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University of California
Agriculture and Natural Resources

UCCE Master Food Preserver Program
Sacramento County

*Sacramento County Master Food Preservers
Monthly Wednesday Night Demonstration
May 17, 2023
Berries*



Resources:

- Please visit the National Center for Home Food Preservation at <http://nchfp.uga.edu> for detailed information about research-based methods of home food preservation.
- UC ANR Catalog (<http://anrcatalog.ucanr.edu>)

Should you need assistance or require special accommodations for any of our educational programs, please contact us at 916-875-6913.

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BERRY JUICE

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p28

Boysenberry, Loganberry, Raspberry, etc.

Wash, crush and simmer berries until soft. Add a small amount of water to prevent sticking, if necessary. Strain through a damp jelly bag or several layers of cheesecloth. Measure juice; add 1 to 2 cups of sugar for each gallon of juice. Heat juice 5 minutes at 190^oF. Do not boil. Ladle hot juice into hot jars, leaving 1/4-inch headspace. Adjust two-piece caps. Process pints and quarts 15 minutes in a boiling-water canner.

Note: If clear juice is desired, let strained juice stand for 24 hours in refrigerator. Ladle juice from pan, being careful not to disturb sediment. Proceed as above.

TO PREPARE JUICE FOR JELLY

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p56

Hard Fruit: Apples, Pears, Nectarines, etc. Select top-quality fruit. Wash; remove stem and blossom ends; do not peel or core. Chop or quarter fruit; measure. Add 1 cup water for each slightly heaped quart prepared fruit in a large saucepan. Cover; simmer fruit until soft. Strain mixture through a damp jelly bag or several layer of cheese close to extract juice. Juice may be used fresh, canned or frozen for later use.

Soft Fruit: Grapes, Cherries, Berries, etc. Select top quality fruit. Wash and stem fruit. Slightly crush fruit or follow recipe guidelines for preparing fruit; measure. Add 1/4 to 1/2 cup water for each quart prepared fruit in a large saucepan. Cover; simmer fruit until soft. Strain mixture through a damp jelly bag or several layer of cheese close to extract juice. Juice may be used fresh, canned or frozen for later use.

Note: If juice is to be canned, heat juice just to a boil. Ladle hot juice into hot jars, leaving 1/4-inch headspace. Adjust two-piece caps. Process pints and quarts 10 minutes in a boiling-water canner.

BERRY JELLY

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p56

Blackberry, Boysenberry, Dewberry, Youngberry

Yield: about 5 half-pints

3 1/2 cups berry juice

6 tablespoons Ball Classic Pectin

2 tablespoons lemon juice

5 cups sugar

To Prepare Juice: Follow instructions for Juice For Jelly.

To Make Jelly: Combine fruit juice, classic pectin and lemon juice in a large saucepan. Bring to a boil over high heat. Add sugar, stirring until dissolved. Return to a rolling boil. Boil hard 1 minute, stirring constantly. Remove from heat. Skim foam is necessary. Ladle hot jelly into hot jars, leaving 1/4-inch headspace. Adjust two-piece caps. Process 10 minutes in a boiling-water canner.

FREEZING BERRIES

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p144 and p147

Blackberries, Mulberries, Red Raspberries, Black Raspberries

Select fully-ripe, firm berries. Wash berries in cold water. Drain and dry berries. Discard soft, underripe or imperfect berries. Remove stems. Pack using one of the following methods:

Sugar Pack: Mix 1 part sugar with 4 parts berries. Pack into plastic freezer jars or plastic freezer containers. Seal, label, and freeze.

Syrup Pack: Prepare a heavy syrup (see table below). Pack drained berries into plastic freezer jars or plastic freezer containers. Shake the container gently to pack berries. Cover berries with syrup, leaving 1/2-inch headspace. Seal, label, and freeze.

Puree: Select fully-ripe berries. Puree using a food processor or food mill. Ladle berry puree into plastic freezer jars or plastic freezer containers, leaving 1/2-inch headspace. Seal, label, and freeze.

Blueberries, Huckleberries, Elderberries, or Gooseberries

Wash berries, drain. Dry berries. Remove stems and underripe or imperfect berries. Pack using one of the following methods:

Dry Pack: Pack berries into plastic freezer bags, plastic freezer jars, or plastic freezer containers. Seal, label, and freeze.

