Home Canning of Fruits

Guide E-319

Revised by Nancy C. Flores and Cindy Schlenker Davies[1]

Cooperative Extension Service • College of Agricultural, Consumer and Environmental Sciences

SELECTION AND CARE OF FRUIT

Select fresh, recently harvested, ripe but firm fruit that is free of blemishes, bruises, or diseases. Prepare only the amount of fruit that can be processed quickly. A canner load is a recommended amount to prepare and can at one time (Table 1). A load is usually 9 pints or 7 quarts.

Table 1. Average Amounts Per Canner Load

Fruit	9 Pints	7 Quarts
	Pounds of fruit	
Apples	12 1/4	19
Apricots	10	16
Berries	8	12
Cherries	11	17 1/2
Figs	11	16
Grapes	9	14
Nectarines	11	17 1/2
Peaches	11	17 1/2
Pears	11	17 1/2
Pineapple	13	21
Plums	9	14
Rhubarb	7	10 1/2

PRESERVE NATURAL COLOR AND FLAVOR

Preserve the fruit's natural color and flavor by limiting exposure to air, packing hot into jars, observing the recommended headspace, processing quickly, and storing correctly.

To prevent discoloration of apples, apricots, nectarines, peaches, white cherries, and grapes that have been peeled, sliced, pitted, or stemmed, dip them in a solution of 3 grams of ascorbic acid (3,000 milligrams) to 1 gallon of cold water. One level teaspoon of the pure powdered form of ascorbic acid is 3 grams. Six 500-milligram tablets of vitamin C can also be used. One part lemon juice to four parts water can be used as a holding solution to prevent browning.

Both ascorbic acid and citric acid, available in several forms, are sold in supermarkets and drug stores. Ascorbic acid mixtures are more effective than citric acid mixtures. Follow manufacturer's instructions when using the commercial mixtures.

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SWEETENERS

Sugar and syrups help fruits retain flavor, color, and shape, but do not prevent spoilage. Sweetness is determined by the amount of sugar used: less sugar yields a lighter syrup with fewer calories. Sweeter syrups should be used with tart fruits. A 10% syrup is closest to the natural sugar content of fruit. See Table 2 for information on making sugar syrups.

Honey or light corn syrup can be substituted for up to half of the sugar in a syrup, if desired. Make enough syrup to fill the jars in one canner load.

CANNING WITHOUT SUGAR

Fruits can also be canned without sugar. Plain boiling water, unsweetened apple juice, pineapple juice, white grape juice, or a combination of these can be substituted for sugar syrups. For best results, it is recommended that sugar substitutes be used at serving time only, not in canning.

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Table 2. Sugar Syrup for a Canner Load					
Syrup	**% of Sugar**	**For 9-pint load**		**For 7-quart load**	
		Water	**Sugar**	**Water**	**Sugar**
		cups		cups	
Very light	10%	6 1/2	3/4	10 1/2	1 1/4
Light	20%	5 3/4	1 1/2	9	2 1/4
Medium	30%	5 1/4	2 1/4	8 1/4	3 3/4
Heavy	40%	5	3 1/4	7 3/4	5 1/4
Very heavy	50%	4 1/4	4 1/4	6 1/2	6 3/4

HOT PACKING FRUITS

Hot packing means heating food to the boiling point, simmering for 2–5 minutes, and filling hot jars loosely with hot food and liquid (juice, syrup, or water).

Hot packing removes air from fruit, shrinks it so that more fits in the jar, reduces fruit's tendency to float in the canning liquid, and improves shelf life.

