

# Taste of the Tropics

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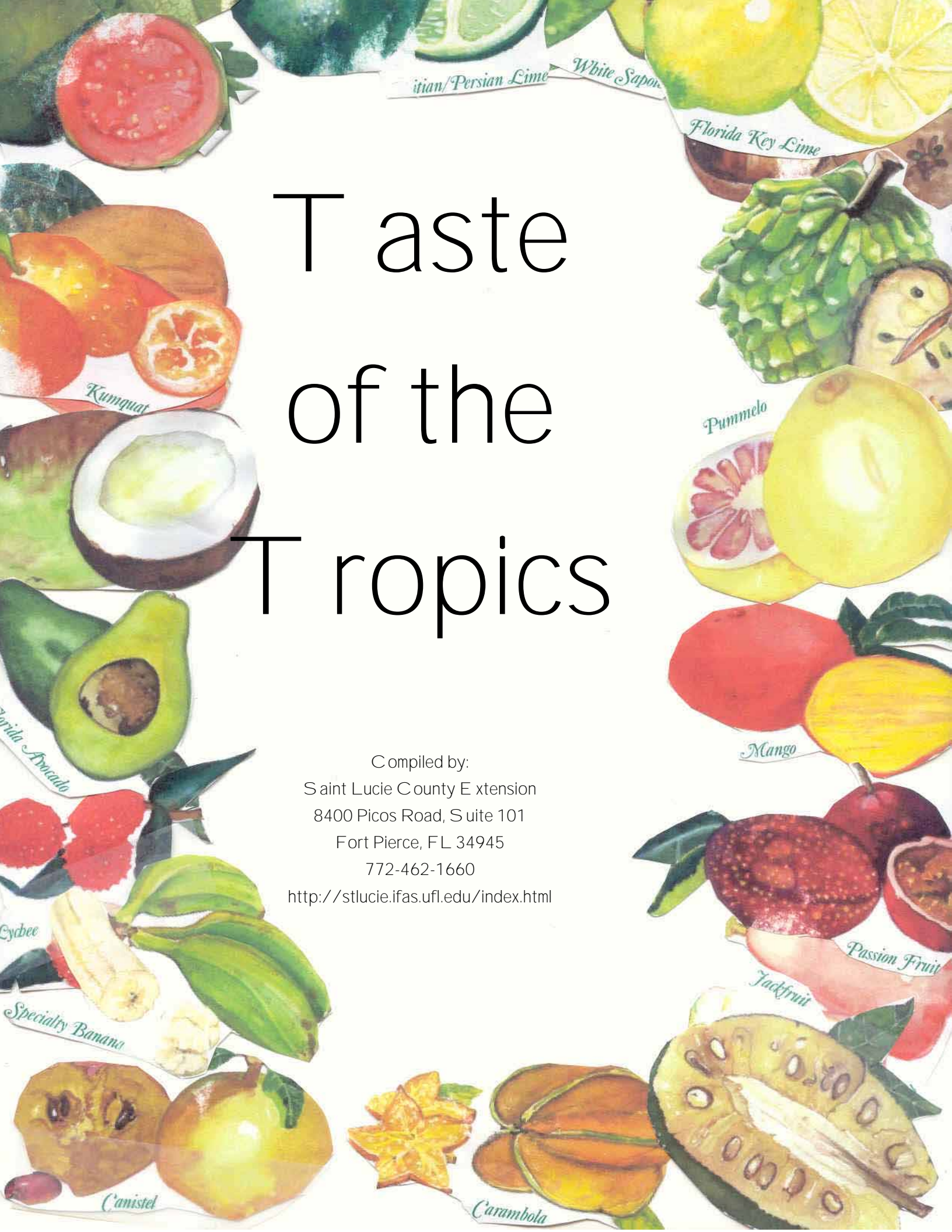
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## *Calamondin*

**Introduction:** This close relative of citrus produces small, dark yellowish-orange fruits resembling small tangerines. They are seedy and highly acidic so their major use is in marmalades.

### **Facts about Citrus Preserves**

Preserving Hints - A preserved fruit is one which has been cooked in sugar until it is clear, tender and transparent. It should keep its form and plumpness and be crisp rather than tough or soft. When finished, the cells of the fruit should be filled with the flavored syrup in place of the fruit juice.

The small citrus fruits like the kumquats, limequats, orangequats, and calamondins may be preserved whole. They should be of good color and free of blemishes.

Cooking - When preserving the calamondin, cook until tender in an abundance of water, after puncturing the skins of the fruit. It may be necessary to parboil them in several changes of water to rid them of excess undesirable flavor. Puncturing the skin allows for better sugar penetration and makes for a more tender and delicious product. In these preliminary cooking's, the fruits should be kept well covered with water. Later when in the syrup, if it is desirable to keep the fruits in good shape, they should have sufficient syrup to be completely submerged at all times. The fruit should not be overly crowded in the kettle.

Begin preserving in a thin syrup and cook rapidly until the fruit is clear. Rapid cooking gives a light, bright product of good color. Slow cooking produces a dark, dull, unattractive product. Standing overnight or longer immersed in the syrup

to "plump" gives a better product in color, flavor, and texture. Cover kettle tightly before removing from heat. Leave covered until cool.

Density of Syrup - Uncooked fruit should never be dropped in a heavy syrup, as the fruit will become tough and shriveled from the fruit juices being drawn out too rapidly. The outside of the fruit becomes coated with heavy syrup and little syrup can enter the fruit. Hence, the correct method is to build up gradually a heavy syrup so it can permeate the fruit slowly and thoroughly, thus avoiding shrinking and toughening. Allowing calamondin to stand overnight or longer immersed in their syrup causes more of it to permeate the fruit and reduces the cooking of the syrup. It is the hot syrup in which they are submerged that will do the cooking. For this reason, after being covered with boiling hot syrup, the product is set aside and allowed to stand overnight. The next day the syrup is drained off, more sugar is added, the syrup is reheated and added to the fruit and the product is left to stand as before. Smaller fruits require a shorter time for finishing. The essential point is that the syrup should thoroughly permeate the fruit. The processes are not difficult, but watchfulness, care, time, and patience are required for quality products.

Caution - Avoid cooking a small amount of fruit in a large kettle, as evaporation takes place too rapidly over the broad surface.

Sufficient syrup should be used to cover the fruit completely at all times. Heavy aluminum or porcelain-lined kettles are the best to use in preserving.

### **WHOLE PRESERVED CALAMONDINS**

1 qt. Prepared calamondins      2 lbs sugar  
Water as needed                  1 qt. water

Place prepared fruit into pan and cover with cold water. Boil gently until toothpick will puncture skin easily.

Prepare thin syrup by boiling ingredients (right column above) in saucepan with tight cover. Lift calamondins from boiling water and drop into boiling syrup. Boil gently with pan partly covered until fruit looks translucent. Place cover on pan, remove from heat, and allow to stand covered tightly for 24 hours.

Reheat to boiling. Pack in sterilized jars. Cover with strained syrup. Seal jars and place in hot water to cover completely. Heat to boiling for 10 minutes.

### **PICKLED CALAMONDINS**

1 cup vinegar (or less)                  Cloves  
1/2 oz stick cinnamon                  3 cups sugar  
Prepared calamondins

Make a syrup of vinegar, cloves, cinnamon and sugar. Pour the hot syrup over the preserved fruit and let stand until the following day. Heat to boiling. Put in jars and seal.

### **Calamondin Marmalade**

4 cups prepared calamondin  
3 cups sugar

Remove seeds from prepared fruit and grind pulp medium coarse, or put through food chopper, or cut into very thin slices. Measure 4 cups of fruit and bring to boil. Add 3 cups of sugar, stirring to dissolve. Cook until syrup sheets on spoon, about 220°, or bubbling stops. Pour into sterilized jars and seal at once.

### **CALAMONDIN CAKE**

1 pkg. lemon or orange cake mix  
1 pkg. lemon gelatin  
1/3 cup milk  
1 cup calamondin puree  
4 eggs  
½ cup cooking oil  
2 tsp. Lemon extract

Wash and seed fruit. Place in blender and puree, leaving some small pieces. Combine cake mix and gelatin, mixing well. Combine extract, puree, and oil. Add to batter and mix well. Bake in greased pan at 350° until cake begins to leave sides of pan. Glaze while still hot.

Glaze:

6 tbsp. Soft butter      2 tsp. Lemon extract  
3 cups confectioners' sugar  
1 cup calamondin puree

Combine butter and sugar; mix well. Add lemon extract and puree. Add more sugar if necessary to make medium consistency.

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## General Introduction to Citrus Fruits

### From *Joy of Cooking*

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### About Citrus Fruits

Citrus fruits are so delightful in and of themselves that it almost seems a shame to dissect them into their nutritional components. But it must be pointed out that they are a potent source of Vitamin C, as well as furnishing several other dietary essentials.

When they appear at market, citrus fruits are usually equipped with a thin coating of wax to protect them during distribution. The wax is harmless but is undesirable if you are grating the skin and may be removed by lightly scrubbing with detergent and water. In grating, do not take off more than the highly colored outer coating: the white skin beneath may be bitter. To extract citrus juice easily, first roll the fruit on a hard surface, exerting pressure.

To section a small or average sized citrus fruit, hold it over a bowl to catch all the juices, and use a sharp knife to remove the rind, including the pulpy white skin. Pare it around and around

### About Oranges

For many of us the day begins with classify as “juicers” or “eaters” – more accurately as varieties of **Valencia** on the one hand and **Navel** on the other. In our household...and strictly en familia... if we have fruit of interesting flavor in either category, we often cut it in half

like an apple so that the cells are exposed. Loosen the sections by cutting between the fruit and the membrane. Lift out each segment in one piece, as shown, and remove any seeds.

To section larger fruits like grapefruit, remove the outer skin, pull into halves, and split the membrane as shown. Pull the membrane down and around the outer edge to the base of the section. Let the released membrane hang loose. With your thumb, separate the section from the remaining membrane. The segment may break, but virtually none of the juice is lost.

### About Lemons And Limes

In buying lemons, choose yellow-colored ones. If tinged with green, they are not properly “cured.” In choosing limes, the dark green ones are usually stronger in acid and preferable to the yellowish types. Many uses for lemon and lime juice and rind are indicated in individual recipes. oranges, which we often casually The skins of ripe oranges often remain greenish in color. Growers and packers bring them closer to the conventionally acceptable warm yellow in two ways. One is by the use of ethylene gas, which breaks down the chlorophyll component present in



right across the middle and section each half into thirds or fourths, then proceed to eat the slices at the table, as if we were handling those of a Lilliputian watermelon. This untidy approach is encouraged by the recent proliferation of seedless oranges of all types. And it lets us ingest the fibrous parts of the valuable pulp as well as its juice. For the same reason, when we ream oranges for juice, we prefer not to use a fine strainer.

Highly desirable for table use is the **blood orange**, with dark red meat. For special uses no variety can equal the **Seville** or **bitter orange**, although it is not often available. Bitter oranges make superb components of marmalade and lend piquancy to meat and fish dishes and to various drinks.

An orange variant is the **tangerine** or **mandarin**. A **calamondin** is a strain of tangerine; and **Murcott** and **Temple** oranges result from an orange and tangerine cross. The **Kumquat**, which has become as definitely associated with Christmas holidays as plum pudding, closely resembles the tangerine, but is actually in its botanical classification not a citrus fruit at all, though a close relative. Just the opposite applies to **citron**...a true citrus derivative, which doesn't taste like one, at least in the processed form we find it packaged at the market.

the skin. Ethylene, incidentally, has also become a highly useful agent in controlling the maturation of a number of other fruits, especially apples and bananas. The second coloring device is simply a skin dye, carefully restricted as to its chemical makeup by the USDA, prohibited in some citrus-growing states, and in any case applied to the fruit for a limited period during the year. All oranges so treated must bear the stamp "color added."

A word about frozen orange juice: why it all tastes alike, and why it doesn't taste anything like fresh orange juice. The juice to be frozen may come from several varieties. It is boiled to a high viscosity in a vacuum, separated into several component batches, reassembled, flavored...at which time fresh juice may be added...and at long last frozen solid. Finally, note that something labeled "orange drink" under federal regulations need contain no natural orange at all.

Columbus thought so highly of the sweet orange that he carried some with him on his second voyage to the New World it is believed. After the Spanish began to settle in Florida, orange trees started to appear. The native Indians were particularly fond of bright-colored sour oranges and carried them into heavily forested areas of the state, dropping seeds along the way. They cleverly learned to pierce holes in the peel, and filled the fruit with sweet wild honey.