Sugar Pack: Mix 1 quart berries with 2/3 cup sugar. Pack into plastic freezer jars or plastic freezer containers. Seal, label, and freeze.

Syrup Pack: Prepare a heavy syrup (see table below). Pack drained berries into plastic freezer jars or plastic freezer containers. Shake the container gently to pack berries. Cover berries with syrup, leaving 1/2-inch headspace. Seal, label, and freeze.

Strawberries

Select fully-ripe, firm strawberries with a deep red color. Discard immature and imperfect fruit. Wash strawberries, drain. Remove caps. Prepare using one of the following methods:

Dry Pack: Pack berries into plastic freezer bags, plastic freezer jars, or plastic freezer containers. Seal, label, and freeze.

Sugar Pack: Slice berries lengthwise in half. Mix 1 part sugar with 6 parts strawberries. Allow to stand until sugar is dissolved, about 10 minutes. Gently stir. Pack strawberries and syrup into plastic freezer jars or plastic freezer containers. Seal, label, and freeze.

Syrup Pack: Prepare a heavy syrup (see table below). Leave strawberries whole or slice. Pack strawberries into plastic freezer jars or plastic freezer containers. Ladle syrup over berries, leaving 1/2-inch headspace. Seal, label, and freeze.

Puree: Combine 1 pint strawberries, 4 tablespoons sugar, and 1 teaspoon lemon juice in food processor and puree. Pack puree into plastic freezer jars or plastic freezer containers, leaving 1/2-inch headspace. Seal, label, and freeze.

Thawing and Preparing Fruits

Frozen fruits may be used the same as fresh fruit in most recipes. When using frozen fruit in cooking, an allowance should be made for any sugar added at the time of freezing. For fresh fruit dessert or fruit salad, serve fruit just before it is completely thawed. A few ice crystals remaining in the fruit will help to retain a plump structure.

Syrup Pack	Fruit-Fresh	Sugar	Water	Yield
Extra-Light	6 rounded teaspoons	1-1/4 cups	5-1/2 cups	6 cups
Light	6-1/2 rounded teaspoons	2-1/4 cups	5-1/4 cups	6-1/2 cups
Medium	7 rounded teaspoons	3-1/4 cups	5 cups	7 cups
Heavy	7 rounded teaspoons	4-1/4 cups	4-1/4 cups	7 cups

Visit this additional resource for information on canning whole berries:

https://nchfp.uga.edu/how/can_02/berries_whole.html

RASPBERRY VINEGAR

Source: UC Cooperative Extension, University of Georgia, “Preserving Food: Flavored Vinegars”, publication FDNS-E-43-17,
https://nchfp.uga.edu/publications/uga/uga_flavored_vinegars.pdf

Yield: About 3 cups of raspberry vinegar

2 cups fresh raspberries

3 cups vinegar

1. Wash 2 cups fresh raspberries gently but thoroughly. Bruise slightly with the back of a spoon or by rolling gently in waxed paper. Place in a sterilized quart glass canning jar.
2. Heat 3 cups of vinegar to just below the boiling point and pour over the raspberries.
3. Cap tightly and allow to stand 2 to 3 weeks in a cool, dark place.
4. Strain vinegar through damp cheesecloth and discard fruit.
5. Pour vinegar into clean, sterilized glass jars or bottles. Seal tightly. Store in the refrigerator for best quality and flavor. (This is especially good in dressings for mixed greens or fruit.)

Visit these additional resources for ideas on how to use your raspberry vinegar:

<https://s3.wp.wsu.edu/uploads/sites/2086/2014/07/WaystoUseRaspberryVinegar.pdf>

<https://womersleyfoods.com/pages/recipes-with-raspberry-vinegar>

BLUEBERRY CONSERVE

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p46

Yield: about 4 half-pints

2 cups water

4 cups sugar

1/3 cup thinly sliced lemon (about 1/2 large)

1/2 cup thinly sliced orange (about 1/2 medium)

1/2 cup raisins

1 quart blueberries

Bring water and sugar to a boil; add lemon, orange and raisins. Simmer 5 minutes. Stir in blueberries. Cook rapidly almost to gelling point. As mixture thickens, stir frequently to prevent sticking. Ladle hot conserve into hot jars, leaving 1/4-inch headspace. Remove air bubbles. Adjust two-piece caps. Process 15 minutes in a boiling-water canner.