CANNING EQUIPMENT LIST

- Cutting board
- Knife
- Peeler/corer
- Mixing spoons
- Tongs
- Measuring cup and spoon sets
- Canning jars
- Canning lids and screw bands
- Re-sealable plastic bags for leftovers
- Pot holders x 2
- Paper towels
- Cloth towels x 2
- Dish soap and scrubber
- Cooking pots in 1-quart and 5-quart sizes
- Large strainer
- Mixing bowl set in 2-, 3-, and 5-quart sizes
- Canning set
  - Jar lifter
  - Magnetized lid lifter
  - Funnel
  - Plastic spatula (to release air bubbles in jars)
- Pressure canner with rack for proper elevation **OR**
- Water bath canner with rack

GENERAL CANNING PROCEDURES

Use regular or wide-mouth Mason jars with self-sealing lids held in place by screw-on metal bands. The bands hold the lids in place during the processing and cooling periods, and can be removed and reused after cooling. Mason jars are made from tempered glass to resist high temperatures. Jars are available in 1/2 pint, pint, 1 1/2 pint, and quart sizes. Larger jars are not recommended for home canning. Do not reuse glass jars or bottles from commercially processed products such as mayonnaise because these jars will not withstand the water bath or pressure canner heating process.

Inspect jars carefully for cracks or chips and discard faulty ones. Wash jars in hot, soapy water and rinse thoroughly or clean using a dishwasher. To sterilize jars, keep jars hot in the dishwasher, a sink of hot water, or in a warm 180°F oven until they are filled. Check metal screw bands for signs of rust or dents. Discard corroded or dent- ed bands. Use only new lids and follow the manufacturer's directions for preparing lids for canning. Do not use lids that are missing any gasket compound, dented, deformed, or older than five years from date of manufacture.

Fill hot jars with food, allowing headspace as directed in the recipe for each fruit. A wide-mouth food funnel keeps jars cleaner when filling. Remove air bubbles by carefully inserting a plastic or wooden spatula along the inside of the jar. Add food or liquid to achieve the recommended headspace. Wipe the top rim of the jar with a clean damp cloth or paper towel. Place lid on rim and tighten screw band comfortably tight. DO NOT touch screw band until jar has been processed and cooled. See Figure 1 illustrating these steps for jar filling.

The unfilled space between food or liquid in the jar and the lid is the headspace. This space allows for boiling and expansion of air in foods. The higher the temperature, the greater the expansion. The space also creates a vacuum as food cools. Headspace for home-canned fruit is generally 1/2 inch, but may vary. Recommended headspace for each fruit is located in the canning directions in Table 3.

Follow These Steps for Successful Boiling-Water Canning

1. Fill the canner halfway with water.
2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods.
3. Load filled jars, fitted with lids, into the canner rack and use the handles to lower the rack into the water; or fill the canner, one jar at a time, with a jar lifter.
4. If necessary, add more boiling water so the water level is at least 1 inch above jar tops.
5. Turn heat to its highest position until water boils vigorously.
6. Set a timer for the minutes required for processing the food (Table 3).
7. Cover with the canner lid and lower the heat setting to maintain a gentle boil throughout the process schedule.

