by the manufacturer can be successfully used. In this publication

some recipes using commercial pectins are included.

Jellies made without added pectin require less sugar per cup of fruit juice than do those with added pectin. However, longer boiling is necessary to bring the mixture to the proper sugar concentration. Thus the yield of jelly per cup of juice is less.

It is usually best to have part of the fruit underripe when no pectin is added, because underripe fruit has a higher pectin content than fully ripe fruit. Use of $\frac{1}{4}$ underripe and $\frac{3}{4}$ fully ripe fruit is generally recommended to assure sufficient pectin for jelly.

Three methods that may be used for testing doneness of jelly made at home are described below. Of these, the temperature test probably is the most dependable.

Temperature test. Before cooking the jelly, take 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 will be such that the mixture should form a satisfactory gel.

It is necessary to determine the temperature at which water boils in your locality because the boiling point differs at different altitudes. Because the boiling point at a given altitude may change with different atmospheric conditions, the temperature of boiling water should be checked shortly before the jelly is to be made.

For an accurate thermometer reading, have the thermometer in a vertical position and read it at eye level. The bulb of the thermometer must be completely covered with the jelly mixture, but must not touch the bottom of the kettle.

Spoon or sheet test. Dip a cool metal spoon in the boiling jelly mixture. Then raise it at least a 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 one sheet, the jelly should be done. This test has been widely used; however, it is not entirely dependable.

Refrigerator test. Pour a small amount of boiling jelly on a cold plate and put it in the ice compartment of a refrigerator for a few minutes. If the mixture gels, it should be done. During this test, the jelly mixture should be removed from the heat to prevent further cooking.

RECIPES*

Agerito Jelly

(without added pectin)

2 cups agerito juice (about 3½ pounds ageritos)

2 cups sugar

To prepare juice. Use equal parts of washed fruit and water and place in non-metal container. Let stand overnight. Boil for 5 minutes. Mash, strain and squeeze to remove juice. About ⅓ of the berries should be half-ripe for good jelly.

To make jelly. Place juice over heat and let it come to a boil. Add sugar and boil about 5 minutes, until it gives the sheet test. Remove from heat, skim off, pour into hot jars and seal (p. 5).

Apple Jelly

(without added pectin)

4 cups apple juice (takes about 3 pounds apples and 3 cups water)

2 tablespoons strained lemon juice, if desired

3 cups sugar

To prepare juice. Select about ¼ underripe and ¾ fully ripe tart apples. Sort, wash and remove stem and blossom ends; do not pare or core. Cut apples into small pieces. Add water, cover and bring to a boil on high heat. Reduce heat and simmer for 20 to 25 minutes, or until apples are soft. Extract juice (p. 6).

To make jelly. Measure apple juice into a kettle. Add lemon juice and sugar and stir well. Boil over high heat to 8°F. above the boiling point of water, or until jelly mixture sheets from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes four or five 6-ounce glasses.

Blackberry Jelly

(without added pectin)

4 cups blackberry juice (takes about 2½ quart boxes blackberries and ¾ cup water)

3 cups sugar

To prepare juice. Select about ¼ underripe and ¾ ripe berries. Sort and wash; remove any stems or

caps. Crush the berries; add water; cover; and bring to a boil on high heat. Reduce heat and simmer for 5 minutes. Extract juice (p.6).

To make jelly. Measure juice into a kettle. Add sugar and stir well. Boil over high heat to 8°F. above the boiling point of water, or until jelly mixture sheets from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes about five 6-ounce glasses.

Blackberry Jelly

(with powdered pectin)

3½ cups blackberry juice (takes about 3 quart boxes berries)

1 package powdered pectin

4½ cups sugar

To prepare juice. Sort and wash fully ripe berries; remove any stems or caps. Crush the berries and extract juice (p. 6).

To make jelly. Measure juice into kettle. Add the pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add the sugar, continue stirring, and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes seven or eight 6-ounce glasses.

Cactus Jelly

3¼ cups juice from cooked fruit

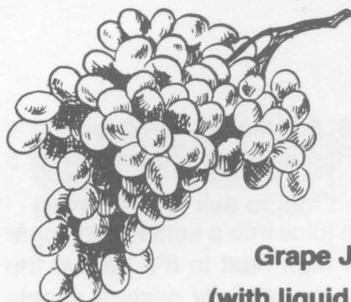
Juice of 2 lemons

1 bottle liquid pectin

8 level cups (3½ lb.) sugar

Remove fine thorns and blossom ends from 3 pounds of ripe cactus fruit; cut in small pieces, crush and add 1 cup water. Stir until boiling; cover pan and simmer for 10 minutes. Place in cheesecloth bag and squeeze out juice. Measure juice into large saucepan and add lemon juice and pectin. Measure sugar into another pan. Bring juice and pectin just to a boil, stirring constantly, and begin to add sugar slowly with constant stirring, taking about 5 minutes to add sugar and keeping juice nearly at a boil. Then bring to a full rolling boil for ½ minute. Pour jelly immediately into hot containers and seal.

*Additional jelly recipes using commercial pectins are given by the manufacturer.



Grape Jelly (with liquid pectin)

4 cups grape juice (takes about 3½ pounds Concord grapes and ½ cup water)

7 cups sugar

½ bottle of liquid pectin

To prepare juice. Sort, wash, and remove stems from fully ripe grapes. Crush grapes; add water; cover; and bring to a boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice.

