HOME ECONOMICS GUIDE

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Canning Tomatoes

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Canned tomatoes are convenient. They keep without refrigeration or special protection and are ready at any time for many types of dishes or recipes. Canning allows us to have home-grown tomatoes when they are not available in the garden.

Apply the Principles

The principles of preserving food by canning are:

1. Destroy the spoilage organisms.
2. Stop the action of the enzymes.
3. Force out and close out the air.

1. Heat is the only safe home way to **destroy the spoilage organisms** so that food may be kept without freezing or drying. These organisms are bacteria, yeast, and molds. They are too tiny to be seen without a microscope, but they are powerful. There are three basic classes of organisms: aerobic—require air to grow; anaerobic—those that grow where there is no air; and facultative—those that grow either in air or without it. These organisms must be destroyed after the tomatoes have been placed in a closed container. The spoilage organisms are always present in the air, water, soil, and on our hands or body and will get into the jar unless closed out.
2. Tomatoes contain enzymes that cause them to ripen. **Heat stops the action of the enzymes.** Enzymes are a natural protein in tomatoes which cannot be seen. They are very useful to ripen tomatoes and other raw foods. If action of the enzymes is not stopped, the tomatoes continue to ripen and finally decay. Heat is the only practical way to stop enzyme action during home canning.
3. Heat causes the liquid in food to expand and **force out the air.** All air must be forced from the tissues of the food and the jar. Air left in the jar causes change in color and flavor of the tomatoes. This is usually the reason canned tomatoes turn dark on top. Air left in the jar also allows growth of live organisms that will grow in air. Without air, mold could not grow on canned tomatoes. To get all air out, the tomatoes must be hot completely through (at the center of the jar) before the air vent on the canner is closed. If the tomatoes are hot before they are placed into the jars the air escapes sooner. The recommended time and temperature for processing tomatoes will destroy the spoilage organisms, stop the enzyme action, and force out the air. It will do the least amount of damage to the texture, flavor, and nutrients of the tomatoes. The result is good, safe food with a long storage life. The recommended process is to heat tomatoes in a closed jar to a temperature of 230 degrees F (five pounds pressure) so that air is forced from the jar and the organisms start to die. Ten minutes at 230 degrees F will destroy a sufficient number of the organisms. As the jars cool after processing they are sealed so no air can re-enter the jar and allow the tomatoes to spoil.

Can Good Tomatoes

The best tomatoes are picked at the peak of goodness. They are ripened on the vine, but are not "dead ripe". The vines are healthy and the tomatoes are firm, but not watery. As tomatoes mature from underripe to ripe, the vitamin C (ascorbic acid) content increases. As they

Pick tomatoes at the peak of goodness and can the ones with no blemishes.

mature beyond the ripe stage, the ascorbic acid decreases. Sunburned areas, white spots under the skin, yellowish or dying vines all suggest lower acid content. Insect bites or stings, cracks, or other broken surface areas or imperfect spots are ideal places for spoilage organisms to grow. As bacteria and molds grow, the acid content of the tomatoes is reduced. Some spoilage organisms grow better in lower acid. If tomatoes with less acid are canned, more heat is required to destroy the spoilage organisms. Sort the tomatoes and can only the ones that look perfect.

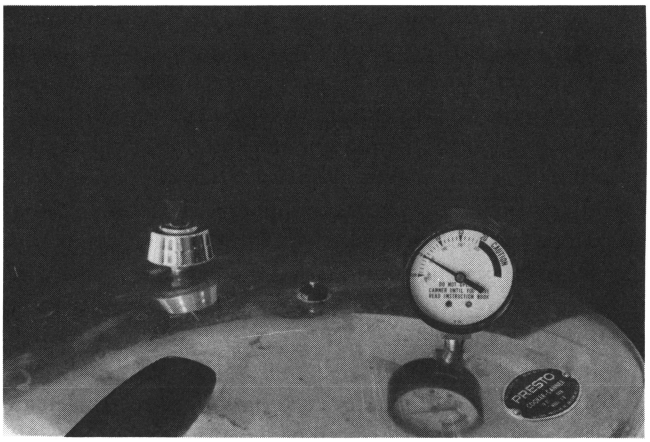
They Can Be Safe

Canned tomatoes will be safe if they are processed properly. Through the years tomatoes have occasionally been the cause of botulism poison, the most deadly poison known. Botulinum toxin is formed when clostridium botulinum spores grow inside a sealed jar. Molds sometimes developed in tomato products are now believed to be harmful. But these danger conditions develop only if the tomatoes are not treated properly.

