

# Home Canning Jams, Jellies, and Other Soft Spreads

Home canning jams, jellies, and other soft spreads is fun and satisfying. Soft spreads all contain four main ingredients (fruit, sugar, pectin, and acid), and they differ only in their consistency. The formation of a gel depends on the right amount of each of the main ingredients. If you understand the science of gelling, all your soft spreads will be a success.

## Soft Spreads

- **Jams** are made by cooking crushed or chopped fruits with sugar until the mixture will round up on a spoon. Jams do not hold their shape and are spreadable.
- **Jellies** are made from the strained juice of fruit. Jelly should be crystal clear and shimmering. Jelly should hold its shape but be soft enough to spread.
- **Butters** are made by cooking fruit pulp and sugar to a thick consistency that will spread easily. Spices may be added, depending on personal taste.
- **Marmalades** are soft-fruit jellies containing small pieces of fruit or peel evenly suspended in the transparent jelly.

- **Conserves** are jamlike and made by cooking two or more fruits with sugar until the mixture will either round up on a spoon like jam or flake from it like jelly. A true conserve contains nuts and raisins.
- **Preserves** are whole or large pieces of fruit preserved with a thickened sugar syrup so that the fruit retains its shape. Preserves are clear, shiny, tender, and plump.

## Pectin and Fruit

Pectin is a carbohydrate found in fruits. When sugar is added, the pectin in fruit or commercial pectin precipitates out and forms insoluble fibers. An acid, such as lemon juice or citric acid, aids in the process. The insoluble fibers produce a mesh-like structure that traps the fruit juice or other liquid much like a sponge absorbs water. This process enables a gel to form.

Recipes without added pectin use the natural pectin in the fruit to form the gel. Tart apples, sour blackberries, cranberries, currants, gooseberries, Concord grapes, soft plums, and quinces work well in recipes without added pectin.



**Altitude affects processing times and pressures.** The processing times given in this publication are based on canning at or below 1,000 feet above sea level. If you live at an altitude greater than 1,000 feet, please consult the website for the National Center for Home Food Preservation located at <http://nchfp.uga.edu>.

Slightly under-ripe fruit contains more pectin than ripe fruit. Overripe fruit may not contain enough pectin to form a gel. A general guideline is to use one part under-ripe fruit to two parts fully ripe fruit for the best gel and flavor. The USDA canning guide recommends at least one fourth of the fruit to be under-ripe.

Other fruits, such as apricots, blueberries, cherries, peaches, pineapple, rhubarb, and strawberries, are low in pectin. To form a gel, they must be combined with one of the higher pectin fruits or used with a commercial pectin product. Use of commercial pectin decreases cooking time.

The pectin in fruit becomes water soluble when it is heated, so for gelling to occur, the fruit must be heated. Too high of a temperature or cooking for too long can destroy the pectin, resulting in a poor gel. Doubling the recipe changes the length of time needed for boiling and can result in a soft gel.

Commercial pectin can be used with any fruit, even those high in pectin. Too much pectin will give the jam or jelly a tough, rubbery consistency, making it difficult to spread. Following the recipe guide that comes with the pectin will help eliminate this problem.

There are two types of pectin: liquid (usually made from apples) and powdered (from citrus fruits or apples). Powdered and liquid pectin are not interchangeable. The type of pectin called for in the recipe must be used. Powdered pectin can be stored in the freezer from one season to the next. Freezing will destroy the gel-producing

qualities of liquid pectin, but liquid pectin will keep for two years in a cool, dry place.

There are several products on the market that allow you to make jams and jellies that are lower in calories. These low- or no-sugar pectin products allow you to make jams and jellies with less sugar but they will not be quite as thick or glossy.

## Acid

The acidity level is also important to gelling. The gel will not set if there is too little acid. Too much acid will cause the gel to lose liquid or weep. For fruits low in acid, add lemon juice or other acid source as instructed.

## Sugar

Sugar is necessary for the gel to form. It also acts as a preserving agent and contributes flavor. Do not attempt to reduce the amount of sugar in regular jam and jelly recipes because a syrupy gel will form. When using low- or no-sugar pectin products, use the recipes provided in the package.

