

PRESERVING THE HARVEST



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CANNER'S CORNER: ENJOYING SUMMER'S BOUNTY

Issue One

So, you want to be a home canner?

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



“Home canning can be enjoyed by the whole family.”

“Home canning instills a sense of family accomplishment and pride.”

Food for personal use only - not to be sold to the public

So, you think you might want to be a home canner?

Home canning is not on everyone's list of most sought-after new pastimes. Some say it takes a magical technique. Others believe the process requires physical effort on the order of an Olympic decathlon.

Let's dispel the myths

Home canning is considered an art, but it is by no means a mysterious practice. While home canning can be an ambitious undertaking, it does not have to be. It does require one to observe straight-forward guidelines to help ensure safety and maximize quality.

Home canning can be enjoyed by the whole family. From harvesting fruits and vegetables in the family garden to preparing food for canning, to processing, labeling and storing jars, home canning provides something for everyone. Plus, home canning instills a sense of family accomplishment and pride.

The costs of home canning can vary widely, depending on the time involved, your investment in equipment and food, and the energy used to process the food. The savings may be in fewer trips to the grocery store (so lower gasoline costs) and fewer unplanned purchases.

Home canning can be a lifetime hobby, and the best way to start is by using up-to-date recipes and procedures, tested by the U.S. Department of Agriculture (USDA). These research-based guidelines for home canning are found in USDA's *Complete Guide to Home Canning*. The University of Wyoming Cooperative Extension Service's (UW CES) Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm links to on-line versions of these guidelines.

Click on the UW Resources link to access Wyoming-specific versions of USDA's guidelines (Preserving Food in Wyoming link), or click on the Web Sites link to access the entire USDA publication.

In addition to guidance on food preservation, the UW CES Food and Nutrition Web site





For more information on canning and food preservation, call a local UW CES office. Contact information is at <http://ces.uwyo.edu/Counties.asp>.



provides information and links in other subject areas, including food preparation, food safety, food storage, and a number of nutrition topics.

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The Storage Story

- * Proper storage of fresh fruits and vegetables depends on the produce. In newer refrigerators, separate drawers allow for changes in humidity and temperature. In Wyoming, produce requiring cold or cool moist storage will keep well in a refrigerator for up to one week.
- * Cold, moist storage (33 to 40 degrees Fahrenheit and 90- to 95-percent relative humidity): carrots, radishes, broccoli, Brussels sprouts, cabbage, cauliflower, chard, collards, kale, spinach, endive, lettuce, parsley, lima beans, peas, asparagus, green onions, rhubarb, and sweet corn.
- * Cool, moist storage (45 to 50 degrees F, 80- to 90-percent humidity): cantaloupe, summer squash, cucumber, watermelon, eggplant, green beans, okra, and bell peppers.
- * Cool, dry storage (33 to 55 degrees F, 50- to 60-percent humidity): onions and hot peppers. These should be stored in a cool, dry place outside of the refrigerator.
- * Warm, moist storage (55 to 60 degrees F, 80- to 85-percent humidity): sweet potatoes and tomatoes. The low humidity in Wyoming is not ideal, but don't be tempted to store these in the refrigerator as they will lose much of their flavor.

* Because of Wyoming's low humidity, unless you can control the moisture where you are storing vegetables, it is probably better to buy only what can be used in a relatively short period. For over-the-winter storage, check with a local UW CES office for suggestions. See contact information above.

Home Canner's Questions

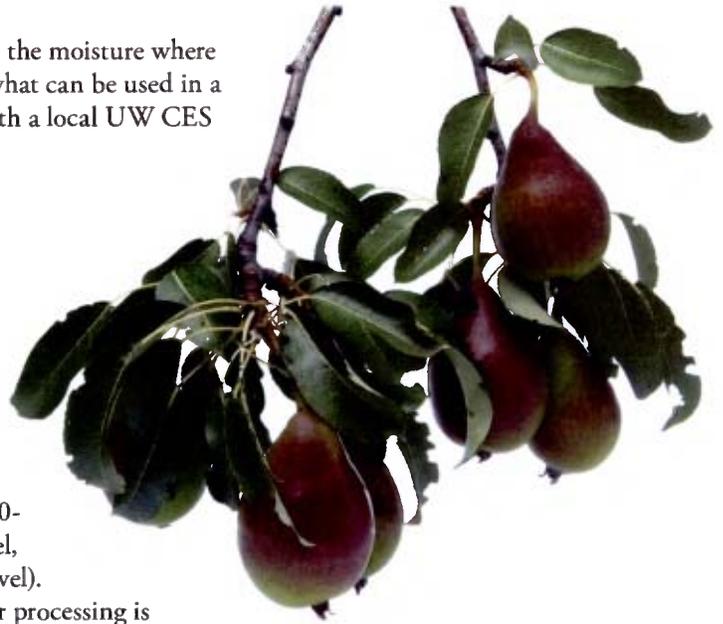
Q When should I use a boiling-water bath canner, and when should I use a pressure canner?

A Foods high in acid (pH of 4.6 or lower), such as peaches, pears, pickles, tomatoes, apples, and other fruit, can be processed in a boiling-water canner. Heat is transferred by the boiling water, roughly 203 degrees F. at 5,000-foot elevation (the boiling point, which is 212 degrees at sea level, drops between 1 and 2 degrees for every 1,000 feet above sea level). The water must cover the jar lids by 1 to 2 inches. Boiling-water processing is essential for safely canning fruits, soft spreads such as jams and jellies, and pickles.

A pressure canner must be used when processing low-acid foods or combination foods, such as stews and meat sauces, with a pH higher than 4.6. This includes most vegetables (carrots, beets, turnips, green beans, spinach, peas, and corn, for example), meats, poultry, and seafood.

Q How can low-acid foods be safely canned?

A When canning low-acid foods, a pressure canner with a weighted gauge or an accurate dial gauge is an absolute must to reach required processing temperatures.



Local UW CES offices can test the accuracy of many dial gauges or refer you to a place that is able to test your gauge.

Q I've heard the term "extension educator, family and consumer sciences" used often as a source of information for home canners. What exactly does this mean?