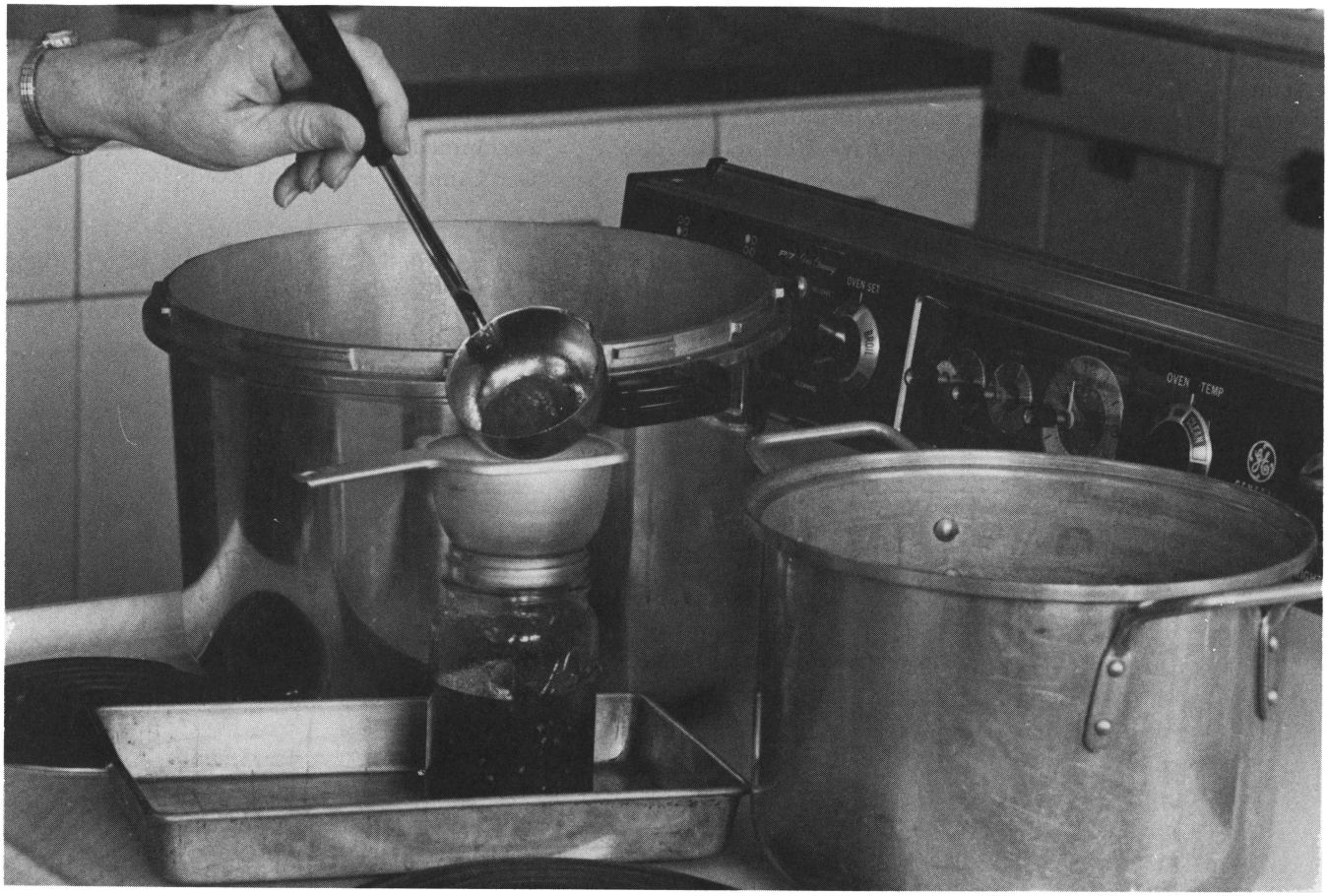
Treat Properly

1. Work clean. Wash with soap and water all jars, lids, canner, pans, knives, cloths, hands or other items that the tomatoes may touch or be near. Bacteria, yeasts, and molds are everywhere—in the air, water, soil, on hands and body. Jars are best boiled. Treat lids as instructed by the manufacturer of the lid. Some sealing compounds require boiling; others are best when only dipped in hot water.
2. Can immediately. If possible, can tomatoes the day they are picked. Tomatoes mold or sour quickly even if the damage can't be seen. Bacteria, yeasts or molds are growing on them or in them.
3. Prepare them well. Wash the tomatoes; then peel with a knife or by scalding. To peel by scalding, dip perfect, ripe tomatoes into boiling water for about one-half minute, then into cold water. Skins should slip off. Remove all the core and any green portion. Leave tomatoes whole or cut them into pieces.
4. Can hot. Heat the tomatoes slowly in a covered pan. Tomato juice can provide the necessary liquid. Heat until the inside of the tomatoes reaches boiling temperature. Fill immediately into clean, hot, sterilized jars. Add boiling hot tomato juice to fill the jars to the proper level. Leave one-half inch headspace.

