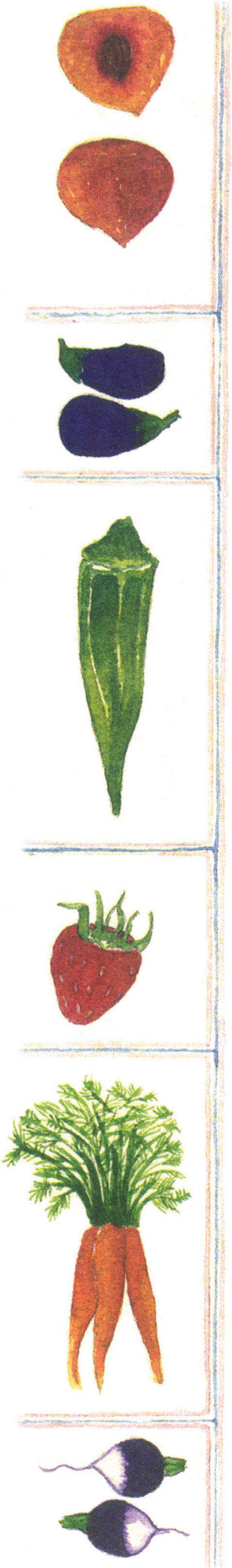

Preserving Food: Jams *and* Jellies

Sweet spreads–butters, jellies, jams, conserves, marmalades and preserves–add zest to meals. They can be made from fruit that is not completely suitable for canning or freezing. All contain the four essential ingredients needed to make a jellied fruit product–*fruit, pectin, acid* and *sugar*. They differ, however, depending upon fruit used, proportion of different ingredients, method of preparation and density of the fruit pulp.

Jelly is made from fruit juice and the end product is clear and firm enough to hold its shape when removed from the container.

Jam is made from crushed or ground fruit. The end product is less firm than jelly, but still holds its shape.

This circular deals with the basics of making jellies and jams, without adding pectin. Recipes for making different spreads can be found in other food preservation cookbooks. Recipes for using added pectin can be found on the pectin package insert sheets.

Essential Ingredients

Fruit furnishes the flavor and part of the needed pectin and acid. Some irregular and imperfect fruit can be used. Do not use spoiled, moldy or stale fruit.

Pectin is the actual gelling substance. The amount of pectin found naturally in fruits depends upon the kind of fruit and degree of ripeness. Underripe fruits have more pectin; as fruit ripens, the pectin changes to a non-gelling form. Usually using 1/4 underripe fruit to 3/4 fully-ripe fruit makes the best product. Cooking brings out the pectin, but cooking too long destroys it.

High pectin fruits are apples, crabapples, quinces, red currants, gooseberries, Eastern Concord grapes, plums and cranberries. Fruits lower in natural pectin include blueberries, peaches, apricots, pears, raspberries, blackberries and figs. These low-pectin fruits should be combined with one of the high-pectin fruits or with a commercial pectin. When a commercial pectin is added, fully ripe fruit can be used. The use of this added pectin also increases the yield from a recipe. Jams and jellies may be made from low pectin fruits using the recipes in this publication that do not call for adding commercial pectin, but they may not gel properly every time.

Commercial pectins come in liquid and powdered forms. Both give satisfactory results, but the amounts of ingredients per package and the methods of adding recipe ingredients differ. For this reason, the powdered and liquid forms are not interchangeable. Be sure to follow the manufacturer's recipes and instructions. Store pectins in a cool, dry place and use before expiration dates on the packages.

Pectin found naturally in fruits or in regular commercial pectins will not gel without a certain amount of sugar. To make gelled spreads without added sugar or with reduced sugar, modified pectins must be used. Currently there are special pectins available to make jellies and jams with either no added sugar or with 1/3 less sugar than regular recipes. Follow the recipes provided by the manufacturer with each type of pectin. The sugar is required in the recipes in this publication.

Acid is needed for gel formation and flavor. The amount of acid in fruits also varies with the fruit and degree of ripeness. When using low-acid fruits in recipes without commercial pectin, add 1 tablespoon lemon juice or 1/8 teaspoon citric acid for each cup of fruit.

Sugar helps form the gel, serves as a preserving agent, firms the fruit and adds flavor. Beet or cane sugar can be used. Brown sugar, sorghum and molasses are not recommended because of their strong flavor and varying degree of sweetness. Light corn syrup or mild honey can be substituted for part of the sugar using recipes that specify honey or corn syrup.