More recently University of Florida researchers have spent many years of hard work developing sweeter varieties. Today the sweet orange is a dominant crop in the Florida citrus industry. Approximately 367,600 bearing acres produced 119 million boxes of fruit in 1985-86. The fragrant orange blossom has earned its place as the floral emblem of the Sunshine State.



## Nutritive Value

Florida oranges are a storehouse for many important nutrients that everyone needs. Oranges have long been recommended as a dependable source of vitamin C. This is important because vitamin

## Types, Varieties and Seasonal Availability

Three hundred days of sunshine pack flavor, vitamins and minerals into Florida oranges. All this is yours when you select any one of the many varieties available.

**Navel** (available October to January) – The navel has large to extra large fruit. It is deep yellow to orange color with a pebbly, medium-thick peel, and is usually seedless. Of all the early varieties, it is best suited for hand eating. Navel oranges can be used for juice, but a bitterness often develops in the juice if not consumed within a short period of time. The most popular variety of navel oranges is *Washington*.

**Hamlin** (available October to January) – *Hamlin* oranges are medium-sized, with a round to oval shape. The peel is thin and smooth. The flavor is sweet, and the fruit is almost seedless. The juice is light in color and mild in flavor.

**Parson Brown** (available November to January) – This type is medium to large in size, round in shape, with a light orange color and pebbly peel. The juice is low in acid and not too sweet.

**Pineapple** (available December to February) – The *Pineapple* orange is a medium to large sized, round to oval fruit with a pebbly peel and some seeds. A beautiful red-orange peel develops when night temperatures drop below 55°F. Juice quality and color are excellent.

**Queen** (available January and February) – This type has a medium to large size, much like the *Pineapple*. Claims have been made that it is more cold-hardy than the *Pineapple*.

**Valencia** (available March to June) – *Valencia's* are medium to large in size with a moderately thick peel. It is the leading variety of sweet oranges both in Florida and in the world. The peel, juice quality and color set the standards of excellence against which other sweet oranges are compared. The fruit is usually seedless, and now makes up approximately one-half the Florida crop.

## Easy-To-Eat Snack

Have you ever thought of an orange as a ready-to-eat convenience fruit protected from decay by a vitamin-rich wrapper? Oranges are covered with a rind to protect the pulp or edible portion of the fruit. The *flavedo*, or thin outer peel, contains numerous oil sacs or glands filled with an aromatic essential oil. A white spongy portion, known as the *albedo*, lies under the flavedo and contains substances that can be recovered in the form of citrus pectin. About 45 percent of the orange is juice, 22 percent flavedo and albedo, and 33 percent pressing residue.

## Purchasing Guide

C helps increase iron absorption by the body. Oranges are also rich in vitamin A, are a well-known source of folic acid, and contain smaller amounts of other B vitamins. Heat, light and air exposure destroy several of these important vitamins. For this reason, you should prepare only enough oranges for immediate use. Cover leftovers and refrigerate immediately; then use as soon as possible.

Oranges contain small amounts of calcium and phosphorus. A low sodium content coupled with a high potassium content make oranges an ideal seasoning on foods for persons following a sodium-restricted diet. Refer to chart below.

The more fibrous parts of the oranges are rich in pectin. Pectin has a water-binding property that retains the moisture content in food, thus encouraging elimination.

Select oranges that are firm and thin-skinned. The best way to judge an orange is by weight in relation to size. Heaviness is a clue to juicy fruit. Some of the best fruit may have tinges of green or brown spots on the skin. Cold weather causes fruit to develop a bright orange color, while unusually warm weather may allow fruit to become fully mature and yet remain green. Chlorophyll production increases in the spring and causes “regreening” of the peel in thoroughly ripened fruit.

Shoppers usually look for shiny, brightly colored fruit. For this reason, citrus is treated with a color bath and a thin coat of edible wax. Food dye added in very small quantities produces the coloring. Regulations controlling the ripeness and treatment of oranges are enforced by the Florida Department of Agriculture, the U.S. Department of Agriculture, and the U.S. Food and Drug Administration.

Oranges do not ripen after they are picked. Fruit harvested for commercial market must meet maturity standards set by the Florida Citrus Commission, which are the highest standards in the world. When picking oranges from a tree, be careful not to tear the peel. Take off any stems that might injure other fruit in packing and carefully pick off the little button between the stem and the orange. Remember, the orange peel, a natural protective cover, is nature’s first line of defense against spoilage.

To estimate yields for fresh oranges, use this guide: 1 to 2 medium oranges yield ½ cup juice, and 1 medium orange yields: ½ cup bite-sized chunks, 4 teaspoons grated peel or 10 sections.

Nutritional Composition Table

Foods, approximate Measures, units and weight	Grams	Water	Food Energy	Protein	Carbohydrate	Calcium	Phosphorus	Iron	Potassium	Vitamin A value	Thiamin	Niacin	Ascorbic acid
		Percent	Calories	Grams	Grams	Milligrams	Milligrams	Milligrams	Milligrams	International units	Milligrams	Milligrams	Milligrams
Oranges, all Commercial varieties, raw:													
<b>Whole, 2½ in.diam., 1 orange.....</b>	131	86	65	1	16	54	26	.5	263	260	.13	.5	66
without peel and seeds (about 2½ per lb with peel and seeds).													
<b>Sections without membranes...1 cup...180</b>		86	90	2	22	74	36	.7	360	360	.18	.7	90
<b>Orange juice: Raw, all varieties...1 cup....248</b>		88	110	2	26	27	42	.5	496	500	.22	1.0	124
<b>Canned, un-sweetened...1 cup.....249</b>		87	120	2	28	25	45	1.0	496	500	.17	.7	100
<b>Frozen Concentrate: Undiluted, 8-fl oz can...1 can.....213</b>		55	360	5	87	75	126	.9	1,500	1,620	.68	2.8	360
<b>Diluted with 3 parts water...1 cup....249</b>		87	120	2	29	25	42	.2	503	540	.23	.9	120

(Source:USDA H&G Bulletin G-72)

## Storing Oranges

**Fresh Fruit** – After harvesting, oranges will maintain a high quality only 2 to 3 days at room temperature. Commercial citrus, however, is sanitized by a process of washing and waxing that helps to extend storage life. Oranges usually keep three to four weeks under refrigeration but their best storage temperature is between 50 and 60°F, which is somewhat warmer than home refrigerators. Good ventilation and a humid environment prevent fruit from drying out. During the cool winter months in Florida, porches or carports are often ideal storage locations.

Those who pick fruit themselves find that it keeps better without washing since there is no good way to sanitize and wax fruit as done commercially. Fortunate Floridians with dooryard trees can leave fully ripened fruit on the tree and pick it as needed. The tree itself provides the finest low-energy storage facility for short periods of time.

**Frozen Orange Products** – Frozen orange concentrate, single-strength juice, and sections keep well for about six months at 0°F. Higher temperatures in freezer compartments, and fluctuations in freezer temperature, reduce quality and shorten life.

**Canned Orange Juice** – Even though commercially canned orange juice can safely be stored indefinitely, studies show a marked difference in quality and vitamin C retention. Canned juice stored at 40°F retains vitamin C much longer than when kept at warmer temperatures.

*Home-canned orange products* should be kept in a cool, dark place for maximum flavor and color retention. Although properly canned fruit is relatively stable, you may experience some deterioration in color, flavor and some loss in nutritive value after several months of storage. If refrigeration is available for such products, it should be used.

## Preparing Oranges

It is hard to beat the taste of a good fresh orange or fresh-squeezed orange juice, but do not let your imagination for using the fruit stop there. Make your selections from a wide assortment of beverages, breads, salads, main dishes, sweets and snacks. Oranges will add color and tang to almost any dish. The challenge for using them is up to you, but here are a few favorites to get you started.

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## Orange Nut Bread

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2¼ c. sifted flour	½ c. raisins
2 t. baking powder	¼ c ground
½ t. baking soda	1 egg, well beaten
¾ t. salt	½ c. milk
¾ c. plus 2 T. sugar	½ c. orange juice
¾ c chopped pecans	2 T. vegetable oil

Stir flour, baking powder, soda, salt, and sugar together in a bowl. Add nuts, raisins, and orange rind. In another bowl, combine egg, milk and orange juice. Add to flour mixture with oil; mix until all flour is dampened and fruit and nuts are well distributed. Spoon batter into greased 9"X5"X3" loaf pan. Bake in moderate oven (350°F) 1 hour, or until done. Let cool in pan 10 minutes; then turn out of pan and let stand until cool. Wrap in aluminum foil and let stand overnight before slicing. Yield: 1 loaf.

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## Orange Popsicles

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Pour orange juice in ice cube tray or popsicle mold. Place a stick in each popsicle and freeze.

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## Florida-Style Acorn Squash

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2 medium acorn squash	4 t. brown sugar
2 c. orange sections	2 t. margarine

Cut squash in half lengthwise. Discard pith and seeds. Place squash; cut side down, in a shallow pan with small amount of hot water. Bake in a moderately hot oven (375°F) for 45 minutes, or until tender. Turn right side up and fill hollows with orange sections, brown sugar and margarine. Return to oven and bake 15 minutes longer. Yield 4 servings.

*Energy Saving Method* – Prepare squash as above and put margarine and brown sugar in hollows. Pour 2 cups of water into a 6 to 8 quart pressure saucepan. Place squash halves on a rack, cut side up in cooker. Cover, set control at 15 pounds pressure and place over high heat until control jiggles. Reduce heat and cook 6 minutes. Run cold water over the cooker to reduce the pressure instantly. Remove lid and fill squash hollows with fresh orange sections. Heat through (without using pressure). Serve hot.



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## Imperial Orange Chicken

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3 lb. chicken breasts	½ c. silvered almonds
¼ c. vegetable oil	1 T. brown sugar
1 c. fresh orange juice	½ t. ground ginger
½ c. golden raisins	1 t. salt
1 c. dry white wine (optional)	½ t. white pepper

Brown chicken in hot oil. Place in shallow baking pan. Combine other ingredients and pour over chicken. Bake in preheated moderate oven (350°F) 45 minutes or until tender, basting often. Yield: 6 to 8 servings.

### Preserving Oranges

Oranges can be preserved successfully by freezing. Orange juice and orange sections do not can well because they are somewhat unstable. Orange sections are best canned with equal parts of grapefruit. Ask your county home economist for HE 8046 *Making Citrus Jellies and Marmalades* or HE 8045 *Citrus Fruits: Crystallizing and Preserves* for other suggestions.

### Freezing Citrus Fruits

**Preparation** - Select firm, tree-ripened fruit heavy for its size and free from soft spots. Wash and peel. Divide fruit into sections, removing all membranes and seeds. Slice oranges if desired. For grapefruit with many seeds, cut fruit in half and remove seeds; cut or scoop out sections.

**Syrup Pack** – Pack fruit into containers. Cover with cold 40 percent syrup made with excess fruit juice or water. Leave headspace. Seal and freeze.

**Juice** – Select fruit as directed for sections. Squeeze juice from fruit, using squeezer that does not press oil from rind. Sweeten with 2 tablespoons sugar for each quart of juice or pack without sugar. Pour juice into containers immediately. To avoid development of off-flavors, pack juice in glass jars or citrus-enamel tin cans, if available. Leave headspace. Seal and freeze.

### Canning Orange Sections

Orange sections are best canned with equal parts of grapefruit. The flavor is poor unless grapefruit is used. Select firm, mature, sweet fruit of ideal

quality for eating fresh. Quantity: An average of 15 pounds of fruit is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9 pints. This averages about 2 pounds per 1 quart.

Wash, peel and section orange and grapefruit. Remove white tissue to prevent a bitter taste. Pack segments carefully in clean, hot canning jars, leaving ½-inch headspace. Prepare a very light, light or medium syrup (see below) and bring to a boil. Cover sections with boiling syrup, leaving ½-inch headspace. Wipe jar rims. Adjust lids. Process in boiling water canner: pints – 10 minutes, quarts – 15 minutes.

**To prepare syrup: heat water and sugar together and bring to a boil.**

To make enough syrup for a 9-pint load, use the following measures of sugar and water:

*Very light syrup:* 6½ cups water, ¾ cup sugar

*Light syrup:* 5¾ cups water, 1½ cups sugar

*Medium syrup:* 5¼ cups water, 2¼ cups sugar

To make enough syrup for 7-quarts, use the following measures:

*Very light syrup:* 10½ cups water, 1¼ cups sugar

*Light syrup:* 9 cups water, 2¼ cups sugar

*Medium syrup:* 8¼ cups water, 3¾ cups sugar

### Dehydrated Orange Peel

Select fruit with brightly colored orange peels that are free of blemishes. Valencia oranges are recommended. Peel off the thin outer rind with a vegetable peeler. Much of the flavor is in the thin outer rind. Spread peel on a flat pan and dry slowly in a warm oven or dehydrator set at 150°F, or less, for several hours, or until dry and brittle. Chop peel into a fine mixture using a blender or food processor. Store in airtight containers in a cool, dry place. Use as a flavoring for baked goods, puddings or frostings. Combine with granulated sugar for a topping.

