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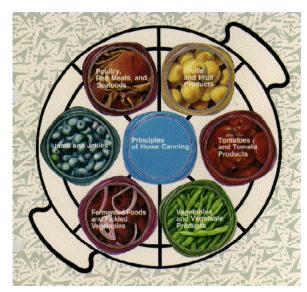
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Extension Service

Agriculture Department of Information **Bulletin** No. 539



Complete Guide To Home Canning

(**NOTE**: This electronic version of the USDA Complete Guide to Home Canning was created by Utah State University Extension. It was reviewed by Charlotte Brennand, Extension Food and Nutrition Specialist at Utah State University. Salsa recipes developed at Washington State University have been added to the canning guide as a supplement, with permission granted by Washington State University.)

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The Extension Service wishes to credit the primary development of this guide to Gerald D. Kuhn, Elizabeth L. Andress (currently with the University of Georgia), and Thomas S. Dimick. Extension staff who assisted in preparing this guide include Milton P. Baldauf, Catherine E. Adams, Nancy T. Sowers, and Vincent G. Hughes. Extension staff who assisted in this revision include Kenneth N. Hall (University of Connecticut) and Thomas W. Poore. Research for the smoked fish recommendation was conducted by Carolyn Raab and Ken Hilderbrand (Oregon State University) with partial funding from the OSU Extension Sea Grant Program. All have contributed significant ideas and time in making this guide a truly up-to-date research-based publication.

Complete Guide to Home Canning

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Caution: To prevent the risk of botulism, low-acid and tomato foods not canned according to the recommendations in this publication or according to other USDA-endorsed recommendations should be boiled even if you detect no signs of spoilage. At altitudes below 1,000 ft, boil foods for 10 minutes. Add an additional minute of boiling time for each additional 1,000 ft elevation.

Reference to commercial products and services is made with the understanding that no discrimination is intended and no endorsement by the U.S. Department of Agriculture is implied. Clear Jel® is mentioned because it is the only suitable product that is presently available to the general public through distributors of specialty products.

Preface

Home canning has changed greatly in the 170 years since it was introduced as a way to preserve food. Scientists have found ways to produce safer, higher quality products. The first part of this publication explains the scientific principles on which canning techniques are based, discusses canning equipment, and describes the proper use of jars and lids. It describes basic canning ingredients and procedures and how to use them to achieve safe, high-quality canned products. Finally, it helps you decide whether or not and how much to can.

The second part of this publication is a series of canning guides for specific foods. These guides offer detailed directions for making sugar syrups; and for canning fruits and fruit products, tomatoes and tomato products, vegetables, red meats, poultry, seafoods, and pickles and relishes. Handy guidelines for choosing the right quantities and quality of raw foods accompany each set of directions for fruits, tomatoes, and vegetables. Most recipes are designed to yield a full canner load of pints or quarts. Finally, processing adjustments for altitudes above sea level are given for each food.

This publication contains many new research-based recommendations for canning safer and better quality food at home. It is an invaluable resource book for persons who are canning food for the first time. Experienced canners will find updated information to help them improve their canning practices.

(This publication supersedes four USDA Home and Garden Bulletins: Number 8—"Home Canning of Fruits and Vegetables"; Number 56—"How to Make Jellies, Jams, and Preserves at Home"; Number 92—"Making Pickles and Relishes at Home"; and Number 106—"Home Canning of Meat and Poultry.")

For Safety's Sake

Pressure canning is the only recommended method for canning meat, poultry, seafood, and vegetables. The bacterium *Clostridium botulinum* is destroyed in low-acid foods when they are processed at the correct time and pressure in pressure canners. Using boiling water canners for these foods poses a real risk of botulism poisoning.