A Many UW CES educators and the specialists and faculty members within the UW College of Agriculture's Department of Family and Consumer Sciences are experts in home- and family-related matters. A number of these individuals have special training in food preservation through canning and other methods. At the county and area levels within Wyoming, "nutrition and food safety educator" is the title of each team member whose specialization includes food preservation. These nutrition and food safety educators can help ensure the food you provide to your family, friends, and others is safe and nutritious.

Q Why can't I use my great-grandmother's old canning recipes?

A Over the years, home-canning methods and techniques have been tested and improved to help ensure the safest, most effective ways of processing food. These updates are needed because of changes in food varieties, bacteria, and knowledge gained about food preservation. Replace older recipes with up-to-date, research-based recipes by visiting www.uwyo.edu/cesnutrition or contacting your local UW CES office and requesting food-preservation recipes.

Q How long can I store canned foods?

A Foods that are canned using tested recipes and correct processing methods and times are recommended for use within one year. After one year, natural chemical changes reduce quality.



Patti Griffith is one of the UW CES nutrition and food safety educators serving northwestern Wyoming. She works out of the UW CES offices in Lander and Riverton.

Some of the information for this fact sheet came from newspaper columns by Cindy Shuster, an extension educator for The Ohio State University in Perry County, Ohio, from the USDA's *Complete Guide to Home Canning*, and from the University of Missouri Extension publication G6226, *Vegetable Harvest and Storage*. This is available on the Web at <http://extension.missouri.edu/xplot/agguides/hort/g06226.htm>.



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CANNER'S CORNER:

ENJOYING SUMMER'S BOUNTY

Issue Two

The time is ripe for summer melons

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



The well-known American author Mark Twain called watermelon “the food that angels eat.”

If the taste and fragrance of a fresh, juicy slice of melon makes your mouth water, you are in good company. Melons have been a favorite fruit for centuries. The well-known American author Mark Twain called watermelon “the food that angels eat.”

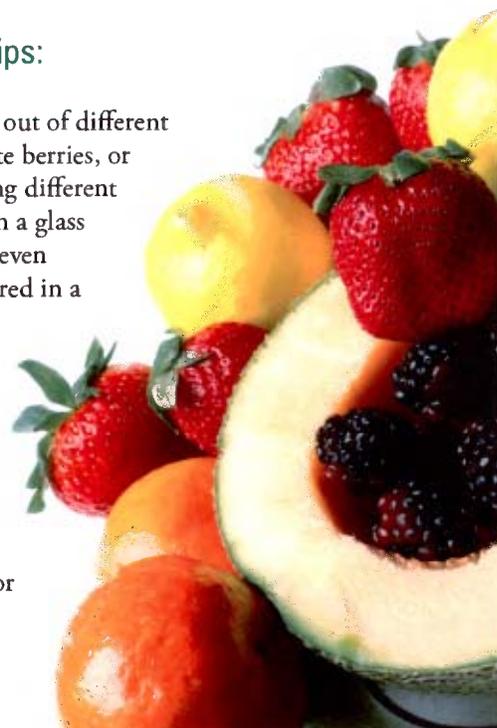
This season, enjoy traditional melons such as cantaloupe, honeydew, and watermelon, or go for more exotics by trying crenshaw, Persian, and casaba, called winter melons because they ripen slowly and are not ready until later in the season.

The crenshaw has a greenish-yellow rind and sweet, usually salmon-pink flesh. It is closely related to the casaba, honeydew, and winter melons. The Persian has musky, orange flesh and a rind with a netted pattern. The casaba is a white-fleshed melon similar to the honeydew and cantaloupe.

Any way you slice it, melon is a great, warm-weather pick-me-up. Remember to wash the melon before cutting to prevent contamination from the rind carrying into the fruit.

Here are some serving tips:

- * Make a colorful fruit salad out of different kinds of melons and favorite berries, or dress up the table by putting different types of fruit and melons in a glass bowl or bowls. These taste even better if allowed to sit covered in a refrigerator for an hour or so until the flavors mix.
- * Cantaloupe can be halved, seeded, and served as a “bowl” for other melons and fruits. Enjoy all-fruit blends, or mix with a low-fat yogurt or ice milk.
- * Make a frosty drink by blending one cup of a



favorite melon with one cup ice. For those having a sweet tooth, sprinkle a touch of sugar in the drink. If a tart flavor is preferred, add a little lemon juice.

- * For a delicious dessert, layer melon with pudding or a complementary-flavored yogurt in a parfait glass. Garnish with fresh mint leaves or crunchy granola.
- * Try freezing melons for out-of-season use. Select fully ripe, firm melons. Remove seeds and peel. Cut or scoop into 3/4-inch cubes, slices, or balls. Pack melon into plastic freezer boxes or can-or-freeze jars (jars manufactured of glass tempered to withstand the heat of a pressure canner or subzero temperatures of a freezer), preferably wide mouth to facilitate removal of partly thawed food. Seal and label the container and then put in the freezer. When it's time to serve the melon, do so before it is completely thawed.

Looking for a different pickle?

Looking for a different pickle? Try cantaloupe in a spicy melon pickle or watermelon rind pickles found in the 2005 *Ball Blue Book*, or check with a local University of Wyoming Cooperative Extension Service office (UW CES). Contact information is in your local phone directory and on-line at <http://ces.uwyo.edu/Counties.asp>.



What type of equipment is needed to start canning?

- * It is best to use the type of home-canning jars and two-piece vacuum caps, boiling-water canners, and pressure canners described in the U.S. Department of Agriculture's (USDA) *Complete Guide to Home Canning*. The UW CES Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm links to on-line versions of this guide. Click on the Web Sites link and then on the USDA's Complete Guide to Home Canning link to access the entire USDA publication. Or, click on the National Center for Home Food Preservation's "How Do I Can?" link at http://www.uga.edu/nchfp/how/can_home.html.

A print version of the USDA guide can be ordered by e-mailing the UW College of Agriculture's Resource Center at cespubs@uwyo.edu or calling the center at (307) 766-2115. For more information on canning and food preservation, contact a local UW CES office.