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# Making Citrus Jellies and Marmalades

Elizabeth L. Andress\*

During winter months, the many colorful and flavorful citrus fruits receive enthusiastic attention from home-makers choosing to preserve jellies and marmalades. The tart sweetness of citrus jellies and marmalades is enjoyed throughout Florida and has established a place in the diets of many around the globe. Served as a sandwich spread, filling for cakes and pies, pudding sauce, or simply as an accompaniment to hot toast or biscuits, these flavorful products add variety to meals.

Modern kitchen equipment and improved techniques have taken some of the work out of the home processing of citrus products, which is an important consideration for today's busy homemaker. Learning to make these tasty treats is enjoyable, and the compliments that abound from a successful product make the task well worth the effort.

## Citrus Gels

Jellied fruit products require four essential ingredients -- **fruit**, **acid**, **sugar** and **pectin**. Basically jellies and marmalades are much alike; both are fruit products preserved by sugar and jellied to some extent. Their individual characteristics depend on the kind of fruit used, the way they are prepared, and the specific recipe.

**Citrus Fruits** are ideal for many types of jellies, marmalades and other sweet spreads because both acid and natural pectin content are generally high. For best results, select fruit that is ripe, but firm. Plan to make jellied products during the early part of the season when the fruit first becomes ripe. At this time the flavor, acid and pectin content are at their peak.

**Acid** is critical for gel formation and contributes to the flavor. If there is too little acid, the gel will never set; if there is too much acid, the gel will lose liquid (weep). Although the acid content of fruit varies from season to season and fruit to fruit, it is usually higher in under ripe fruit than in fully ripe fruit. Lemon, lime, or



calamondin juice may be added to tangerine or sweet bland orange juice to increase the acidity if needed.

**Sugar** helps in gel formation. It serves as a preserving agent and adds to the flavor of jellied products. It also has a firming effect on fruits. Beet or cane sugar, which are both sucrose, can be used with equal success.

**Pectin's** are natural substances found in fruits. In the right combination with acid and sugar, they form a network to hold water and result in a gel. If the fruit is high enough in natural pectin, jellies can be made without adding additional pectin. Fruits low in natural pectin will require the addition of either commercially produced fruit pectin or a homemade pectin extract.

## Testing for Pectin

To get a high-quality jelly, test the fruit juice for its natural pectin content before beginning. This is especially important in making jellies without added pectin:

**Alcohol Test** – Place 1 tablespoon of alcohol (grain or denatured) in a small clear glass. Gently pour 1 tablespoon of your cooled, extracted fruit juice into the alcohol. Turn glass gently so that all the juice comes in contact with the alcohol. Let stand one minute and pour slowly into a saucer. If a large quantity of pectin is present, the fruit juice will form a solid mass. In this case, one cup of sugar can be used for each cup of juice in making jelly. If the clot is weak or broken at the edges, use 2/3 to 3/4 cup of sugar for each cup of juice. Most citrus gels need 1 cup of sugar for each cup of juice or stock.

**Jelmeter** – The jelmeter is a graduated glass tube with an opening at each end. To determine the amount of sugar to use for each cup of fruit juice, the tube is filled with cooled juice and allowed to drain for a specific length of time, usually one minute. The level it reaches in the tube indicates how much sugar is needed for a gel. Follow the manufacturer's directions for use.

**Cooking** – Cook ¼ cup of juice with 2½ tablespoons of sugar. Check to see if a gel forms.

## Types of Pectin

Fresh fruits and juices can be used with commercial fruit pectin's. Pectin's are manufactured in either liquid or powdered forms, which cannot be substituted for each other. Follow directions for tested recipes with either form. The

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proportions of ingredients and the order of combining them will depend on the form of pectin. Keep commercial pectin cool and dry. Extreme heat and humidity can affect the jelling quality of pectin. Commercially frozen and canned juices may be low in natural pectin's and make soft-textured spreads even with commercial fruit pectin added.

**Homemade citrus pectin** can be made from oranges, grapefruit, kumquats, limes, or thick-skinned lemons. Some fruit is better than others because of the thickness and flavor of the peel. Valencia and Hamlin oranges are good varieties for pectin. Valencia oranges also have thick skins and deep color. The juice is highly flavorful for orange jelly made with homemade pectin.

## Orange Pectin

2 cups orange pulp with membranous rag and white peel (albedo)  
¼ cup lemon juice  
4 cups water

Cut oranges in half and squeeze out the juice. Discard seeds. Reserve juice to make orange jelly. Pull membranous rag away from peel and pack firmly in a two-cup measure. Add a portion of the white part of the peel (albedo). Blender chop the rag and albedo with ¼ cup lemon juice and 2 cups of the water until the mixture resembles a fine sauce. Let stand 4 hours. Add 2 more cups water and allow to stand about 12 hours. Afterwards, bring the mixture to a boil and simmer for 10 minutes. Cool and strain juice through a very fine sieve or jelly bag. Freeze orange juice to make jelly (see recipe below).  
refrigeration.

## Making the Jelly

Before beginning to cook the jelly, assemble equipment and sterilize the jars. Use half-pint or pint canning jars with self-sealing two-piece metal lids. Check jars for cracks or chips. Stand the empty, clean jars upright on a rack in a boiling water canner with the water level 1 to 2" above the tops of the jars. Bring the water to a boil and boil for 10 minutes. Jars can be left in the hot water until they are ready to be filled. Prepare lids according to the manufacturer's directions.

Follow the directions in a tested recipe for preparing the jelly. If you use a recipe with added commercial pectin, boil for the recommended time and quickly skim off the foam. Use one of the following methods to test for doneness in a jelly or marmalade without the addition of pectin.

**Temperature Test** – Use a jelly thermometer and measure the temperature of boiling water before you begin making the jelly. Cook the jelly to a temperature 8°F above the temperature of boiling water. This is normally 220°F, but check the temperature just before making the jelly because the boiling point varies with atmospheric conditions.

**Sheet Test** – Dip a metal spoon in the boiling jelly mixture.

When the jelly or marmalade has finished cooking, fill the presterilized canning jars, leaving ¼-inch headspace. Jars should be filled by pouring the hot jelly or marmalade through a funnel with a ladle. Dampen a clean paper towel with hot water and use to wipe the sealing surface of the jars. Be sure to remove any jelly or sugar crystals.

Tighten the lids and process the jars for 5 minutes in a boiling water canner with water at least 1" above tops of jars. Count the process time after the water returns to a boil. The water in the canner can be almost boiling when the jars are added, as the filled product should be boiling hot. If you do not presterilize the jars, but use only clean washed jars, the boiling water canner process time should be 10 minutes.

After the processing time, remove jars from the canner. Cool upright for 12 to 24 hours on a rack or towel, keeping jars several inches apart.

## Storing the Jelly or Marmalade

Remove ring bands and check for seals. Store unsealed jars in the refrigerator and use promptly. Wash sealed jars and lids to remove all residue. Label and store in a cool, dry place. Light changes the color of most citrus jellies and marmalades, so a dark storage area is also desirable. If storage facilities cannot be maintained below 70°F, the best quality is preserved by

## Tips for Jelly Making

- Do not double recipes.
- A rolling boil is a boil that cannot be stirred down.
- Juice stock may be frozen or canned and made up in small batches as needed.

## Citrus Jellies

Orange Jelly (with homemade pectin)

1 cup fresh orange juice (Valencia preferred)  
1 cup homemade orange pectin  
2 tbsp. lemon juice  
1½ cups sugar

Combine above ingredients in a large, heavy saucepan. Heat to a rolling boil, stirring to dissolve the sugar. Continue stirring as needed to prevent jelly from boiling over or sticking. Boil vigorously until jelly tests done (temperature or sheet test). Remove from the heat, quickly skim off foam and immediately fill presterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner

Combine juice and water in a large saucepan. Add

Then raise the spoon at least 12" above the pan, out of the steam, and turn the spoon so that the syrup runs off the side. When the syrup no longer runs off the spoon in a steady stream, but forms two drops that flow together and fall off the spoon in one sheet, stop cooking the jelly.

### **Jiffy Orange Jelly (with powdered pectin)**

1 6-oz can frozen concentrated orange juice  
1¼ cups water  
¼ cup fresh lemon juice  
4 cups sugar  
1 box powdered pectin (1¾-oz.)  
¾ cup water

Thaw frozen concentrated orange juice and combine with 1¼ cups water, sugar and lemon juice. Stir until well mixed. Mix pectin with ¾ cup of water. Bring pectin solution to a rolling boil and boil hard for 1 minute. Add pectin to orange mixture and stir for about 3 minutes or until all sugar is dissolved. Fill presterilized canning jars, leaving ½-inch headspace, and seal. This recipe must be stored in the refrigerator and will keep up to 4 weeks. It may be frozen at 0°F for longer storage. Once the jelly is opened, it should be used within a few days. **Yield:** About 5 pint jars.

### **Kumquat Jelly (without added pectin)**

1 qt. Kumquats  
1½ pt. water  
2 cups sugar

Wash, scrape the peel and cut kumquats into slices. Add water to fruit and boil gently for 15 minutes. Cover and set aside overnight. Boil again about 5 minutes. Remove from heat and allow to stand about an hour. Pour into a jelly bag and squeeze out juice. Bring 2 cups of juice to a boil. Add 2 cups of sugar and stir until the sugar is thoroughly dissolved. Continue boiling until thermometer registers 220°F or jelly sheets form a spoon. Remove from heat. Fill presterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner. **Yield:** 4 to 6 half-pint jars.

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

1 cup fresh limejuice  
1 box powdered pectin (1¾-oz.)  
2 cups water  
2¾ cups sugar  
Green and yellow food colorings

Combine limejuice, pectin and water in a large saucepan. Stirring constantly, cook rapidly for 5 minutes, or until bubbles form around the edge. Stir in sugar; continue heating while stirring for 2 minutes, or just until sugar dissolves. (Do not let mixture boil.) Remove from heat. Stir in a few drops each green and yellow food colorings to the lime green stage; skim foam. Fill presterilized

the pectin powder. Bring to a full rolling boil over high heat. Stir in the sugar immediately. Let the mixture come again to a rolling boil. Boil hard for exactly 30 seconds, stirring constantly. Remove from the heat and skim off foam. Add flavoring and coloring as desired. Immediately fill pre-sterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner. **Yield:** About 10 half-pint jars  
*Variation:* Red Cinnamon Grapefruit Jelly  
Make as above, except heat the ¾ cup water and dissolve 4½-oz. red cinnamon candies in it before adding to grapefruit juice in saucepan. Omit spearmint flavor and use red food coloring instead of green

### **Marmalades**

Marmalades combine the characteristics of jellies and preserves. Jelly is made from clear fruit juice, but marmalade contains small pieces of fruit and/or peel evenly dispersed in a tender jelly. A good marmalade has bright color and is translucent. Marmalades that are used within 2 to 3 month do not have to be heat processed if they are stored under refrigeration. Marmalades that are to be stored at room temperature or for a longer time should be heat processed in a boiling water canner. Freezing or canning the stock and making marmalade in small batches as needed is highly recommended.

### **Traditional Combination Marmalade**

3 cups orange, lemon and grapefruit stock  
3 cups sugar

**To make stock:** Scrub one orange, one lemon and one grapefruit. Peel, quarter, remove seeds, and cut pulp in small pieces. Thinly slice the peel. Measure peel and pulp. For each cup of pulp, add 3 cups of water in a large kettle. Bring to a rolling boil and boil vigorously for 15 minutes. Allow stock to stand overnight or several days to draw out the pectin. If allowed to stand for more than one day, stock should be refrigerated

**To make marmalade:** Measure 3 cups of stock into a large saucepan. Quickly bring to a rolling boil. Add 3 cups of sugar and stir to dissolve. Stirring constantly, bring to a rolling boil over high heat and continue boiling to 220°F. Remove from heat; skim off foam. Fill presterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner. **Note:** If you prefer, use just one kind of citrus. **Yield:** 8 to 10 half-pint jars.

canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner.

**Yield:** 8 to 10 half-pint jars.

### Quick Grapefruit Mint Jelly (with powdered pectin)

2¼ cups unsweetened grapefruit juice  
2 cups water  
¾ cups water  
1 box powdered pectin (1¾-oz.)  
3½ cups sugar  
6-8 drops oil of spearmint, or ½ tsp. spearmint extract  
Green food coloring

**To make marmalade:** Combine 2 cups stock with 2 cups water and 4 cups sugar in a large saucepan. Quickly bring to a rolling boil, stirring to dissolve sugar. Continue boiling to 220°F, stirring as necessary to prevent boiling over. Remove from heat; skim off foam. Fill pre-sterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner.

