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UCCE Master Food Preservers of Sacramento County

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*Sacramento County Master Food Preservers*

*January 17, 2024*  
**Preserving Citrus**



*Resources:*

Ball, Complete Book of Home Preserving

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## How to Supreme Citrus



## How To Supreme Citrus Fruit

<http://www.thejoykitchen.com/ingredients-techniques/how-supreme-citrus-fruits>

Image by Cutco

1. Cut off both ends of the fruit. You should have something that looks like a truncated sphere.
2. Stand the fruit on end, and, with a sharp paring knife, slice off the peel and pith in large strips. Do not cut straight down, but rather, follow the contours of the fruit to waste as little of it as possible. After cutting off a strip of peel and pith, you should be able to see the bright orange fruit beneath.
3. Rotate the orange and repeat this process until all the peel is removed and you have a juicy, bright orange sphere left.
4. Holding the sphere over a bowl to catch any juices, cut out the citrus segments from in between the strips of membrane surrounding them. Lift out each segment and remove any seeds.
5. When you have segmented the entire fruit, squeeze any remaining juices from the pithy part.

# Making Marmalade

## General Information

Marmalade is often defined as a sweetened citrus preserve that consists of bits of citrus fruit and peel suspended in jelly. However, the term marmalade has evolved to a more modern take on the soft spread to include other non-citrus fruit preserves that contain only a small amount of citrus pulp or peel used to enhance the primary fruit flavor (peach, cherry or other stone fruits). With the addition of other fruit (non-citrus) it is sometimes difficult to differentiate between jams and marmalades. According to one English food writer, "If any recipe calls a thing jam, marmalade, or preserve, I shall follow suit. By that or any other name, 'twill taste as sweet." Besides sweet, varying degrees of bitterness is typically one of marmalade's characteristics, making it good for both sweet and savory uses.

## History

Marmalade originated more than two-thousand years ago as a solid-cooked quince paste. The rose-colored paste was rolled and twisted into hearts and knots or flattened and then stamped with flowers and served at the end of banquets along with other elegant sweetmeats and confectionery. It was thought to be a digestive. In the eighteenth century, the Scots began using Seville (bitter) oranges to make their marmalade as many regions of the country were too cold for quince trees to flourish. Techniques for making marmalade were refined over time producing marmalades ranging in color from transparent to deep russet, delicate threads of citrus peel to large chunks, sweet in taste to bitter. All attributes present in today's marmalades. Scotland's second significant contribution to the early history of marmalade was to pioneer the switch from marmalade served following an evening meal to being serving as a breakfast or tea-time food. References to marmalade can be found throughout British history, literature, and music. It has been said that "marmalade is to Britain as ketchup (and grape jelly) are to Americans."

## Primary Ingredients

There are two primary ingredients in *traditional* marmalades: citrus and sugar.

**Citrus** – Citrus fruits are the third most commonly cultivated fruit family in the world, just behind the apple/pear family and the banana/plantain family. Worldwide citrus production includes about 65% sweet and sour oranges, 15% mandarin oranges (including hybrids like tangelos and tangors), 10% lemons and limes, and 10% grapefruit. All of these citrus fruits can be used individually or in combination to make marmalades.

**Sugar** – Most recipes use granulated white sugar, light or dark brown sugar. Natural cane sugar, which has a slightly cleaner taste than processed white sugar, may be substituted. Light or dark-brown sugar will produce a darker-colored and richer marmalade.

## Citrus Sourcing, Selection, and Storage

Common varieties of citrus, such as Navel and Valencia oranges, Meyer, Eureka, and Lisbon lemons, and Persian limes, are available in grocery stores most months of the year. Farmers markets, roadside stands, and local farmers often offer a wider variety of specialty citrus, like Cara Cara navels, Buddha's Hand, kumquats, and varieties within varieties of Mandarins. The Internet is another option for purchasing high quality common as well as rare varieties of citrus. Choose fruit that is firm and heavy for its size with fine-textured skin and no soft spots. Citrus should be free of cuts or bruises. Scars may develop on the peel where a young fruit has brushed against the tree, but these surface flaws do not affect the quality of the fruit inside. Store fruit in refrigerator, cellar, or basement for up to a month.