To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight. Then strain through two thicknesses of damp cheesecloth to remove crystals that have formed.

To make jelly. Measure juice into a kettle; stir in the sugar. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add the pectin and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal.

Makes ten to twelve 6-ounce glasses.

Grape Jelly (without added pectin)

4 cups grape juice (takes about 3½ pounds Concord grapes and ½ cup water)

3 cups sugar

To prepare juice. Select about ¼ underripe and ¾ fully ripe grapes. Sort, wash and remove grapes from stems. Crush grapes; add water; cover; and bring to boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice (p. 6). To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals that have formed.

To make jelly. Measure juice into a kettle. Add sugar and stir well. Boil over high heat of 8°F. above the boiling point of water, or until jelly mixture sheets from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes about five 6-ounce glasses.

Hot Pepper Jelly

¾ cup bell pepper, ground

¼ cup jalapeño peppers, seeds removed and ground

5 cups sugar

1 cup apple cider vinegar

1 bottle liquid pectin

green food coloring

Mix together peppers, sugar and vinegar. Bring to boil and boil for 5 minutes. Cool. Add pectin and green food coloring. Pour into hot sterilized jars and seal (p. 5).

Mint Jelly (with liquid pectin)

1 cup chopped mint leaves and tender stems

1 cup water

½ cup cider vinegar

3½ cups sugar

5 drops green food coloring

½ bottle liquid pectin

To prepare mint. Wash and chop mint. Pack solidly in a cup.

To make jelly. Measure mint into a kettle. Add vinegar, water and sugar; stir well. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add food coloring and pectin; heat again to a full rolling boil. Boil hard for ½ minute.

Remove from heat. Skim. Strain through two thicknesses of damp cheesecloth. Pour jelly immediately into hot containers and seal (p. 5).

Makes three or four 8-ounce glasses.

Plum Jelly (with powdered pectin)

5 cups plum juice (takes about 4½ pounds plums and 1 cup water)

1 package powdered pectin

7 cups sugar

To prepare juice. Sort and wash fully ripe plums and cut them in pieces; do not peel or pit. Crush the fruit; add water; cover; and bring to a boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice (p. 6).

To make jelly. Measure juice into a kettle. Add the pectin and stir well. Place on high heat, and stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add sugar, continue stirring, and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes eleven or twelve 6-ounce glasses.

Plum Jelly

(without added pectin)

4 cups plum juice (takes about 3½ pounds plums and 1½ cups water)

3 cups sugar

To prepare juice. Select about ¼ underripe and ¾ fully ripe plums. Sort, wash and cut into pieces; do not peel or pit. Crush the fruit; add water; cover; and bring to boil on high heat. Reduce heat and simmer for 15 to 20 minutes, or until fruit is soft. Extract juice (p. 6).

To make jelly. Measure juice into a kettle. Add sugar and stir well. Boil over high heat to 8°F. above the boiling point of water, or until jelly mixture sheets from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot containers and seal (p. 5).

Makes about five 6-ounce glasses.

Jams, Preserves and Marmalades

PREPARATION

On the following pages are directions for making jams, preserves and marmalades from various fruits and combinations of fruits.

Because the products contain fruit pulp or pieces of fruit, they tend to stick to the kettle during cooking and require constant stirring to prevent scorching.

Jam, made from ground or crushed fruit, tends to hold its shape but generally is less firm than jelly. Preserves are whole fruits or large pieces of fruit in a thick syrup often slightly jellied. Marmalade is a tender jelly with small pieces of fruit distributed evenly throughout. A marmalade commonly contains citrus fruit.

For preserves, select fruit at the firm-ripe stage. If the fruit is to be left whole, it should be of uniform size and good shape.

The method used in making preserves differs somewhat with different fruits.

Cooking time for these jellied fruit products made with pectin is the same – 1 minute at a full boil. Follow the recipe for the form of pectin to be used.

Jams, preserves and marmalades made without added pectin require longer cooking than those with added pectin. The most reliable way to judge doneness is to use a thermometer. Before making the product, test the temperature of boiling water. Cook the mixture to a temperature 9°F. higher than the boiling point of water. It is important to stir the mixture thoroughly just before taking the temperature; to place the thermometer vertically at the center of the kettle; and to have the bulb covered with fruit mixture but not touching the bottom of the kettle. Read the thermometer at eye level.

If you have no thermometer, cook products made without added pectin until they have thickened somewhat. In judging thickness allow for the additional thickening of the mixture as it cools. The refrigerator test suggested for jelly may be used (p. 6).

JAM RECIPES*

Blackberry Jam

(with liquid pectin)

Follow directions for strawberry jam with liquid pectin (p. 11).

Put very seedy blackberries through a sieve or food mill.

Blackberry Jam

(without added pectin)

Follow directions for strawberry jam without added pectin (p. 11).

Put very seedy blackberries through a sieve or food mill.

Blackberry Jam

(with powdered pectin)

6 cups crushed blackberries (takes about 3 quart boxes berries)

1 package powdered pectin

8½ cups sugar

*Additional jam recipes using commercial pectins are given by the manufacturer.