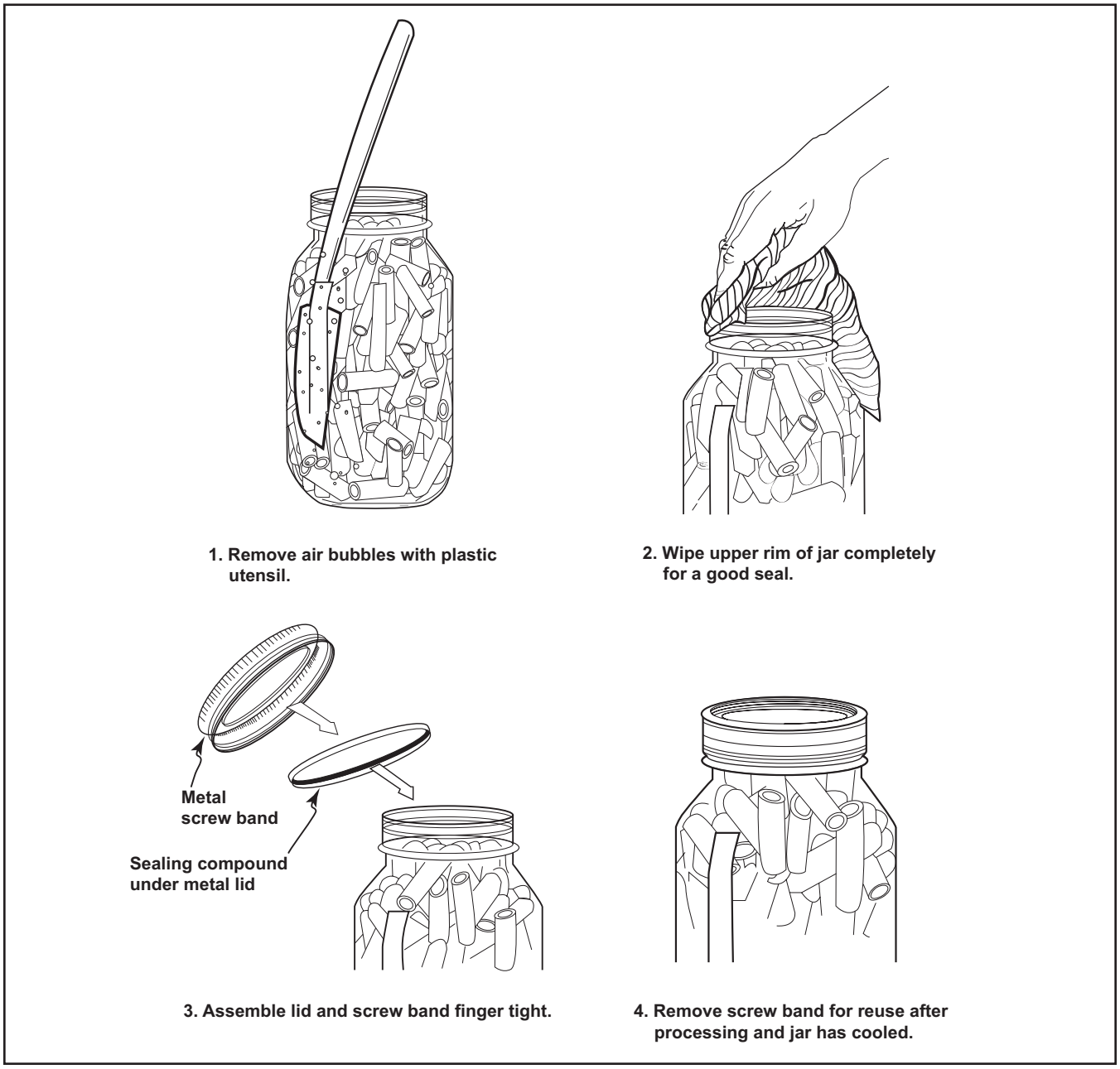

Figure 1. **Procedure for filling canning jars before processing (illustrations adapted from USDA, 2009, for New Mexico State University by Susan B. Portillo).**

8. Add more boiling water, if needed, to keep the water level above the jars.

9. When jars have been boiled for the recommended time, turn off the heat and remove the canner lid.

10. Using a jar lifter, remove the jars and place them on a towel, leaving at least 1 inch between the jars during cooling.

Test for Jar Seals

Remove screw bands when jars have cooled and test for vacuum seals by one of these methods:

- Press the lid center with your finger. If the lid springs up when released, it is not sealed.
- Tap the lid with a teaspoon. A sealed jar lid will make a ringing sound.
- Hold the jar at eye level and look across the lid. A sealed jar lid curves down slightly in the center.