STRAWBERRY SYRUP

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p130

Yield: about 3 pints

2-1/2 quarts strawberries (about 5 to 6 pounds)

3 cups water, divided

1 2-inch strip of lemon peel

2-1/2 cups sugar

3-1/2 cups corn syrup

2 tablespoons lemon juice (about 1 medium)

Wash strawberries and lemon under cold running water, drain. Remove stems and caps from strawberries. Crush strawberries using a potato masher. Cut yellow portion of lemon peel into a 2-inch strip. Cut lemon in half crosswise and extract juice. Measure 2 tablespoons lemon juice.

Combine strawberries, 1-1/2 cups water, and lemon peel in a medium saucepot. Bring mixture to a simmer (180° F), simmer 5 minutes. Strain mixture through a damp jelly bag or several layers of cheesecloth, set aside. Combine sugar and 1-1/2 cups water in a large saucepan. Boil mixture to 230° F (adjust for altitude). Stir in strawberry juice and corn syrup. Boil for 5 minutes. Stir in lemon juice.

Ladle hot syrup into hot jars, leaving 1/4-inch headspace. Clean jar rim. Center lid on jar and adjust band to fingertip-tight. Place jar on the rack elevated over simmering water (180° F) in boiling-water canner. Repeat until all jars are filled.

Lower the rack into simmering water. Water must cover by 1 inch. Adjust heat to medium-high, cover canner and bring water to a rolling boil. Process pint jars 10 minutes. Turn off heat and remove cover. Let jars cool 5 minutes. Remove jars from canner, do not retighten bands if loose. Cool 12 hours. Check seals. Label and store jars.

Note: Fruit syrup is typically thin. If a thicker syrup is desired for servicing, combine 1 cup syrup and 1 tablespoon cornstarch in a small saucepan. Bring to a boil, cooking until syrup thickens. **Do not add cornstarch before canning.**

BLUEBERRY PIE FILLING

Source: Ball Blue Book, Guide to Preserving, 2020 edition, p144

Yield: Makes about 4 pints jars

Water

7 cups blueberries

1 2/3 cups granulated sugar

2/3 cups ClearJel

12 drops blue food coloring (optional)

4 drops red food coloring (optional)

1 tsp grated lemon zest (optional)

2 tbsp lemon juice

1. Prepare canner, jars and lids.
2. Fill a large stainless steel saucepan halfway with water and bring to a full rolling boil over high heat. Add blueberries and blanch for 1 minute. Drain well and return to pot. Cover to keep warm.
3. In a large stainless steel saucepan, combine sugar and ClearJel. Whisk in 2 cups water. Add blue and red food coloring, if using. Bring to a boil over medium-high heat, stirring constantly, until mixture thickens and begins to bubble. Stir in lemon zest, if using, and lemon juice and cook for 1 minute, stirring constantly. Remove from heat. Fold in heated blueberries.
4. Ladle hot pie filling into hot jars, leaving slightly more than 1 inch headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot filling. Wipe rim. Center lid on jar. Screw band down until resistance is met, then increase to fingertip-tight.
5. Place jars in canner, ensuring they are completely covered with water. Bring to a boil and process for 30 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool and store.

TIP: We suggest using food coloring to enhance the color of this filling because blueberries tend to have a dull blue color that does not color the gel as well. The addition of food coloring enlivens the overall color of the pie filling, making it more appetizing.

BLUEBERRY APPLESAUCE FRUIT LEATHER

Source: UC Cooperative Extension, North Dakota State University, “Making Fruit Leathers”, publication FN1586

<https://ucanr.edu/sites/camasterfoodpreservers/files/340915.pdf>

Ingredients

Use 1 cup of blueberry puree and 1 cup of unsweetened applesauce. Add 2 tablespoons of honey (or to taste) and combine thoroughly. Prepare and dry as described below.