To prepare fruit. Sort and wash fully ripe berries; remove any stems or caps. Crush the berries. If they are very seedy, put part or all of them through a sieve or food mill.

To make jam. Measure crushed berries into a kettle. Add the pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Add the sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly.

Remove from heat; skim and stir alternately for 5 minutes. Ladle jam into hot containers and seal immediately (p. 5). Process in boiling water bath (p. 5).

Makes about fourteen 6-ounce glasses.

Fig Jam (with liquid pectin)

4 cups crushed figs (about 3 pounds figs)

½ cup lemon juice

7½ cups sugar

½ bottle liquid pectin

To prepare fruit. Sort and wash fully ripe figs; remove stem ends. Crush or grind fruit.

To make jam. Place crushed figs into a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat. Stir in pectin. Skim.

Fill and seal containers (p. 5).

Process 5 minutes in boiling water bath (p. 5).

Makes about nine ½-pint jars.

Peach Jam (without added pectin)

1 pound peaches

¾ to 1 pound sugar

To prepare fruit. Select well-ripened, soft-fleshed peaches. Wash fruit carefully. Dip into boiling water for about half a minute or until the skins slip easily. Plunge at once into cold water for a few seconds; remove the skins, cut the fruit into halves and discard the seeds. Crush the fruit.

To make jam. Combine the crushed fruit with the sugar in alternate layers and let stand 3 to 4 hours or until some of the juice is extracted. Heat slowly until the sugar is dissolved. Bring to boiling and cook, stirring constantly, until the jam is clear and somewhat thick. Pour into hot, dry, sterilized jars to ½ inch from the top. Close and process in boiling water bath (p. 5).

Plum Jam (without added pectin)

1 pound plums

1 cup water

¾ pound sugar

To prepare fruit. Select well-ripened and soft-fleshed plums of tart variety. Wash the fruit and drain. Boil plums in the water for 10 to 15 minutes, or until the skins are tender.

To make jam. Add the sugar and stir while boiling until the jelly stage is reached. Pour into hot, dry jars to ½ inch from the top. Close and process in boiling water bath (p. 5).

Rhubarb-Strawberry Jam (with liquid pectin)

1 cup cooked red-stalked rhubarb (about 1 pound rhubarb and ¼ cup water)

2½ cups crushed strawberries (about 1½ quart boxes)

6½ cups sugar

½ bottle liquid pectin

To prepare fruit. Wash rhubarb and slice thin or chop; do not peel. Add water, cover and simmer until rhubarb is tender (about 1 minute).

Sort and wash fully ripe strawberries; remove stems and caps. Crush berries.

To make jam. Measure prepared rhubarb and strawberries into a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat and stir in pectin. Skim.

Fill and seal containers (p. 5).

Process 5 minutes in boiling water bath (p. 5).

Makes seven or eight ½-pint jars.

Strawberry Jam
(with liquid pectin)

4 cups crushed strawberries (takes about 2 quart boxes strawberries)

7 cups sugar

½ bottle liquid pectin

To prepare fruit. Sort and wash fully ripe strawberries; remove stems and caps. Crush the berries.

To make jams. Measure crushed strawberries into a kettle. Add the sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil until it bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat, add the pectin and alternately skim and stir the jam for 5 minutes. Ladle into hot jars to ½ inch from the top and seal immediately (p. 5). Process in boiling water bath (p. 5).

Makes about ten 6-ounce glasses.

Strawberry Jam
(with powdered pectin)

5½ cups crushed strawberries (about 3 quart boxes strawberries)

1 package powdered pectin

8 cups sugar

To prepare fruit. Sort and wash fully ripe strawberries; remove stems and caps. Crush berries.

To make jam. Measure crushed strawberries into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Fill and seal containers (p. 5).

Process 5 minutes in boiling water bath (p. 5).

Makes nine or ten ½-pint jars.

Strawberry Jam
(without added pectin)

4 cups crushed strawberries (takes about 2 quart boxes strawberries)

4 cups sugar

To prepare fruit. Sort and wash the strawberries; remove any stems and caps. Crush the berries.

To make jam. Measure crushed strawberries into a kettle. Add sugar and stir well. Boil rapidly, stirring constantly, to 9°F. above the boiling point of water, or until the mixture thickens.

Remove from heat; skim and stir alternately for 5 minutes. Ladle jam into hot jars to ½ inch from the top and seal immediately (p. 5). Process in boiling water bath (p. 5).

Makes about six 6-ounce glasses.

Uncooked Jam
(made with berries or peaches)

3 cups crushed blackberries, blueberries, raspberries, strawberries or peaches (takes about 1 quart blueberries, 1½ quarts other berries or 2½ pounds peaches)

5 cups sugar

1 package powdered pectin

1 cup water

To prepare fruit. Sort and wash fully ripe fruit. Remove caps and stems from berries and pits and skins from peaches. Grind blueberries; crush other berries or peaches.

To make jam. Measure 3 cups of prepared fruit into a large mixing bowl. Add sugar, mix well, and let stand for 20 minutes, stirring occasionally.

Dissolve the pectin in the water, bring to a boil, and boil for 1 minute. Add pectin solution to the fruit-and-sugar mixture and stir for 2 minutes.

Ladle the jam into jelly glasses or into suitable freezer containers, leaving ½-inch space at the top. Cover the containers and let stand for 24 to 48 hours, or until the jam has set. Then cover jam with ⅛-inch layer of hot paraffin.