## Citrus Deconstructed

There are hundreds of citrus varieties ranging in color and flavor, but they all have a similar anatomy. The outer peel or zest is known as the flavedo (that's where the intensely flavorful essential oils and vitamin C tend to concentrate). Just beneath the flavedo lies the inner white peel, or albedo (white pith), which supports the flavedo's essential oil glands and is rich in bitter compounds and pectin. The entire peel encases the pulp, with segments consisting of delicate juice sacs (vesicles) held together by a fibrous membrane. Marmalade recipes range in use of the citrus parts with some utilizing the entire fruit (peel, pith, pulp and pips) while others use only the outer peel.

## Making Marmalades

While marmalade can be made with just two ingredients, don't be fooled. It is a slow process that often involves several steps that occur over two or three days. It is not for the fainthearted, who prefer 'quick' or 'speedy' recipes with a limited investment of time. The following information describes some of the terms, techniques, and steps that will often be found in marmalade recipes.

**Short-boil vs. long-boil method** – There are two basic ways to make soft spreads: the short-boil (added-pectin) method and long-boil method. The two methods yield spreads with significantly different characteristics, including flavor and texture.

- The short-boil or added-pectin method produces spreads with a softer texture and “fresher” taste.
- The long-boil method, sometimes called the traditional method, produces a smaller yield, thicker in texture, deeper in color, and more intense in flavor. The typical ratio of ingredients when using the long-boil method is one part each of citrus, sugar, and liquid. This method requires constant attention and stirring during the long cooking process. The spread is cooked at moderately high heat for a long time and the fruit in the bottom of the pan will scorch if not watched closely giving the entire batch an unpleasant burnt taste. Cooking too long (beyond the gel point) will caramelize the sugar, overly thicken the product, and give it a molasses-like flavor.
- A *traditional* marmalade is made using the long-boil method. However, there are many recipes available using the short-boil method.

**Batch size** – Small batches of marmalade are easier to work with than large batches. Use a heavy-bottomed pan with a capacity of four times the amount of food to be cooked.

**Cleaning the fruit** – Wash the fruit carefully before using, even if it is organic. Citrus fruit is often covered in a preservative wax; removing it is essential. To do so, rinse the fruit thoroughly under warm running water to remove surface dirt. Gently scrub the peel with a clean scrub brush; then rinse again under warm water. Dry with a kitchen towel. If any preservative wax remains, fill a basin with boiling water. Plunge the fruit in, remove and rinse under running water.

**Whole-fruit vs. cut-rind method** – When the whole-fruit method is used the entire fruit is boiled in water before being further processed and combined with sugar and liquid. The cut-rind method separates all parts of the citrus; the peels are removed, sliced, and boiled before being added to the remaining pulp and sugar.

**Peeling and hand-cutting vs. zesting** – Using a vegetable peeler or sharp paring knife, remove the outer peel leaving only a small amount of the inner white peel or pith, unless your preference is a more bitter-tasting marmalade. Use a sharp knife or kitchen scissors and hand cut the peel to an exact size and thickness (1/8" thin-cut, 1/4" medium-cut, 3/8" thick-cut). Alternatively, a zesting tool (five small holes in a row that cut the outer colored portion of the peel into thin strips) may be used to zest the citrus.

**Sectioning or supreming citrus** – Section or supreme the citrus by cutting the fruit away from the fibrous membrane that surrounds each section. The white membrane is tough and becomes chewy and even tougher when cooked. Over time the membrane may impart bitterness, detracting from both the flavor and the texture of the marmalade.

**Cutting crosswise vs. lengthwise** – lengthwise is from the stem-end to blossom-end; crosswise is perpendicular to lengthwise.

**Precooking and presoaking citrus peels** – Citrus peels are tough if not presoaked and/or precooked long enough before combining with sugar. Many recipes call for precooking the peels and then soaking overnight or longer until the peel is soft to the touch. Other recipes may call for presoaking overnight and then precooking until tender to the touch. In addition to softening the fruit, this pretreatment helps extract the pectin from the peels and pith. Once the sugar is added, the peel will not soften further.

**Baking soda** – Some recipes call for a scant amount of baking soda to be added to the peel when cooked. The baking soda shortens the amount of time needed to soften the citrus peel.

**Prewarming the sugar** – Some recipes call for warming the sugar in the oven to reduce the amount of time it takes to dissolve the sugar. This step is optional.

**Juicing the fruit** – Squeeze the fruit by hand or using a citrus squeezer collecting the juice and seeds for later use.

**Cooking with seeds and pith** – Pectin is the substance in fruit that combines with sugar and acid to make soft spreads gel. Citrus fruit contains an abundance of natural pectin; it is concentrated in the fruit's pith and seeds. Some recipes call for enclosing the pith and seeds in a square of cheesecloth or small seasoning bag and boiling them along with the fruit. This maximizes the marmalade's pectin content.