- * Use only standard home-canning jars. Glass canning jars, also known as Mason jars after their 19th century American inventor, John Mason, are the best jars to use in home canning. Ball® and Kerr® brands are examples of Mason jars.
- * Old jars and closures have a nostalgic appeal many people like; however, they are no longer approved for home canning. Jars requiring a zinc cap and jar rubber or jars requiring a glass lid, wire bail, and jar rubber have not been recommended since 1989 because there is no definitive way to determine if a vacuum seal is formed. This is one reason why the two-piece vacuum cap is superior to older-style closures.

- * Equipment for heat-processing home-canned food is of two main types – boiling-water canners and pressure canners. Most are designed to hold seven quart jars or eight to nine pints. Small pressure canners hold four quart jars; some large pressure canners hold 18 pint jars in two layers but hold only seven quart jars. Pressure saucepans with smaller volume capacities are not recommended for use in canning.
- * Small-capacity pressure canners are treated in a similar manner as standard larger canners and should be vented using the typical venting procedures detailed in USDA's *Complete Guide to Home Canning* at http://www.uga.edu/nchfp/publications/uga/using_press_canners.html. Steam canners are not recommended because the research is insufficient to establish procedures to yield safe products.
- * Smart, in-season shopping at a local farmers' market and then storing the produce for maximum nutritional longevity requires know-how. When picking over produce, look for brightly colored vegetables or fruits with surfaces free of blemishes. Fruits and vegetables that are oddly or irregularly shaped may yield a visually less attractive product when they are canned, but when it comes to nutrition, irregularly shaped fruits and vegetables are no different. Additionally, odd-shaped produce may be more common at farmers' markets, where local growers may not be able to achieve as much uniformity in their products.
- * When arriving home, discard any damaged produce that sneaked past the initial inspection since "bad spots" can provide starting points for mold. Resist the temptation to immediately wash all of the produce – wait until it is ready to be used. Keep fruits and vegetables dry in storage.
- * Green fruit can be left on the counter to ripen because sunlight isn't necessary to ripen fruit. In fact, sunlight is not recommended since it can cause overheating (preventing proper color and flavor development) and increase the risk of rot. Most fruits and vegetables should go into the crisper drawer of a refrigerator; however, tomatoes should never be kept in a refrigerator because they lose their flavor rapidly and become grainy in texture. If they are not quite ripe, store them in a brown paper bag for a few days. Fully ripe tomatoes will keep for about one week at room temperature and out of direct sunlight.



Home Canner's Questions

Q If home-canned foods have frozen during storage, are they safe to eat?

A If the food was processed according to current home-canning recommendations, and the jars are still vacuum-sealed, the food should be safe to eat. Be sure to examine the jars closely; sometimes freezing can cause jar breakage or damage to the vacuum seal. Home-canned food that has been frozen during storage may be less desirable due to changes in texture, flavor, nutritional value, and color.

Q I have several peanut butter, pickle, and quart-sized mayonnaise jars I would like to use for canning. Is it safe to use these jars in a boiling-water bath canner or a pressure canner?

A No! Mason-type canning jars are best because these jars have been specially tempered to withstand the heat necessary in the home-canning process. The jars asked about, however, make good refrigerator storage jars and are a perfect solution for picnic packaging needs, or they can be recycled at a local recycling center.

Q How long is it safe to store canned food?

A For optimum quality, use home-canned food within one year. After a year, the quality of food goes down, but it is still safe as long as the food was initially processed correctly, the seal is intact, and there is no sign of spoilage. Regardless of the age of the food, always boil low-acid, pressure-canned food a full 10 minutes plus one minute per 1,000 feet of altitude above sea level to destroy any botulism toxins. Do not taste the food prior to boiling, and do not eat the food if it foams or has an off-odor during boiling.

In addition to guidance on food preservation, the UW CES Food and Nutrition Web site at www.uwyo.edu/cesnutrition provides information and links in other subject areas, including food preparation, food safety, food storage, and a number of nutrition topics. Contact a local UW CES office if you have questions.



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CANNER'S CORNER: ENJOYING SUMMER'S BOUNTY

Issue Three

A taste for tomatoes

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



The fresh taste of tomatoes, just off the vine and still warm from the sun – is there any taste that better says summer? This is the vegetable we long for most when supermarkets offer rather flavorless, winter tomatoes.

Food for personal use only - not to be sold to the public

If processing tomatoes with citric acid or lemon juice is not part of a home canner's tomato-canning procedures, it's time to update that home-canning information.

Tomato-processing procedures have changed over the past few years due to the lower acidity found in today's varieties. The latest research-based recommendations from the U.S. Department of Agriculture (USDA) are contained in USDA's *Complete Guide to Home Canning* and include processing some packs of tomatoes up to 100 minutes in a boiling-water bath at some Wyoming altitudes. Check the Home Canner's Questions in this fact sheet for the correct amount of lemon juice or citric acid to add to tomatoes.

The University of Wyoming Cooperative Extension Service (UW CES) Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm links to on-line versions of USDA's canning guide. Click on the UW Resources link to access Wyoming-specific versions of USDA's guidelines (see the Preserving Food in Wyoming link), including one specifically on tomatoes, or click on the Web Sites link to access the entire USDA publication.





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Other adjustments and reminders include:

- * Vent or exhaust all pressure canners with the stove's burner or heating element set to its highest position so steam flows from the vent for 10 minutes before the weight is put on the vent pipe or the petcock is closed. This will be in conflict with directions found with some older canners. Steam canners, which look like upside-down boiling water canners, are not a safe way to process food.
- * All fruit spreads – jams, jellies, preserves, and fruit butters – should be placed into sterile, empty jars, sealed with a two-piece lid, and processed 10 minutes in a boiling-water canner at altitudes between 1,001 and 6,000 feet, or 15 minutes at altitudes above 6,000 feet. Using paraffin is not recommended because paraffin-sealed jams and jellies will often weep, allowing molds to grow and causing spoilage. The method called inversion, where jars are turned upside down, also does not make a true vacuum seal, and this method allows molds to grow.
- * Canning using a boiling-water bath is the best way to seal jars. It provides the safest method to preserve jams and jellies. Follow manufacturer's recommendations for lid treatment. All lids don't have the same directions.
- * Hot-packing food is the best way to remove air from jars. It removes air from the food itself and reduces the air trapped between food pieces. If jars do not seal within 24 hours, the lids must be replaced, and the jars should be reprocessed for the full amount of time. The quality of the food will be lower, but it will be safe to eat.
- * Alternatives to reprocessing are to refrigerate the food and use within one to two days, or freeze it.