Makes about nine 6-ounce glasses. Store as directed (p. 6).

PRESERVE RECIPES*

Fig Preserves
(without added pectin)

1 gallon prepared figs

2 quarts sugar

1 lemon

*Additional preserve recipes using commercial pectins are given by the manufacturer.

To prepare fruit. Select only perfect figs, ripe but not soft. Leave $\frac{1}{8}$ -inch stem. Wash. To remove the fuzz, sprinkle 1 cup soda over 6 quarts sound figs and add 1 gallon boiling water. Let stand 5 minutes. Drain and wash thoroughly in cold water.

To make preserves. Place alternate layers of sugar and figs in an enamel or aluminum kettle. Let stand overnight. Drain off syrup and bring it to a boil. Drop in figs a few at a time. Cook until tender, transparent and amber colored (about 1 to 1½ hours).

Add juice of lemon. Cook 10 minutes longer. Remove figs from the syrup. Fill hot, dry, sterilized jars $\frac{3}{4}$ full with preserved fruit. Cook syrup until thick. If paraffin is to be used, add enough syrup to fill the jar to $\frac{1}{2}$ inch from the top. Close and process in boiling water bath (p. 5).

Peach Preserves (without added pectin)

1 pound prepared peaches

$\frac{3}{4}$ to 1 pound sugar

To prepare fruit. Select any variety of white or yellow peach of good dessert quality at firm ripe stage. Wash and pare the peaches. Leave whole or cut into uniform pieces such as halves, quarters or eighths.

To make preserves. Combine the sugar and fruit in alternate layers in a container. Let stand 8 to 10 hours or overnight before cooking, or add the sugar and $\frac{1}{4}$ cup water for each pound of fruit and cook at once. In either case, stir carefully while heating to boiling. Cook until the syrup is somewhat thick, stirring occasionally to prevent burning. Fill hot, dry jars $\frac{3}{4}$ full with the preserved fruit. Fill to $\frac{1}{2}$ inch from the top. Close and process in boiling water bath (p. 5).

Pear Preserves (without added pectin)

1 pound prepared pears

$\frac{3}{4}$ to 1 pound sugar

To prepare fruit. Select pears that hold their shape and have a good flavor. The Keiffer pear is a variety commonly used. Allow fruit to reach the firm ripe stage. (Store Keiffer pears 2 or 3 weeks at 60° to 65°F. before using for best quality in making preserves.) Wash, pare and cut fruit into uniform pieces such as quarters or eighths, depending on size of the fruit, then core.

To make preserves. Combine the fruit and sugar in alternate layers in a container and let stand 8 to 10

hours or overnight before cooking or cook at once with sugar and $\frac{1}{4}$ cup of water to a pound of fruit. Stir carefully while heating to boiling. Cook until the syrup is somewhat thick, stirring occasionally to prevent burning. Fill hot, dry jars $\frac{3}{4}$ full with the preserved fruit. Fill to $\frac{1}{2}$ inch from the top of the jar. Close and process in boiling water bath (p. 5).

Strawberry Preserves (without added pectin)

6 cups prepared strawberries (takes about 2 quart boxes berries)

4½ cups sugar

To prepare fruit. Select large, firm, tart strawberries. Wash and drain berries; remove caps.

To make preserves. Combine prepared fruit and sugar in alternate layers and let stand for 8 to 10 hours or overnight in the refrigerator or other cool place.

Heat the fruit mixture to boiling, stirring gently. Boil rapidly, stirring as needed to prevent sticking.

Cook to 9°F. above the boiling point of water, or until the syrup is somewhat thick (about 15 or 20 minutes.)

Remove preserves from heat and skim. Ladle at once into hot jars, filling jars to $\frac{1}{2}$ inch from the top. Close immediately and process in boiling water bath (p. 5).

Makes about four $\frac{1}{2}$ -pint jars.

Tomato Preserves (without added pectin)

1 pound prepared tomatoes

$\frac{3}{4}$ pound sugar

$\frac{3}{4}$ cup water

$\frac{1}{4}$ lemon, thinly sliced

1 piece gingerroot

To prepare fruit. Select small, firm, yellow or red tomatoes. Wash and drain. If a tomato preserve without skins is desired, dip the tomatoes into boiling water, then into cold water and remove the skins. Handle the tomatoes carefully.

To prepare preserves. Boil the lemon 5 minutes in $\frac{1}{4}$ cup of water. Boil the remainder of the water with the sugar for 5 minutes to make a syrup. Add the tomatoes, gingerroot, lemon and liquid in which lemon was cooked. Boil until the tomatoes are clear and the syrup somewhat thick. Remove the scum. Fill hot, dry jars $\frac{3}{4}$ full with the preserved fruit. Fill with

syrup to ½ inch from the top of the jar. Close and process in boiling water bath (p. 5).