**Preventing fruit float** – The primary cause of floating fruit is using chopped fruit rather than crushed fruit when making spreads. Air becomes trapped inside fruit cells and often chopped fruit does not cook long enough to release the air. Secondly, chopped fruit frequently does not absorb enough sugar to keep the pieces from separating from the juice as the spread cools. Whether making a jam or marmalade, cut the fruit into small pieces, then gently crush the pieces with a potato or vegetable masher. This will release the air trapped inside the cells and allows the fruit to absorb more sugar during cooking and become heavier.

**Reducing foam** – Butter is added to many types of soft spreads to reduce the amount of foaming that develops when the fruit is cooked. Always use unsalted butter, also called "sweet" butter, in soft spreads. Never use salted butter as it can add an unpleasant flavor and develop a rancid flavor during storage.

**Syneresis** – Soft spreads that contain too much acid will set up too firm and will ooze liquid during storage, a process known as "weeping."

**Tests for proper gelling** – A candy or sugar thermometer is essential for precise monitoring of the temperature of boiling marmalade, which will achieve a set at about 220°F. Refer to the *Testing the Accuracy of a Candy Thermometer* section for information on testing the accuracy of your thermometer.

- **Temperature Test** – Use a candy or sugar thermometer and boil until marmalade mixture reaches the following temperatures with altitude adjustments. Use the temperature test as an indicator; follow up with the freezer/wrinkle test. For a softer set, stop cooking just before reaching your altitude's gel point.

Sea Level	1,000 ft.	2,000 ft.	3,000 ft.	4,000 ft.	5,000 ft.	6,000 ft.
220°F	218°F	216°F	214°F	212°F	211°F	209°F

- **Freezer and Wrinkle Test** – Remove the marmalade mixture from the heat. Pour a small amount of boiling marmalade on a cold plate or spoon and put it in a freezer for a few minutes. Remove it from the freezer and push it with your finger to see if it wrinkles. For a firm set, the wrinkle will stay in place after you have removed your finger. If the mixture gels, it should be done.

**Other Flavorings** – Spices and herbs can be used to add flavor and flair. Because ground spices may affect the appearance of the final product, whole spices are often tied in a square of cheesecloth to create a spice bag. This bag is cooked with the fruit and removed prior to canning. Wine, whiskey, brandy, and flavored liqueurs add depth and complexity to marmalade. Add them once the marmalade has reached the gel point.

## Standard of Excellence

According to guidelines for county and state fair judging of soft spreads, a high-quality marmalade should exhibit the following attributes. The citrus fruit and peel should be evenly suspended in a shimmering, translucent jelly that will hold its shape and mound up on a spoon. The citrus peel should be tender and of a consistent size and shape; not tough or difficult to chew. The pith, or white portion of the peel, will often give the product a bitter taste and should be removed or kept to a minimum. Likewise, tough membranes, which can also impart a bitter flavor over time, should be separated from the pulp and discarded.

## Testing the Accuracy of a Candy Thermometer

Whether making candy or determining the gel point of a soft spread, it is important to test the accuracy of your candy thermometer and make any necessary adjustment to assure your final product is neither over- or under- cooked. Here is a quick and easy method to test the accuracy of your candy thermometer.

1. At sea level, water boils at 212°F. With each 500-foot increase in elevation, the boiling point of water is lowered by just under 1°F. At 2,500 feet, for example, water boils at about 207°F. Determine your elevation and then refer to the chart below to determine the temperature at which water should boil at your elevation. This will be your baseline.
2. Insert your candy thermometer into a pot with at least 2 inches of water and bring the water to a rolling boil. The amount of water needs boil for at least 10 minutes. The bubbles should be constant and vigorous. Leave your thermometer in the water for 10 minutes to give it time to get an accurate reading. Make sure that the bulb of the thermometer is fully immersed in the water the entire time and that it is not touching the bottom or sides of the pot—this can give a false reading.
3. Inspect the temperature on your thermometer making sure that you are eye level with the thermometer and not looking at it from an angle. If it is 212°F (or the corresponding temperature for your elevation shown in the chart, below), your thermometer is accurate!
4. There's a good chance, though, that your thermometer may be off by a few degrees or more. Take this temperature difference into account when doing all future cooking with the thermometer. For instance, if you are at sea level and your thermometer registers 215°F when inserted in boiling water, you know that your thermometer reads temperatures 3° hotter than they actually are. If you have a recipe that calls for a temperature of 220°F, you need to add 3° and reach 223°F on your thermometer to get your marmalade or other soft spread hot enough to gel using the long-boil method. On the other hand, if you are at sea level and your thermometer registers 210°F in boiling water and your recipe calls for a temperature of 220°F, you will need to reduce that temperature by 2° (the difference between the actual reading and the temperature at which water should boil at sea level). Make a note of the inaccuracy so that you can easily remember the "candy thermometer adjustment" required for your elevation.

