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EC90-437 Let's Preserve: Tomatoes and Tomato Products

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Let's Preserve: Tomatoes and Tomato Products

Julie A. Albrecht, Extension Food and Nutrition Specialist

Several tomato plants can yield lots of fruit. Preserving tomatoes in various ways to serve throughout the year is an excellent way to use your harvest.

This publication provides procedures to safely process a variety of tomato products. The publication *Let's Preserve: Canning Basics: (EC90-434)* gives information on boiling-water and pressure canners, jar and lid selection, and preparation.

Tomato Selection and Preparation

Select disease-free, preferably vine-ripened, firm tomatoes for canning. 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 recommendation in this publication.

For nine pints of canned tomato products, you need 13-14 pounds of tomatoes. Approximately 23 pounds are needed for seven quarts of canned product.

To prepare fruit, wash, remove stems, and trim bruised or discolored portions. To remove the peel, dip tomatoes in boiling water for 30 to 60 seconds until skins split. Dip into cold water and slip off skins.

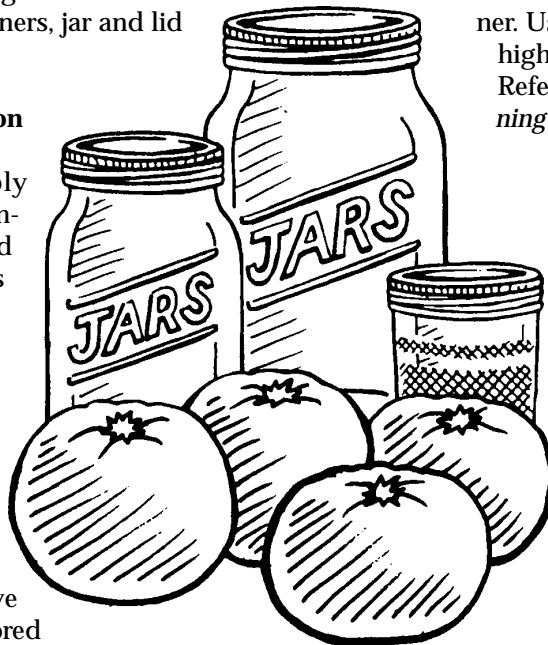
Acidification

Tomatoes usually are considered an acid food, although some varieties may have pH values above 4.6. To insure proper acidity in tomatoes, add one of the following acids directly to each jar before filling with product:

Acid	Amount per:	
	Pint	Quart
Bottled lemon juice	1 tablespoon	2 tablespoons
Citric acid	1/4 teaspoon	1/2 teaspoon
Vinegar (5% acidity)	2 tablespoons	4 tablespoons

Add sugar to offset acid taste, if desired. Vinegar may cause an undesirable flavor.

NOTE: Adding acid to overripe tomatoes will not increase the acid level enough to ensure a safe product. Properly acidified tomatoes are acid foods and can be safely processed in a boiling-water canner. Use of a pressure canner will result in higher quality canned tomato products. Refer to the publication *Let's Preserve: Canning Basics (EC90-434)*.



Canning Tomatoes With or Without Salt

Tomatoes can be canned with or without salt. If salt is desired, add 1/2 teaspoon to pints or 1 teaspoon to quarts before you put on the lid. Add salt substitutes, if desired, when serving.

Determine Your Altitude

Water boils at 212°F at sea level. As the elevation increases, water boils at lower temperatures and foods take longer to cook. To insure safely canned foods at altitudes above sea level, lengthen the processing time for boiling-water canning methods. For the pressure canned method, increase the pressure to assure a safely canned product.

The map on page 2 shows Nebraska altitudes. Find your area and check the tables for the correct processing time or pressure for your altitude.

Tomato Mixtures

Tomato mixtures may be canned for later use. With the addition of low-acid foods, these products must be processed in a pressure canner. Processing times and canner pressures are listed on pages 7-8.



