Ask an Expert // Which preservation method should I use?

5 WAYS TO PRESERVE FOOD

freeze | pressure can | dry
water bath can | freeze dry

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Interested in food preservation, but not sure where to start? Here's a great overview of the different methods for preserving food. Which one is right for you?

There are many ways to preserve food beyond the traditional bottling most people consider "canning." All of the methods help you take advantage of seasonal abundance or food market sales. Here are the Big Four, soon to become the Big Five, with pros and cons attached to help you make your decision

1. Freezing

Advantages: Freezing yields the freshest taste, and has the highest nutrition retention.

Disadvantages: In most cases, product must be thawed or cooked before use. Fruit can be limp when thawed. This can be overcome by serving fruits when still half-frozen.

Level of Preparation Difficulty: Easy– vegetables typically need to be blanched before freezing for highest quality. In most cases you simply put the product in a bag, label it, and put it in the freezer.

Cost: A freezer is a major expense, but they last a long time. Otherwise, cost is minimal: freezer bags or containers and electricity.

Storage time: For best quality, use frozen foods within three to six months. Frozen food is safe to eat as long as it is frozen.

Important food safety note: Freezing does ***not*** kill any bacteria, the cold temperature only keeps the bacteria from growing. When frozen product thaws, bacteria starts growing again.

2. Dehydrating (Drying)

Advantages: Dehydrated foods are lightweight, and don't take up much storage space, making great packable snacks or meals. Home dehydrated foods are healthier than many packaged snacks because they don't have commercial additives. Dehydrating yourself is cheaper than buying commercially dried fruits and vegetables.

Disadvantages: Lowest nutrition retention of food preservation methods—but still healthier than a store-bought snack. Product shrinks down, which makes for easy storage, but also appears to have a small yield because of that. Rehydrating a dried product does not mean the produce rehydrates to the level of fresh. It will be chewier than a fresh product.

Level of preparation difficulty: Easy— children love to dehydrate. Produce needs to be sliced around 1/4 to 1/2-inch thick. Most vegetables (excluding peppers and onions) need to be blanched prior to dehydrating for best results.

Cost: Usually under $100 for a small electric dehydrator—at garage sales, even less. Make sure to wash and sanitize a used dehydrator.

Storage time: Product is best when used within 6 months to a year, and is safe for longer if it is kept dry. Dehydrated products will mold if not kept dry.

Food Safety Note: Dehydrating is like freezing, it does ***not*** kill bacteria. It merely puts the bacteria in a state too dry to reproduce.

3. Boiling Water Bath Canning

Advantages: Foods preserved in a boiling water bath canner do not need refrigeration, and can be used directly out of the jar. This method yields good nutrition retention, fresh taste,

and is easy to use in cooking and food preparation. This is what most people think of when considering “canning.” Useful for fruits, pickled products, salsas, jams and jellies.

Disadvantages: This food preservation method can only be used for high acid fruits, jams and jellies, or pickles. It requires both the preparation time and processing time in the water bath canner.

Level of preparation difficulty: Moderate. Follow a research-based USDA or Extension recipe for safety and best results. See http://nchfp.uga.edu/ for online instructions and recipes.

Cost: You will need a 3- 5 gallon stock pot with a lid that allows for a trivet to keep the jars from direct contact with the bottom of the pan, and is deep enough to cover the jars with 2 inches of water above the jars. Commercial canners are around $30 – $40. Electric water bath canners are available for around $130. Canning jars are between $8 to $10 per dozen, although garage sales often have canning jars for cheaper. Only real canning jars (Ball, Kerr, Golden Harvest, Mason are typical brands) can be used: Salad dressing or mayonnaise jars are not strong enough. Canning lids need to be bought annually, but the bands and jars can be reused for years. One-piece Tattler lids are not USDA recommended at this time.

Storage time: Foods preserved with this method should be used within 1 to 2 years.

Food safety note: The boiling water bath method kills most yeasts and molds in high acid foods. If you open a jar and smell fermentation or see mold, throw the jar away.

4. Pressure canning

Advantages: This is a great way to can low acid foods for home use. Properly done, it is as safe as commercial products, but

there is more personal control over the content.

Disadvantages: Pressure canning *must* be done according to research-based methods in order to be safe! Canned low acid vegetables and meats are prime targets for the growth of the deadly botulism toxin. See http://nchfp.uga.edu/ for online instructions and recipes.

Level of preparation difficulty: Difficult, mainly because of the time involved. Once the food is prepared for the jars, the pressure canner must be closely watched to make sure the pressure consistently stays at the 13 to 15 pounds of pressure needed to be safe at Utah altitudes for the correct amount of time.

Cost: The cost of a pressure canner ranges from $150 to $300. A pressure cooker is too small to be a pressure canner. Electric pressure cookers that claim to also pressure can are not recommended because they cannot hold 15 pounds of pressure for as long as it needs to be held at our altitude for safe canning. The cost of jars and lids is the same as for water bath canning.