## Remaking Jams or Jellies

If jam or jelly does not set up after cooling, it can be remade. There are different directions depending on the type of commercial pectin that you used. Detailed instructions for remaking cooked jam or jelly can be found on the National Center for Home Food Preservation website at [http://nchfp.uga.edu/how/can\\_07/remake\\_soft\\_jelly.html](http://nchfp.uga.edu/how/can_07/remake_soft_jelly.html) or in the *Ball Blue Book Guide to Preserving* (p. 122).

Possible reasons that a jam or jelly may be too soft include overripe fruit, fruit lacking the proper acidity, too much or not enough sugar, trying to increase the recipe, not using a full rolling boil, use of old pectin, or a mistake in measurement.

---

**For more information on safe home canning, please see *Home Canning Basics*, publication FCS3-578.**

---

# Step-By-Step Canning

## *Boiling Water Method*

1. Assemble all equipment and utensils.
2. Visually examine jars, lids and bands for defects. Wash in hot, soapy water and rinse well. If the processing time will be less than 10 minutes, sterilize the jars by placing in boiling water for 10 minutes. The sterilized jars can remain in the hot water until they are ready to be filled. If jars will be processed for 10 minutes or longer, it is not necessary to sterilize them before use. Just place the clean jars in simmering water to keep hot until filled. Dry the bands and set aside. Follow the manufacturer's instructions for preparing the lids. Many no longer require preheating before use. Do not boil the lids.
3. Fill the canner half full of clean warm water. Center the canner over the burner and preheat the water to 180°F. Begin preparing the recipe while the water is preheating. It will take about 20 to 30 minutes for the water to begin to boil.
4. Use top-quality fruits; wash well. Prepare only one recipe at a time and follow the directions. After cooking, remove spread from heat and skim foam if necessary.
5. Immediately pour hot spread into hot jars, leaving the headspace specified in the recipe. Wipe jar rims with a dampened clean paper towel. Center lids on jars and apply bands fingertip tight. Do not over tighten.
6. Load filled jars into the canner one at a time, using a jar lifter, or by placing the jars on a canning rack and lowering the full rack into the hot water. Keep jars upright at all times. Add boiling water to cover the jars by one to two inches. Turn the heat up so the water boils vigorously and place the lid on the canner.
7. Begin timing the process when the water has reached a full boil. Set a timer for the total number of minutes indicated in the recipe. Most recipes call for at least five minutes processing. The water must remain at a boil for the whole processing time.
8. When the processing time specified in the recipe is complete, turn off the heat and remove the canner lid. Wait five minutes before removing jars.
9. Remove jars from canner, keeping them upright. Carefully place them onto a towel, leaving a one-inch space between the jars for proper cooling.
10. After 12 to 24 hours, test seals and remove bands.
11. Wash outside of jars and lid surfaces. Label and store sealed jars in a cool, dark, dry place.
12. Enjoy your very own spreads.

# Recipes for Beginners

---

## **Strawberry Jam**

(with liquid pectin)

### **Ingredients**

- 4 cups crushed strawberries (about 2 quart boxes strawberries)
- 7 cups sugar
- 1 pouch (3 ounces) liquid pectin

### **Directions**

- Sort and wash fully ripe strawberries; remove stems and caps. Crush berries.
- Measure crushed berries into a large saucepan. 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 one minute, stirring constantly.
- Remove from heat and stir in pectin. Skim off foam.
- Ladle hot jam immediately into hot half-pint jars, leaving  $\frac{1}{4}$ -inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 8 or 9 half-pint jars

**Nutritional Analysis** (1 tablespoon): 40 calories, 0 g fat, 10 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

# Recipes for Beginners

---

## Spiced Tomato Jam

(with powdered pectin)

### Ingredients

- 3 cups cooked tomatoes (about 2¼ pounds tomatoes)
- 1½ teaspoons grated lemon rind
- ½ teaspoon ground allspice
- ½ teaspoon ground cinnamon
- ¼ teaspoon ground cloves
- ¼ cup lemon juice
- 4½ cups sugar
- 1 package (1.75 ounces) powdered pectin