Watermelon Rind Preserves

First Part

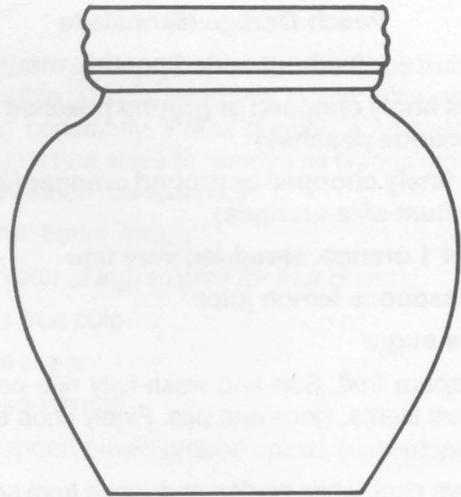
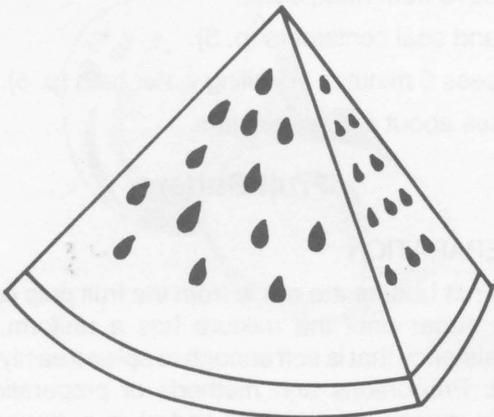
4 pound prepared watermelon rind
2 tablespoons lime (calcium oxide)
2 quarts water

Second Part

4 quarts water (16 cups)
4 pound sugar (approximately 8 cups)
2 lemons, thinly sliced
4 small pieces gingerroot (optional)

To prepare rind. Select thick watermelon rind and trim off the outer green skin and the pink flesh. Cut the rind into ½- or 1½-inch cubes and weigh. Combine lime and water. Add the rind to the lime water and let stand for 1 hour to make it crisp. Drain and place in clear water for 1 hour. Drain and boil for 1½ hours in fresh water. Drain again.

To prepare preserves. Boil the lemon 5 minutes in ½ cup water. Boil remainder (15½ cups) of water with the sugar 5 minutes to make a syrup. Add the watermelon rind and gingerroot to the syrup. Boil 1 hour. When the syrup thickens, add the lemon and the water in which it was cooked. Continue to boil until the syrup is thickened and the rind is clear. Stir to prevent sticking. Fill hot, dry, sterilized jars ¾ full with the preserved fruit. If paraffin is to be used, add enough syrup to fill the jar to ¼ inch of the top; otherwise, fill to ½ inch of top. Seal. Process 5 minutes in boiling water bath (p. 5).



MARMALADE RECIPES*

Citrus Marmalade (without added pectin)

1 cup grapefruit juice (1 grapefruit)
1¾ cups orange juice (4 medium oranges)
½ cup lemon juice (1 lemon)
Peel of ½ grapefruit
Peel of 1 lemon
Peel of an orange
1 quart cold water
2 cups boiling water
3 cups sugar

To prepare fruit. Wash fruit and extract juice. Remove membrane from inside of the peel.

Cut peel into very thin strips about 1 to 1½ inches long.

To make marmalade. Add the cold water to the peel and simmer slowly in a covered pan until tender (30 minutes). Drain off and discard the liquid; add the boiling water to the peel. Add the sugar and boil rapidly to 9°F. above the boiling point of water (about 20 minutes). Add the fruit juices and cook again to the same temperature (about 25 minutes), stirring frequently. Remove from heat; skim and stir alternately for 5 minutes. Ladle marmalade into hot containers to ½ inch from the top of jar. Close and process in boiling water bath (p. 5).

Makes four to five 6-ounce jars.

*Additional marmalade recipes using commercial pectins are given by the manufacturer.

Peach-Orange Marmalade

(without added pectin)

5 cups finely chopped or ground peaches (about 4 pounds peaches)

1 cup finely chopped or ground oranges (about 2 medium-size oranges)

Peel of 1 orange, shredded very fine

2 tablespoons lemon juice

6 cups sugar

To prepare fruit. Sort and wash fully ripe peaches. Remove stems, skins and pits. Finely chop or grind the peaches.

Remove peel, white portion and seeds from oranges. Finely chop or grind the pulp.

To make marmalade. Measure the prepared fruit into a kettle. Add remaining ingredients and stir well. Boil rapidly, stirring constantly, to 9°F. above the boiling point of water, or until the mixture thickens. Remove from heat; skim.

Fill and seal containers (p. 5).

Process 5 minutes in boiling water bath (p. 5).

Makes six or seven ½-pint jars.

Sweet Orange Marmalade

(without added pectin)

4 oranges

4 lemons or limes

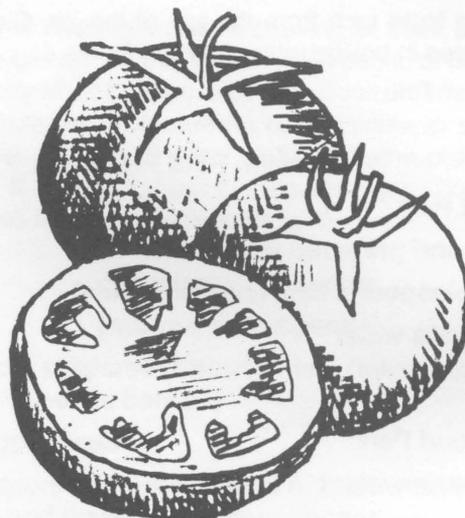
⅓ teaspoon salt

water

sugar

To prepare fruit. Select fruit with smooth, thick skins free from blemishes. Wash fruit, remove the peel and slice thin. Cover sliced peel with cold water. Boil until tender, adding more water as it boils away. Change water frequently if bitter flavor is objectionable. Cut fruit pulp into thin slices. Remove seed and pulp.