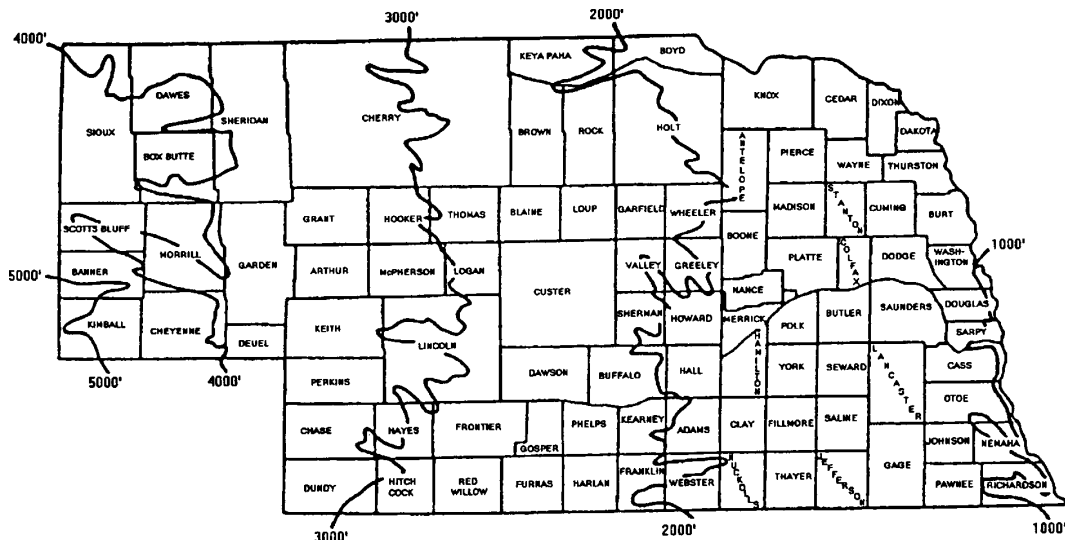


Figure 1. Altitude ranges in Nebraska.

Map was prepared by Les Howard, cartographer, UNL Geography Department

Spaghetti Sauce Without Meat

- | | |
|--|------------------------------|
| 30 pounds tomatoes | 4-1/2 teaspoons salt |
| 1 cup chopped onions | 2 tablespoons oregano |
| 5 cloves garlic, minced | 4 tablespoons minced parsley |
| 1 cup chopped celery or green peppers | 2 teaspoons black pepper |
| 1 pound fresh mushrooms, sliced (optional) | 1/4 cup brown sugar |
| | 1/4 cup vegetable oil |

Yield: About 9 pints

CAUTION: Do not increase the proportion of onions, peppers or mushrooms.

Procedure: Wash tomatoes and dip them 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 tomatoes 20 minutes, uncovered, in large saucepan. Put through food mill or sieve. Saute onions, garlic, celery or peppers, and mushrooms (if desired) in vegetable oil until tender. Combine sauteed vegetables and tomatoes and add 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; leave 1" headspace.

For processing information, refer to page 7.

Spaghetti Sauce With Meat

- | | |
|---------------------------------------|--|
| 30 pounds tomatoes | 1 pound fresh mushrooms, sliced (optional) |
| 2-1/2 pounds ground beef or sausage | 4-1/2 teaspoons salt |
| 5 cloves garlic, minced | 2 tablespoons oregano |
| 1 cup chopped onions | 2 tablespoons mince parsley |
| 1 cup chopped celery or green peppers | 2 teaspoons black pepper |
| | 1/4 cup brown sugar |

Yield: About 9 pints

Procedure: To prepare tomatoes, follow directions for *Spaghetti Sauce Without Meat*. Saute beef or sausage until brown. Add garlic, onion, celery or green pepper, and mushrooms, if desired. Cook until vegetables are tender. Combine with tomato 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; leave 1" headspace.

For processing information, refer to page 8.

Mexican Tomato Sauce

- | | |
|---------------------------------|----------------------|
| 2-1/2 to 3 pounds chile peppers | 1 tablespoon salt |
| 18 pounds tomatoes | 1 tablespoon oregano |
| 3 cups chopped onions | 1/2 cup vinegar |

Yield: About 7 quarts

CAUTION: Wear rubber gloves while handling chiles or wash hands thoroughly with soap and water before touching your face.

Procedure: Wash and dry chiles. Slit each pepper on its side to allow steam to escape. Peel peppers by placing chiles in oven (400°F) or broiler for 6-8 minutes until skins blister. Allow peppers to cool. Place in a pan and cover with a damp cloth. After several minutes, peel each pepper. Discard seeds and chop peppers. 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 and remaining ingredients in large saucepan. Bring to a boil; cover and simmer 10 minutes. Fill jars; leave 1" headspace.

For processing information, refer to page 8.

Ketchup

Tomato Ketchup

24 pounds ripe tomatoes 3 sticks cinnamon, crushed
 3 cups chopped onions 1-1/2 teaspoons whole
 3/4 teaspoon ground red allspice
 pepper (cayenne) 3 tablespoons celery seeds
 3 cups cider vinegar (5%) 1-1/2 cups sugar
 4 teaspoons whole cloves 1/4 cup salt

Yield: 6 to 7 pints

Procedure: 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. Quarter tomatoes into 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 two-quart saucepan. Bring to boil. Cover, turn off heat and let tomato mixture stand for 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 kettle. 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; leave 1/8" headspace.

For processing information, refer to page 3.

