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EC437

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# Let's Preserve: Tomatoes and Tomato Products

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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, (EC434)* gives information on

boiling-water and pressure canners, jar and lid selection, and preparation.

## Tomato Selection and Preparation

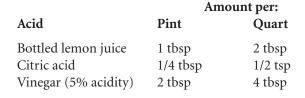
Select disease-free, preferably vine-ripened, firm tomatoes for canning. Do not can tomatoes from dead or frost-killed vines. Green tomatoes are more acidic than ripened fruit and can be canned safely with any recommendation in this publication.

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 ensure proper acidity in tomatoes, add one of the following acids directly to each jar before filling with product:



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. Using a pressure canner will result in higher quality canned tomato products. Refer to the publication *Let's Preserve: Canning Basics* (EC434).



Photo courtesy of National Presto Industries, Inc.

### 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 ensure safely canned foods at altitudes above sea level, lengthen the processing time for



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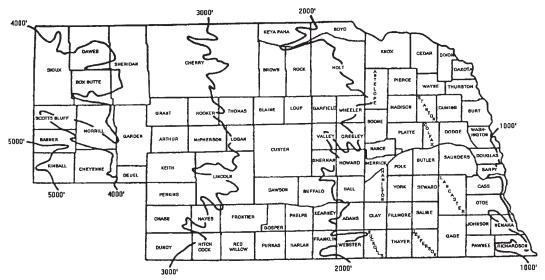


Figure 1. Altitude ranges in Nebraska.

Map was prepared by Les Howard, cartographer, UNL School of Natural Resources

boiling-water canning methods. For the pressure canned method, increase the pressure to assure a safely canned product.

The map above shows Nebraska altitudes. Find your area and check the tables for the correct processing time and 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.

#### **Spaghetti Sauce Without Meat**

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

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-inch headspace.

For processing information, refer to Page 7.

#### Spaghetti Sauce With Meat

| 30 lb tomatoes          | 1 lb fresh mushrooms, |
|-------------------------|-----------------------|
| 2 1/2 lb ground         | sliced (optional)     |
| beef or sausage         | 4 1/2 tsp salt        |
| 5 cloves garlic, minced | 2 tbsp oregano        |
| 1 cup chopped onions    | 2 tbsp minced parsley |
| 1 cup chopped celery    | 2 tsp black pepper    |
| or green peppers        | 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-inch headspace.

For processing information, refer to Page 8.

#### **Mexican Tomato Sauce**

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

Yield: About 7 quarts

Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

**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 six to eight 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-inch headspace.

For processing information, refer to Page 8.

#### **Chile Salsa (Hot Tomato-Pepper Sauce)**

5 lb tomatoes2 lb chile peppers1 lb onions1 cup vinegar (5 percent)

3 tsp salt

1/2 tsp pepper

Yield: 6 to 8 pints

Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Carefully measure all ingredients to ensure safe processing in a boiling-water canner.

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 1/2-inch headspace. Adjust lids and process according to the chart on Page 4.

#### Ketchup

#### Tomato Ketchup

24 lb ripe tomatoes 3 sticks cinnamon, crushed 3 cups chopped onions 1 1/2 tsp whole allspice 3 tbsp celery seeds pepper (cayenne) 1 1/2 cups sugar 3 cups cider vinegar (5%) 1/4 cup salt

4 tsp whole cloves

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-inch headspace.

For processing information, refer to Page 4.

#### **Country Western Ketchup**

24 lb ripe tomatoes
5 chile peppers, sliced
and seeded
4 tsp whole allspice
4 tsp dry mustard
1/4 cup salt
2 2/3 cups vinegar (5%)
1 1/4 cups sugar
1/2 tsp ground red pepper

4 tsp paprika
4 tsp whole allspice
4 tsp dry mustard
1 tsp whole peppercorns
1 tsp mustard seeds
1 tbsp crushed bay leaves

(cayenne)
Yield: 6 to 7 pints

pickling salt

Follow procedure and processing time for regular tomato ketchup.

#### Blender Ketchup

Use electric blender and eliminate need for pressing or sieving.

24 lb ripe tomatoes
2 lb onions
1 lb sweet red peppers
1 lb sweet green pepper
9 cups vinegar (5%)
1 l/2 tbsp ground red
pepper
1 l/2 tsp whole allspice
1 l/2 tbsp whole cloves
3 sticks cinnamon
1/4 cup canning or



Photo courtesy of the United States Department of Agriculture (USDA)

**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 five 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 is reduced by 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-inch headspace.

| Recommended Processing Time for Ketchup<br>Recipes in a Boiling-water Canner |             |                                |        |  |  |  |
|--|-------------|--------------------------------|--------|--|--|--|
|  |             | Process Time at Altitudes of   |        |  |  |  |
| Style<br>of Pack   | Jar<br>Size | 0- 1,001-<br>1,000 ft 6,000 ft |        |  |  |  |
| Hot  | Pints       | 15 min                         | 20 min |  |  |  |