To prepare marmalade. Combine the sliced pulp and the parboiled peel. To each packed measure of mixed fruit pulp and parboiled peel, add twice the quantity of water and ⅓ teaspoon salt. Boil rapidly 25 minutes. Weigh or measure this mixture and add an equal weight or measure of sugar. Boil 15 minutes or until jelly stage is reached. Cool slightly, stir and pour into hot, dry jars to ½ inch from the top of the jar. Close and process in boiling water bath (p. 5).



Tomato Marmalade

(without added pectin)

3 quarts ripe tomatoes (about 5½ pounds tomatoes)

3 oranges

2 lemons

4 sticks cinnamon

1 tablespoon whole cloves

6 cups sugar

1 teaspoon salt

To prepare fruit. Peel tomatoes; cut in small pieces. Drain. Slice oranges and lemons very thin; quarter the slices. Tie cinnamon and cloves in a cheesecloth bag.

To make marmalade. Place tomatoes in a large kettle. Add sugar and salt; stir until dissolved. Add oranges, lemons and spice bag. Boil rapidly, stirring constantly, until thick and clear (about 50 minutes). Remove from heat; skim.

Fill and seal containers (p. 5).

Process 5 minutes in boiling water bath (p. 5).

Makes about nine ½-pint jars.

Fruit Butters

PREPARATION

Fruit butters are made from the fruit pulp cooked with sugar until the mixture has a uniform, thick consistency that is soft enough to spread easily when cold. Proportions and methods of preparation for apple, peach, grape, pear and plum butter are the same. Only the preparation of the fruit varies;

therefore, preparation directions are given for each fruit but the same recipe and method can be used with any of the fruits.

To prepare butter. Combine pulp, sugar and salt. Boil rapidly and stir constantly to prevent burning. As the butter cooks down and thickens, reduce the heat to prevent spattering. Test for desired thickness by pouring a small quantity on a cold plate. Continue to cook until no rim of liquid separates around the edge of butter. Stir in fresh spices.

If a light-colored butter is desired, add whole spices tied loosely in a cheesecloth bag while the butter is cooking. Pour boiling hot butter into hot, dry jars to ½ inch from the top of jar. Close and process by boiling water bath (p. 5).

RECIPES*

Apple Butter

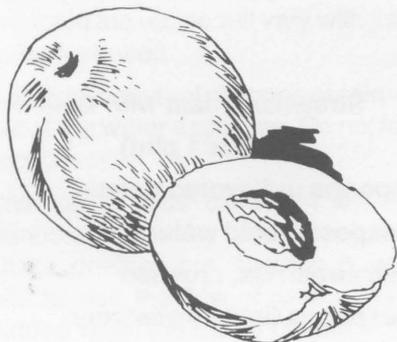
To prepare apple pulp. Select sound, ripe, tart apples. Wash the apples, peel and slice. Use equal measure of fruit and sweet cider, or a mixture of half sweet cider and half water. Cook until the fruit is soft, stirring constantly. Press through a colander, then through a fine sieve to remove all fibrous material and give a smooth consistency.

Use fruit butter recipe.

Peach Butter

To prepare peach pulp. Select sound, ripe fruit. Wash the fruit thoroughly. Scald; remove skins and seeds. Crush fruit and cook in the juice until soft, stirring constantly. Press through a colander and then through a fine sieve to remove all fibrous material and to give a smooth consistency.

Use fruit butter recipe.



Plum Butter

To prepare plum pulp. Select sound, ripe fruit. Wash thoroughly. Crush and cook in the juice until soft, stirring constantly. Press through a colander, then through a fine sieve to remove all fibrous material to give a smooth consistency.

Use fruit butter recipe.

Proportion of ingredients for fruit butters:

4 cups fruit pulp

2 cups sugar

⅛ teaspoon salt

¼ teaspoon mixed ground spices (optional)

Jams and Jellies With No Added Sugar

Serve tasty, tantalizing jams and jellies made without sugar. Preserve fruit from your own orchard or unsweetened frozen fruit to bring fresh flavor and color to your low calorie menus for many months.



*Additional butter recipes using commercial pectins are given by the manufacturer.

Sugarless jams and jellies must be refrigerated or frozen unless they are made by the long-boil method of preparation. They are well worth the use of your freezer storage space because these items found in the dietetic section of the grocery store are very expensive.

The natural color and flavor are best maintained if the jams and jellies are stored in the freezer. Leave at least ½-inch head space in containers before freezing to allow for expansion.

The safety of food additives is being questioned. Non-caloric sweeteners are among the additives being questioned and new guidelines may be determined in the near future.

Use artificial sweeteners under the direction of your physician. Carefully read the nutrition information on labels of the products you purchase.

If you plan to substitute the liquid sweetener used in the following recipes, ⅓ teaspoon of liquid sweetener equals the sweetening power of 1 teaspoon of sugar. If other forms of sweeteners are substituted, read the label to determine calorie content.