**Note:** If you prefer, use just one kind of citrus.

**Yield:** About 10 half-pint jars.

### Combination Marmalade

(Blender or Food Processor Method)

1 grapefruit  
1 lemon  
1 orange  
2 cups water  
1/8 tsp. salt  
Sugar

**To make stock:** Peel fruit and remove excess white portion if peel is thick. Cut peel into pieces. Place in blender or food processor with 2 cups of water and chop until it is fine. Bring chopped peel to a boil and allow to simmer for 20 minutes. Place fruit pulp (without seeds) in blender or food processor and puree. Add cooked rind. Mix and allow to stand overnight in order to draw out the pectin.

**To make marmalade:** Measure prepared fruit and mix together with equal amounts of sugar in a pan with a heavy bottom. Bring to a rolling boil over high heat. Stirring constantly continue boiling about 20 minutes, to 220°F. Remove from heat; skim off foam. Fill presterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner.

**Note:** If you prefer, use just one kind of citrus.

**Yield:** 8 to 10 half-pint jars.

### Orange Marmalade (with powdered pectin)

6 cups orange stock  
½ cup lemon juice  
1 box powdered pectin (1¾-oz.)  
7½ cups sugar

### Old Fashioned Chunky Marmalade

2 cups orange, lemon and grapefruit stock  
4 cups sugar

**To make stock:** Follow directions for Traditional Combination Marmalade (above), except cut peel into chunks instead of thin slices

### Tahiti Lime Marmalade

(Blender or Food Processor Method)

1 lb Tahiti limes (about 5)  
4 cups sugar  
Cold water  
Green food coloring (optional)

**To make stock:** Peel limes. Cover about half of the peeling with water and boil until tender. Drain and cool. Cut peeled fruit into fourths and place in blender or food processor. Add enough water to make a quart. Blender chop or process until limes are finely chopped. Remove any tough membrane from the top of the juice, using a spoon. Add cooked peel to lime juice and chop until fine. Allow marmalade stock to stand overnight.

**To make marmalade:** Measure 4 cups of stock into heavy pan. Add 4 cups of sugar slowly, stirring gently until sugar is dissolved. Stirring constantly, bring to a rolling boil over high heat. Continue to boil about 20 minutes, to 220°F. Remove from heat; skim off foam. Fill pre-sterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner. **Yield:** About 10 half-pint jars.

### Kumquat, Calamondin, or Tangerine Marmalade

3 cups marmalade stock  
3 cups sugar

**To make stock:** Select about 4 cups of fruit. Wash, slice crosswise in thin sections and remove seeds, or cut in halves, remove seeds and put through food chopper. Measure fruit. Place in saucepan. For each cup of fruit, add 2 cups of water. Bring to a boil and boil about 15 minutes. Allow to stand overnight to draw out pectin.

**To make marmalade:** Measure 3 cups of stock into large saucepan. Bring to a rolling boil, stirring constantly. Add 3 cups of sugar. Stirring constantly, boil over high heat to 220°F. Remove from heat; skim off foam. Fill pre-sterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner.

**Yield:** About 8 to 10 half-pint jars



**To make stock:** Scrub 3 oranges well. Peel, quarter, remove seeds, and cut pulp into small pieces. Thinly slice the peel. Measure peel and pulp. For each cup of pulp, add 3 cups of water. Bring to a rolling boil and boil vigorously for 15 minutes. Allow stock to stand overnight to draw out pectin.

**To make marmalade:** Measure 6 cups of stock, the lemon juice, and powdered pectin into an 8 or 10 quart kettle. Stir to dissolve pectin. Bring to rolling boil over high heat, stirring constantly. Add sugar. Bring to a full rolling boil, stirring constantly. Continue to boil one minute while stirring. Remove from heat; skim off foam. Fill presterilized canning jars, leaving ¼-inch headspace. Adjust lids and process 5 minutes in a boiling water canner. **Yield:** About 8 to 9 pint jars.

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# Grapefruit Preservation

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## Facts about Marmalades, Jellies, and Preserves

Citrus is Suitable – Citrus is especially well suited for marmalades, jellies and preserves because it is usually high in natural pectin and acid, two of the necessary ingredients for jelling. When sugar is added in the right amounts, a successful product results. Oranges, grapefruit, Ponderosa and Meyer lemons, calamondins, kumquats, sour oranges and citron are among the varieties used.

Cook in Small Amounts – Use small amounts of citrus and cook rapidly for best results in making marmalade or jelly. Three cups of stock is all that should be used at one time in order to preserve the delicate flavor and color typical of citrus. It is often convenient to store citrus in the pulp stage. Simply refrigerate, can or freeze until used.

When cooking marmalades or jelly, use a saucepan that is at least 5 times larger than the amount of stock used. For example, 3 cups of stock should be put in a 4-quart capacity saucepan. This precaution keeps the product from boiling over during rapid cooking.

Test for Jelling Point – A regular candy thermometer or jelly thermometer assures you of good results when cooking marmalade or jelly without added pectin. Another simple test called the sheet test can also be used. Simply dip a spoon in the boiling syrup. As the boiling fruit and sugar mixture nears the jelling point, it will drop from the side of the spoon in 2 drops. When the drops run together and slide off the spoon in a sheet, the jelly is finished and should be removed from the heat immediately.

Safety Precautions – Warm, damp weather and insects make extra precautions necessary if jelly, marmalades or preserves are to be kept for any length of time. It is important to use standard glass canning jars that have an airtight seal. Paraffin does not provide a good enough seal to insure against mold or insect damage.

1. Preparing Jelly Jars – Wash jars and lids in hot, soapy water. Rinse in scalding water. Keep them hot either in a slow oven or in hot water until they are used. Prepare jar lids according to the manufacturers directions to insure a good seal.

2. To Fill and Seal Jelly Jars – Jelly must be boiling hot to produce a good seal. Pour jelly into jar, holding ladle close to top of jar. This prevents air bubbles from forming in the jelly. Quickly fill jar to within ¼-inch to the top. Wipe top and threads of jar with clean, damp cloth. Adjust lids, and invert jar for a few seconds so hot jelly can destroy molds or

yeasts that may have settled on the lid. Stand jars upright to cool. Allow product to stand undisturbed at room temperature overnight to avoid breaking gel. Label to show the name of the product, date and lot number if you are making more than one lot in a day.

3. Process Marmalades, Fruit Butters, Preserves – Marmalades, fruit butters and preserves that are intended for long storage should be processed in a boiling water-bath canner. (See directions below.) This precaution helps to prevent spoilage, and retains both the natural color and flavor of the product.

#### **Directions for Processing**

Pack marmalades, fruit butter or preserves in hot, clean jars according to directions given in the recipe. Adjust lids. Immerse jars in very hot water in canner or deep kettle. Be sure the water comes an inch or two above the jar tops. Add boiling water if needed, but do not pour it directly on the jars. Cover container with close fitting lid, and bring water back to boiling as quickly as possible. Count processing time when water returns to boiling, and continue to boil gently and steadily for the time recommended. Remove jars immediately and cool.

Set jars upright several inches apart to cool. Keep out of draft and do not cover. Cool for 12-24 hours; remove metal screw bands carefully; then check for an airtight seal by turning the jar partly over. If there is no leakage, the seal is tight. Another test is to tap the center of the lid with a spoon. A clear ringing sound means a good seal.

Storage – Store citrus products in a cool, dark, dry place. The shorter the storage time, the better the eating quality of the product. Uncooked jars cannot be stored under the same conditions as cooked products; they require refrigeration or freezer temperatures. They can be held a few weeks in the refrigerator; for longer storage they should be put in the freezer.

#### **Combination Marmalade**

3 cups orange, lemon, grapefruit stock

3 cups sugar

**To Make Stock:** Wash 1 orange, 1 Florida lemon and 1 grapefruit. Quarter, remove seeds and run through a food chopper or thinly slice, peel and cut pulp into small pieces. Measure. Place in large saucepan. Add three cups of water for each cup of pulp. Bring to a boil and cook 15 minutes. Let stand overnight to draw out pectin.

**To Make Marmalade:** Measure out 3 cups of stock into a large saucepan. Bring to a boil. Add 3 cups of sugar. Stir to dissolve sugar and cook rapidly to 220°F. Remove from heat, let cool to 190°F. Stir to redistribute fruit. Pour into hot, clean jars leaving ½-inch headspace. Adjust lids and process in boiling water-bath canner 10 minutes if longer storage is desired.

## **Golden Glow Marmalade** (Blender Recipe)

1 grapefruit  
1 lemon  
1/8 teaspoon salt

1 orange  
2 cups water  
Sugar

Peel fruit. Remove most of white portion of peel. Cut remaining peel into pieces. Place fruit peel in blender with 2 cups water and blender chop until it is fine. Bring chopped rind to boil and allow to simmer for 20 minutes. Place fruit pulp in blender and puree. Add the cooked rind. Mix and allow to stand overnight in order to draw out pectin. Measure prepared fruit and mix together with equal amounts of sugar. Add salt. Using a pan with a heavy bottom, bring mixture to boil quickly and boil about 20 minutes (or to 220°F). Stir to prevent burning. Let cool slightly. Stir to redistribute fruit. Pack into hot, clean jars leaving ½-inch headspace. Adjust lids and process in a boiling water-bath canner 10 minutes if longer storage is desired.

## **Grapefruit Marmalade**

Wash 2 medium grapefruits. Peel thinly. Cut in half, remove seeds and clip out tender "core". Quarter and run through food chopper. Measure pulp. Add three cups of water to each cup of pulp. Cover and let stand overnight. Boil gently next day until pulp is tender, about 20-30 minutes. Measure out 3 cups of stock. Bring to a boil. Add 3 cups of sugar. Stir to dissolve sugar. Cook rapidly until candy or jelly thermometer reaches 220°F. Remove from heat, let cool to 190°F. Pour into clean jars. Seal at once. Be careful not to let stand too long before pouring up. If it gets too cool it may jell in the saucepan. If this should happen place on low heat until it reaches 190°F then pour up at once. Do not let it boil again.

## **Quick Grapefruit Mint Jelly**

2¼ cups unsweetened grapefruit juice  
¾ cup water  
1 box fruit pectin powder  
3½ cups sugar

6-8 drops oil of spearmint,  
or ½ teaspoon spearmint  
extract  
Green vegetable coloring

Combine juice and water in a large saucepan. Add the pectin powder. Cook over high heat until the mixture boils hard. Stir in the sugar immediately. Let the mixture come again to a rolling boil. Boil hard for ½ minute; time exactly, stirring constantly. Remove from the heat and skim. Add flavoring and coloring as desired. Pour into hot, clean jars and seal. Invert jar for a few seconds while jelly is hot to sterilize lid and return to upright position.

### **Orange-Grapefruit Jelly** (Made with concentrate)

3¼ cups sugar  
1 cup water  
3 tablespoons lemon juice

1 packet liquid pectin  
1 (6-oz.) can frozen concentrate, orange and grapefruit juice

Stir the sugar into the water. Place on high heat, stirring constantly; bring quickly to a full rolling boil that cannot be stirred down. Add lemon juice. Boil hard for 1 minute. Remove from heat. Stir in the pectin. Add thawed concentrated orange and grapefruit juice and mix well. Pour immediately into hot, clean jars. Adjust lids. Let stand at room temperature overnight. To store, refrigerate about 4 weeks or freeze at 0°F for longer storage. Freezer storage will maintain natural color and flavor. Once a container is opened, the jelly should be used within a few days.

### **Red Cinnamon Grapefruit Jelly**

2¼ cups unsweetened grapefruit juice  
¾ cup hot water  
4½-ozs. red cinnamon candies

1 pkg. powdered pectin  
Red vegetable coloring  
3½ cups sugar

Dissolve cinnamon candies in hot water. Add grapefruit juice and powdered pectin. Cook over high heat until mixture boils hard. Stir in sugar immediately. Let mixture come again to a rolling boil. Boil hard ½ minute. Remove from heat and add coloring. Pour immediately into hot, clean jars and seal. Invert jars for a few seconds while jelly is hot to sterilize the lid and return to upright position.