Storage time: Foods preserved with this method should be used within 1 to 2 years.

Food safety note: If properly canned using a USDA or Extension tested recipe, the temperatures reached in a pressure canner should kill botulism spores, which create the botulism toxin. It is recommended to boil any low acid canned product for 15 minutes before eating as an additional safeguard, but anything that seems suspicious of spoilage should be thrown away rather than eaten.

5. Home freeze-dryer

Advantages: This method yields fresh taste, great nutrition retention, and preparation is easy (same as freezing or

dehydrating).

Disadvantages: Freeze drying machines are expensive, noisy, and take up space—they are quite large: the mid-size model is the size of a dishwasher, the small is the size of a student refrigerator. When the vacuum pump goes on, it is noisier than a dishwasher.

Level of preparation difficulty: Easy—the same preparation as for freezing or dehydrating. The time for processing is typically 24 hours or more, but it doesn't need to be watched to do the processing.

Cost: Freeze drying machines cost $2500 and up, and require special vacuum pump oil.

Storage time: Home freeze-dryers are new, so definitive time studies have not been done. It is estimated the product is safe for around 10 years.

Food safety note: Freeze-drying does ***not*** kill bacteria. The same food safety recommendations as for either freezing or drying hold true here: once the product is rehydrated, the bacteria begin to grow again.

Home food preservation is an important skill to have. It saves money, gives control over content, and focuses your mind on healthy eating. Choose a process and enjoy the bounty!

This article was written by Cathy Merrill, USU Extension Assistant Professor, Utah County

Three Ways to Preserve Zucchini

3 WAYS TO PRESERVE ZUCCHINI

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Do you have more zucchini than you know what to do with? Don't throw it out, try preserving it! Watch our latest segment on Studio 5 to learn three ways to preserve zucchini. Read on for the recipes we mentioned in the show.

Dried Zucchini

Cut washed zucchini in 1/4 inch slices and dry in food dehydrator. Use dried zucchini in soup, chili, or casseroles.

Frozen Zucchini

Prepare zucchini for freezing by cutting it the way you like to eat it (cubed, shredded, spiralized, sliced, etc.). Blanch zucchini in boiling water or steam, then cool in an ice bath before freezing.

Ultimate Zucchini Brownies

Ingredients:

- 2 cups zucchini (fresh or frozen)
- ½ cup oil
- 2 teaspoons vanilla
- 2 cups flour
- 1 ½ cups sugar
- 1 teaspoon salt
- 1 ½ teaspoons baking soda
- ½ cup cocoa
- 1 cup chocolate chips

Method:

In a large bowl, mix together zucchini, oil and vanilla. Add in flour, sugar, salt, soda, and cocoa. Stir to combine. Mix will seem very dry (depending on how wet the zucchini is), but continue stirring until mix comes together and resembles stiff cookie dough. Fold in chocolate chips. Spread into a 9×13 baking dish, lined with aluminum foil and sprayed with cooking spray. Bake at 350°F for 30 minutes. Once cool, use foil ends to lift out of baking dish. Cut brownies into desired size, and dust with powdered sugar before serving.

Canned Zucchini

Because zucchini is a low-acid food, it can only be processed safely if acid is added. You'll probably find two recipe types for canning zucchini– pickles or relishes, and pineapple zucchini or zucchini marmalades. Be sure to use recipes from reliable sources such as Ball, the National Center for Home Food Preservation, or USU Extension. Recipes from these sources have been tested and scientifically proven to be safe.

Zucchini Relish

Yield: about 4 half-pint jars

This Recipe was taken from the Ball Blue Book. Serve with hotdogs, hamburgers, sloppy joe's, pulled pork sandwiches, or tuna salad.

Ingredients:

- 2 cups zucchini, chopped or shredded (about three medium)
- 1 cup chopped onion (about 1 medium)
- ½ cup chopped green bell pepper
- ½ cup chopped red bell pepper
- 2 tablespoons salt
- 1 ¾ cups sugar
- 2 teaspoons celery seed
- 1 teaspoon mustard seed
- ½ teaspoon turmeric (optional)
- 1 cup cider vinegar, 5% acidity
- Ball Pickle Crisp (optional)

Method:

Prep:
Wash zucchini and green and red bell peppers under cold running water; drain. Remove stems and blossom ends from zucchini. Chop or shred zucchini; measure 2 cups chopped or shredded zucchini. Peel onion and chop; measure 1 cup chopped onion. Remove stems and seeds from green and red bell peppers. Chop green bell pepper; measure ½ cup chopped green bell pepper. Chop red bell pepper; measure ½ cup chopped red bell pepper. Combine zucchini, onion, green pepper, and red bell pepper in a large bowl. Sprinkle salt over vegetables. Pour cold water over vegetables just to cover. Let stand 2 hours. Drain vegetables. Rinse vegetables under cold water, drain.