#### **Green Tomatoes**

| Recommended Process Time for<br>Chile Salsa in a Boiling-water Canner |  |        |        |  |  |  |
|---|--|--------|--------|--|--|--|
| Process Time at Altitudes of  |  |        |        |  |  |  |
| Style of<br>Pack  | Jar         0-         1,00           Size         1,000 ft         6,00 |        |        |  |  |  |
| Hot   | Pints  | 15 min | 20 min |  |  |  |

#### **Pickled Sweet Green Tomatoes**

10-11 lb of green tomatoes
(16 cups sliced)
2 cups sliced onions
1/4 cup canning or
pickling salt

3 cups brown sugar

Yield: About 9 pints

4 cups vinegar (5%) 1 tbsp mustard seed 1 tbsp allspice 1 tbsp celery seed 1 tbsp whole cloves **Procedure:** Wash and slice tomatoes and onions. Place in bowl, sprinkle with 1/4 cup salt and let stand four to six 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-inch headspace.

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

#### Pickled Green Tomato Relish

10 lb small, hard, green tomatoes 1 quart water 4 cups sugar 1 1/2 lb red bell peppers 1 quart vinegar (5%) 1 1/2 lb green bell peppers 2 lb onions 1/2 cup canning or pickling salt 2 tbsp 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 five minutes. Drain in colander. Return vegetables to kettle. Add sugar, vinegar, mustard, and cornstarch. Stir to mix. Heat to boiling and simmer five 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 five minutes. For altitudes of 1,000 to 6,000 feet, process pints in a boiling-water bath for 10 minutes.

#### Reference

Complete Guide to Home Canning. Agriculture Information Bulletin 539, 2009. www.uga/edu/nchfp/publications/publications\_usda.html.

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

|   |  |      |                            | Process                        | Process Time at Altitudes of       |                             |  |
|---|--|------|----------------------------|--------------------------------|------------------------------------|-----------------------------|--|
| Tomato Product                              | Procedure  | Pack | Jar<br>Size                | 0-<br>1,000 ft                 | 1,001-<br>3,000 ft                 | 3,001-<br>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 five 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 five 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, Page 1). Heat juice to boiling again. Fill jars with hot tomato juice; leave 1/2-inch headspace. | Hot  | Pints  Quarts  Wait 5 minu | 35 min 40 min stes before remo | 40 min 45 min ving jars from       | 45 min<br>50 min<br>canner. |  |
| Tomato and<br>Vegetable<br>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. <b>Add bottled lemon juice or citric acid to jars</b> (see acidification directions, Page 1). Reheat tomato-vegetable juice blend to boiling and fill jars immediately; leave 1/2-inch headspace.   | Hot  | Pints  Quarts  Wait 5 minu | 35 min 40 min ates before remo | 40 min<br>45 min<br>ving jars from | 45 min<br>50 min<br>canner. |  |
| Tomatoes,<br>crushed<br>(with no<br>liquid) | Heat one-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 five minutes. <b>Add bottled lemon juice or citric acid to jars</b> (see acidification directions, Page 1). Fill jars immediately with hot tomatoes; leave 1/2-inch headspace.  | Hot  | Pints  Quarts  Wait 5 minu | 35 min 45 min ates before remo | 40 min<br>50 min<br>ving jars from | 45 min<br>55 min<br>canner. |  |