### **Jiffy Fresh Grapefruit Spread**

1¾ cups grapefruit sections (mashed)  
¼ cup maraschino cherries (chopped)

4 cups sugar  
¾ cup water  
1 pkg. powdered pectin

Combine grapefruit sections, cherries and sugar. Stir well. Add pectin to water and bring to a boil. Stir and boil for 1 minute. Combine pectin mixture with fruit and sugar and stir for 3 minutes. Put in jars. Seal and allow to stand 24 hours at room temperature. To store, refrigerate about 4 weeks or freeze at 0°F for longer storage. Freezer storage will maintain natural color and flavor. Once container is opened it should be used within a few days.

### **Facts About Citrus Preserves**

Preserving Hints – A preserved fruit is one which has been cooked in sugar until it is clear, tender and transparent. It should keep its form and plumpness and be crisp rather than tough or soft. When finished, the cells of the fruit should be filled with the flavored syrup in place of the fruit juice.

Larger, heavier fruits, like sweet orange, grapefruit and Ponderosa lemon, should be cut



into convenient halves or quarters, with or without inner pulp and juice cells removed, as preferred; or a slice may be removed from one end, the inside pulp removed and only the shells preserved.

Cooking – When preserving these citrus fruits, cook them tender in an abundance of water after the outer rind has been carefully removed by grating the larger fruits. In the case of the strong flavored varieties, like grapefruit, it may be necessary to parboil them in several changes of water to rid them of excess undesirable flavor. Grating and puncturing the skin allows for better sugar penetration and makes for a more tender and delicious product. In these preliminary cooking's, the fruits should always be kept well covered with water. Later when in the syrup, if it is desired to keep the fruits in good shape, they should have sufficient syrup to be completely submerged at all times. The fruit should not be overly crowded in the kettle.

Begin preserving in a thin syrup and cook rapidly until fruit is clear. Rapid cooking gives a light, bright product of good color. Slow cooking produces a dark, dull, unattractive product. Standing overnight or longer immersed in the syrup to “plump” gives a better product in color, flavor and texture. Cover kettle tightly before removing from fire. Leave covered until cool.

Density of Syrup – Uncooked fruit should never be dropped in a heavy syrup, as the fruit will become tough and shriveled from the fruit juices being drawn out too rapidly. The outside of the fruit becomes coated with heavy syrup and little syrup can enter the fruit. Hence, the correct method is to build up gradually a heavy syrup so it can permeate the fruit slowly and thoroughly, thus avoiding shrinking and toughening. Allowing kumquats, grapefruit and similar fruits to stand overnight or longer immersed in their syrup causes more of it to permeate the fruit and reduces the cooking in the syrup. It is the hot syrup in which they are submerged that will do the cooking. For this reason, after being covered with the boiling hot syrup, the product is set aside and allowed to stand overnight. The next day the syrup is drained off, more sugar is added; the syrup is reheated and added to the fruit and the product is left to stand as before. Larger fruits require a longer time for finishing; smaller fruits a shorter period. The essential point is that the syrup should thoroughly permeate the fruit. The processes are not difficult, but watchfulness, care, time and patience are required for quality products.

Caution – Avoid cooking a small amount of fruit in a large kettle, as evaporation takes place too rapidly over the broad surface. Sufficient syrup should be used to cover the fruit completely at all times. Heavy aluminum or porcelain-lined kettles are the best to use in preserving.

### **Grapefruit Preserves**

1 pound prepared fruit (about 4 cups)  
1½ cups sugar

2 cups water  
1 cup grapefruit juice  
½ cup sugar

Select well-ripened grapefruit for good color and thick peel. Wash. Grate carefully, removing all the yellow rind. Remove peel and cut it into strips ½-inch wide. If preferred, the pulp may be left in the fruit and the fruit cut in halves, fourths or eighths or in fancy shapes, removing only the seed. To 1 pound of fruit, add 3 pints or more of cold water.

Bring slowly to a boil. Boil for 10 minutes. Change water and bring to a boil again. Boil for another 10 minutes. Taste liquid on peel; if very bitter, drain off and renew. If only slightly bitter, boil peel until tender. Drain.

Make syrup by using 1½ cups of sugar and 2 cups of water for each pound of peel and boil until sugar is dissolved. Add 4 cups drained peel to syrup. Boil rapidly until peel is clear and syrup heavy. Cover and let stand 24 hours. Drain off syrup. Add 1 cup grapefruit juice and ½ cup sugar. Heat until very hot and pour over fruit. Cook until peel is beautifully clear, tender, yet firm and well flavored and the syrup is heavy. If evaporation during cooking is great, it may be necessary to add a little boiling water or grapefruit juice at times to keep plenty of syrup on peel. Let stand 24 hours again. The preserves may be packed cold. Strain syrup through cheesecloth, bring to a boil and pour over preserves. Adjust lids; process pints 15 minutes in boiling water-bath canner if longer storage is desired.

Canning Grapefruit – Raw Pack – Select firm, sweet, eating-ripe fruit. Selections may be packed in water, citrus juice or syrup. If a syrup is used, prepare a very light, light or medium syrup and bring to a boil. Wash and peel fruit. Remove white tissue to prevent a bitter taste. Break fruit into sections. Fill jars with sections and water, juice or hot syrup leaving ½-inch headspace. Remove air bubbles. Wipe jar rims. Adjust lids. Process in a boiling water bath. Pints or Quarts.....10 minutes.

Caution: Grapefruit sections turn dark on exposure to light. For this reason it is best to wrap jars in newspaper or foil and store in a dark, cool place. Note: Sections can be preserved without sugar, but the quality is better in syrup.

Canning Grapefruit Juice – Because grapefruit juice is the most stable of all citrus juices, it is more widely and successfully canned than any other variety of citrus.

Select tree-ripened fruit for canning. The quality of the product cannot be any better than the raw material from which it is prepared. Good juice can only be made from freshly picked, sound fruit of optimum maturity.

Extract juice carefully, being careful not to get much of the oil from the fruit peel in it. Strain out seeds, coarse pulp or membrane. Work fast to avoid unnecessary exposure to air. Heat to simmering. Add sugar if desired (about 1 cup to 1 gallon of juice). Fill glass jars to ½-inch of top with hot juice. Adjust lids. Process in simmering water-bath canner. Pints 10 minutes; quarts 15 minutes. Wrap jars in newspaper or in foil and store in a dark place to preserve natural color of the fruit.

Fill tin cans to top with hot juice. Seal at once. Process in simmering water-bath canner. No. 2 cans 10 minutes. Cool immediately in cold water. Rapid cooling helps to retain the natural flavor of the juice. Store in a cool, dry place.

### Canning Orange and Grapefruit Sections

Orange sections are best canned with equal parts of grapefruit. The flavor is poor unless grapefruit is used. Section oranges and grapefruit and process as for grapefruit.

## Facts About Sweet Spiced Citrus

Delicious and most interesting pickles may be made from all citrus fruits that can be preserved. Grapefruit, kumquats, calamondins, oranges, and tangerines are among those often used. Carefully grate the peel of grapefruit, or sour oranges, and cut into convenient sizes. Kumquats and calamondins may be left whole.

Sweet pickles call for several boilings of syrup on successive days rather than one long cook. Citrus pickles that tend to be soft should be handled carefully. Always boil the syrup first and pour it over the fruit in such cases. At all times, have enough syrup to cover the fruit well. Sweet spiced fruits should be well saturated, clear, translucent, and shapely.

Preserved citrus fruits can be made into sweet spiced fruits by the addition of vinegar and spices.

### Sweet Spiced Grapefruit Peel

1-pound grapefruit peel cut in strips  
1½ cups sugar  
2 cups water

½ cup white vinegar  
20 cloves  
2 sticks cinnamon

Select tree-ripened fruit of good quality having a thick peel. Wash and grate carefully to remove all yellow rind. Remove peel and cut into convenient quarters or ½-inch strips, as preferred. Add at least 3 pints of water to one pound of fruit peel. Bring to boil slowly and boil for 10 minutes. Change water and bring to boil again. Repeat until liquid tastes only slightly bitter. Boil peel until tender. Prepare syrup using sugar and water. Add drained grapefruit peel to syrup and boil until peel is clear and syrup is thick. Add ½ cup white vinegar and spices (tied loosely in a cheesecloth bag and lightly pounded). Bring to boil then remove from heat and allow to stand 24 hours. Reheat; remove spice bag; pack into hot pint jars, leaving ½-inch headspace. Wipe jar mouths and adjust lids. Process in boiling water-bath canner for 5 minutes. The peel should be beautifully clear, tender yet firm, well flavored and the syrup heavy.

### Freezing

#### Freezing Citrus Sections

Syrup Pack – Make a syrup of 1 part water and 2 parts sugar. Stir to dissolve sugar. Chill syrup. Section grapefruit and pack into freezer jars or other containers. Leave 1-inch headspace to prevent breaking. Cover sections with cold syrup. Seal, label and date. Freeze and store at 0°F. To use, thaw completely and use as fresh citrus. Storage period – about 4 to 6 months.

Dry Pack – Spread citrus sections on a flat pan. Sprinkle with sugar if desired. Quickly freeze at 0°F. Remove from pan and package in plastic freezer bags or other airtight containers. Seal, label and date. Store at 0°F. To use, add to fruit cup or serve alone. If added to fruit cup in frozen state, the sections will chill rest of fruit. Citrus sections are excellent when eaten in a partially thawed state. Storage period – about 2 months.

## Freezing Citrus Juices

Freezing Citrus Cubes – Orange juice, grapefruit juice, lemon or lime may be conveniently frozen in ice cube trays. Sweeten before freezing if desired. Small cubes are easy to handle and may be added to punch or used instead of ice with soft drinks. Storage period 4 to 6 months.

Freezing Grapefruit Juice – Squeeze juice from fruit. Add 8 tablespoons sugar and  $\frac{3}{4}$  teaspoon crystalline ascorbic acid for each 4 quarts of juice. Leave 1-inch headspace, seal, date and freeze.

## Using Citrus Peel

### Facts About Crystallizing Citrus Fruit

The crystallizing of fruit is one of the oldest methods of food preservation known to man. Citrus fruits have pronounced and varied flavors that make them ideal for crystallizing.

Thick-skinned fruit is best; the Ponderosa lemon, grapefruit, thick-skinned oranges and sour oranges are good choices.

Crystallization is the process of saturating fruit with sugar throughout. To do this, fruit is placed in boiling syrup and cooked gently. The fruit juice gradually diffuses out and sugar permeates the fruit. Too heavy syrup will cause the water to be drawn from the fruit more quickly than the sugar will be absorbed and the cell walls of the fruit will become shriveled and hardened.

There are several crystallizing methods. The jiffy and quick methods give good products that may be held for a short time, while the longer method produces peel of fine texture that will keep 2 to 3 months or more. Crystallized fruits may be frozen at 0°F for longer storage. The longer crystallizing method produces peel that maintains a better texture after freezing.

### **Crystallized Citrus Peel** (Short Method)

1 medium grapefruit

2 cups sugar  
1 cup water

Select bright fruit with a thick peel. (May use peel left over from grapefruit served at a family meal.) Wash, cut in half and remove pulp and membrane inside. Leave in all the white “rag”. If desired, lightly grate outside peel to break oil cells; this will give a milder flavor. Cut peel into  $\frac{1}{4}$ -inch wide strips or into wedges. Place in saucepan and cover with 2 quarts of water. Boil 5 minutes. Drain. Repeat this process 3 times to remove bitter flavor. Be careful not to overcook. Allow 5 minutes only to each boil. Drain and lay peel on clean dishtowel. Cover with cloth and press gently to remove excess water.

Mix sugar and water. Bring to a boil and stir until sugar is dissolved. Add drained peel and boil gently 10 minutes. Let stand overnight. Next day cook on low heat until most of

the syrup is absorbed. Heat must be low to keep peel from scorching. Dip peel out and roll in granulated sugar. Place on rack to cool. Roll again in sugar and store in a container with a loose lid. Peel will keep 2 to 3 weeks. It can be used in fruitcakes and other recipes calling for candied fruits. Package in airtight containers and freeze at 0°F for longer storage.

### **Crystallized Citrus Peel** (Long Method)

1 medium grapefruit

3 cups sugar  
3 cups water

Use bright, clear skinned fruit. Cut in halves and remove pulp and membrane. Grate outside skin if desired. Place peel in a saucepan. Cover with water and bring to a boil. Drain. Repeat several times for large fruits to remove bitterness. Fruit should be tender, but not soft.

Mix sugar and water. Heat to boiling. Add the peeling. Cook on low heat until fruit begins to look transparent or clear. Remove from heat. Cover and let stand 24 hours. Drain fruit; heat syrup to boiling and add peel. Cook fruit until a candy or jelly thermometer registers 222°F. Pack into clean, hot jars. Cover with boiling syrup and seal while hot. Keep sealed in syrup for at least 6 weeks before using it, it may be held as long as 3 to 4 months. The jars must have an airtight seal to prevent fermentation. When ready to use, remove from jars and dip fruit into hot water to remove syrup from surface. Dry in the sun for 24 hours or in a warm (175°F) oven for 6 to 8 hours. (Keep oven door open to get good circulation of air).