Method

Spray a cookie sheet or similar flat tray with vegetable spray, or line the tray with plastic wrap or parchment paper and spray with vegetable spray. Another option is to use the specially designed plastic sheets for electric dehydrators and follow the manufacturer’s directions. Be sure the tray has edges so the puree will not spill, and be sure the dimensions of the trays are about 2 inches smaller than the dimensions of the oven to allow for good air circulation. Spread puree evenly onto the drying tray, about 1/4 inch thick. A 12-inch by 17-inch cookie sheet holds about 2 cups of puree. Fruit leather may be dried in an oven or food dehydrator.

Oven Drying

Test your oven to be sure it can maintain a low enough temperature; otherwise, “case hardening” may occur. This is the formation of a “crust” on the food, which prevents the interior from drying properly. To test your oven, set it to the lowest setting. Place an oven-safe thermometer on the rack where food will be placed. Leave the oven door open 2 to 6 inches. Place a fan near the open door to circulate air. Check the temperature. If your oven can maintain a low enough temperature (140 to 145 F), it may be used for food dehydration. Racks should be 2 inches apart, with at least 3 inches of clearance from the top or bottom to the rack. Turn and rotate the pans every one to two hours. Oven drying time will range from four to 10 hours. Note: Oven drying is not a safe procedure to follow if young children or pets are present.

Food Dehydrator Drying

Follow the manufacturer’s directions.

Testing for Dryness

Be sure the fruit has dried sufficiently or it will become moldy during storage. Properly dried fruit leather will be slightly tacky to the touch, but it should peel easily from the plastic wrap or tray. Fruit leather dries from the edges toward the center. Test for dryness by touching the leather in several places; no indentations should be evident. Lift the edge of the leather, which will adhere tightly to the surface, and peel it back about

an inch. If it peels readily, it is properly dried. If the leather has cooled, it may be warmed in an oven at 150 F for a few minutes to help it peel away more easily. If the leather cracks or chips, it has dried too long, but it still is edible.

Storage

After loosening the edge of the leather from the plastic wrap or pan, loosely roll the leather in plastic wrap or waxed paper in one piece. Store the roll in one piece or cut it into strips. Place the strips or rolls of leather in a plastic bag, glass container, paper bag or other container. Until the leather is completely dry, the container lid should not be tightened nor the bag opening twisted tightly. If the leather has not dried completely, it may become sticky or develop mold growth during airtight storage. Store fruit leather in a cool, dry, dark place. It will retain good quality for up to one year in the freezer, several months in the refrigerator or one to two months at room temperature.

BLACKBERRY JELLY

Source: So Easy to Preserve, 6th edition, p208

Yield: 4 or 5 half-pint jars

4 cups blackberry juice (about 2 1/2 quart boxes berries and 3/4 water)

3 cups sugar

To Prepare Juice:

Select about 1/4 firm-ripe and 3/4 fully ripe berries. Sort and wash; remove any stems or caps. Crush berries, add water, cover and bring to a boil on high heat. Reduce heat and simmer for 5 minutes. Extract juice. (See EXTRACTING THE JUICE)

To Make Jelly:

Sterilize canning jars. Measure juice into saucepot. Add sugar and still well. Boil over high heat to 8° F above the boiling point of water, or until jelly mixture sheets from 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.

EXTRACTING THE JUICE

Source: So Easy to Preserve, 6th edition, p203

- Place fruit into a flat-bottomed saucepan and add cold water. For apples and other hard fruits, add up to 1 cup per pound of fruit. For berries and grapes, use only enough water to prevent scorching. Crush soft fruits to start the flow of juices.
- Bring to a boil on high heat. Stir to prevent scorching.
- Reduce heat.
- Grapes and berries need 10 minutes or less to cook until soft. Apples and other hard fruit may need 20 to 25 minutes, depending on the firmness of the fruit. Do not overcook; excess boiling will destroy the pectin, flavor and color.
- Pour everything into a damp jelly bag and suspend the bag to drain the juice. The clearest jelly comes from the juice that has dripped through a jelly bag without pressing or squeezing.
- If a fruit press is used to extract the juice, the juice should be strained through a jelly bag.

NOTE: Juicy berries may be crushed and the juice extracted without heating.