### Directions

- Wash firm ripe tomatoes; scald, peel, and chop. Scalding is a quick way to remove the skin of tomatoes. To scald the tomatoes, drop into boiling water. As the tomato skin heats up, the tomato will begin to peel (about one minute for medium tomatoes). At this point, remove the tomatoes from the boiling water and place in ice water to prevent further cooking. The skins will slip off easily.
- Place chopped tomatoes in a large saucepan and heat slowly to simmering, stirring constantly to prevent sticking and burning. Cover and simmer 10 minutes, stirring occasionally.
- Measure 3 cups of the cooked tomatoes into a large saucepan. Add lemon rind, allspice, cinnamon, cloves, and lemon juice.
- Measure sugar and set aside.
- Stir powdered pectin into tomato mixture. Bring to a boil over high heat, stirring constantly.
- At once, stir in sugar. Stir and bring to a full rolling boil that cannot be stirred down. Then boil hard for one minute, stirring constantly.
- Remove from heat. Skim off foam.
- Pour hot jam into hot half-pint jars, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 5 half-pint jars

**Nutritional Analysis** (1 tablespoon): 45 calories, 0 g fat, 12 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

# Recipes for Beginners

---

## **Grape Jelly** (with liquid pectin)

### **Ingredients**

- 6½ cups sugar
- 2½ cups water
- 2 pouches liquid pectin (3 ounces each)
- 3 six-ounce cans (2¼ cups) frozen concentrated grape juice, thawed

### **Directions**

- In a large saucepan, combine sugar and water. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Stir in liquid pectin. Add thawed concentrated grape juice and mix well. Boil hard for 1 minute. Remove from heat.
- Ladle hot jelly immediately into hot pint or half-pint jars, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process pint or half-pint jars 10 minutes in a boiling water canner.

**Yield:** about 5 pint jars or 10 half-pint jars

**Nutritional Analysis** (1 tablespoon): 35 Calories, 0 g fat, 9 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

# Intermediate Recipes

---

## **Blackberry Jelly** (with powdered pectin)

### **Ingredients**

- 3½ cups blackberry juice (about 3 quart boxes berries)
- 1 package (1.75 ounces) powdered pectin
- 4½ cups sugar

### **Directions**

- Prepare juice: Sort and carefully wash fully ripe berries; remove any stems or caps. Place berries into a flat-bottomed saucepan and add just enough cold water to prevent scorching. Crush berries to start the flow of juice. Bring to a boil over high heat. Stir to prevent scorching. Reduce heat and cook until soft (10 minutes or less). Do not overcook; excess boiling will destroy pectin, flavor and color. Strain mixture through a damp jelly bag to extract juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing or squeezing.
- Measure juice into a large saucepan. Add 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 one minute.
- Remove from heat; skim off foam quickly.
- Pour hot jelly immediately into hot half-pint jars, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 5 or 6 half-pint jars

**Nutritional Analysis** (1 tablespoon): 40 calories, 0 g fat, 11 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

# Intermediate Recipes

---

## Golden Pepper Jelly

(with liquid pectin)

**Food Safety:** The addition of vinegar to the low-acid sweet and hot peppers makes this recipe safe for processing using the boiling water canning method. Do not reduce the amount of vinegar. The exact amounts of vinegar and sugar are also necessary to provide the conditions required to form a gel with the added pectin.

**Caution:** Wear plastic gloves when handling hot peppers and hot pepper purée or wash hands thoroughly with soap and water before touching your face.