Table 3. Canning Fruit In a Boiling-water Canner

Food	Pack	Directions	Headspace (inch)	Jar size	Processing time at elevations of 3,001–6,000 ft (minutes)	Processing time at elevations of Over 6,000 ft (minutes)
Apple sauce	Hot	Wash, peel, and core apples. Slice into water with ascorbic acid then drain. Simmer in small amount of water until soft. Stir to prevent sticking. Run through sieve or colander. Sauce may be canned with or without sugar. Add sugar if desired. Reheat to boiling and fill jar with hot sauce, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints	20	25
				Quarts	30	35
Apple slices	Hot	Wash, peel, core, and slice apples. Drop into water with ascorbic acid, then drain. Boil 5 minutes in water or light syrup (1 pint liquid per 5 pounds sliced apples). Stir occasionally. Fill jar with apples, syrup, juice, or water, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints or quarts	30	35
Apricot halves	Hot	Wash. Peel if desired. (Dip 30–60 seconds in boiling water until skins loosen. Dip in cold water. Slip off skins.) Cut in half and remove pits. Drop into water with ascorbic acid, then drain. Add apricot halves to syrup, juice, or water and bring to a boil. Fill jars with hot fruit and hot liquid to cover, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints	30	35
				Quarts	35	40
Berries (blueberries, blackberries, elderberries, mulberries, and raspberries)	Hot	**Blueberries and elderberries only**. Wash, cap, and stem. Prepare and boil preferred syrup; add 1/2 cup syrup, juice, or water to each jar. Heat berries in boiling water for 30 seconds and drain. Pour hot berries and liquid into jars, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints or quarts	20	25
	Raw	Wash, cap, and stem. Prepare and boil preferred syrup; add 1/2 cup syrup, juice, or water to each jar. Fill jars with raw berries, shaking gently while filling. Cover with hot water, juice, or syrup, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints	20	25
				Quarts	30	35
Cheeries (sweet or sour)	Hot	Stem and wash cherries; remove pits if desired. Place pitted cherries in ascorbic acid solution. If unpitted, prick skins with clean needle. Add 1/2 cup water, apple juice, grape juice, or syrup for each quart of drained fruit. Bring to boil. Fill jars with cherries and hot liquid, leaving headspace. Wipe jar rims, adjust lids, and process.	1/2	Pints	20	25
				Quarts	30	35
	Raw	Stem, wash, and pit cherries. Add 1/2 cup water, juice, or syrup to each jar. Fill jar with drained cherries and shake jar. Add hot liquid if needed, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints or quarts	35	40
Figs	Hot	Do not use overripe or cracked figs. Wash and drain figs. Do not peel or remove stems. Cover with water and boil 2 minutes, then drain. Boil gently in light syrup for 5 minutes. **Add 1 tablespoon bottled lemon juice to each pint jar, or 2 tablespoons bottled lemon juice to each quart jar.** Fill jars with hot figs and hot liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	55	60
				Quarts	60	65
Fruit purée of any fruit, except figs and tomatoes	Hot	Stem, wash, drain, peel, and remove pits if necessary. Measure fruit into large saucepan, crushing slightly if desired. Add 1 cup hot water for each quart of fruit. Cook slowly until fruit is soft, stirring frequently. Press through sieve or food mill. If desired for flavor, add sugar to taste. Reheat pulp to boil, or until sugar dissolves if added. Fill hot jars leaving headspace. Wipe rims, adjust lids, and process.	1/4	Pints or quarts	20	25