BOILING WATER CANNING PROCESS

1. Before you start preparing your food, fill the canner halfway with clean water. This is approximately the level needed for a canner load of pint jars. For other sizes and numbers of jars, adjust the amount of water in the canner so it will be 1 to 2 inches over the top of the filled jars.
2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Food preparation can begin while this water is preheating. Do not have the water boiling when you add the jars.
3. Fill, fit with lids, load onto the canner rack and use the handles to lower the rack into the water; or fill the canner with the rack in the bottom, one jar at a time, using a jar lifter. When using a jar lifter, make sure it is securely positioned below the neck of the jar (below the screw band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid.
4. Add boiling water, if needed, so the water level is at least 1 inch above jar tops. Pour the water around the jars, not on them. For process times over 30 minutes, the water level should be at least 2 inches above the tops of the jars.
5. Turn heat to its highest position, cover the canner with its lid, and heat until the water in the canner boils vigorously.
6. Set the timer for the total minutes required for processing the food, adjusting for altitude.
7. Keep the canner covered and maintain a boil throughout the process schedule. The heat setting may be lowered a little as long as a complete boil is maintained for the entire process time. If the water stops boiling at any time during the process, bring the water back to a vigorous boil and begin the timing of the process over, from the beginning.
8. Add more boiling water, if needed, to keep the water level above the jars.
9. When the jars have boiled for the recommended time, turn off the heat and remove the canner lid. Wait no more than 5 minutes before removing jars.
10. Using a jar lifter, remove the jars without tipping and place them on a towel, leaving at least 1-inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.



ATMOSPHERIC STEAM CANNING PROCESS

1. Use research tested recipe and processing time developed for a boiling water canner when using an atmospheric steam canner. An atmospheric steam canner may be used with recipes approved for half-pint, pint, or quart jars.
2. Add enough water to the base of the canner to cover the rack. (Follow manufacturer recommendations.)
3. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Food preparation can begin while this water is preheating. Do not have the water boiling when you add the jars.
4. Heat jars prior to filling with hot liquid (raw or hot pack). Do not allow the jars to cool before filling.
5. Load filled jars, fitted with lids, onto the canner rack and place the lid on the canner base.
6. Turn heat to its highest position to boil the water until a steady column of steam (6-8 inches) appears from the vent hole(s) in the canner lid. Jars must be processed in pure steam environment.
7. If using a canner with a temperature sensor, begin processing time when the temperature marker is in the green zone for your altitude. If using a canner without a temperature sensor, begin processing time when a steady stream of steam is visible from the vent hole(s).
8. Set the timer for the total minutes required for processing the food, adjusting for altitude. Processing time must be limited to 45 minutes or less, including any modification for elevation. The processing time is limited by the amount of water in the canner base. When processing food, do not open the canner to add water.
9. Monitor the temperature sensor and/or steady stream of steam throughout the entire timed process. Regulate heat so that the canner maintains a temperature of 212°F. A canner that is boiling too vigorously can boil dry within 20 minutes. If a canner boils dry, the food is considered under-processed and therefore potentially unsafe.
10. At the end of the processing time, turn off the heat and wait 2 to 3 minutes. Carefully remove the lid, lifting the lid away from you.
11. Using a jar lifter, remove the jars without tipping and place them on a towel, leaving at least 1-inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.



PRESSURE CANNING PROCESS – QUICK STEPS

1. Use reputable, research-based recipe.
2. Prep work area, food and jars.
3. Heat 2-3" canner water (not boiling).
Hot Pack: 180°F, Raw Pack: 140°F
4. Jars in canner; lid on; weight off; high heat.
5. Vent 10 minutes.
6. Weight on.
7. Pressurize; lower heat to maintain pressure.
8. Start time; process, adjust heat as needed.
9. Ding! Timer off; heat off.
10. Wait until pressure drops to 0.
11. Weight off.
12. Cool 10 minutes more.
13. Lid off; jars out.
14. Cool jars, undisturbed 12-24 hours.
Check seals; remove rings, clean jars.
15. Label and store sealed jars.
Cool, dry, dark location.
Use within 1 year for best quality.