Home Canner's Questions

Q How do I know if a jar of home-canned food is spoiled?

A When up-to-date, research-based guidelines (such as those outlined in USDA's *Complete Guide to Home Canning* or the UW CES Wyoming-specific food preservation publications) are followed exactly, there should be little concern about the quality and safety of home-canned foods. As with commercially canned foods, it is always wise to examine food before using it. When removing a jar from the shelf for use, make sure it has retained a vacuum seal and no visible changes have taken place during storage.



Tomato Salsa

Yield: 4 pints

4 cups peeled, cored, chopped tomatoes
2 cups seeded, chopped long green chiles
1/2 cup seeded, chopped jalapeño peppers
3/4 cup chopped onions
4 cloves garlic, finely chopped
2 cups vinegar
1 t. ground cumin (optional)
1 T. oregano leaves (optional)
1 T. fresh cilantro (optional)
1 1/2 t. salt

Combine all ingredients in a large saucepan and bring the mixture to a boil, stirring frequently. Reduce heat and simmer 20 minutes, stirring occasionally. Ladle the hot mixture into pint jars, leaving 1/2-inch headspace. Adjust the lids, and process in a boiling-water canner for 20 minutes at altitudes between 3,001 and 6,000 feet, and for 25 minutes at altitudes between 6,001 and 8,000 feet.

Source: *Preserving Food in Wyoming: Tomatoes*. The bulletin is at <http://ces.uwyo.edu/PUBS/B985-SER/B985-5.pdf>.

Unsealed lids indicate the possibility of spoilage, which produces gasses that can break seals and/or cause lids to swell. If a lid can be removed, without the use of pressure to release a vacuum, do not use the product. Other signs of spoilage include mold, bubbling gases, cloudiness, spurting liquid upon opening, seepage, yeast growth, fermentation, sliminess, or disagreeable odors. If it is known that low-acid foods were improperly processed, do not use them under any circumstances.

If spoilage is suspected, dispose of the food without tasting it. Discard all spoiled foods in a manner that will prevent consumption by humans or animals. If you have additional questions or concerns on canning, contact a UW CES office.

If spoilage is suspected, dispose of the food without tasting it. Discard all spoiled foods in a manner that will prevent consumption by humans or animals.

Q When do I use a hot pack or raw pack?

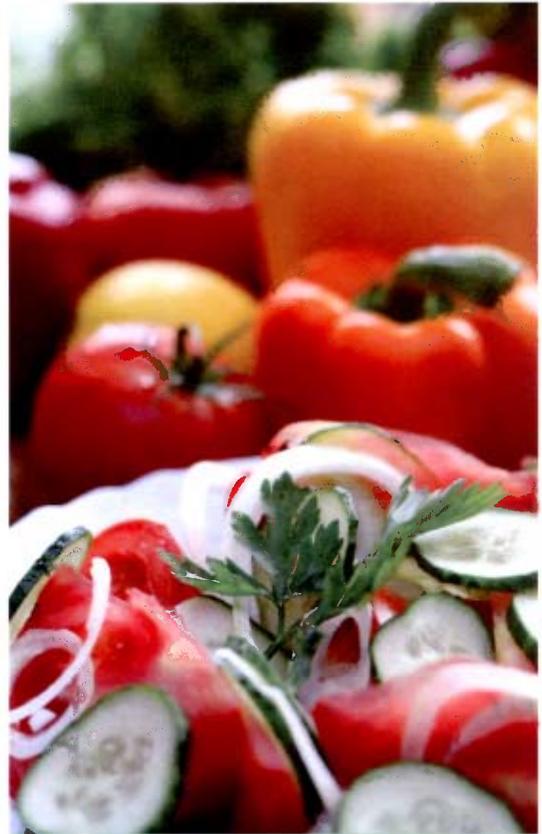
A The hot-pack method is preferred when the food is firm and handles well, permitting a tighter pack. Raw pack is used for foods that are more delicate and harder to handle after they are cooked, such as peaches.

Q I understand why tomatoes need to be acidified with bottled lemon juice, but how much do I use?

A To ensure safe acidity in whole-crushed or juiced tomatoes, add two tablespoons of bottled lemon juice or 1/2-teaspoon citric acid per quart of tomatoes. For pints, use one tablespoon bottled lemon juice or 1/4-teaspoon citric acid.

Q I like to add celery, green pepper, and onions to tomatoes when I can them. Is this safe?

A No. Adding other vegetables lowers the acidity of the mixture, which can provide a favorable environment for the growth of botulism bacteria. This product would require the pressure-canner method of processing and use of reliable directions as found in USDA's *Complete Guide to Home Canning*.



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CANNER'S CORNER: ENJOYING SUMMER'S BOUNTY

Issue Four

Step-by-step canning of high-acid foods

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



High-acid foods include fruits; fruit juices; jams, jellies, and other fruit spreads; tomatoes with added acid; pickles, relishes, and chutneys; tomato sauces; vinegars; and condiments.

Food for personal use only - not to be sold to the public

Because they are relatively easy to preserve, high-acid foods are a popular choice for home canners. These foods provide canners the opportunity to prepare and enjoy a wide array of creative recipes, from excellent side dishes to delectable desserts.

Here are some tips on home canning:

1. Before starting, review the recipe and assemble equipment and ingredients. Follow guidelines for recipe preparation, jar size, canning method, and processing time.

Be sure to follow up-to-date recipes and procedures, tested by the U.S. Department of Agriculture (USDA). These research-based guidelines for home canning are found in USDA's *Complete Guide to Home Canning*. The University of Wyoming Cooperative Extension Service (UW CES) Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm links to on-line versions of these guidelines. Click on the UW Resources link to access Wyoming-specific versions of USDA's guidelines (see the Preserving Food in Wyoming link), or click on the Web Sites link to access the entire USDA publication.