### Ingredients

- 5 cups chopped yellow bell peppers (about 4 large peppers as purchased)
- ½ cup chopped Serrano chili peppers (about 5 peppers as purchased)
- 1½ cups white distilled 5 percent vinegar
- 5 cups sugar
- 1 pouch (3 ounces) liquid pectin

### Directions

- Wash all peppers thoroughly; remove stems and seeds. Do not remove the membrane from the hot peppers; the remaining capsaicin is located there.
- Place sweet and hot peppers in a blender or food processor. Add enough vinegar to purée the peppers, then purée.
- Combine the pepper-vinegar purée and remaining vinegar in a large stainless steel or glass saucepan. Heat to a boil; then boil 10 minutes to extract flavors and color.
- Remove from heat and strain through a jelly bag into a bowl. (The jelly bag is preferred; several layers of cheesecloth may also be used.)
- Add 2¼ cups of the strained pepper-vinegar juice back to the saucepan. Stir in sugar until dissolved and return to a boil.
- Add pectin, return to a full rolling boil, and boil hard for one minute while constantly stirring. The jelly will not become thick at this point, so it is not necessary to boil for longer than one minute.
- Remove from heat and ladle hot jelly into hot half-pint jars, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.
- Let cool, undisturbed, for 12 to 24 hours and check for seals.

**Yield:** about 7 half-pint jars

**Nutritional Analysis** (1 tablespoon): 35 calories, 0 g fat, 9 g carbohydrate, 0 g protein

### Notes

- Sealed jars can be stored at room temperature in a cool, dark place. Once opened, the jelly must be kept refrigerated and will keep for up to several weeks.
- The use of yellow peppers gives this jelly a light golden color. Other color sweet peppers may be substituted but will provide a different jelly color. Other hot peppers may also be substituted. Each hot pepper variety has a different heat index. It is best to start with a mild hot pepper flavor and increase it according to personal taste.

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.



# Intermediate Recipes

---

## Orange Marmalade

### Ingredients

- 4 cups thinly sliced orange peel (from about 6 large oranges)
- 4 cups chopped orange pulp (about 6 large oranges, peeled and seeded)
- 1 cup thinly sliced and seeded lemon (about 2 medium)
- 6 cups water
- 6 cups sugar (approximate)

### Directions

- Combine orange peel, orange pulp, lemon slices, and water in a large saucepan. Heat to simmer and simmer 5 minutes.
- Cover and let stand 12 to 18 hours in refrigerator.
- Return to heat; cook over medium heat until peel is tender, about 1 hour.
- Measure fruit and liquid into a large saucepan. Add 1 cup sugar for each cup of fruit mixture. Bring slowly to boiling, stirring until the sugar dissolves. Cook rapidly to the gelling point, about 25 minutes, stirring frequently.
- Ladle hot marmalade into hot half-pint jars, leaving  $\frac{1}{4}$ -inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 7 half-pint jars

**Nutritional Analysis** (1 tablespoon): 50 calories, 0 g fat, 13 g carbohydrate, 0 g protein

Recipe adapted from *So Easy to Preserve*. Used with permission for educational purposes only.

### Notes

- When peeling the oranges, be sure to include some of the white membrane found just under the skin. This is where most of the pectin is found.
- Information on gelling point and how to do a gelling test can be found on the website of the National Center for Home Food Presentation at [http://nchfp.uga.edu/how/can\\_07/jelly\\_point.html](http://nchfp.uga.edu/how/can_07/jelly_point.html) or in the Ball Blue Book Guide to Preserving (p. 29).

# Advanced Recipes

---

## Apple Butter

### Ingredients

- 8 pounds apples, cored and quartered
- 2 cups cider
- 2 cups vinegar
- 2¼ cups white sugar
- 2¼ cups packed brown sugar
- 2 tablespoons ground cinnamon
- 1 tablespoon ground cloves

### Directions

- Combine apples, cider and vinegar in a large saucepan. Simmer until apples are soft.
- Press cooked apples through a colander, food mill, or strainer.
- In a large saucepan, combine apple pulp with sugar and spices. Cook, stirring frequently, until thickened. To test for doneness, remove a spoonful and hold it away from the steam for 2 minutes. It is done if the butter stays mounded on the spoon.
- Ladle hot butter into hot pint jars, leaving ¼-inch headspace. Remove air bubbles. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 5 pint jars

**Nutritional Analysis** (1 tablespoon): 35 calories, 0 g fat, 9 g carbohydrate, 0 g protein

Recipe adapted from So Easy to Preserve. Used with permission for educational purposes only.