5. A candy thermometer is most frequently required when determining the gelling point of jams, jellies, and marmalades, which is 220° F at sea level (8° above the boiling point of water). A simpler approach than adjusting for the inaccuracies of your thermometer is to just add 8° (the difference between boiling water at sea level and the gelling point of jams, jellies, and marmalades at sea level) to the boiling point of water at your elevation as determined in Step #3 above. Example: my elevation is 2,500 feet and my candy thermometer reads 209° in boiling water, 2° hotter than it should. I can either make the plus or minus adjustment to correct the inaccuracy of my thermometer or just add 8° to the reading from the boiling water test. In my case, the gelling point for jams, jellies, and marmalades is at 217°F, not 215°F as shown in the table.
6. Perform this test on a regular basis, to ensure that your conversion is still accurate. Make a note of the adjustment that needs to be made either on the thermometer with a Sharpie or record your findings below. If you find that you are regularly getting drastically different results from your calibration that means your thermometer is no longer reliable and it is time to replace it.

Elevation (Feet)	Boiling Point of Water	Gelling Point of Jam
Sea Level	212°F	220°F
500	211°F	219°F
1,000	210°F	218°F
1,500	209°F	217°F
2,000	208°F	216°F
2,500	207°F	215°F
3,000	206°F	214°F
3,500	205°F	213°F

**Record Your Findings Below**

Your elevation: \_\_\_\_\_

Boiling water temperature \_\_\_\_\_ Degrees variance \* \_\_\_\_\_ Date: \_\_\_\_\_

\*Difference between the boiling point of water shown above for your elevation and the actual reading on your candy thermometer.

Adjust recipes as follows:

If your candy thermometer reads higher than the temperature shown in the above table, **add** the difference to the stated temperature in your recipe.

If your candy thermometer reads lower than the temperature shown in the above table, **subtract** the difference from the stated temperature in your recipe.

**Sources**

National Center for Home Food Preservation: <http://nchfp.uga.edu/> USDA Complete Guide to Home Canning, 2015  
 Ball Blue Book Guide to Preserving, 2014  
 Preserving with Pomona's Pectin, 2013



# Blood Orange Marmalade

Source: adapted from Complete Book of Home Preserving

Yield: Six 8-ounce Jars

## Ingredients:

3 lbs. blood orange
water
6 cups sugar, divided

## Process:

1. Prepare canner, jars, and lids.
2. Using a sharp knife, trim tops and bottoms from oranges. Score the peel of each orange lengthwise into quarters. Remove peel and set fruit aside. Place peel in a large stainless-steel saucepan with enough water to cover generously. Bring to a boil over medium-low heat and boil for 10 minutes. Drain. Cover generously with fresh cold water and return to a boil. Boil for 10 minutes, until peel is softened. Drain. Using a spoon, scrape white pith from peel and discard. Using a sharp knife, cut peel into paper-thin strips.
3. Working over a large stainless-steel saucepan to catch juice and using a small, sharp knife, separate orange segments from membrane. Place segments in saucepan and squeeze membrane to remove as much juice as possible, collecting it in the saucepan. Discard membrane and seeds.
4. Add cooked peel and 4 cups water to segments. Bring to a boil over medium-high heat, stirring occasionally. Reduce heat and boil gently, stirring frequently, until peel is very soft when squeezed with fingers, about 30 minutes. Remove from heat and measure 6 cups, adding water as necessary to yield the required quantity. Mix well.
5. Ladle 3 cups of the cooked mixture into a clean large deep stainless-steel saucepan. Ladle remaining mixture into a second saucepan. Bring both saucepans to a boil over medium high heat. Maintaining boiling, gradually stir 3 cups of sugar into each saucepan. Boil here, stirring constantly until mixture reaches gel state, about 12 minutes. Remove from heat and test for gel stage. If gel stage has been reached, skim off foam.
6. Ladle hot marmalade into hot jars, leaving  $\frac{1}{4}$  inch headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot marmalade. Wipe ri. Center lid on jar. Screw band down until resistance is met, then increase to fingertip tight.
7. Place jars in canner, ensuring they are completely covered with water. Bring to boil and process for 10 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool and store.