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2. Visually inspect home-canning jars for nicks, cracks, uneven rims, and sharp edges that may prevent sealing or cause breakage. Check bands for proper fit. Examine



lids to ensure they are not scratched and the sealing compound is even and complete. Wash jars, lids, and bands in hot, soapy water and then rinse.

3. If jars are being processed for 10 minutes or more, there is no need to sterilize the jars, but they should be clean and ready to use. See the visual illustrations and tutorials developed by the National Center for Home Food Preservation at www.uga.edu/nchfp/multimedia.html and by Jarden Home Brands at www.freshpreserving.com (click on the How To link at the top of the page).
4. Prepare food as recipes direct. Call a UW CES nutrition and food safety educator to answer questions.
5. Place lids in a small saucepan. Cover lids with water. Bring to a simmer (180 degrees F); keep lids hot until ready to use. Do not boil lids as this may damage the sealing compound and cause the seal to fail.



6. Fill hot jars one at a time with prepared food, wiping the rim of the jar clean and putting on the two-piece lid before starting the next jar. Avoid using an assembly-line method because the food can cool before applying the lid. Allow proper headspace, the term used to describe the unfilled space above the food in the jar and below its lid. This space is needed for expansion of food as the jars are processed and for forming vacuums in cooled jars. Overfilling and underfilling can result in seal failure. Headspace is determined by the food type. The following are guidelines for a few food categories, but always check the recipe to make sure you leave the proper headspace:

- * Jams, jellies, and other fruit spreads: 1/4-inch
- * Fruits and tomatoes (to be processed via boiling water bath): 1/2-inch

The following Web sites offer visual illustrations and tutorials of safe home-canning procedures:

- * The National Center for Home Food Preservation at www.homefoodpreservation.com is funded, in part, by the U.S. Department of Agriculture, the source of most research-based home-canning recipes and procedures. This University of Georgia Cooperative Extension site offers several slide shows, including one on canning low-acid foods, and a free, self-paced on-line course on home canning and preservation.
 - * The Jarden Home Brands site at www.freshpreserving.com features two video clips on making freezer jam and salsa and several step-by-step slide shows, including two on canning acid foods and low-acid foods. Although most site visuals feature Ball® and Kerr® products, two of Jarden's product lines, the basic content is accurate and instructive.
7. Remove air bubbles by sliding a non-metallic spatula or rubber spatula between the jar and food; press gently on the food to release trapped air. Repeat all around the inside edge of the jar. After removing air bubbles, readjust headspace if required.
 8. Wipe the rim and threads of the jar with a clean, damp cloth to remove any food residue. Center the lid on the jar to ensure the sealing compound is next to the rim.
 9. Apply the band, screwing it down evenly and firmly, just until fingertip-tight – as snug as the band can be applied with your fingertips. This allows the lid to vent air during processing, which is necessary to form a vacuum seal.
 10. Place the jar on a rack in the canner. Repeat steps 6 through 9 for each jar. When all the jars are filled or the canner is full, lower the rack into the water. Be sure the water covers the jars by at least 1 inch; add boiling water if required. Place the lid on the canner, and turn heat to medium-high. Important: Do not fill more jars than can be processed right way.
 11. When the water returns to a full, rolling boil, begin counting the processing time. Follow the time as specified in USDA's *Complete Guide to Home Canning* or in the Wyoming-specific versions of USDA's guidelines ("Preserving Food in Wyoming" link is listed above) with separate publications on canning tomatoes, fruit, jelly, meat, pickles, vegetables, and wild berries.

12. When the specified time has elapsed, turn off heat and remove the canner lid. Allow boiling to subside, lift the jars without tilting, and place them upright on a towel to cool in a draft-free place. Do not re-tighten the bands or test for a seal while the jars are hot as this can cause the seal to fail. Cool the jars undisturbed for 24 hours.
13. After the jars have cooled, check the lids for proper seal by pressing on the center of the lids. If a lid is now concave and does not flex up or down when pressed, remove the band and slightly lift the jar by the lid. Lids that do not flex and cannot easily be removed with your fingertips have a good seal. Refrigerate or reprocess any unsealed jars.
14. Remove the bands, and then wash and dry them. When left on jars, bands can become rusty, making removal difficult. Wipe jars and lids with a clean, damp cloth, and dry them. Label and store jars in a cool, dry, dark place. For best quality, use home-canned foods within one year.

Occasionally, every home canner will have jars of food that spoil. The need for safety is especially important with canned low-acid foods that have spoiled because they can contain the powerful *Clostridium botulinum* toxin. Do not taste food from a jar with an unsealed lid or that shows signs of spoilage. Follow the procedures outlined in USDA's *Complete Guide to Home Canning* (see Web address above).

In addition to guidance on food preservation, the UW CES Food and Nutrition Web site at www.uwyo.edu/cesnutrition provides information and links in other subject areas, including food preparation, food safety, food storage, and a number of nutrition topics. Contact a local UW CES office if you have questions.



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Some of the information for this fact sheet came from newspaper columns by Cindy Shuster, an extension educator for The Ohio State University in Perry County, Ohio, and from USDA's *Complete Guide to Home Canning*.



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Nutrition and Food Safety INITIATIVE TEAM

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CANNER'S CORNER: ENJOYING SUMMER'S BOUNTY

Issue Five

Some like 'em hot!

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



Hot pepper varieties have enjoyed a rebirth of popularity recently due to various ethnic cuisines that use their unique flavors and heat creatively. Demand for jalapeños in the United States keeps rising in part because of their use in well-liked spicy foods including Mexican and Tex-Mex.

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In the past few years, questions on preserving hot peppers have increased due to their popularity. In the United States, most food-borne botulism (approximately 10 outbreaks per year) stems from eating improperly preserved home-canned foods, according to the Centers for Disease Control and Prevention. Although asparagus, beans, and peppers account for most of the outbreaks associated with home canning, other cases have resulted from consumption of chopped garlic in oil, home-canned chili peppers, and tomatoes.