Equipment

* Large, flat-bottom 8- or 10-quart pot.
* Jelly bag for extracting fruit juice for jellies. The bag can be made of several thicknesses of closely woven cheesecloth or firm unbleached muslin. A special stand or colander helps to hold the jelly bag. Be sure bag is washed and rinsed well after each use.
* A jelly, candy or deep fat thermometer for making jellied products with no added pectin.
* Boiling water bath canner or other deep cooking pot with a lid and rack.
* Canning jars with new lids are the recommended containers for all jellied products. Be sure all jars are free from cracks or chips. Ring bands should be free of rust and not bent out of shape. Flat lids should be free of dents, scratches and gaps or flaws in the sealing compound.

Sealing Jellies and Jams

Whether jellies and jams are safe to eat and how long they will keep depends in part on whether they are sealed correctly. Process jams and jellies in a boiling water bath to prevent mold growth. The short process times in this publication are for jams and jellies with all of the sugar listed.

Prepare the canning jars before you start to make the jellied product. Wash the containers in hot, soapy water and rinse. If directions call for pre-sterilized jars, sterilize them by boiling them completely submerged in boiling water for 10 minutes. (If you are at an altitude of 1000 feet or more, add 1 minute of sterilizing time for each 1000 feet of altitude.) Then keep the jars in the hot water until they are used. This will prevent the jars from breaking when filled with the hot product. An option to pre-sterilizing jars is given in the next section, but even if you do not pre-sterilize jars, keep washed, rinsed jars hot until they are filled. Wash and rinse all canning lids and bands. Treat the lids as directed by the manufacturer. Remember, the flat canning lids can be used only once for sealing new products.

Processing in a boiling water bath: Prepare the boiling water canner before starting to cook your jelly or jam. Fill the canner at least half full with clean hot water. Enough water is needed so that the level will be 1-2 inches over the tops of the jars after they are added. Center the canner over the burner and preheat the water to about 180°F (simmering). (The water should not be boiling when it is time to add the filled jars.)

Pour the boiling jelly or jam into hot sterilized jars, leaving 1/4-inch headspace. Wipe the jar rims with a clean, damp paper towel, and close with treated canning lids and ring bands. Using a canning jar lifter, place filled jars on a rack in a canner filled with hot water. Make sure the jar lifter is securely positioned below the neck of the jar and ring band and keep the jar upright at all times. Tilting the jar could cause the jelly or jam to spill into the sealing area of the lid. The water should cover the jars by one or two inches; add more boiling water if needed, pouring it between the jars and not directly on them. Cover the canner. Turn the burner to its highest heat setting and bring the water in the canner to a full boil. Boil jars gently for 5 minutes. Then remove the jars to a protected surface and cool away from drafts.

Hot, clean jars may be used instead of pre-sterilized jars. In that case, process filled jars 10 minutes in the boiling water bath.

(Note: The 5 minute processing time is for altitudes of 0-1000 feet. Add 1 minute of processing time for each 1000 feet of additional altitude.)

Storage

Do not move jellied products, especially jellies, for 12 hours after they are made. Moving them could break the gel. After the jellied products have cooled for 12 hours, check the seal, and remove the ring band; wash and dry the ring band for use another time. Label the jars and store in a cool, dry, dark place. The shorter the storage time, the better the product. Though cooked jellied products should keep for at least a year, their flavor and quality often begin to decrease within a few months.

MAKING JELLIES

1. Sort fruit to remove the overripe or the undesirable. Wash fruit in cold running water or by lifting from several changes of cold water. Do not remove cores or skins, since the pectin is more concentrated in these portions.

2. Prepare fruit for juice extraction as directed in a recipe. Extracting juice differs with different kinds of fruit. Juicy berries can be crushed and the juice pressed without heating or the fruit can be heated until soft. Firm fruits need to be cut up and heated in a small amount of water to start the flow of juice.

3. Put prepared fruit in a damp jelly bag or several thicknesses of damp cheesecloth. The dampness helps start the juice flowing. Hang to drip into a large bowl or kettle. The clearest jelly comes from juice that drips through a jelly bag without pressing, but there is more juice when the bag is twisted tightly and squeezed. If this is done, the pressed juice should be re-strained through a double thickness of damp cheesecloth.

4. Measure the required amount of juice into a large saucepot. **Make only a small batch of jelly at one time–about 4 to 6 cups of juice.** Double batches do not always work. Juice can be refrigerated for a few days or frozen, to be made into jelly another time.

5. The amounts of other ingredients and when to add depend upon the presence or addition of pectin. If any of the following tests indicate that the juice is low in pectin, use commercial pectin and follow the directions on the package.

Cooking Test: Measure 1/3 cup of juice and 1⁄4 cup of sugar into a small saucepan. Heat slowly, stirring constantly until all the sugar is dissolved. Bring the mixture to a boil and boil rapidly until it gives the sheeting test (See No. 9). Pour the jelly into a clean, hot jelly glass or a small bowl and let cool. If the cooled mixture is jelly-like, your fruit juice will gel.