## Easiest Ever Marmalade

Source: adapted from Complete Book of Home Preserving

Yield: Seven 8-ounce Jars

### Ingredients:

3 small oranges
1 lemon
1 grapefruit
2 cups canned crushed pineapple, with juice
6 cups sugar
1/2 cup chopped drained maraschino cherries

### Process:

1. Prepare canner, jars, and lids.
2. In a food processor fitted with a metal blade, working batches pulse oranges, lemon, and grapefruit until finely chopped. Do not puree.
3. In a large, deep stainless-steel saucepan, combine chopped fruit, pineapple with juice and sugar. Bring to a boil over med-high heat, stirring constantly, until mixture begins to sheet from a metal spoon, about 20 minutes.
4. Add cherries and boil until mixture reaches gel stage, about 5 minutes. Remove from heat and test gel. If gel stage has been reached, skim off foam.
5. Ladle hot marmalade into hot jars, leaving  $\frac{1}{4}$  inch headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot marmalade. Wipe rim. Center lid on jar. Screw band down until resistance is met, then increase to fingertip tight.
6. Place jars in canner, ensuring they are completely covered with water. Bring to boil and process for 10 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool and store.

## Quick Strawberry Lemon Marmalade

Source: adapted from Complete Book of Home Preserving

Yield: 7 8-ounce Jars

### Ingredients:

1/4 cup thinly sliced lemon peel
Water
4 cups crushed hulled strawberries
1 TBS lemon juice
1 box of reg powdered pectin (6 TBS)
6 cups sugar

### Process:

1. Prepare canner, jars, and lids.
2. In a large, deep stainless steel saucepan, combine lemon peel and water to cover. Bring to a boil over med-high heat and boil for 5 minutes, until peel is softened. Drain and discard liquid.
3. Add strawberries and lemon juice to peel and mix well. Whisk in pectin until dissolved. Bring to a boil over high heat, stirring constantly. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Add sugar all at once, continue stirring, and heat again to full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, skim off foam.
4. Ladle hot marmalade into hot jars, leaving  $\frac{1}{4}$  inch headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot marmalade. 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 boil and process for 10 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool and store.

# Quick Red Onion Marmalade

Source: adapted from Complete Book of Home Preserving

Yield: 5 8-ounce Jars

## Ingredients:

1 1/2 cups thinly sliced halved red onion
1/2 cup finely chopped dried cranberries
1/4 cup packed brown sugar
1/4 cup apple cider vinegar
2 tsp orange zest
3 cups unsweetened apple juice
1 box of reg powdered pectin (6 TBS)
4 cups sugar

## Process:

1. Prepare canner, jars, and lids.
2. In a skillet, over medium heat combine red onion, cranberries, brown sugar and vinegar. Cook, stirring, until onion is transparent, about 10 minutes.
3. In a large, deep stainless steel saucepan, combine cooked onion mixture, orange zest, and apple juice. Whisk in pectin until dissolved. Bring to a boil over high heat, stirring frequently. Add sugar all at once, continue stirring, and heat again to full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, skim off foam.
4. Ladle hot marmalade into hot jars, leaving 1/4 inch headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot marmalade. 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 boil and process for 15 minutes. Remove canner lid. Wait 5 minutes, then remove jars, cool and store.

## CITRUS SALT

Yield: about 1-1/4 cups

### Ingredients:

1 cup flake salt or coarse salt
3 tablespoons citrus zest (any kind)

### Procedure:

1. Mix salt and zest in a bowl; work zest into salt with your fingers to release oils and flavor.
2. Spread on a baking tray.
3. Air-dry until dried completely, 8 hours to overnight.
4. Keep airtight at room temperature for up to 2 months.

**Note:** Zest's color will fade over time, but this won't affect taste.

Another drying option is to heat the oven to 200°F, insert the baking tray and turn off the oven. Let the tray sit in the oven overnight

## CITRUS CUMIN SALT

Zest the entire lemon. Place the lemon zest in a small bowl. Add about 1 tsp coarse sea salt to the bowl. Then add in about 1/4 tsp cumin. Add more cumin to taste if you want a bolder flavor. Add a few pinches of black pepper. Using your finger, swirl the citrus cumin salt around in the bowl to combine. It's ok if it clumps up a bit – that is what it is supposed to do. You can actually taste a tiny bit of the salt to check the flavor. It should be sharp, bright and bold! Add more cumin to taste, if desired. Set aside.