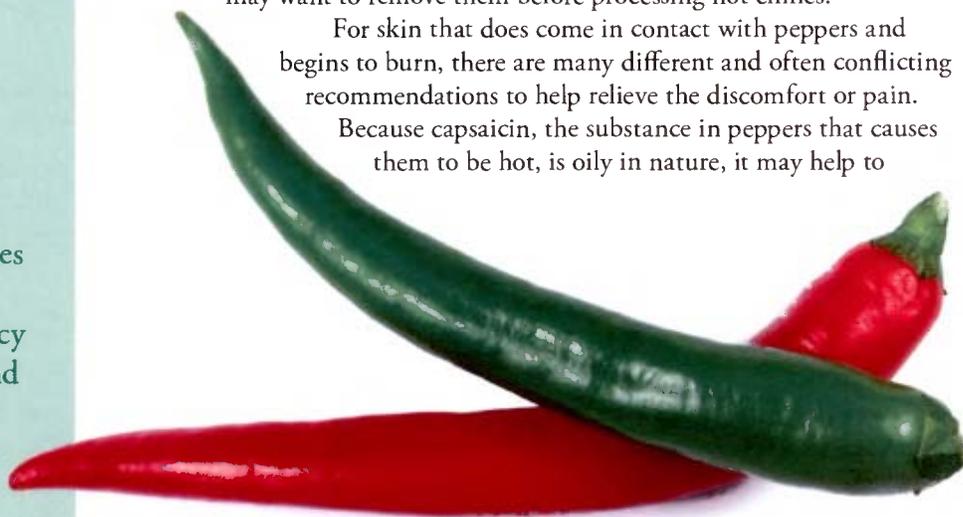
When canning peppers, one important fact goes against what seems like common sense. Common sense suggests no bacteria could possibly live in peppers so hot they require a galvanized stomach to enjoy.

That belief, however, doesn't hold up in real life. Hot peppers are a low-acid food. When canned, low-acid foods must be pressure-processed following research-based procedures to prevent bacterial growth and food spoilage. So remember: Just because peppers are hot doesn't make them safe from causing food-borne illness.

Some of the hotter peppers can cause minor burns to unprotected hands. To prevent this, wear clean rubber or latex gloves that have not been used for purposes other than cooking. While working with peppers, do not touch your eyes or any unprotected skin. If you wear contact lenses, you may want to remove them before processing hot chilies.

For skin that does come in contact with peppers and begins to burn, there are many different and often conflicting recommendations to help relieve the discomfort or pain.

Because capsaicin, the substance in peppers that causes them to be hot, is oily in nature, it may help to



first rub the affected area with vegetable oil. Then wipe off the oil and wash well with soap and water.

In the case of severe pain, procedures for treatment of burns resulting from pepper-mace sprays may prove helpful. These recommendations include topical application of medications containing magnesium, aluminum, hydroxide, and simethicone, such as Maalox®, directly to the affected areas.

If eating hot peppers is to become a regular experience, be prepared for a burning sensation in the mouth. If you overdo it and the heat is too much, don't drink water, soda pop, or an alcoholic beverage. Instead, have some milk, yogurt, bread, rice, potatoes, ice cream, or banana.

Home Canner's Questions

Q Can hot peppers be pickled?

A Yes! Use a recipe specifically for hot peppers, or use hot peppers in a recipe that calls for pickled green peppers.

Q If mold is removed from canned food, is it safe to eat?

A No! Mold can change the acidity of a food (measured in terms of pH), causing a higher-acid food to become low acid, thus creating a risk of botulism or other spoilage. Discard any home-canned food containing mold.

Q What causes food to float to the top of a canning jar?

A Tomatoes and other fruits and vegetables float to the top of jars because of air inside the food tissue. Floating often occurs when foods are raw packed (not heated) before processing. Heating (or hot-packing) fruits and vegetables causes the cells to break apart so air escapes. Hot-packed foods are less likely to float because hot-packing allows more product to be packed into a jar.

Q If food looks and smells OK, can it be used right from the jar without cooking?

A Low-acid foods (vegetables, meats, and mixtures such as chili) that have been home canned should never be tasted until they have been boiled for 10 minutes plus 1 minute for each 1,000 feet of altitude gain above sea level. If home-canned foods foam or have an off-odor during boiling, discard the food. For more information on canning and food preservation, call a local University of Wyoming Cooperative Extension Service (UW CES) office. Contact information is in your local phone directory and on-line at <http://ces.uwyo.edu/Counties.asp>.



Savoring the Savories

Q Can hot peppers and herbs be made into jelly?

A Yes!

Q Can tomatoes, ginger, and hot pepper sauce be cooked into jelly?

A A definite yes!

Preserves that are spicy, pungent, or salty (these are termed “savory”), rather than sweet, put a refreshing twist on making jelly and jam. Begin with ripe, fresh produce, and then follow a few simple steps. Instead of finishing with sweet and fruit-filled spreads, stock up on imaginative flavors that will enliven cooking and jazz up gift-giving.

For example, do these sound tasty? Crystal-clear, green pepper jelly made from hot peppers, green peppers, and apple juice. Piquant jalapeño jelly served with cream cheese and crackers. Or perhaps red onion marmalade with cranberries and grated orange peel, served on thinly sliced turkey breast and slices of mozzarella cheese.

The key to savory recipes is a careful balance of fresh ingredients. Always start with fresh vegetables and herbs at their peak of ripeness, and “put them up” when they're picked fresh. Some recipes require added pectin, a substance found naturally in fresh produce that causes mixtures to gel. Because some ingredients have less natural pectin than others, some recipes call for added pectin.

Innovations like these will not stay on the shelf; from casual family meals to sparkling dinner parties, savory preserves create a tasty sensation. For additional approved recipes on savory jams and preserves, tips on canning, and other methods of food preservation, see the National Center for Home Food Preservation Web site at www.uga.edu/nchfp, or check with a local UW CES office (contact information is at <http://ces.uwyo.edu/Counties.asp>).