Country Western Ketchup

24 pounds ripe tomatoes 4 teaspoons paprika
 5 chile peppers, sliced 4 teaspoons whole allspice
 and seeded 4 teaspoons dry mustard
 1/4 cup salt 1 tablespoon whole
 2-2/3 cups vinegar (5%) peppercorns
 1-1/4 cups sugar 1 teaspoon mustard seeds
 1/2 teaspoon ground red 1 tablespoon crushed
 pepper (cayenne) bay leaves

Yield: 6 to 7 pints

Follow procedure and processing time for regular tomato ketchup.

Blender Ketchup

Use electric blender and eliminate need for pressing or sieving.

24 pounds ripe tomatoes 3 tablespoons dry mustard
 2 pounds onions 1-1/2 tablespoons ground
 1 pound sweet red peppers red pepper
 1 pound sweet green 1-1/2 teaspoons whole
 pepper allspice
 9 cups vinegar (5%) 1-1/2 tablespoons whole
 9 cups sugar cloves
 1/4 cup canning or 3 sticks cinnamon
 pickling salt

Procedure: Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. 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 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 reduced one-half and ketchup rounds up on a spoon with no separation of liquid and solids. Remove spice bag and fill jars; leave 1/8" headspace.

Recommended Processing Time For Ketchup Recipes in Boiling-Water Canner

Style of Pack	Process Time at Altitudes of		
	Jar Size	0- 1,000 ft	1,001- 6,000 ft
Hot	Pints	20 min	25 min

Green Tomatoes

Green Tomato Pie Filling

4 quarts chopped green 2-1/2 cups brown sugar
 tomatoes 2-1/2 cups white sugar
 3 quarts peeled and 1/2 cup vinegar (5%)
 chopped tart apples 1 cup bottled lemon Nice
 1 pound dark seedless 2 tablespoons ground
 raisins cinnamon
 1 pound white raisins 1 teaspoon ground nutmeg
 1/4 cup minced citron, 1 teaspoon ground cloves
 lemon, or orange peel
 2 cups water

Yield: About 7 quarts

Procedure: Combine all ingredients in a large saucepan. Cook slowly, stirring often, until tender and slightly thickened (about 35 to 40 minutes). Fill quart jars with hot mixture; leave 1/2" headspace.

At altitudes below 1,000 feet, process in a boiling water canner for 15 minutes. Process for 20 minutes for altitudes of 1,001-6,000 feet.

Pickled Sweet Green Tomatoes

10-11 pounds of green tomatoes (16 cups sliced)	4 cups vinegar (5%)
2 cups sliced onions	1 tablespoon mustard seed
1/4 cup canning or pickling salt	1 tablespoon allspice
3 cups brown sugar	1 tablespoon celery seed
	1 tablespoon whole cloves

Yield: About 9 pints

Procedure: Wash and slice tomatoes and onions. Place in bowl, sprinkle with 1/4 cup salt, and let stand 4 to 6 hours. Drain. Heat and stir sugar in vinegar until dissolved. Tie mustard seed, allspice, celery seed, and cloves in a spice bag. Add to vinegar with tomatoes and onions. If needed, add minimum water to cover pieces. Bring to boil and simmer 30 minutes, stirring as needed to prevent burning. Tomatoes should be tender and transparent when properly cooked. Remove spice bag. Fill jar and cover with hot pickling solution; leave 1/2" headspace.

At altitudes below 1,000 feet, process in a boiling-water bath for 10 minutes for pints or 15 minutes for quarts. For altitudes of 1,000-6,000 feet, process in a boiling-water bath for 15 minutes for pints or 20 minutes for quarts.

Pickled Green Tomato Relish

10 pounds small, hard green tomatoes	1 quart water
1-1/2 pounds red bell peppers	4 cups sugar
1-1/2 pounds green bell peppers	1 quart vinegar (5%)
2 pounds onions	1/3 cup prepared yellow mustard
1/2 cup canning or pickling salt	2 tablespoons cornstarch

Yield: 7 to 9 pints

Procedure: Wash and coarsely grate or finely chop tomatoes, peppers, and onions. Dissolve salt in water and pour over vegetables in large kettle. Heat to boiling and simmer 5 minutes. Drain in colander. Return vegetables to kettle. Add sugar, vinegar, mustard, and cornstarch. Stir to mix. Heat to boiling and simmer 5 minutes. Fill sterile pint jars with hot relish; leave 1/2 inch headspace.

At altitudes below 1,000 feet, process pints in a boiling-water bath for 5 minutes. For altitudes of 1,000-6,000 feet, process pints in a boiling-water bath for 10 minutes.

Reference

Complete Guide to Home Canning. Agriculture Information Bulletin 539, U.S. Government Printing Office. 1988.