Alcohol Test: Add 1 teaspoon of juice to 1 tablespoon of rubbing alcohol. To mix, stir or shake gently in a closed container so all the juice comes in contact with the alcohol. **DO NOT TASTE–the mixture is poisonous.** Fruit high in pectin will form a solid jelly-like mass that can be picked up with a fork. If the juice clumps into several small particles, there is not enough pectin for jelly.

6. Determine if the fruit has enough acid. There is no home test to determine the amount of acid present. But you can do a simple taste test for tartness by mixing 1 teaspoon lemon juice, 3 tablespoons of water and 1⁄2 teaspoon of sugar. If your fruit juice does not taste as tart as this mixture, it is not tart enough. Add 1 tablespoon lemon juice or 1/8 teaspoon citric acid to each cup of fruit juice.

7. Add sugar as directed in recipe.

8. Cook the jelly. If liquid or powdered pectin is used, follow manufacturer's instructions for that pectin. Be sure to start each season with fresh, newly purchased products. If no pectin is added, then a longer boiling time is necessary. Stir **frequently** to prevent sticking and scorching. Continue cooking until done, but do not overcook.

9. Test for doneness. A big challenge in making jelly without added pectin is to know when it is done.

Spoon or Sheet Test: Dip a cool metal spoon in the boiling jelly mixture. Lift the spoon above the kettle out of the steam. Turn the spoon so 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.

Temperature Test: Take the temperature of the cooking jelly with a candy or jelly thermometer. When done, the temperature of the jelly at sea level should be 220°F, or 8°F above the boiling point of water. (Note – For each 1000 feet of altitude above sea level, subtract 2°F. For instance, at 1000 feet of altitude, the jelly is done at 218°F; at 2000 feet, 216°F, etc. For an accurate thermometer reading, place the thermometer in a vertical position and read at eye level. The bulb of the thermometer must be completely covered with jelly but must not touch the bottom of the saucepot. (Remember to first test the accuracy of the thermometer by making sure it registers 212°F, or the boiling temperature for your altitude, when placed in boiling water.)

Refrigerator Test: Pour a small amount of boiling jelly on a plate. Put it in the freezing compartment of the refrigerator for a few minutes. If the mixture gels, it should be done. Remove jelly mixture from the heat while conducting this test, otherwise the mixture will overcook.

10. When the mixture has reached the jellying point, remove the saucepan from the heat and skim off any foam quickly. Do not let the jelly cool too long while you remove foam; jars should be filled before the jelly starts to thicken. Pour the boiling hot mixture into your prepared hot containers and seal according to directions (see Sealing Jellies and Jams).

MAKING JAMS

There are some differences between making jams and making jellies, although the basic ingredients–fruit, pectin, acid and sugar–are the same.

* Unless you are using a fruit known to be high in natural pectin, you will need to use a pectin-added recipe.
* Do not use a blender or food processor to prepare the fruit. Either finely chop fruit as described in the recipe, or crush with potato masher or other method that does not mix air into the fruit.
* Stir fruit mixture over low heat until sugar dissolves. Then boil rapidly for a sparkling finished product. As the fruit mixture begins to thicken, stir **frequently** to prevent sticking and scorching. To judge the doneness of jams, boil until the temperature is 220° F, or 8° F above the boiling point of water. (Note – For each 1000 feet of altitude above sea level, subtract 2°F. For instance, at 1000 feet of altitude, the jam is done at 218°F; at 2000 feet, 216°F, etc. For an accurate thermometer reading, place the thermometer in a vertical position and read at eye level. The bulb of the thermometer must be completely covered with jam but must not touch the bottom of the saucepot. (Remember to first test the accuracy of the thermometer by making sure it registers 212°F, or the boiling temperature for your altitude, when placed in boiling water.) For a softer product, shorten the cooking time; for a firmer product, lengthen it. The refrigerator test described under making jellies can also be used. Remove the cooking jam from the heat while conducting this test, otherwise the mixture will overcook.
* Before filling jars, quickly skim off foam which forms during the boiling process. The addition of 1/4 teaspoon butter or margarine during cooking helps cut down on the foam formed.
* Process jams in a boiling water bath for 5 minutes if jars are pre-sterilized. Clean hot jars that are not pre-sterilized may also be used; in that case, process jams in the boiling water bath for 10 minutes.