Red Onion Marmalade



Yield: 5 half-pints

- 1 1/2 cups thinly sliced, halved, peeled red onions
- 1 package powdered pectin
- 1/2 cup finely chopped dried cranberries
- 2 t. grated orange peel
- 1/4 cup light brown sugar
- 3 cups bottled, unsweetened apple juice
- 1/4 cup cider vinegar
- 4 cups granulated sugar

Sauté onions, cranberries, brown sugar, and cider vinegar in a skillet over medium heat until onions are transparent. Combine onion mixture, powdered pectin, orange peel, and apple juice in a large saucepot. Bring to a boil over medium-high heat. Add granulated sugar, stirring until dissolved. Return to a rolling boil. Boil hard 1 minute, stirring constantly. Remove from heat. Skim foam if necessary. Ladle hot marmalade into clean, hot canning jars, leaving 1/4-inch headspace. Adjust two-piece caps. Process jars 15 minutes in a boiling-water canner with increased processing time for altitude adjustments as follows: 1,001-3,000 feet, add 5 minutes; 3,001-6,000, add 10 minutes; 6,001-8,000, add 15 minutes; 8,001-10,000, add 20 minutes.

Source: *Ball Blue Book*



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Additional information came from the U.S. National Library of Medicine's Toxicology Data Network at <http://toxnet.nlm.nih.gov>. Enter "hot pepper burns" (without the quote marks) into the Search All Databases box. Then click on the Hazardous Substances Data Bank link and then on the Capsaicin link.

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CANNER'S CORNER: ENJOYING SUMMER'S BOUNTY

Issue Seven

When it's good to be in a pickle

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



What's a hamburger without a side of bread 'n butter pickles? Or a pastrami-on-rye sandwich without a garlicky dill alongside?

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Where would we be today if our ancestors couldn't preserve their precious harvest for the cold, winter months? *We would be in a pickle.*

Pickling applies to most any food preserved in a brine or vinegar. Generally it involves taking low-acid vegetables (or, sometimes, a fruit such as melon or peaches) and increasing the acid by adding vinegar. This allows products such as pickled vegetables and fruits, chutneys, and relishes to be safely canned in a boiling-water bath canner.

Choosing the proper containers and pans to use when making pickle products is important. Never let copper utensils or pans come in contact with pickle-making ingredients. These may make pickles a bright green, but the copper sulfate formed (which is responsible for the green color) is poisonous and can cause serious gastrointestinal symptoms. Copper-bottomed pans or copper pans with a lining made of stainless steel won't have the same effect. Also, don't let food come in contact with containers or utensils made of brass, iron, galvanized metal, or zinc, which can cause pickles to become discolored and possibly unsafe.

To avoid contamination by harmful substances, use stainless steel, glass, enamelware, or stoneware in good condition and without chips. Food-grade plastic specially manufactured for storing foods can also be used. A food-grade container is one that will not transfer non-food chemicals into the food and has no chemicals that would be hazardous to human health. Check with a local store that carries kitchen accessories for such containers.



Another possible source is a local restaurant, which may have surplus food-grade containers, for example, empty two-gallon plastic mustard containers. Be sure to clean these thoroughly with hot, soapy water before using.

Home Canner's Questions

Q Can dill seed be substituted for dill weed?

A One tablespoon dill seed can be substituted for three heads fresh dill weed.

Q Why has my garlic turned a bluish-purple color?

A This color change can result from even small amounts of trace minerals in water, water pipes, or a cooking pot reacting to a pigment in the garlic. It can also occur if the garlic naturally has a higher level of the pigment that becomes more evident during the pickling process. It's OK to eat the pickles, but discard the garlic.



Q Where can I get pickling lime? My grandmother's pickle recipe calls for it.

A Pickling lime can be purchased from a store selling canning supplies. Be sure it is labeled pickling lime and "food-grade." Call a local University of Wyoming Cooperative Extension Service (UW CES) office for more information. Contact information is in your local phone directory and on-line at <http://ces.uwyo.edu/Counties.asp>.

Q The farm store has lime. Can I use it in my pickles?

A No! Lime in a farm store is not for human consumption. Only use "food-grade" lime purchased from a store or vendor selling canning supplies.

Q I use my mother-in-law's recipe for pickles, which are soaked in brine. The recipe does not call for any type of processing. Should they be processed?

A Yes. All canned products should be processed in either a boiling-water bath or a pressure canner. Low-acid foods should be processed in a pressure canner, and high-acid foods need to be processed in a boiling-water bath canner. Any recipe not having current tested processing directions should not be used.

Q Can I use iodized salt when making pickles?

A No. Only use salt labeled "pickling" or "canning" salt. Iodized salts can darken pickles, and other salts contain anti-caking materials that can make the brine cloudy.

Q May I use any type of vinegar?

A No! Do not use homemade vinegars or vinegar of unknown acidity. Commercially produced cider or



white vinegars contain acidity levels ranging from 4 to 6 percent. The level of acidity in a pickled product is as important to its safety as it is to its taste and texture. Read the label. Never alter the proportions of vinegar, food, or water in a recipe, and use only tested recipes. Acid helps prevent the growth of *Clostridium botulinum*, the bacterium that causes botulism, a type of food poisoning that can be fatal.

To access tested recipes, contact a UW CES county office or go to the UW CES Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm, and click on the Web Sites link. This page links to on-line versions of the U.S. Department of Agriculture's *Complete Guide to Home Canning*, which includes a section on pickles and fermented products such as sauerkraut, and to the National Center for Home Food Preservation, another excellent resource. Click on the UW Resources link to access Wyoming-specific versions of USDA's guidelines (click on the Preserving Food in Wyoming link), including one specifically on pickles.

Copies can also be obtained by e-mailing the UW College of Agriculture's Resource Center at cespubs@uwyo.edu or by calling the center at (307) 766-2115.

To access tested recipes, contact a UW CES county office or go to the UW CES Food and Nutrition Web page at www.uwyo.edu/cesnutrition/Food_Preservation.htm, and click on the Web Sites Link.



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Additional information came from the University of Georgia Cooperative Extension's *So Easy to Preserve*, 5th edition, by Elizabeth Andress and Judy Harrison. Information about *So Easy to Preserve*, which contains many recipes, and the companion video series can be found at <http://www.uga.edu/setp/>.

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CANNER'S CORNER:

ENJOYING SUMMER'S BOUNTY

Issue Eight

What's so great about apples?