Recommended Processing Procedures for Tomatoes and Tomato Products in Boiling-Water Canner

Tomato Product	Style of Procedure	Pack	Jar Size	Process Time at Altitudes of		
				0-1,000 ft	1,001-3,000 ft	3,001-6,000 ft
Tomato Juice	To prevent juice from separating, quickly cut about 1 pound of fruit into quarters and put directly into sauce pan. 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 the 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 directions). Heat juice to boiling again. Fill jars with hot tomato juice; leave 1/2" headspace.	Hot	Pints Quarts	35 min 40 min	40 min 45 min	45 min 50 min
Tomato and Vegetable Juice Blend	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 for 22 pounds of tomatoes. 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). Reheat tomato-vegetable juice blend to boiling and fill jars immediately; leave 1/2" headspace.	Hot	Pints Quarts	35 min 40 min	40 min 45 min	45 min 50 min
Tomatoes - Crushed (with no liquid)	Heat on-sixth of the quarters quickly in a large pot, crushing them with a wooden mallet or spoon to exude juice. Continue heating the tomatoes, stir to prevent burning. Once the tomatoes are boiling, gradually add remaining quartered tomatoes, stirring constantly. Do not crush. They will soften with heating and stirring. Boil gently 5 minutes. Add bottled lemon juice or citric acid to jars (see acidification directions). Fill jars immediately with hot tomatoes; leave 1/2" headspace.	Hot	Pints Quarts	35 min 45 min	40 min 50 min	45 min 55 min

Tomato Product	Style of Procedure	Pack	Jar Size	Process Time at Altitudes of		
				0-1,000 ft	1,001-3,000 ft	3,001-6,000 ft
Tomato Sauce	Prepare and press as for making tomato juice. Sinner in large 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). Fill jars; leave 1/4" headspace.	Hot	Pints	35 min	40 min	45 min
Tomatoes Whole or Halved (packed in water)	leave whole or halve. Add bottled lemon juice or citric acid to jars (see acidification directions). 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 hot cooking liquid to hot pack, or hot water for raw pack; leave 1/2" headspace.	Hot and Raw	Pints	40 min	45 min	50 min
Tomatoes Whole or Halved (packed in tomato juice)	leave whole or halve. Add bottled lemon juice or citric acid to jars (see acidification directions). Raw Pack — Heat tomato juice in a saucepan. Fill jars with raw tomatoes. Cover tomatoes in the jars with hot tomato juice; leave 1/2" headspace. • Put tomatoes in a large saucepan and add tomato juice to completely cover them. Boil gently for 5 minutes. Fill jars 'with hot tomatoes; leave 1/2" headspace. Add hot tomato juice to jars; leave 1/2" headspace.	Hot and Raw	Pints or Quarts	85 min	90 min	95 min
Tomatoes — Whole or Halved (packed raw without added	leave whole or halve. Add bottled lemon juice or citric acid to jars (see acidification directions). Fill jars 'with raw tomatoes. Press tomatoes in the jars until spaces between them fill with juice; leave 1/2" headspace.	Raw	Pints or Quarts	85 min	90 min	95 min

Recommended Process Times for Tomatoes and Tomato Products in a Pressure Canner

		Recommended Pressure for Pressure Canner							
		Dial-Gauge			Weighted-Gauge				
Type of Fruit	Style of Pack	Jar Size	Process Time	Canner Gauge Pressure (PSI) at Altitudes of			Canner Gauge Pressure (PSI) at Altitudes of		
				0-2,000 ft	2,001-4,000 ft	4,001-6,000 ft	0-1,000 ft	1,000 ft	Above 1,000 ft
Tomato Juice	Hot	Pints	20 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	15 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomato and Vegetable Juice Blend	Hot	Pints	20 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	15 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomato — Crushed (with no added liquid)	Hot	Pints	20 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	15 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomato Sauce	Hot	Pints	20 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	15 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomatoes - Whole or Halved (packed in water)	Hot and Raw	Pints	15 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	10 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomatoes - Whole or Halved (packed in tomato juice)	Hot and Raw	Pints	40 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	25 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Tomatoes — Whole or Halved (packed raw without added liquid)	Raw	Pints	40 min	6 lbs	7 lbs	8 lbs	5 lbs	5 lbs	10 lbs
		Quarts	25 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
Spaghetti Sauce without meat	Hot	Pints	20 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs
		Quarts	25 min	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs

Recommended Pressure for Pressure Canner

Type of Fruit	Dial-Gauge				Weighted-Gauge			
	Canner Gauge Pressure (PSI) at Altitudes of				Canner Gauge Pressure (PSI) at Altitudes of			
	0-2,000 ft	2,001-4,000 ft	4,001-6,000 ft	Above 1,000 ft	0-1,000 ft	1,001-1,000 ft	Above 1,000 ft	1,001-1,000 ft
Spaghetti Sauce with meat	Pints	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs	15 lbs
	Quarts	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs	15 lbs
Mexican Tomato Sauce	Pints	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs	15 lbs
	Quarts	11 lbs	12 lbs	13 lbs	10 lbs	10 lbs	15 lbs	15 lbs



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