SUGARLESS JAMS

Prepare fruit for jam by sorting and washing fully ripe fruit. Remove any stems, caps or pits. Peel fruits such as peaches and apricots. Crush the fruit.

The method of combining ingredients for jams or jellies varies with the form of pectin used. Powdered pectin is mixed with the unheated crushed fruit; liquid pectin is added to the cooked fruit and sweetener mixture immediately after it is removed from the heat.

Cooking time is the same for all products – 1 minute at a full boil. The full-boil stage is reached when bubbles form over the entire surface of the mixture.

Jams made without added pectin or gelatin require longer cooking than those with added pectin. Cook the mixture to a temperature of 221°F. (9°F. above the boiling point of water).

If you do not have a thermometer, cook products without pectin or gelatin until they have thickened slightly. Remember to allow for the additional thickening as the product cools. Jams made without sugar are thinner than jams made with sugar.

Jams contain fruit pulp or pieces of fruit which tend to stick to the kettle during cooking. Constant stirring to prevent scorching will be necessary.

Peach Jam with Pectin

(for 1 pint)

4 cups peeled peaches

3 to 4 teaspoons liquid artificial sweetener

1 tablespoon unsweetened lemon juice

½ teaspoon ascorbic acid

1 package powdered fruit pectin (¾-ounce package)

Crush peaches in saucepan. Stir in sweetener, fruit pectin, lemon juice and ascorbic acid. Bring to a boil; boil 1 minute. Remove from heat. Continue to stir 2 minutes. Pour into freezer containers. Cover and freeze.

1 tablespoon contains 10 calories.

Strawberry Jam with Pectin

(for 2⅔ cups)

1 quart cleaned strawberries

3 to 4 teaspoons liquid artificial sweetener

1 package powdered fruit pectin (¾-ounce package)

1 tablespoon lemon juice

Red food coloring as desired

Crush strawberries in 1½-quart saucepan. Stir in artificial sweetener, food coloring, powdered fruit pectin and lemon juice. Bring to a boil and boil 1 minute. Remove from heat. Continue to stir 2 minutes. Pour into freezer containers, cover and freeze. Thaw before serving. Store in refrigerator after opening.

1 tablespoon contains 5 calories.

Strawberry Jam with Gelatin

(for 1 pint)

1½ teaspoons unflavored gelatin

1½ tablespoons cold water

3 cups strawberries, crushed

1½ tablespoons liquid sweetener

¼ teaspoon ascorbic acid powder

Red food coloring as desired

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; blend in ascorbic acid powder and food coloring. Ladle into clean jars; seal. Store in refrigerator or freezer.

1 tablespoon contains 5 calories.

JAM – LONG-BOIL METHOD

You may follow tested recipes for jams made by long-boil method without the addition of pectin.

Cook the fruit with liquid sweetener until jam is of desired consistency. Substitute 2 tablespoons liquid sweetener for each cup of sugar.

Pour the boiling hot jam into clean, hot jars; seal each jar as soon as it is filled.

Strawberry Jam (long-boil method)

4 cups crushed strawberries

8 tablespoons liquid sweetener

Measure crushed strawberries into a kettle. Add sweetener and stir well. Boil rapidly, stirring constantly until the mixture thickens. Fill and seal containers.

1 tablespoon contains 10 calories.

SUGARLESS JELLIES

Jelly is better when prepared in small quantities. The amount of fruit needed to yield the amount of juice called for in the recipe will vary with juiciness of the particular fruit used.

Wash all fruit in several changes of cold water. Lift the fruit out of the water each time. Do not let the fruit stand in water.

The method of juice extraction will differ with different kinds of fruit. Juicy berries may be crushed and the juice pressed out. Heating is needed for firmer fruits to start the flow of juice. Usually some water is added when the fruit is heated.

Put the prepared fruit in a damp jelly bag or fruit press to extract juice. Pressed juice should be restrained through a double thickness of damp cheesecloth or a damp jelly bag.

Apple Jelly from Bottled Juice

(for 2 pints)

2 packages or 2 tablespoons unflavored gelatin

1 quart unsweetened apple juice

2 tablespoons unsweetened lemon juice

2 tablespoons liquid sweetener

Food coloring, if desired

In a saucepan, soften gelatin in apple juice and lemon juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in liquid sweetener and food coloring. Pour into hot, sterilized jars. Seal. Store in refrigerator.

1 tablespoon contains 8 calories.

Apple Jelly with Gelatin

(for 1 pint)

4 teaspoons unflavored gelatin

2 cups unsweetened apple juice

2 tablespoons liquid sweetener

1½ tablespoons lemon juice

Food coloring, if desired

Soften gelatin in ½ cup of apple juice. Bring remaining 1½ cups juice to a boil; remove from heat. Add softened gelatin, stirring to dissolve. Add liquid sweetener, lemon juice and coloring. Bring to a full, rolling boil. Ladle into clean jars; seal. Store in refrigerator.

1 tablespoon contains 9 calories.

Grape Jelly with Gelatin

(for 1½ pints)

2 packages or 2 tablespoons unflavored gelatin

1 bottle (1 pt. 8 oz.) unsweetened grape juice

2 tablespoons unsweetened lemon juice

2 tablespoons liquid sweetener

In a saucepan, soften gelatin in grape juice and lemon juice. Bring to a rolling boil, dissolving gelatin; boil 1 minute. Remove from heat. Stir in liquid sweetener. Pour into hot sterilized jars. Seal. Store in refrigerator.