Prepare a glaze of 3 cups sugar and ½ cup water. Heat to dissolve sugar. Dip peel or fruit in glaze. Place on rack to drain and dry. Dry in sunshine or in warm oven as described above. Store in boxes lined with waxed paper or in jars with a few holes punched in lid to allow for air circulation. Will keep 2 to 3 months. Use as candy or where candied fruit is used in recipe.

### **Crystallized Citrus Peel** (Jiffy Method)

2 cups fruit peel slices  
1-1/3 cups sugar  
2/3-cup corn syrup

1-1/3 cups water  
½ teaspoon salt

Select bright fruit with thick peel. Strip peel from fruit in sections. Cut into strips ¼ to ½ inch wide. Measure 2 cups fruit peel slices. Simmer ½ hour in 2 quarts water. Add more water if necessary. Discard water; add fresh water and repeat twice.

Combine syrup, sugar, water and salt in a saucepan. Bring to a boil. Add strips of peel. Boil gently for 30 minutes. Reduce heat and cook slowly 30 to 40 minutes or until all syrup has been absorbed. Dip peel out, roll in granulated sugar and place on rack to cool. Package in airtight containers and freeze at 0°F for longer storage.



## Crystallized Whole Grapefruit

Select bright, smooth fruit with thick peel. Wash and grate lightly with medium fine grater, removing all yellow oil cells. Cut circles 3 inches in diameter from stem end of fruit; remove juice cells and connective tissues, being careful to leave all of the thick part of peel. Boil until tender and if it is desired to remove the bitter, change the water during cooking, each time putting fruit into cold water and bringing it slowly to the boiling point. Several changes of water are usually necessary to accomplish this. But if too much of the bitter flavor is removed, an undesirable, insipid, characterless product results. Be careful not to get peel overly soft or the fruit will not retain its original shape. Cool fruit and put into a syrup made of equal parts of sugar and water. Add red coloring if desired. Sufficient syrup must be made to float the fruit. Cook to 220°F and let fruit stand in syrup 24 hours. Then cook to 222°F. Let stand again; drain off syrup, add 1 cup of sugar and 1 tablespoon of water and bring to a boil. Boil 3 to 5 minutes. Pour over fruit and allow to stand as before. Fruit may be kept in heavy syrup 3 weeks or more before using if desired. When ready to use peel, take it out of syrup; turn over a glass or bottle. Allow to dry in warm room or in 200°F oven until surface is not sticky. Fill with unbaked fruitcake mixture and slice as you would a cake.

## Holiday Fruit Cake In Crystallized Peel

2 whole grapefruit peel, crystallized	1 cup chopped almonds
Juice of 1 lemon	½ cup coconut flakes
½ pound package marshmallows	1 cup raisins (firmly packed)
1 cup vanilla wafer crumbs (blender chopped)	1 cup dates
	½ cup maraschino cherries

Melt marshmallows with lemon juice in top of double boiler. Remove from heat and quickly mix in vanilla wafer crumbs, chopped almonds and coconut. Press in raisins, dates and maraschino cherries.

Pack firmly in whole crystallized grapefruits. Refrigerate until used. Garnish with coconut flakes and a small candied grapefruit poinsettia.

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# KIWI FRUIT

*From: Uncommon Fruits & Vegetables – A Commonsense Guide*

Unless you've been cruising about in a submarine for the last several years without surfacing, you will undoubtedly have met up with the kiwifruit, which has exploded in popularity during the last decade. The *enfant terrible* of the *nouvell cuisine*, it burst onto the fashionable scene, and has gradually settled down to a more matronly existence as a household and supermarket staple.

Many cooks put off by its overuse and abuse in inappropriate restaurant guises, may not have fully explored it, however. This is a shame, for it can truly be a wonderful fruit, despite its odd exterior, ridiculous name, and some unfortunate press about being an "out" fruit in savvy culinary circles. The size and shape of a large egg, but more cylindrical, the unassuming kiwi looks and tastes like no other fruit. The tart-sweet flesh has a flavor utterly its own, but contains elements from citrus, strawberry, and melon. The soft cream-colored core, surrounded by a halo of poppy seed-like edible seeds, radiates as a sunburst into chartreuse to emerald pulp that is juicy and fine-textured. The very thin brown skin that holds together this plump package is covered with a light, bristly fuzz - hence the moniker that relates it to the hairy flightless bird from New Zealand, the fruit's main area of cultivation.

Curiously, although the fruit has been known in China (as *yang tao*) since ancient times, I can find only a single reference to it in Chinese cookbooks... and that a recipe from a contemporary restaurant. The Chinese gooseberry (no relation whatsoever to the gooseberry) is a climbing

vine or shrub that is cultivated on trellises. It was introduced to New Zealand in 1906, then underwent considerable horticultural investigation. Hayward Wright, a nurseryman of great influence who has perfected strains of numerous exotic fruits, developed the Hayward variety: a firm, large, predictably delicious fruit that now accounts for almost 100 percent of the market. By 1953 the kiwi was being exported in small quantities (2,500 trays), still as the Chinese gooseberry. But, because Americans were afflicted with a virulent Communist phobia at the time, and were certainly not about to buy anything with a Chinese handle, the kiwifruit was born.

The unique fruit made speedy inroads, thanks to plenty of promotion and good distribution. By 1984, more than thirteen million trays were being shipped out of New Zealand. Besides being simply delicious, kiwi is a fruit handler's dream. Thanks to its own furry protection and fact that it is picked hard, it does not bruise or break as easily as most thin-skinned fruit. And kiwi has the ability to stay in a magical state of suspended animation for many months after it has been picked. If cooled directly upon harvesting, it will remain firm and on the verge of perfection until placed in a warmer area and exposed to ethylene gas, at which point it obediently begins to soften to peak form, reached within a week.

Kiwifruit had been grown in California on not much more than a backyard level since 1935, but by the sixties farmers there had picked up the torch and run and have been running with it ever since. Thus, we have

fruit year round, as the growing seasons in New Zealand and the United States are complementary. The fruit is also cultivated to some extent in Spain, Italy, Greece, Israel, South Africa, India, China, Bangladesh, Russia, Vietnam, and France (where one of its more fetching names is *souris vegetale* - vegetable mouse).

### **SELECTION AND STORAGE:**

Buy kiwifruit all year, with the California product available from October through May, the New Zealand from June to October. Without wishing to be unpatriotic, I must admit that the imported fruit has tended to have a fresher acid-sugar balance, brighter color, smaller core section and juicier flesh.

Choose firm fruit. Kiwis that are as soft as peaches or plums can be mushy or mealy, lacking flavor. It is difficult to find a poor fruit if you observe this simple rule. Ripe fruit will have the feel of a not quite tender nectarine. Fruit that is small, unevenly shaped, or formed into a cluster or fan (like some giant strawberries) is just as delicious as perfectly symmetrical large fruit... and cheaper.

To ripen kiwis, set in a fruit bowl for a few days, or enclose in a paper bag with a banana to speed up the process. Enjoy the fruit, chilled when it has softened slightly. Refrigerate, one ripened, as long as the fruit keeps its plump tautness.

**USE:** Peeled kiwi, cut in slices, half circles, or quarter circles (wedges) is the best edible garnish since orange. It is bright and acid, and it won't discolor, no matter how far ahead you prepare it.

Halve chilled kiwis crosswise, dip in with a grapefruit spoon (my preference, but not at all necessary), and spoon out your moving ambrosia and vitamin C. Have two.

Place slices of kiwi on canapés, with cream cheese or ham. Add to raw and fresh fruit compotes and salads. Combine with vegetables such as avocado, radicchio, endive, as you would oranges. Toss with light seafood's, chicken, ham, or duck in a gingerly dressing.

Like papaya, kiwi contains an enzyme that tenderizes meat. To exploit this and add flavor, puree the flesh, then spread on meat that has been pricked here and there with a knife tip; let rest 30 minutes before grilling. Or, more economically, apply the scooped-out, opened-up skins to the surface of the meat. The same enzyme, by the way, prevents gelatin from setting (as does raw pineapple), so poach the fruit lightly if you want to include it in a mold (knowing it will lose a little color and flavor).

Puree kiwi only until liquefied; long processing crushes the slightly bitter seeds. Sweeten with maple syrup, honey, delicate liqueurs, or sugar syrup; add a dash of orange, lemon, or lime. Pour alongside sliced fresh or poached fruit. Or serve with angel-food or sponge cake, then decorate with raspberries or strawberries.

Make brisk and delicious ices and sorbets. Arrange the beautiful slices on fresh fruit tarts, cheesecakes, and tortes; finish with a clear glaze.

**PREPARATION:** Although the skin is edible, and many people do eat it after rubbing off some of the fuzz, I find it unpleasant. The simplest way to peel the kiwi is to slice off both tips, then simply zip off the skin with a vegetable peeler. Cut with a stainless steel knife.

### **NUTRITIONAL HIGHLIGHTS:**

Kiwifruit is an excellent source of vitamin C and a good source of potassium. It is low in sodium and calories, at about 55 per fruit.

### **Kiwi Fool**

When I first encountered the frivolously dubbed English fool, it was made of the most traditional of foolish fruits, gooseberries. At the time, however, no gooseberries were to be found in New York, where I live. The kiwi, similarly tart and green, make a delicious substitute that has become a worthwhile dessert in its own right.

Makes 6 Servings

12 medium kiwis  
About 1/3 cup sugar  
2 tablespoons water  
4 teaspoons cornstarch  
1 cup Reduced cream (recipe follows)  
or crème fraiche

**Garnish:** Tiny strawberry, kiwi, or orange wedges.

Halve kiwis. Scoop into a bowl (a melon-ball cutter is handy). With a whisk or masher form a course puree.

Combine 1-cup puree in small non-aluminum pan with 1/3-cup sugar. Stir together water and cornstarch and add to pan. Bring to a simmer, stirring. Simmer 2 minutes, until thick and clear. Taste for additional sugar, over sweetening slightly. Scrape into a bowl; let cool.

When puree has cooled somewhat, stir in remaining kiwi. Blend well, cover, and chill thoroughly.

Whip Reduced Cream to form soft peaks. Partly fold together with chilled puree, so there are distinct bands of color and white; do not blend. Garnish and serve; or chill several hours, if you prefer.

### Reduced Cream

Makes 1½ cups, approximately.

Simmer 2 cups heavy cream in heavy saucepan, stirring often, until reduced to 1½ cups, or slightly more. Pour into a bowl; set in a bowl of ice and water and cool, stirring often. Cover and chill. Whisk before using. Lasts for at least 1 week, refrigerated and covered.

Compiled and revised by:  
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# Kumquat

The name *kumquat* comes from Cantonese for golden orange, a likely description of this brilliant fruit. Introduced into the United States about 1850, the kumquat has been cultivated ever since in small quantities in Florida and California. The two varieties that have been most successful are the oblong Nagami and the round Meiwa, both about 1 ½ inches long, both of Japanese origin. Connoisseurs believe that the Meiwa is sweeter and more tender.

Selection and Care: Kumquats can appear in the market as early as October and last as late as April, but for the most part, they offer their golden glow in the dead of winter. Whether loose, in baskets, or plastic-filmed, the fruits should be pressed to determine that they are firm, like baby mandarins, not soft-wet. Because of their thin skin, they spoil more rapidly than oranges.

If you'll be using kumquats within a few days they can remain at room temperature; otherwise, keep them refrigerated, for about two weeks. If you've found the pretty ones picked with attached leaves and twigs, do not plan to keep them as long, as the leaves dry quickly.

Use and Preparation: Serve kumquats as you would grapes, as part of a formal fruit bowl or offer them alone on a dish as a palate refresher. The entire kumquat can be consumed. The peel may be added to season carrots, winter squash, pumpkin or tossed in a fresh spinach salad. The spicy fruit flavor adds zest to meat and poultry dishes too. They can also be preserved or made into marmalade. They are a decorative addition to any table as a tangy food or as a colorful addition to a flower or fruit arrangement

Nutritional Value: Kumquats are rich in potassium and low in calories. One kumquat is approximately 12 calories and yields 8.3 mg calcium, 37mg potassium, 7.1mg vitamin C, and 57 IU vitamin A. They contain only a trace of fat, 3.1g carbohydrate and 15.5g water per fruit.