If *Clostridium botulinum* bacteria survive and grow inside a sealed jar of food, they can produce a poisonous toxin. Even a taste of food containing this toxin can be fatal. Boiling food 10 minutes at altitudes below 1,000 ft destroys this poison when it is present. For altitudes at and above 1,000 ft, add 1 additional minute per 1,000 ft additional elevation. **Caution:** To prevent the risk of botulism, low-acid and tomato foods not canned according to the recommendations in this publication or according to other USDA-endorsed recommendations should be boiled as above, even if you detect no signs of spoilage. All low-acid foods canned according to the approved recommendations may be eaten without boiling them when you are sure of all the following:

- Food was processed in a pressure canner.
- Gauge of the pressure canner was accurate.
- Up-to-date researched process times and pressures were used for the size of jar, style of pack, and kind of food being canned.
- The process time and pressure recommended for sterilizing the food at your altitude was followed.
- Jar lid is firmly sealed and concave.
- Nothing has leaked from jar.
- No liquid spurts out when jar is opened.
- No unnatural or "off" odors can be detected.

Do Your Canned Foods Pass This Test?

Overall appearance

- Good proportion of solid to liquid
- Full pack with proper headspace
- Liquid just covering solid
- Free of air bubbles
- Free of imperfections—stems, cores, seeds
- Good seals
- Practical pack that is done quickly and easily

Fruit and vegetables

- Pieces uniform in size and shape
- Characteristic, uniform color
- Shape retained-not broken or mushy
- Proper maturity

Liquid or syrup

Clear and free from sediment

Determining Your Altitude Above Sea Level

It is important to know your approximate elevation or altitude above sea level in order to determine a safe processing time for canned foods. Since the boiling temperature of liquid is lower at higher elevations, it is critical that additional time be given for the safe processing of foods at altitudes above sea level.

It is not practical to include a list of altitudes in this guide, since there is wide variation within a State and even a county. For example, the State of Kansas has areas with altitudes varying between 75 ft to 4,039 ft above sea level. Kansas is not generally thought to have high altitudes, but there are many areas of the State where adjustments for altitude must be considered. Colorado, on the other hand, has people living in areas between 3,000 and 10,000 ft above sea level. They tend to be more conscious of the need to make altitude adjustments in the various processing schedules. To list altitudes for specific counties may actually be misleading, due to the differences in geographic terrain within a county.

If you are unsure about the altitude where you will be canning foods, consult your county Extension agent. An alternative source of information would be your local district conservationist with the Soil Conservation Service.

Table of Contents

Section	Page
Preface	
For Safety's Sake	i
Do Your Canned Foods Pass This Test?	i
Determining Your Altitude Above Sea Level	ii
Guide 1, Principles of Home Canning	
Why can foods?	1- 1
How canning preserves foods	
Ensuring safe canned foods	
Ensuring high-quality canned foods	
Jars and lids	
Recommended canners	
Selecting the correct processing time	
Cooling jars	
Testing jar seals	
Reprocessing unsealed jars	
Storing canned food	
Identifying and handling spoiled canned food	
Preparing pickled and fermented foods	
Preparing butters, jams, jellies, and marmalades	
Canned foods for special diets	
•	
Canning fruit-based baby foods	
How much should you can?	1-25

Glossary of Terms	1-27
Guide 2, Selecting, Preparing, and Canning Fruit and Fruit Products	
General	2-1
Preparing and using syrups	2-1
Apple butter	2-2
Apple juice	2-2
Apples—sliced	
Applesauce	
Spiced apple rings	
Spiced crab apples	
Apricots—halved or sliced	
Berries—whole	
Berry syrup	
Cherries—whole	
Figs	
Fruit purees	_
Grapefruit and orange sections	
Grape juice	
Grapes—whole	2-10
Mixed fruit cocktail	2-11
Nectarines—halved or sliced	2-12
Peaches—halved or sliced	2-12
Pears—halved	2-13
Pie fillings	2-14
Pineapple	2-20
Plums—halved or whole	2-20
Rhubarb—stewed	2-21
Zucchini-pineapple	
Process times for some acid foods in a dial-gauge pressure canner	
Process times for some acid foods in a weighted-gauge pressure canner	
Frocess times for some acid foods in a weighted-gauge pressure carmer	Z-Z 4
Guide 3, Selecting, Preparing, and Canning Tomatoes and Tomato Products	
General	3-1
Tomato juice	
Tomato and vegetable juice blend	
Tomatoes—crushed	
Standard tomato sauce	
Tomatoes—whole or halved (packed in water)	
Tomatoes—whole or halved (packed in tomato juice)	
Tomatoes—whole or halved (packed raw without added liquid)	
Tomatoes with okra or zucchini	
Spaghetti sauce without meat	3-10
Spaghetti sauce with meat	3-12
Mexican tomato sauce	3-13
Tomato ketchup	3-14
Country western ketchup	3-15
Blender ketchup	3-15
Chile salsa (hot tomato-pepper sauce)	3-16