Table 3. Canning Fruit In a Boiling-water Canner

Food	Pack	Directions	Headspace (inch)	Jar size	Processing time at elevations of 3,001–6,000 ft (minutes)	Processing time at elevations of Over 6,000 ft (minutes)
Grape juice	Hot	An average of 24 1/2 pounds is needed per 7-quart canner load, or 16 pounds per 9-pint canner load. Select firm, mature, sweet, well-colored, ideal quality fruit. Stem and wash grapes. Place in a saucepan and add boiling water to cover grapes. Heat and simmer until skin becomes soft. Strain through damp jelly bag or double layers of cheesecloth. Refrigerate juice 24–48 hours. Do not mix. Carefully pour off liquid into another container and save. Discard sediment. For clearer juice, strain through coffee filter. Place juice in saucepan and sweeten to taste. Stir in sugar and heat until juice begins to boil. Fill hot, sterilized jars immediately, leaving headspace. Wipe rims, adjust lids, and process.	1/4	Pints or quarts	10	15
Grapes	Hot	Choose unripe, tight-skinned, preferably green seedless grapes harvested 2 weeks before they reach optimal eating quality. Stem, wash, and drain grapes. Prepare very light syrup. Blanch grapes in boiling water for 30 seconds, then drain. Fill jars with grapes and hot syrup, leaving headspace. Wipe rims, adjust lids, and process.	1	Pints or quarts	15	20
	Raw	Fill jars with grapes and hot syrup, leaving headspace. Wipe rims, adjust lids, and process.	1	Pints	20	25
				Quarts	30	35
Mixed fruit cocktail (Yield: about 6 pints)	Raw	1 1/2 lb slightly under-ripe seedless green grapes 3 lb peaches, ripe but firm 3 lb pears 10 oz jar of maraschino cherries 3 cups sugar 4 cups water 1) Stem and wash grapes. Keep in ascorbic acid solution. 2) Dip peaches, a few at a time, in boiling water for 1 to 1 1/2 minutes to loosen skins. Place in pan of cold water and take off skins. Cut in half, remove pit, and cut into 1/2-inch cubes. Place in ascorbic acid solution with grapes. 3) Peel, halve, core, and cut pears into 1/2-inch cubes. Place into ascorbic acid solution with grapes and peaches. 4) Combine sugar and water in a saucepan and bring to a boil. 5) Drain fruit, add cherries to fruit, and mix gently. 6) Add 1/2 cup of hot syrup to each jar and gently add mixed fruit and more hot syrup, leaving headspace. Wipe rims, adjust lids, and process.	1/2	1/2 pints	30	35
Peaches or nectarines (halved or sliced)	Hot	Wash. Dip 30–60 seconds in boiling water until skins loosen. Dip in cold water. Slip off skins. (Skins of nectarines do not have to be removed.) Cut in half and remove pits. Drop into water with ascorbic acid. Drain and place into syrup, juice, or water. Bring to boil. Fill jars with hot fruit and hot liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	30	35
				Quarts	35	40
	Raw	Fill jars with raw fruit, cut side down. Add hot water, juice, or syrup, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	35	40
				Quarts	40	45
Pears	Hot	Wash and peel pears. Cut in half lengthwise. Core. Drop in ascorbic acid solution until ready. Drain. Boil in water, apple juice, white grape juice, or desired syrup for 5 minutes. Fill jars with hot fruit and hot liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	30	35
				Quarts	35	40

Table 3. Canning Fruit In a Boiling-water Canner						
					Processing time at elevations of	
Food	Pack	Directions	Headspace (inch)	Jar size	3,001–6000 ft (minutes)	Over 6,000 ft (minutes)
Pineapple	Hot	Wash, peel, and remove eyes and any fiber. Slice or cube. Simmer 10 minutes in water, juice, or syrup. Fill jars with hot pineapple and hot liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	20	25
				Quarts	30	35
Plums	Hot	Stem and wash plums. Prick skins of whole plums with clean needle. Halve and pit free-stone varieties. Simmer plums 2 minutes in desired syrup. Cover pan and let stand 20–30 minutes. Fill jars with hot plums and liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	30	35
				Quarts	35	40
	Raw	Fill jars with raw plums. Pack firmly. Add hot syrup, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints	30	35
				Quarts	35	40
Rhubarb, stewed	Hot	Select young, tender, well-colored stalks from spring or late fall crop. Trim off all leaves and discard promptly since leaves are toxic. Wash and cut stalks into 1/2-inch pieces. Add 1/2 cup sugar to each quart of fruit in large saucepan. Let stand. When juice appears, heat to boiling. Fill jars with rhubarb and juice without delay, leaving headspace. Wipe rims, adjust lids, and process.	1/2	Pints or quarts	20	20
Zucchini and pineapple (Yield: 8 to 9 pints)	Hot	4 qt zucchini, cubed or shredded 46 oz canned, unsweetened pineapple juice 1 1/2 cup bottled lemon juice 3 cups sugar Peel zucchini and cut into 1/2-inch cubes or shred. Mix with other ingredients in large saucepan and bring to boil. Simmer 20 minutes. Fill jars with hot mixture and cooking liquid, leaving headspace. Wipe rims, adjust lids, and process.	1/2	1/2 pints or pints	20	25

Reprocessing Unsealed Jars

Remove lids from unsealed jars and discard. Check the sealing surface of jar for tiny nicks or cracks. If the jar has defects, discard it and replace it with another jar. If not, add a new lid and process for the same amount of time within 24 hours. Unsealed jars can be kept in the refrigerator if used within 3–4 days, or remove about an inch of the contents and freeze.