## CHIPOTLE LIME SALT

Yield: 1/4 cup

### Ingredients:

1 tsp chipotle chili powder
2 limes
2 tablespoons flaky sea salt

### Procedure:

Toss sea salt and chili powder on a baking sheet. Finely zest limes over.  
Bake in a 350° oven, stirring occasionally, until lime zest is dry, about 5 minutes.  
Or, use a dehydrator set at 125o for 1 hour.  
Let cool and then package in an airtight container.

## LEMON, PARSLEY AND GARLIC SALT

Yield: Approximately one 4-oz. jar

### Ingredients:

1 pound lemons (approx. 4 – 5 lemons)
1 bunch flat-leaf parsley
3 garlic cloves
2 Tbsp coarse sea salt

### Procedure:

Using a rasp-style grater, remove the zest from the lemons. Wash the parsley well and strip the leaves from the stems (you don't have to be meticulous, but you want more leaves than stems).

Place the parsley on a large cutting board and chop roughly. Add the lemon zest and chop the two together until well combined. Add the garlic cloves and salt and continue to chop until the lemon zest, parsley, garlic and salt are well combined and chopped very finely.

Spread mixture on a plate and let dry for 48 hours at room temperature. When it no longer feels moist, scrape it into a jar and use as you would any other flavored salt.

## DRYING CITRUS PEEL TO USE LATER

source: [https://www.canr.msu.edu/news/drying\\_citrus\\_peel\\_to\\_use\\_later](https://www.canr.msu.edu/news/drying_citrus_peel_to_use_later)

Try drying citrus peel to get the most out of citrus fruits this winter.

During the winter months citrus fruits are in abundance, why not dry some of those flavorful peels? The peels of citron, grapefruit, kumquat, lime, lemon, tangelo, and tangerine can be dried. Citron is a yellow-green lumpy looking subtropical fruit similar to a lemon. It is harvested for its peel, which is candied and used in fruit cake.

Michigan State University Extension recommends washing, rinsing, and sanitizing any cutting boards, equipment, utensils, and work areas before preparing any food to lessen the possibility of cross-contamination.

### How to dry orange peel

1. Select brightly colored fruits. When selecting an orange for its peel, choose a thick-skinned navel orange peel over a thin-skinned Valencia orange. The Navel orange peel will dry better.
2. Rinse the fruit thoroughly.
3. Remove the outer 1/16 to 1/8-inch of the peel. Do not use any of the bitter white pith. The white pith will become even more bitter when dried and ruins the flavor of the peel.
4. To dry the peel in an electric food dehydrator, place the peel in a single layer on the drying trays. Place parchment paper or wax paper on the drying trays so the peel does not fall through the openings in the tray.
5. The pieces should not touch or overlap because this will slow down the drying process. The estimated drying time is about eight to twelve hours. The time it takes the fruit peel to dry will depend upon the initial moisture content of the peel and the type of food dehydrator used.
6. To test the peel for dryness, cut the peel to look for any visible moisture. Also, try to squeeze any moisture out of the peel. When the peel is bent in half, it should not stick to itself. Allow the peel to cool for 30 to 60 minutes or until completely cool before packaging for storage.

By taking advantage of the abundance of citrus fruits during the winter, it is possible to have dry orange peels or other citrus peels for recipes all year round. It takes just a little time and energy.

## **CANDIED LEMON PEEL USING A DEHYDRATOR**

Steps as shown in the Candied Lemon Peel slide show

By Sacramento County UCCE Master Food Preservers, February 17, 2021

1. Clean lemons to remove dirt.
2. Juice lemon and remove pulp.
3. Cut peel to 1/4" thick slices.
4. Weigh the peel to estimate the amount of sugar is needed. Use 50% of the weight of the peel or adjust to your liking (sugar is used in step 8, but you need to weigh the peel before immersing it in water).
5. Soak the peel in cold water for 1-2 hrs to lessen the bitter taste in the peel.
6. Bring water and lemon peel to a boil, drain water.
7. Repeat the boiling process with fresh cold water:
  - i. 2 x for orange
  - ii. 3 x for lemon
  - iii. 5 x for grapefruit
8. Drain the liquid, add sugar, and simmer the peel for 20 minutes.
9. Turn off the heat and let the peel soak in syrup for a few hours.
10. Drain the syrup.
11. Dehydrate the peel at 135° for 5 to 6 hours.
12. Peel is done when it is dry, but pliable.