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|                          |  |                  |  | Process Time at Altitudes of |                    |                    |  |
|--------------------------|--|------------------|--|------------------------------|--------------------|--------------------|--|
| Tomato Product           | Procedure  | Style of<br>Pack | Jar<br>Size                                  | 0-<br>1,000 ft               | 1,001-<br>3,000 ft | 3,001-<br>6,000 ft |  |
| Tomato Sauce             | Prepare and press as for making tomato juice. Simmer in large saucepan until sauce reaches desired   | Hot              | Pints  | 35 min                       | 40 min             | 45 min             |  |
|                          | consistency. Boil until volume is reduced by about   |                  | Quarts                                       | 40 min                       | 45 min             | 50 min             |  |
|                          | one-third for thin sauce, or by one-half for thick sauce. Add bottled lemon juice or citric acid to jars (see acidification directions, Page 1). Fill jars; leave 1/4-inch headspace.  |                  | Wait 5 min                                   | utes before remo             | oving jars from    | canner.            |  |
| Tomatoes,                | Leave whole or halve. Add bottled lemon juice or   | Hot              | Pints  | 40 min                       | 45 min             | 50 min             |  |
| whole or<br>halved       | citric acid to jars (see acidification directions, Page 1).  For hot-pack products, add enough water to cover the  | and<br>Raw       | Quarts                                       | 45 min                       | 50 min             | 55 min             |  |
| (packed in<br>water)     | tomatoes and boil them gently for five 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-inch headspace.  |                  | Wait 5 minutes before removing jars from car |                              |                    |                    |  |
| Tomatoes                 | Leave whole or halve. Add bottled lemon juice  | Hot              | Pints  |                              |                    |                    |  |
| Whole or                 | or citric acid to jars (see acidification  | and              | or   | 85 min                       | 90 min             | 95 min             |  |
| Halved (packed in        | directions, Page 1).  **Raw Pack — Heat tomato juice in a saucepan. Fill   | Raw              | Quarts                                       |                              |                    |                    |  |
| tomato juice)            | jars with raw tomatoes. Cover tomatoes in the jars with hot tomato juice; leave 1/2-inch headspace.  Hot Pack — Put tomatoes in a large saucepan and add tomato juice to completely cover them. Boil gently for five minutes. Fill jars with hot tomatoes; leave 1/2-inch headspace. Add hot tomato juice to jars; leave 1/2-inch headspace. |                  | Wait 5 min                                   | utes before remo             | oving jars from    | canner.            |  |
| Tomatoes, whole or       | Leave whole or halve. <b>Add bottled lemon juice or citric acid to jars</b> (see acidification   | Raw              | Pints<br>or                                  | 85 min                       | 90 min             | 95 min             |  |
| halved<br>(packed raw    | directions, Page 1). Fill jars with raw tomatoes. Press tomatoes in  |                  | Quarts                                       |                              |                    |                    |  |
| without added<br>liquid) | the jars until spaces between them fill with juice; leave 1/2-inch headspace.  |                  | Wait 5 min                                   | utes before remo             | oving jars from    | canner.            |  |

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

|                                       |                  |             |                 | Recommended Pressure for Pressure Canner       |                    |                    |   |                   |
|---------------------------------------|------------------|-------------|-----------------|--|--------------------|--------------------|---|-------------------|
|                                       |                  |             |                 | Di   | ial-Gauge          |                    | Weighted-G                                  | auge              |
|                                       |                  |             |                 | Canner Gauge Pressure<br>(PSI) at Altitudes of |                    |                    | Canner Gauge Pressure (PSI) at Altitudes of |                   |
| Type<br>of Fruit                      | Style<br>of Pack | Jar<br>Size | Process<br>Time | 0-<br>2,000 ft                                 | 2,001-<br>4,000 ft | 4,001-<br>6,000 ft | 0-<br>1,000 ft                              | Above<br>1,000 ft |
| Tomato Juice                          | Hot              | Pints       | 20 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
|                                       |                  | Quarts      | 15 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomato and Vegetable<br>Juice Blend   | Hot              | Pints       | 20 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
| Juice Biene                           |                  | Quarts      | 15 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomatoes, crushed (no added liquid)   | Hot              | Pints       | 20 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
| (no added nquid)                      |                  | Quarts      | 15 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomato Sauce                          | Hot              | Pints       | 20 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
|                                       |                  | Quarts      | 15 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomatoes, whole or halved (packed in  | Hot<br>and       | Pints       | 15 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
| water)                                | Raw              | Quarts      | 10 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomatoes, whole or halved (packed in  | Hot<br>and       | Pints       | 40 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
| tomato juice)                         | Raw              | Quarts      | 25 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Tomatoes, whole or halved (packed raw | Raw              | Pints       | 25 min          | 6 lb   | 7 lb               | 8 lb               | 5 lb  | 10 lb             |
| without added liquid)                 |                  | Quarts      | 40 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| Spaghetti Sauce,<br>without meat      | Hot              | Pints       | 20 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |
| without ineat                         |                  | Quarts      | 25 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                                       | 15 lb             |

#### **Recommended Pressure for Pressure Canner**

|                              |                  |             |                 | Dial-Gauge                                     |                    |                    | Weighted-Gauge                    |                   |
|------------------------------|------------------|-------------|-----------------|--|--------------------|--------------------|-----------------------------------|-------------------|
|                              |                  |             |                 | Canner Gauge Pressure<br>(PSI) at Altitudes of |                    |                    | Canner Gauge I<br>(PSI) at Altitu |                   |
| Type<br>of Fruit             | Style<br>of Pack | Jar<br>Size | Process<br>Time | 0-<br>2,000 ft                                 | 2,001-<br>4,000 ft | 4,001-<br>6,000 ft | 0-<br>1,000 ft                    | Above<br>1,000 ft |
| Spaghetti Sauce<br>With Meat | Hot              | Pints       | 60 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                             | 15 lb             |
| with weat                    |                  | Quarts      | 70 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                             | 15 lb             |
| Mexican Tomato Sauce         | Hot              | Pints       | 20 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                             | 15 lb             |
|                              |                  | Quarts      | 25 min          | 11 lb  | 12 lb              | 13 lb              | 10 lb                             | 15 lb             |

#### Disclosure

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