Storing Canned Food

Clean the outsides of sealed, cooled jars. Label with date and contents and store in a cool (50–70° F), dark, dry place away from sun, light, or dampness. Canned products are best if eaten within one year.

Accidental Freezing

Freezing may cause food in jars to spoil if the jars become unsealed. Freezing and thawing cause food to soften and lose eating quality. Protect jars from freezing by wrapping with layers of newspapers.

If Canned Food Spoils

Examine jars carefully before tasting fruit. Check lids for a vacuum seal. **NEVER** taste food from an unsealed jar.

Signs of food spoilage are streaks and dried food at the top of the jar, swollen lids, broken jar seals, rising air bubbles, and any unnatural color. Other indicators include bad or unnatural odor; spurting liquid; white, blue, green, or black mold; or foaming.

Dispose of any food you suspected of being spoiled. For safety, spoiled canned food and containers may need to be detoxified before disposal. Contact your county Extension office (http://aces.nmsu.edu/county/) for detoxification instructions.

ELEVATION ADJUSTMENTS

All communities in New Mexico are above sea level, varying from 3,000 to 10,000 feet, with differences even within a county.

Use Table 4 to determine the elevation of your community and then select safe processing times for canning your fruit. The boiling temperature of liquids is lower at higher elevations (Table 5), and food must therefore be processed longer at high elevations.

REFERENCES

http://nchfp.uga.edu/how/can2_fruit.html
http://nchfp.uga.edu/how/general/identify_handle_spoiled_canned_food.html

Table 4. Elevations of Cities and Towns in New Mexico			
City/Town	**Elevation (ft)**	**City/Town**	**Elevation (ft)**
Alamogordo	4,350	Las Vegas	6,450
Albuquerque	5,000	Logan	3,830
Artesia	3,350	Lordsburg	4,250
Aztec	5,650	Los Alamos	7,400
Bayard	5,800	Los Ranchos de Albuquerque	4,950
Belen	4,800	Lovington	3,900
Bernalillo	5,050	Magdalena	6,555
Bosque Farms	4,865	Melrose	4,600
Carlsbad	3,100	Mora	7,200
Carrizozo	5,450	Mosquero	5,550
Chama	7,900	Mountainair	6,500
Cimarron	6,450	Portales	4,010
Clayton	5,050	Raton	6,650
Cloudcroft	8,650	Reserve	5,750
Clovis	4,300	Rio Rancho	5,290
Columbus	4,020	Roswell	3,600
Corona	6,665	Roy	5,900
Corrales	5,005	Ruidoso	7,000
Cuba	7,000	San Jon	4,200
Deming	4,300	Santa Fe	7,000
Dexter	3,500	Santa Rita	6,300
Eagle Nest	8,250	Santa Rosa	4,600
Elida	4,345	Silver City	5,900
Española	5,600	Socorro	4,600
Estancia	6,100	Springer	5,800
Farmington	5,400	Taos	7,000
Fort Sumner	4,050	Texico	4,150
Gallup	6,500	Tierra Amarilla	7,460
Grants	6,450	Truth or Consequences	4,250
Hobbs	3,650	Tucumcari	4,100
Hurley	5,700	Tularosa	4,500
Jemez Springs	6,200	Vaughn	5,950
Las Cruces	3,900	Wagon Mound	6,200

Table 5. Changes in Boiling Temperature of Water with Elevation	
Elevation	**Boiling Temperature of Water**
Sea level	212°F
2,000 ft	206°F
4,000 ft	204°F
6,000 ft	201°F
8,000 ft	197°F
10,000 ft	194°F

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This publication is intended for use by individuals with a basic understanding of canning procedures. For more detailed information consult the USDA *Complete Guide to Home Canning*, which is available at http://nchfp.uga.edu/publications/publications_usda.html, or through your local county Extension office (http://aces.nmsu.edu/county/).

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