## Kumquat Marmalade

4 cups cooked kumquat juice and pulp  
3 cups sugar

To prepare juice and pulp, select solid fruit. Wash, sprinkle with 1 teaspoon soda for each 2 cups fruit. Cover with boiling water. Let stand 10 minutes. Pour off soda water. Rinse in cold water. Cut fruit in very thin slices or grind food chopper, using coarse blade. Measure fruit. Use 3 cups water for each cup prepared fruit and juice. Cook in pressure pan at 10 pounds pressure for three minutes or simmer on top of stove about 20 minutes. Measure cooked pulp and juice into saucepan. Bring to a boil. Add sugar, stirring to dissolve. Cook to jelly stage. Pour into sterilized jars and seal.

## Sunshine Carrots

1 pound carrots peeled and quartered, then cut into 2-3" sticks  
1 ¼ cups water  
½ cup kumquats, sliced and peeled  
1/3 cup golden raisins  
1/3 cup honey  
2 tablespoons butter



Combine carrots and water in medium saucepan, cover and simmer for 8-10 minutes. Add remaining ingredients; cook uncovered over medium heat until carrots are glazed, stirring occasionally. Yield: 4 servings.

### **Oriental Kumquat Salad Toss**

¼ head lettuce, torn in bite size pieces  
¼ head romaine lettuce torn in bite size pieces  
½ cup celery, cut diagonally  
2-3 green onions cut diagonally  
1 small white onion cut into rings  
1 cup broccoli rosettes  
½ cup kumquats, sliced and seeded  
½ cup sliced toasted almonds  
Toasted Sesame Seed Dressing

Toss ingredients in large salad bowl with Toasted sesame seed dressing. Yield 4 servings.

### **Toasted Sesame Seed Dressing**

1/3 cup freshly squeezed lime juice  
2 cloves garlic, crushed  
¼ cup white vinegar  
½ cup toasted sesame seeds  
2/3 cup water  
¼ cup green onion tops  
½ cup vegetable oil  
½ teaspoon dried mustard  
½ teaspoon salt

Place all ingredients in shaker jar, cover and shake well. Serve chilled over Oriental Salad.

### **Baked Kumquat Pickles**

1 ½ pounds kumquats (about 3 cups)  
2 cups sugar  
½ cup light corn syrup  
1 cup vinegar  
1 cup water  
2 sticks cinnamon  
1 ½ teaspoons whole cloves

Wash kumquats thoroughly. Slice in half lengthwise. Boil in small amount of water until tender, about 8-10 minutes. Drain. Mix sugar, corn syrup, vinegar, water and spices. Bring to a boil. Add kumquats. Boil 3 or 4 minutes. Pour into baking dish. Bake in moderate 350 degrees F. oven until syrup is thick and kumquats slightly transparent. This takes 20-25 minutes.

## Broccoli and Kumquat Salad with Olives

Miniature orange rounds, forest-green broccoli, shiny black olive shards, and a garlicky-citrus dressing make this bright salad a lively complement to game, pork, lamb, turkey, or ham. Try it on kumquat doubters.

Makes 3 servings

1 bunch broccoli, about 1 pound  
10 medium kumquats (about ¼ pound)  
3 tablespoons full-flavored olive oil  
¾ teaspoon minced garlic  
2-3 tablespoons lemon juice  
½ teaspoon sugar  
¼ teaspoon salt, or to taste  
Black pepper to taste  
8-10 oil-cured black olives, pitted and quartered lengthwise

Peel broccoli stems. Cut stems and flowerets in large bite-sized pieces. Place on steaming rack over boiling water. Cook on high heat, covered, until not quite tender-about 4 minutes; broccoli continues to cook off heat, so take care. Lift out rack with broccoli and cool.

Return water to a boil; drop in kumquats. Return to a boil over highest heat; boil 15 seconds. Drain. Drop in cold water to cool. Quarter 4 kumquats; pick out seeds. Slice remainder thin.

Heat oil and garlic in small skillet over very low heat until garlic colors lightly-about 5 minutes. Combine in processor or blender with 2 tablespoons lemon juice, sugar, salt, pepper, and quartered kumquats. Puree to fairly rough consistency. Toss dressing with broccoli and sliced kumquats. Cover and chill. To serve, add olives; toss. Add lemon juice, salt and pepper to taste.

# Selecting, Preparing, and Canning Tomatoes and Tomato Products<sup>1</sup>

United States Department of Agriculture Extension Service<sup>2</sup>

## General

**Quality:** Select only disease-free, preferably vine-ripened, firm fruit for canning.

**Caution:** Do not can tomatoes from dead or frost-killed vines. Green tomatoes are more acidic than ripened fruit and can be canned safely with any of the following recommendations.

**Acidification:** To ensure safe acidity in whole, crushed or juiced tomatoes, add two tablespoons of bottled lemon juice or ½ teaspoon of citric acid per quart of tomatoes. For pints, use one tablespoon bottled lemon juice or ¼ teaspoon citric acid. Acid can be added directly to the jars before filling with product. Add sugar to offset acid taste, if desired. Four tablespoons of a 5 percent acidity vinegar per quart may be used instead of lemon juice or citric acid. However, vinegar may cause undesirable flavor changes.

**Recommendation:** Use of a pressure canner will result in higher quality and more nutritious canned tomato products. If your pressure canner cannot be operated above 15 PSI, select a process time at a lower pressure.

## Tomato Juice

**Quantity:** An average of 23 pounds is needed per canner load of 7 quarts, or an average of 14 pounds per canner load of 9 pints. A bushel weighs 53

pounds and yields 15 to 18 quarts of juice-an average of 3 ¼ pounds per quart.

**Procedure:** Wash, remove stems, and trim off bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of fruit into quarters and put directly into saucepan. Heat immediately to boiling while crushing. Continue to slowly add and crush freshly cut tomato quarters to the boiling mixture. Make sure the mixture boils constantly and vigorously while you add the remaining tomatoes. Simmer 5 minutes after you add all pieces.

If you are not concerned about juice separation, simply slice or quarter tomatoes into a large saucepan. Crush, heat, and simmer for 5 minutes before juicing.

Press both types of heated juice through a sieve or food mill to remove skins and seeds. Add bottled lemon juice or citric acid to jars. See acidification instructions described earlier in this section. Heat juice again to boiling. Add 1 teaspoon of salt per quart to the jars, if desired. Fill jars with hot tomato juice, leaving ½ inch headspace. Adjust lids and process.

## Tomato and Vegetable Juice Blend

**Quantity:** An average of 22 pounds of tomatoes is needed per canner load of 7 quarts. Not more than 3 cups of other vegetables may be added for each 22 pounds of tomatoes.

<sup>1</sup> This document is Fact Sheet FCS 8182, a series of the Department of Family, Youth and Community Sciences, Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, University of Florida. Publication date: June 1998. First published: February 1993. Reviewed: June 1998. This document was extracted from the Complete Guide to Home Canning, Agriculture Information Bulletin No. 539, USDA. It was originally published on CD-ROM as part of HE 8149, Guide3: Selecting, Preparing, and Canning Tomatoes and Tomato Products.

<sup>2</sup> Reviewed for use in Florida by Mark L. Tamplin, associate professor, Food Safety, Department of Family, Youth and Community Sciences, Cooperative Extension Service, Institute of Food and Agriculture Sciences, University of Florida, Gainesville FL 32611.

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Recommended process time for Tomato Juice in a boiling-water canner.					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	35 min	40	45	50
	Quarts	40	45	50	55

Recommended process time for Tomato Juice in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints or Quarts	20 min	6 lb	7 lb	8 lb	9 lb
		15	11	12	13	14

Recommended process time for Tomato Juice in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PSI) at Altitudes	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints or Quarts	20 min	5 lb	10 lb
		15	10	15
		10	15	Not Recommended

Recommended process time for Tomato-Vegetable Blend in a boiling-water canner					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	35 min	40	45	50
	Quarts	40	45	50	55

Recommended process time for Tomato-Vegetable Blend in a weighted-gauge pressure canner				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints or Quarts	20 min	5 lb	10 lb
		15	10	15
		10	15	Not Recommended

Recommended process time for Tomato-Vegetable Blend in a dial-gauge pressure canner						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints or Quarts	20 min	6 lb	7 lb	8 lb	9 lb
		15	11	12	13	14

**Procedure:** Crush and simmer tomatoes as for making tomato juice. Add no more than 3 cups of any combination of finely chopped celery, onions, carrots, and peppers. Simmer mixture 20 minutes. Press hot cooked tomatoes and vegetables through a sieve or food mill to remove skins and seeds. Add bottled lemon juice or citric acid to jars. See acidification directions described earlier in this section. Add 1 teaspoon of salt per quart to the jars, if desired. Reheat tomato-vegetable juice blend to boiling and fill immediately into jars, leaving ½-inch headspace. Adjust lids and process.

**Tomatoes-Crushed**  
(with no added liquid)

A high-quality product, ideally suited for use in soups, stews, and casseroles. This recipe is similar to that formerly referred to as “Quartered Tomatoes.”

**Quantity:** An average of 22 pounds is needed per canner load of 7 quarts; an average of 14 fresh pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 17 to 20 quarts

Recommended process time for Crushed Tomatoes in a boiling-water canner					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	35 min	40	45	50
	Quarts	45	50	55	60

Recommended process time for Crushed Tomatoes in a dial-gauge pressure canner						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints or Quarts	20 min	6 lb	7 lb	8 lb	9 lb
		15	11	12	13	14

Recommended process time for Crushed Tomatoes in a weighted-gauge pressure canner				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints or Quarts	20 min	5 lb	10 lb
		15	10	15
		10	15	Not Recommended

of crushed tomatoes-an average of 2 ¾ pounds per quart.

**Procedure:** Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Then dip in cold-water slip off skins, and remove cores. Trim off any bruised or discolored portions and quarter. Heat one-sixth of the quarters quickly in a large pot, crushing them with a wooden mallet or spoon as they are added to the pot. This will exude juice. Continue heating the tomatoes, stirring to prevent burning. Once the tomatoes are boiling, gradually add remaining quartered tomatoes, stirring constantly. These remaining tomatoes do not need to be crushed. They will soften with heating and stirring. Continue until all tomatoes are added. Then boil gently 5 minutes. Add bottled lemon juice or citric acid to jars. See acidification directions described earlier in this section. Add 1 teaspoon of salt per quart to the jars, if desired. Fill jars immediately with hot tomatoes, leaving ½-inch headspace. Adjust lids and process.

### Standard Tomato Sauce

**Quantity:** For thin sauce-an average of 35 pounds is needed per canner load of 7 quarts; an average of 21 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 10-12 quarts of sauce-an average of 5 pounds per quart. For thick sauce-an average of 46 pounds is needed per canner loads of 7 quarts; an average of 28 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 7 to 9 quarts of sauce-an average of 6 ½ pounds per quart.

**Procedure:** Prepare and press as for making tomato juice. Simmer in large-diameter saucepan until sauce reaches desired consistency. Boil until volume is reduced by about one-third for thin sauce, or by one-half for thick sauce. Add bottled lemon juice or citric acid to jars. See acidification directions described earlier in this section. Add 1 teaspoon of salt per quart to the jars, if desired. Fill jars, leaving ¼-inch headspace. Adjust lids and process.

Recommended process time for Standard Tomato Sauce in a boiling-water canner					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	35 min	40	45	50
	Quarts	40	45	50	55

Recommended process time for Standard Tomato Sauce in a dial-gauge pressure canner						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints or Quarts	20 min	6 lb	7 lb	8 lb	9 lb
		15	11	12	13	14

Recommended process time for Standard Tomato Sauce in a weighted-gauge pressure canner				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints or Quarts	20 min	5 lb	10 lb
		15	10	15
		10	15	Not Recommended

**Tomatoes-Whole or Halved**  
(packed in water)

**Quantity:** An average of 21 pounds is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 15 to 21 quarts-an average of 3 pounds per quart.

**Procedure for hot or raw tomatoes filled with water in jars:** Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; then dip in cold water. Slip off skins and remove cores. Leave whole or halve. Add bottled lemon juice or citric acid to jars. See acidification directions described earlier in this section. Add 1 teaspoon

of salt per quart to the jars, if desired. For hot pack products, add enough water to cover the tomatoes and boil them gently for 5 minutes. Fill jars with hot tomatoes or with raw peeled tomatoes. Add the hot cooking liquid to the hot pack, or hot water for raw pack to cover, leaving ½-inch headspace. Adjust lids and process.

**Tomatoes-Whole or Halved**  
(packed in tomato juice)

**Quantity:** See whole tomatoes packed in water.

**Procedure:** Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split, then dip in cold water. Slip off skins and remove cores.

Leave whole or halve. Add bottled lemon juice or citric acid to the jars. See acidification directions described earlier in this section. Add 1 teaspoon of salt per quart to the jars, if desired.