   Insert a rubber spatula, a spoon handle, or a similar blunt instrument several places between the food and the jar to release trapped air. Add 1 teaspoon salt to each quart if desired. Wipe the sealing edge of the jar with a clean cloth or paper towel and put on the lid. Set in the hot pressure canner to keep hot.
5. Process immediately in a pressure canner at five pounds pressure for 10 minutes. A rack under the jars allows heat to circulate freely around the jars. Most canners have a basket to hold the jars so they don't touch the sides of the canner. A rack that holds the jars an inch or more above the bottom of the canner is better. Most canners don't have such a rack, but you may improvise one.
6. Get out the air. Allow steam to escape from the canner for 10 minutes after the lid is fastened on to be sure all air is out of the jars and out of the canner. Close the vent (petcock or weight). Bring the pressure to five pounds. Then start counting time. Hold the pressure at exactly five pounds for 10 minutes. Then turn off the heat or move the canner off the heat. Allow the pressure to return to zero and wait two more minutes. Open the petcock or remove the weighted gauge. Open the canner.
7. Protect hot jars. Remove the jars from the canner and set them on a rack, a dry cloth, paper, or wooden



Ten minutes at five pounds of pressure is the safest method to can tomatoes.



Heat tomatoes until they are boiling inside and fill into jars while they are still hot.

surface away from a draft. A cold surface or a draft could cause hot jars to break. If two-piece lids have been used they will seal automatically as the jars cool. One-piece lids require additional tightening. As you tighten the lids, cover the entire jar and lid with a large, dry cloth to protect yourself from possible burn.

8. Check for seal. When jars have cooled, check to see if all have sealed. If two-piece lids have been used, the sealed lid will sink a little in the center. It will also give a clear ring when tapped gently with a metal spoon. Food in unsealed jars may be refrigerated and used within two or three days, or it can be reprocessed. Check the jars for possible flaws or use a new lid or new ring. Reheat the food and proceed as though it were fresh food that had never been processed.
9. Store clean and cool. When the jars are cold remove the bands of two-piece lids. Wash or wipe jars clean. Set them in a cool, dark place where they will not freeze.
10. Recheck the seal. After two weeks, check again to see if all jars are sealed. Any unsealed jars at that time should be emptied and the contents destroyed without tasting them.

Tomato Juice

Follow the same steps and procedures but simmer the tomatoes until they are soft. Stir a few times as they cook. Put tomatoes through a strainer. If desired add 1 teaspoon salt for each quart of juice. Reheat to boiling. Fill into jars boiling hot. Leave one-half inch at top. Put on lids and process at five pounds pressure for 10 minutes.

Alternative Method

If you do not have a pressure canner it may be safe to add acid to tomatoes and tomato juice and process in a boiling water bath. (For more information see "Steps In Canning Fruits And Vegetables.") Follow the first four steps under TREAT PROPERLY, then add citric acid or bottled lemon juice to each jar:

Pint jars - ¼ teaspoon citric acid or 1 tablespoon lemon juice.

Quart jars - ½ teaspoon citric acid or 2 tablespoons lemon juice.

Set the closed jar in a deep kettle of boiling water. The water must be at least one inch deeper than the tallest jar. Water may stop boiling when jars are set in it. Let it return to boiling, then boil 10 minutes. Add more boiling water if needed to keep water one inch above the top of the jars.

Continue steps 7 through 10.

NOTE: This method of canning tomatoes carries a certain amount of risk. Can only freshly-picked tomatoes that are slighly underripe, come from healthy vines, and have no blemishes. Avoid tomatoes that have white spots under the skin, sunburned areas, cracks, insect damage, or other imperfections.

For additional information refer to the following guidesheets available from your area or county extension center:

"Canning At Home"
"Recommended Procedures for Canning"
"Get Canning Equipment Ready"

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