1 tablespoon contains 11 calories.



Questions and Answers

High quality in jellied fruit products depends on so many complex factors that it is seldom possible to give just one answer to questions about problems in making these products. Using recipes from a reliable source — and following directions accurately — is the surest aid to success but does not guarantee it; it is impossible to assure uniform results because fruit varies widely in jelling quality.

The answers given here to questions commonly asked by homemakers who have had unsatisfactory results in making jellies and jams suggest possible reasons for lack of success.

For additional information about jellied fruits contact your local county Extension agent (home economics) _____

(name)

(telephone)

1. Q: What makes jelly cloudy?

A: One or more of the following may cause cloudy jelly: Pouring jelly mixture into glasses too slowly. Allowing jelly mixture to stand before it is poured. Juice was not properly strained and so contained pulp. Jelly set too fast — usually the result of using too green fruit.

2. Q: Why do crystals form in jelly?

A: Crystals throughout the jelly may be caused by too much sugar in the jelly mixture or cooking the mixture too little, too slowly or too long. Crystals that form at the top of jelly that has been opened and allowed to stand are caused by evaporation of liquid. Crystals in grape jelly may be tartrate crystals.

3. Q: What causes jelly to be too soft?

A: One or more of the following may be the cause: Too much juice in the mixture. Too little sugar. Mixture not acid enough. Making too big a batch at one time.

4. Q: What can be done to make soft jellies firmer?

A: It is not always possible to remake soft jellies so that the product will be satisfactory. However, soft jellies can sometimes be improved by recooking according to the directions given below. It is best to recook only 4 to 6 cups of jelly at one time.

To remake with powdered pectin. Measure the jelly to be recooked. For each quart of jelly, measure $\frac{1}{4}$ cup sugar, $\frac{1}{4}$ cup water and 4 teaspoons powdered pectin. Mix the pectin and water and bring to boiling, stirring constantly to prevent scorching. Add the jelly and sugar. Stir thoroughly. Bring to a full rolling boil over high heat, stirring constantly. Boil mixture hard for $\frac{1}{2}$ minute.

Remove jelly from the heat, skim, pour into hot containers and seal.

To remake with liquid pectin. Measure the jelly to be recooked. For each quart of jelly,

measure $\frac{3}{4}$ cup sugar, 2 tablespoons lemon juice and 2 tablespoons liquid pectin. Bring jelly to boiling over high heat. Quickly add the sugar, lemon juice and pectin and bring to a full rolling boil; stir constantly. Boil mixture hard for $\frac{1}{2}$ minute. Remove jelly from the heat, skim, pour into hot containers and seal.

To remake without added pectin. Heat the jelly to boiling and boil for a few minutes. Use one of the tests described on page 6 to determine cooking time. Remove jelly from the heat, skim, pour into hot containers and seal.

5. Q: What makes jelly syrupy?

A: Too little pectin, acid or sugar. A great excess of sugar can also cause syrupy jelly.

6. Q: What causes weeping jelly?

A: Too little pectin, acid or sugar. A great excess of sugar can also cause weeping jelly.

7. Q: What makes jelly too stiff?

A: Too much pectin (fruit was not ripe enough or too much pectin was added). Overcooking.

8. Q: What makes jelly tough?

A: Mixture had to be cooked too long to reach jellifying stage, a result of too little sugar.

9. Q: What makes jelly gummy?

A: Overcooking.

10.Q: What causes fermentation of jelly?

A: Too little sugar or improper sealing.

11.Q: Why does mold form on jelly or jam?

A: Because an imperfect seal has made it possible for mold and air to get into the container.

12.Q: What causes jelly or jam to darken at the top of the container?

A: Storage in too warm a place. Or a faulty seal that allows air to leak in.

13.Q: What causes fading?

A: Too warm a storage place or too long storage. Red fruits such as strawberries and raspberries are especially likely to fade.

14.Q: Why does fruit float in jam?

A: Fruit was not fully ripe, was not thoroughly crushed or ground, was not cooked long enough or was not properly packed in glasses or jars. To prevent floating fruit, follow directions on page 6. If glasses are used, stir jam before packing; if canning jars are used, shake jars gently after packing.

15.Q: Can corn syrup or honey be used instead of sugar in making jelly and jam?

A: Either can be used instead of part, but not all, of the sugar in the recipes for jellied fruit products in this publication. In recipes without added pectin, light corn syrup can replace up to $\frac{1}{4}$ of the sugar in jellies and up to $\frac{1}{2}$ of the sugar in other products. With added powdered pectin, corn syrup can replace up to $\frac{1}{2}$ of the sugar in any of the products. With liquid pectin, corn syrup can replace up to 2 cups of the sugar. Products made with honey will have a darker color than those made with sugar as the only sweetening, and the flavor will be somewhat different. Light, mild-flavored honey generally is the best kind to use. Honey can replace up to $\frac{1}{2}$ of the sugar in any of the recipes where no added pectin is used. In products made with added pectin, 2 cups of honey can replace 2 cups of sugar in most recipes; only $\frac{3}{4}$ to 1 cup sugar should be replaced by honey in the small recipes yielding five to six glasses.

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