  (Note: The 5- or 10-minute processing time is for altitudes of 0-1000 feet. Add 1 minute of processing time for each 1,000 feet of additional altitude.)
* If liquid or powdered pectin is used, follow the manufacturer's directions. The method of combining ingredients varies with the form of pectin used. Pectin, acid and doneness tests are not used with added pectin.

Jelly Recipes

RECIPE

APPLE JELLY
(4 or 5 half-pint jars)

4 cups apple juice (about 3 pounds apples and 3 cups water)
2 tablespoons lemon juice, if desired
3 cups sugar

TO PREPARE JUICE–Select about 1/4 firm-ripe and 3/4 fully ripe tart apples. Sort, wash and remove stem and blossom ends; but 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 (see Making Jellies).

TO MAKE JELLY-Sterilize canning jars. Measure apple juice into a saucepot. 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 canning jars, leaving 1/4-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

Jelly Recipes

RECIPE

GRAPE JELLY
(3 or 4 half-pint jars)

4 cups grape juice (about 3 1/2 pounds grapes and 1/2 cup water)
3 cups sugar

TO PREPARE JUICE-Select about 1/4 firm-ripe and 3/4 fully ripe grapes. Sort, wash and remove stems from grapes. Crush grapes, add water, cover and bring to a boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice (see Making Jellies). To prevent formation of tartrate crystals in the jelly, refrigerate juice overnight, then strain through two thicknesses of damp cheesecloth to remove crystals that have formed.

TO MAKE JELLY-Sterilize canning jars. Measure juice into 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 canning jars, leaving 1/4-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

RECIPE

PLUM JELLY
(about 8 or 9 half-pint jars)

Plum juice (1 pound plums and 1/2 cup water)
Sugar (3/4 cup to each cup of juice)

TO PREPARE JUICE-Wash plums. Crush fruit, add water, cover and bring to a boil over high heat. Reduce heat and simmer 15 to 20 minutes or until the fruit is soft. Extract juice (see Making Jellies).

TO MAKE JELLY-Sterilize canning jars. Measure juice into a saucepot. Add sugar and stir well. Boil over high heat to 8° F above the boiling point of water or until the mixture sheets from a spoon. Remove from heat; quickly skim off foam. Pour jelly immediately into hot canning jars, leaving 1/4-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

Jam Recipes

RECIPE

BERRY JAMS
(Blackberry, Blueberry, Boysenberry, Dewberry, Gooseberry, Loganberry, Raspberry, Youngberry)

(7 or 8 half-pint jars)

9 cups crushed berries
6 cups sugar

Sterilize canning jars. Combine berries and sugar. Bring slowly to a boil, stirring occasionally until sugar dissolves. Cook rapidly to, or almost to, gelling point, depending upon whether a firm or soft jam is desired. As mixture thickens, stir frequently to prevent sticking. Pour boiling hot jam into hot jars, leaving 1/4-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

NOTE: If seedless jam is preferred, crushed berries may be heated until soft and pressed through a sieve or food mill; then add sugar and proceed as above.

RECIPE

STRAWBERRY JAM

(about 8 half-pint jars)

2 quarts cleaned, crushed strawberries
6 cups sugar

Sterilize canning jars. Combine berries and sugar; bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 40 minutes. As mixture thickens, stir frequently to prevent sticking. Pour boiling hot jam into hot jars, leaving ¼-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

Jam Recipes

RECIPE

FIG JAM

(about 10 half-pint jars)

2 quarts chopped fresh figs
(about 5 pounds as purchased)
¾ cup water
6 cups sugar
¼ cup lemon juice

TO PREPARE CHOPPED FIGS – Pour boiling water over figs; let stand 10 minutes. Drain, remove stems and chop figs.

TO MAKE JAM – Sterilize canning jars. Measure and add ¾ cup water and sugar to figs. Slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until mixture is thick, stirring frequently to prevent sticking. Add lemon juice and cook 1 minute longer. Pour hot jam into hot jars, leaving ¼-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

RECIPE

PEACH JAM

(about 8 half-pint jars)

2 quarts crushed, peeled peaches
1/2 cup water
6 cups sugar

Sterilize canning jars. Combine peaches and water; cook gently 10 minutes. Add sugar; slowly bring to boiling, stirring occasionally until sugar dissolves. Cook rapidly until thick, about 15 minutes; stir frequently to prevent sticking. Pour boiling hot jam into hot jars, leaving 1/4-inch headspace. Wipe jar rims and adjust lids. Process 5 minutes in a boiling water bath.

NOTE: For Spiced Peach Jam, tie the following ingredients in a cheesecloth bag and add it to the jam during cooking.

Remove bag before pouring the jam into jars

1 teaspoon whole cloves
1/2 teaspoon whole allspice
1 stick cinnamon (3-inch piece)

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