### Note

- Use Jonathan, Winesap, Stayman, Golden Delicious, Macintosh, or other tasty apple varieties for good results.

# Advanced Recipes

---

## Pear Preserves

### Ingredients

- 3 cups sugar, divided
- 2½ cups water
- 6 medium cored, pared, hard, ripe pears, cut in halves or quarters (about 2 pounds)
- 1 thinly sliced lemon

### Directions

- Combine 1½ cups sugar and water in a large saucepan; cook rapidly for two minutes.
- Add pears and boil gently for 15 minutes.
- Add remaining sugar and lemon, stirring until sugar dissolves. Cook rapidly until fruit is clear, about 25 minutes.
- Cover and let stand 12 to 24 hours in refrigerator.
- Heat fruit and syrup to boiling.
- Pack fruit into hot half-pint jars, leaving ¼-inch headspace.
- Cook syrup three to five minutes, or longer if too thin.
- Pour hot syrup over fruit, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 10 minutes in a boiling water canner.

**Yield:** about 5 half-pint jars

**Nutritional Analysis** (1 tablespoon): 35 calories, 0 g fat, 9 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

### Notes

- Small pears may be preserved whole with stem intact; peel pears and wash stem well.
- For best flavor, Kieffer pear preserves should be stored in a cool, dry place from three to five weeks after processing before using.
- A piece of preserved ginger may be added to each jar for a different flavor.

# Advanced Recipes

---

## Cranberry Conserve

### Ingredients

- 1 unpeeled, finely chopped, seeded orange
- 1 cup water
- 3 cups sugar
- 1 quart cranberries, washed
- ½ cup seedless raisins
- ½ cup chopped nuts

### Directions

- Combine orange and water in a large saucepan; cook rapidly until peel is tender (about 20 minutes).
- Add cranberries, sugar, and raisins. Bring slowly to boiling, stirring occasionally until sugar dissolves. Cook rapidly, almost to the gelling point of 220°F (about eight minutes). As mixture thickens, stir frequently to prevent sticking. Add nuts during the last five minutes of cooking.
- Pour hot conserve into hot half-pint jars, leaving ¼-inch headspace. Wipe jar rims with a dampened clean paper towel; adjust two-piece metal caps.
- Process 15 minutes in a boiling water canner.

**Yield:** about 4 half-pint jars

**Nutritional Analysis** (1 tablespoon): 50 calories, 0.5 g fat, 11 g carbohydrate, 0 g protein

Recipe adapted from the National Center for Home Food Preservation website. Used with permission for educational purposes only.

---

## References

- Andress, E. L., and J.A. Harrison (2011). *So Easy to Preserve* (5th ed.). Athens, GA: University of Georgia.
- Jarden Home Brands (2012). *Ball Blue Book Guide to Preserving*. Daleville, IN: Hearthmark.
- National Center for Home Food Preservation. (n.d.). How Do I?...Can. Retrieved February 18, 2013 from [http://nchfp.uga.edu/how/can\\_home.html](http://nchfp.uga.edu/how/can_home.html).

- United States Department of Agriculture (2009). *USDA Complete Guide to Home Canning* (Agriculture Information Bulletin No. 539). Retrieved February 18, 2013 from [http://nchfp.uga.edu/publications/publications\\_usda.html](http://nchfp.uga.edu/publications/publications_usda.html).

## Authors

- Sandra Bastin, PhD, RD, LD, CCE, Extension Food and Nutrition Specialist, and Debbie Clouthier, BS, Extension Associate*

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Nancy M. Cox, Director of Cooperative Extension Programs, University of Kentucky College of Agriculture, Food and Environment, Lexington, and Kentucky State University, Frankfort. Copyright © 2017 for materials developed by University of Kentucky Cooperative Extension. This publication may be reproduced in portions or its entirety for educational or nonprofit purposes only. Permitted users shall give credit to the author(s) and include this copyright notice. Publications are also available on the World Wide Web at [www.ca.uky.edu](http://www.ca.uky.edu).