JUICER INSTRUCTIONS

Source: <http://www.oklahomagardening.okstate.edu/recipes/2019/juice-jelly/>

Extracting Juice for Jelly

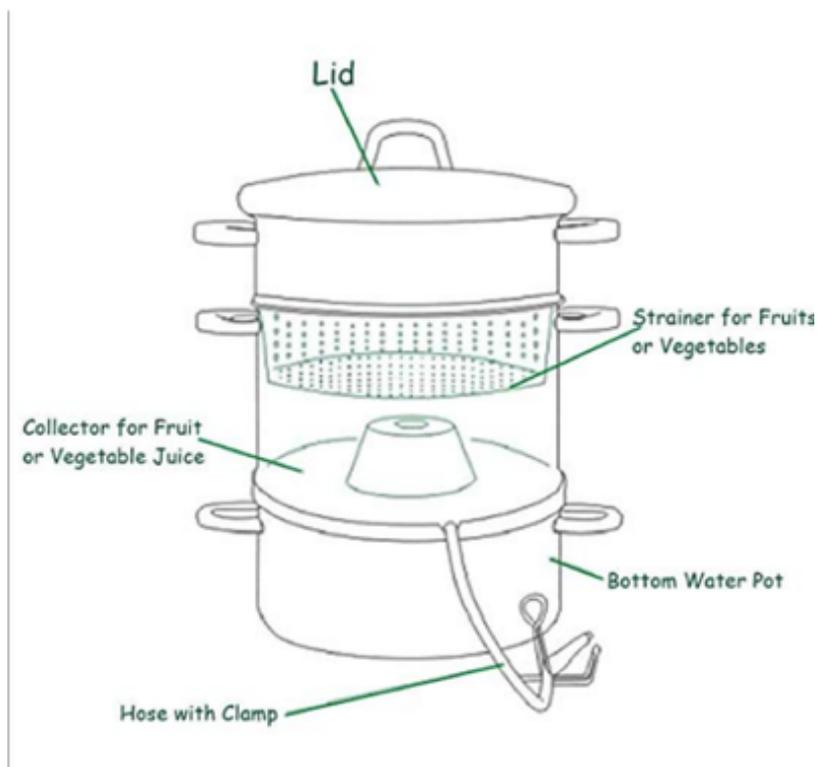
Preparing the Fruit

- Unless using added pectin, use 1/4 slightly under-ripe fruit and 3/4 just ripe fruit. If you're adding pectin, you can use all ripe fruit.
- Prepare fruit in small batches, enough for one recipe.
- Sort the fruit, discarding all damaged portions.
- Wash fruits, but do not remove skins or cores, since the pectin is more concentrated there. Cut into small pieces.
- Wash berries carefully to prevent loss of juice. Drain, remove caps and stems.

Extracting the Juice using Traditional Methods

- Place fruit into a flat-bottomed saucepan and add cold water. For apples and other hard fruits, add up to 1 cup per pound of fruit. For berries and grapes, use only enough water to prevent scorching. Crush soft fruits to start the flow of juice.
- Bring to a boil on high heat. Stir to prevent scorching.
- Reduce heat.
- Grapes and berries need 10 minutes or less to cook until soft. Apples and other hard fruits may need 20 to 25 minutes, depending on the firmness of the fruit. Do not overcook; excess boiling will destroy the pectin, flavor and color.
- Pour everything into a damp jelly bag and suspend the bag to drain the juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing or squeezing.
- If a fruit press is used to extract the juice, the juice should be restrained through a jelly bag.

Extracting Juice using a Steam Juice Extractor



A steam juice extractor is a three-tier kettle that uses steam to cook fruits or vegetables to release their juice. The base level holds water which is heated and converted to steam which moves up through the funnel in the center of the middle level to the top level where the produce is placed. A lid keeps the steam around the food as it cooks. As the fruits and/or vegetables are heated they release their juices which drip through the colander like base of the top level and are collected in the center compartment. Most models have a clamped hose attached to the center level which can be opened to allow juice to be collected and used to make jelly, as a beverage or as a base for soup or stew.

An advantage of this system is that the juice extracted is clear which eliminates the need to strain it through layers of cheese cloth or a jelly bag. The juice can be processed using a boiling water canner or frozen if not made into jelly.

Steam juice extractors are available for \$60 to \$200.

Diagram of 11-Quart Stainless Steel Juicer Steamer, Fruit Vegetables Steamer For Food With Glass Lid Hose With Clamp Loop Handles, Perfect Home Kitchen Stainless Steel Cookware By WATERJOY