Patti Griffith, Nutrition and Food Safety Educator, University of Wyoming Cooperative Extension Service



What is so great about apples? Just about everything!

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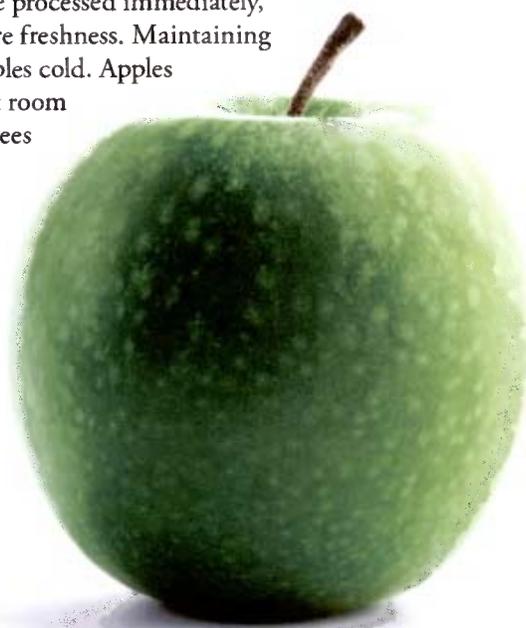
Here is one food that's been in fashion since Adam and Eve's time. The nutritional news about apples is especially juicy. They are high in pectin (a type of dietary fiber) that can help lower blood cholesterol. There are more than 3 grams of dietary fiber per apple, with the skin on, compared to less than 2 grams for a peach or a banana. Apples are a good source of potassium, are naturally fat and sodium free, and are low in calories. They are a sweet taste treat that can leave you feeling full and satisfied.

There's nothing like a crisp, autumn apple, or cinnamon-spiced apple rings served with ham, or apple chutney on the holiday turkey. An apple pie at the summer picnic made with a filling canned the previous fall, when apples were at their peak, is hard to resist.

The key to enjoying apples is knowing which varieties work best for eating raw or baked, adding to salads, canning or freezing, or using in cooked dishes such as a stir-fry.

For canning, always select firm apples with even color, free from bruises, and with a smooth finish. Use the less-than-perfect apples for eating right away, cutting up for salads, or making applesauce or apple butter. If the apples won't be processed immediately, store them properly to ensure freshness. Maintaining crispness means keeping apples cold. Apples will soften 10 times faster at room temperature than at 35 degrees

Fahrenheit, so refrigerate them as soon as possible. Put apples in a perforated plastic bag, and keep them away from foods with strong odors, such as onions, to prevent them from absorbing other flavors. Check them often for signs of rotting, and discard the spoiled apples.



Home Canner's Questions

Q What's the difference between apple juice and apple cider?

A The apple industry in the United States uses the terms "juice" and "cider" interchangeably. Outside the United States, the term "apple cider" typically means "hard" or "fermented" cider, while "apple juice" usually refers to a sweet or unfermented cider. Pasteurization prevents fermentation.

Q Is it safe to drink cider that has not been pasteurized?

A No. Unpasteurized cider can contain bacteria such as *E. coli* O157:H7 or *Salmonella*, which can cause serious food-borne illness. Harmful bacteria must be killed by a pasteurization process prior to drinking the cider. To ensure cider's safety, pasteurize it by heating to at least 160 degrees F. Store the cider in the refrigerator at 40 degrees F. or lower, and drink within five days. For longer storage, freeze after pasteurization,

Q A recipe will often specify a particular variety of apple, as well as the type (for example, "1 cup sliced tart cooking apple such as Granny Smith"). If the recommended variety is not available, what variety can I use?

A Visit a local farmers' market or grocery store to check the varieties of apples available this harvest season. The following chart from PickYourOwn.org (www.pickyourown.org/apples.htm) may help in selecting the right variety:

Name	Ripening Date Dates are approximate and vary with weather, location, and more!	Eating	Cooking	Sauce	Pie	Juice	Apple Butter
Gala	Mid August to early September	X	X	BEST	X	X	X
McIntosh	September	X		Good		X	X
Honeycrisp	September	X	X	Good but watery	X	BEST	X
Jonathan	Mid to late September	X	X	Very good	X	X	X
Golden Delicious	Mid to late September	X	X	Very good	X	X	X
Red Delicious	Mid to late September	X		Good			X
Jonagold	Mid to late September	X		Very good		X	
Rome	Early to mid October		X		X		
Stayman Winesap	Mid to late October	X	X	Good		X	
Granny Smith	Mid to late October	X	X			X	
Pink Lady	Mid to late October	X	X	Good	X	X	X
Fuji	Mid to late October	X	X	BEST	X		

Spiced Apple Rings

Yield: 8 to 9 pints

12 pounds firm, tart apples (maximum diameter 2 1/2 inches)
12 cups sugar
6 cups water
1 1/4 cups white vinegar (5 percent)
3 T. whole cloves
3/4 cup red hot cinnamon candies or 8 cinnamon sticks
1 t. red food coloring (optional)

Procedure: Wash apples. To prevent discoloration, peel, slice and core one apple at a time. Immediately cut crosswise into 1/2-inch slices, and immerse in an ascorbic acid solution. (Mix 1 teaspoon [3,000 mg] ascorbic acid crystals or six 500-milligram vitamin C tablets in 1 gallon water).

To make flavored syrup, combine sugar, water, vinegar, cloves, cinnamon candies or cinnamon sticks, and food coloring in a 6-quart saucepan. Stir, heat to boiling, and simmer 3 minutes. Drain apples. Fill jars (preferably wide-mouth) with apple rings and hot flavored syrup, leaving 1/2-inch headspace. Remove air bubbles by pressing a rubber spatula between food and side of jar at several locations. Adjust lids, and process jars (half-pints or pints) in a boiling-water canner for 15 minutes at altitudes between 3,001 and 6,000 feet. For altitudes above 6,000 feet, process 20 minutes.

For recipes and additional information, see the University of Wyoming Cooperative Extension Service (UW CES) bulletin *Preserving Food in Wyoming – Fruit*, at <http://ces.uwyo.edu/PUBS/B985-SER/B985-1.pdf>.



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