Guide 4, Selecting, Preparing, and Canning Vegetables and Vegetable Products	
Asparagus—spears or pieces	
Beans or peas—shelled, dried	
Beans, baked	4-2
Beans, dry, with tomato or molasses sauce	4-3
Beans, fresh lima—shelled	4-4
Beans, snap and italian—pieces	
Beets—whole, cubed, or sliced	4-6
Carrots—sliced or diced	4-6
Corn—cream style	4-7
Corn—whole kernel	4-8
Mixed vegetables	4-9
Mushrooms—whole or sliced	. 4-10
Okra	
Peas, green or english—shelled	
Peppers	
Potatoes, sweet—pieces or whole	
Potatoes, white—cubed or whole	
Pumpkins and winter squash—cubed	
Soups	
Spinach and other greens	
Squash, winter—cubed	
Succotash	
Guide 5, Preparing and Canning Poultry, Red Meats, and Seafoods	
Chicken or rabbit	5-1
Ground or chopped meat	
Strips, cubes, or chunks of meat	
Meat stock (broth)	
Chile con carne	
Clams	
King and Dungeness crab meat	
Fish	
Oysters	
Smoked fish	
Tuna	
Guide 6, Preparing and Canning Fermented Foods and Pickled Vegetables	
Selection of Fresh Cucumbers	. 6-1
Low-temperature pasteurization treatment	
Suitable containers, covers, and weights for fermenting food	
Salts used in pickling	
Fermented foods	
Dill pickles	
Sauerkraut	
Pickled or nonfermented foods	-
Pickled dilled beans	
Pickled three-bean salad	
Pickled beets	6-6

Pickled cauliflower or brussels sprouts	6-7
Pickled corn relish	6-8
Pickled horseradish sauce	6-9
Marinated whole mushrooms	6-9
Pickled dilled okra	6-10
Marinated peppers	6-10
Pickled bell peppers	6-11
Pickled hot peppers	6-12
Pickled pepper-onion relish	6-13
Piccalilli	6-13
Bread-and-butter pickles	6-14
Quick fresh-pack dill pickles	6-15
Reduced-sodium sliced dill pickles	6-16
Sweet gherkin pickles	6-17
Pickle relish	6-17
14-day sweet pickles	6-18
Quick sweet pickles	6-19
Reduced-sodium sliced sweet pickles	6-20
Pickled sweet green tomatoes	6-21
Pickled green tomato relish	6-22
Pickled mixed vegetables	6-23
Pickled bread-and-butter zucchini	6-23
Guide 7, Preparing and Canning Jams and Jellies	
Making jelly without added pectin	7-1
Extracting juices and making jelly	7-1
Making jam without added pectin	7-2
Making jams and jellies with added pectin	7-3
Pear-apple jam	7-4
Strawberry-rhubarb jelly	7-5
Blueberry-spice jam	7-5
Grape-plum jelly	7-6
Making reduced-sugar fruit spreads	7-7
Peach-pineapple spread	7-7
Refrigerated apple spread (made with gelatin)	7-8
Refrigerator grape spread (made with gelatin)	7-8
Remaking soft jellies	7-9