**Raw pack** - Heat tomato juice in a saucepan. Fill jars with raw tomatoes, leaving ½-inch headspace. Cover tomatoes in the jars with hot tomato juice, leaving ½-inch headspace.

**Hot pack** - Put tomatoes in a large saucepan and add enough tomato juice to completely cover them. Boil tomatoes and juice gently for 5 minutes. Fill jars with hot tomatoes, leaving ½-inch headspace. Add hot tomato juice to the jars to cover the tomatoes, leaving ½-inch headspace. Adjust lids and process.

**Tomatoes-Whole or Halved**  
(packed raw without added liquid)

**Quantity:** See whole tomatoes packed in water.

**Procedure:** Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split, then dip in cold water. Slip off skins and remove cores. Leave whole or halve. Add bottled lemon juice or citric acid to the jars. See acidification instructions described earlier in this section. Add 1 teaspoon of salt per quart to the jars, if desired.

Fill jars with raw tomatoes, leaving ½-inch headspace. Press tomatoes in the jars until spaces between them fill with juice. Leave ½-inch headspace. Adjust lids and process.

Recommended process time for Water-Packed Whole Tomatoes in a boiling-water canner.					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot and Raw	Pints	40 min	45	50	55
	Quarts	45	50	55	60

Recommended process time for Water-Packed Whole Tomatoes in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot and Raw	Pints or Quarts	15 min	6 lb	7 lb	8 lb	9 lb
		10	11	12	13	14

Recommended process time for Water-Packed Whole Tomatoes in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot and Raw	Pints or Quarts	15 min	5 lb	10 lb
		10	10	15
		1	15	Not Recommended



Recommended process time for Tomato Juice and Whole Tomatoes in a boiling-water canner.					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot and Raw	Pints or Quarts	85 min	90	95	100

Recommended process time for Tomato Juice and Whole Tomatoes in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PS) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot and Raw	Pints or Quarts	40 min	5 lb	10 lb
		25	10	15
		15	15	Not Recommended

Recommended process times for Juice-Packed Whole Tomatoes in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PS) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	Above 6,000 ft
Hot and Raw	Pints or Quarts	40 min	6 lb	7 lb	8 lb	9 lb
		25	11	12	13	14

Recommended process time for Raw Whole Tomatoes Without Added Liquid in a boiling-water canner.					
		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Raw	Pints or Quarts	85 min	90	95	100

Recommended process time for Raw Whole Tomatoes Without Added Liquid in a dial-gauge pressure canner.

			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Raw	Pints or Quarts	40 min	6 lb	7 lb	8 lb	9 lb
		25	11	12	13	14

Recommended process time for Whole or Halved Tomatoes raw packed without additional liquid in a weighted-gauge pressure canner.

			Canner Gauge Pressure (PS) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot and Raw	Pints or Quarts	40 min	5 lb	10 lb
		25	10	15
		15	15	Not Recommended

### Tomatoes With Okra or Zucchini

**Quantity:** An average of 12 pounds of tomatoes and 4 pounds of okra or zucchini is needed per canner load of 7 quarts. An average of 7 pounds of tomatoes and 2 ½ pounds of okra or zucchini is needed per canner load of 9 pints.

**Procedure:** Wash tomatoes and okra or zucchini. Dip tomatoes in boiling water 30 to 60 seconds or

until skins split. Then dip in cold water, slip off skins and remove cores, and quarter. Trim stems from okra and slice into 1-inch pieces or leave whole. Slice or cube zucchini if used. Bring tomatoes to a boil and simmer 10 minutes. Add okra or zucchini and boil gently 5 minutes. Add 1 teaspoon of salt for each quart to the jars, if desired. Fill jars with mixture, leaving 1-inch headspace. Adjust lids and process.

Recommended process time for Tomatoes with Okra or Zucchini in a dial-gauge pressure canner.

			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints	30 min	11 lb	12 lb	13 lb	14 lb
	Quarts	35	11	12	13	14

Recommended process time for Tomatoes with Okra or Zucchini in a weighted-gauge pressure canner.

			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints	30 min	10 lb	15 lb
	Quarts	35	10	15

**Variation:** You may add four or five pearl onions or two onion slices to each jar.

### Spaghetti Sauce Without Meat

- 30 lbs tomatoes
- 1 cup chopped onions
- 5 cloves garlic, minced
- 1 cup chopped celery or green pepper
- 1 lb fresh mushrooms, sliced (optional)
- 4½ tsp. salt
- 2 tbsp. oregano
- 4 tbsp. minced parsley
- 2 tsp. black pepper
- ¼ cup brown sugar
- ¼ cup vegetable oil

**Yield:** About 9 pints.

**Procedure:** Caution: Do not increase the proportion of onions, peppers, or mushrooms. Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Dip in cold water and slip off skins. Remove cores and quarter tomatoes. Boil 20 minutes, uncovered, in large saucepan. Put through food mill or sieve. Sauté onions, garlic, celery or peppers, and mushrooms (if desired) in vegetable oil until tender. Combine sautéed vegetables and tomatoes and add

remainder of spices, salt, and sugar. Bring to a Boil. Simmer uncovered, until thick enough for serving. At this time the initial volume will have been reduced by nearly one-half. Stir frequently to avoid burning. Fill jars, leaving 1-inch headspace. Adjust lids and process.

### Spaghetti Sauce With Meat

- 30 lbs tomatoes
- 2½ lbs ground beef or sausage
- 5 cloves garlic, minced
- 1 cup chopped onions
- 1 cup chopped celery or green peppers
- 1 lb fresh mushrooms, sliced (optional)
- 4½ tsp. salt
- 2 tbsp. oregano
- 4 tbsp. minced parsley
- 2 tsp. black pepper
- ¼ cup brown sugar

**Yield:** About 9 pints.

**Procedure:** To prepare tomatoes, follow directions for Spaghetti Sauce Without Meat. Sauté beef or sausage until brown. Add garlic, onion, celery or green pepper and mushrooms, if desired. Cook until vegetables are tender. Combine with tomato

Recommended process time for Spaghetti Sauce Without Meat in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints	20 min	11 lb	12 lb	13 lb	14 lb
	Quarts	25	11	12	13	14

Recommended process time for Spaghetti Sauce Without Meat in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints	20 min	10 lb	15 lb
	Quarts	25	10	15

pulp in large saucepan. Add spices, salt, and sugar. Bring to a boil. Simmer, uncovered, until thick enough for serving. At this time initial volume will have been reduced by nearly one-half. Stir frequently to avoid burning. Fill jars, leaving 1-inch headspace. Adjust lids and process.

**Procedure:** Caution: Wear rubber gloves while handling chilies or wash hands thoroughly with soap and water before touching your face. Wash and dry chilies. Slit each pepper on its side to allow steam to escape. Peel peppers using one of the following methods:

Recommended process time for Spaghetti Sauce With Meat in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 – 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints	60 min	11 lb	12 lb	13 lb	14 lb
	Quarts	70	11	12	13	14

Recommended process time for Spaghetti Sauce With Meat in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints	60 min	10 lb	15 lb
	Quarts	70	10	15

### Mexican Tomato Sauce

2½ to 3 lbs chile peppers  
 18 lbs tomatoes  
 3 cups chopped onions  
 1 tbsp. salt  
 1 tbsp. oregano  
 ½ cup vinegar

**Yield:** About 7 quarts.

**Oven or broiler method:** Place chilies in oven (400° F) or broiler for 6-8 minutes until skins blister. **Range-top method:** Cover hot burner, either gas or electric, with heavy wire mesh. Place chilies on burner for several minutes until skins blister. Allow peppers to cool. Place in a pan and cover with a damp cloth. This will make peeling the peppers easier. After several minutes, peel each pepper. Cool and slip off skins. Discard seeds and chop peppers. Wash tomatoes and dip in boiling

Recommended Process time for Mexican Tomato Sauce in a dial-gauge pressure canner.						
			Canner Gauge Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot	Pints	20 min	11 lb	12 lb	13 lb	14 lb
	Quarts	25	11	12	13	14

Recommended process time for Mexican Tomato Sauce in a weighted-gauge pressure canner.				
			Canner Gauge Pressure (PSI) at Altitudes of	
Style of Pack	Jar Size	Process Time	0 - 1,000 ft	Above 1,000 ft
Hot	Pints	20 min	10 lb	15 lb
	Quarts	25	10	15

water for 30 to 60 seconds or until skins split. Dip in cold water, slip off skins, and remove cores. Coarsely chop tomatoes and combine chopped peppers and remaining ingredients in large saucepan. Bring to a boil. Cover. Simmer 10 minutes. Fill jars, leaving 1-inch headspace. Adjust lids and process.

### Tomato Ketchup

24 lbs ripe tomatoes  
 3 cups chopped onions  
 ¾ tsp. ground red pepper (cayenne)  
 3 cups cider vinegar (5 percent)  
 4 tsp. whole cloves  
 3 sticks cinnamon, crushed  
 1½ tsp. whole allspice  
 3 tbsp. celery seeds  
 1½ cups sugar  
 ¼ cup salt

**Yield:** 6 to 7 pints.

**Procedure:** Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split. Dip in cold water. Slip off skins and remove cores. Quarter tomatoes into 4-gallon stockpot or a large kettle. Add onions and red pepper. Bring to boil and simmer 20 minutes, uncovered. Combine spices in a spice bag and add to vinegar in a 2-quart saucepan.

Bring to a boil. Turn off heat and let stand until tomato mixture has been cooked 20 minutes. Then, remove spice bag and combine vinegar and tomato mixture. Boil about 30 minutes. Put boiled mixture through a food mill or sieve. Return to pot. Add sugar and salt, boil gently, and stir frequently until volume is reduced by one-half or until mixture rounds up on spoon without separation. Fill pint jars, leaving 1/8-inch headspace. Adjust lids and process.

### Country Western Ketchup

24 lbs ripe tomatoes  
 5 chile peppers, sliced and seeded  
 ¼ cup salt  
 2-2/3 cups vinegar (5 percent)  
 1¼ cups sugar  
 ½ tsp. ground red pepper (cayenne)  
 4 tsp. paprika  
 4 tsp. whole allspice  
 4 tsp. dry mustard  
 1 tbsp. whole peppercorns  
 1 tsp. mustard seeds  
 1 tbsp. bay leaves

**Yield:** 6 to 7 pints.

**Procedure:** Follow procedure and process time for regular tomato ketchup.

Recommended process time for Tomato Ketchup in a boiling-water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0-1,000 ft	1,001-6,000 ft	Above6,000 ft
Hot	Pints	15 min	20	25

## Blender Ketchup

Use electric blender and eliminate need for pressing or sieving.

24 lbs ripe tomatoes  
 2 lbs onions  
 1 lb sweet red peppers  
 1 lb sweet green peppers  
 9 cups vinegar (5percent)  
 9 cups sugar  
 ½ cup canning or pickling salt  
 3 tbsp. dry mustard  
 1½ tbsp. ground red pepper  
 1½ tsp. whole allspice  
 1½ tbsp. whole cloves  
 3 sticks cinnamon

**Yield:** About 9 pints.

**Procedure:** Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Then dip in cold water, slip off skins, core, and quarter. Remove seeds from peppers and slice into strips. Peel and quarter onions. Blend tomatoes, peppers, and onions at high speed for 5 seconds in electric blender. Pour into a 3 to 4 gallon stockpot or large kettle and heat. Boil gently 60 minutes, stirring frequently. Add vinegar, sugar, salt, and a spice bag containing dry mustard, red pepper, and other spices. Continue

boiling and stirring until volume is reduced one-half and ketchup rounds up on a spoon with no separation of liquid and solids. Remove spice bag and fill jars, leaving 1/8-inch headspace. Adjust lids and follow process times for regular ketchup.

## Chile Salsa

(Hot Tomato-Pepper Sauce)

5 lbs tomatoes  
 2 lbs chile peppers  
 1 lb onions  
 1 cup vinegar (5 percent)  
 3 tsp. salt  
 ½ tsp. pepper

**Yield:** 6 to 8 pints.

**Procedure:** Caution: Wear rubber gloves while handling chilies or wash hands thoroughly with soap and water before touching your face. Peel and prepare chile peppers as described in making Mexican Tomato Sauce. Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Dip in cold water, slip off skins, and remove cores. Coarsely chop tomatoes and combine chopped peppers, onions, and remaining ingredients in a large saucepan. Heat to boil, and simmer 10 minutes. Fill jars, leaving ½-inch headspace. Adjust lids and process.

Recommended process time for Chile Salsa in a boiling-water canner.				
		Process Time at Altitudes of		
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	15 min	20	25