Cook:

Combine sugar, spices, and vinegar in a large saucepan. Bring mixture to a simmer (180°F). Add vegetables; simmer 10 minutes.

Fill:
Pack hot relish into a hot jar, leaving ½ inch headspace. Add 1/16 teaspoon Pickle Crisp to half-pint jar, if desired. Remove air bubbles. Clean jar rim. Center lid on jar and adjust band to fingertip-tight. Place jar on the rack elevated over simmering water (180°F) in boiling-water canner. Repeat until all jars are filled.

Process:
Lower the rack into simmering water. Water must cover jars by 1 inch. Adjust heat to medium-high, cover canner and bring water to a rolling boil. Process half-pint jars 10 minutes (add 10 minutes to adjust for altitude in Utah). Turn off heat and remove cover. Let jars cool 5 minutes. Remove jars from Canner; do not retighten bands if loose. Cool 12 hours. Check seals. Label and store jars.

Pineapple Zucchini

Yield: about 8 pint jars

Use pineapple zucchini any way you would use canned pineapple. Try it baked into muffins, quick breads, or cakes. Mix it in with your fruit salad, or blended into a smoothie.

Ingredients:

- 4 quarts ½-inch cubed or shredded zucchini (about 32 small, or 2 monstrous)
- 3 cups sugar
- 46 ounces bottled unsweetened pineapple juice
- 1 ½ cups bottled lemon juice

Method:

Prep:
Wash zucchini under cold running water; drain. Remove stem and blossom ends. Peel zucchini and cut in half lengthwise. Remove seeds. Cut zucchini into ½-inch cubes or shred it using a food grater.

Cook:
Combine zucchini, sugar, pineapple juice, and lemon juice in a large saucepan. Bring mixture to a boil, stirring until sugar dissolves. Reduce heat to a simmer (180°F). Simmer 20 minutes, stirring to prevent sticking.

Fill:
Pack hot zucchini and juice into a hot jar, leaving ½ inch headspace. Remove air bubbles. Clean jar rim. Center lid on jar and adjust band to fingertip-tight. Place jar on the rack elevated over simmering water (180°F) in boiling water canner. Repeat until all jars are filled.

Process:
Lower the rack into simmering water; water must cover jars by 1 inch. Adjust heat to medium-high, cover canner and bring water to a rolling boil. Process pint jars 15 minutes. Turn off heat and remove cover. Let jars cool 5 minutes. Remove jars from canner; do not retighten bands if loose. Cool 12 hours. Test seals. Label and store jars.

Note: Use only commercial bottled pineapple juice and bottled lemon juice in this recipe to achieve the correct pH level (acidity) for safe processing in a boiling-water canner.

Hummingbird Muffins

Ingredients:

- 1 cup chopped pecans
- 1 cup all-purpose flour

- ½ cup whole wheat flour
- ½ teaspoon baking soda
- 1 teaspoon cinnamon
- ¼ teaspoon allspice
- ¼ teaspoon salt
- 1 cup mashed banana (2 ripe bananas)
- ½ cup pineapple zucchini, with juice
- 2 large eggs
- 1/3 cup plain Greek yogurt
- ½ cup packed brown sugar
- ¼ cup granulated sugar
- 1 teaspoon vanilla extract

Method:

Preheat the oven to 300°F. Spread pecans onto a lined baking pan. Toast for 8 minutes. Remove from the oven, let cool, and then chop. Turn oven up to 350°F (177°C), then prepare muffin tin by coating with cooking spray.

Whisk the flour, baking soda, cinnamon, allspice, and salt together in a large bowl.

Whisk the rest of the cake ingredients in a medium bowl. Pour wet ingredients into dry ingredients and whisk until just. Fold in 1/2 cup toasted pecans.

Fill each muffin space ¾ full, and top with remaining pecans (if icing, reserve pecan garnish for after baking). Bake for 15 minutes or until a toothpick inserted in the center comes out clean.

Remove muffins from tin and allow to cool completely on a wire rack.

Pineapple Yogurt Icing (optional)
Whisk together 2 tablespoons Greek yogurt, 1 cup powdered sugar, and 1 tablespoon juice from pineapple zucchini. Add more juice as needed until icing is pourable consistency.

Drizzle muffins with icing, and top with remaining pecans.

Learn More

Preserve the Harvest: Zucchini

Save Your Summer Harvest: Freezing Vegetables

4 Tips for Food Dehydrating

Pumpkin Zucchini Bread

Fresh Zucchini Salad

Cooking in Season: Summer Squash

This article was written by Marta Nielsen, Editor of Live Well Utah, Wasatch Front Marketing Assistant for USU Extension

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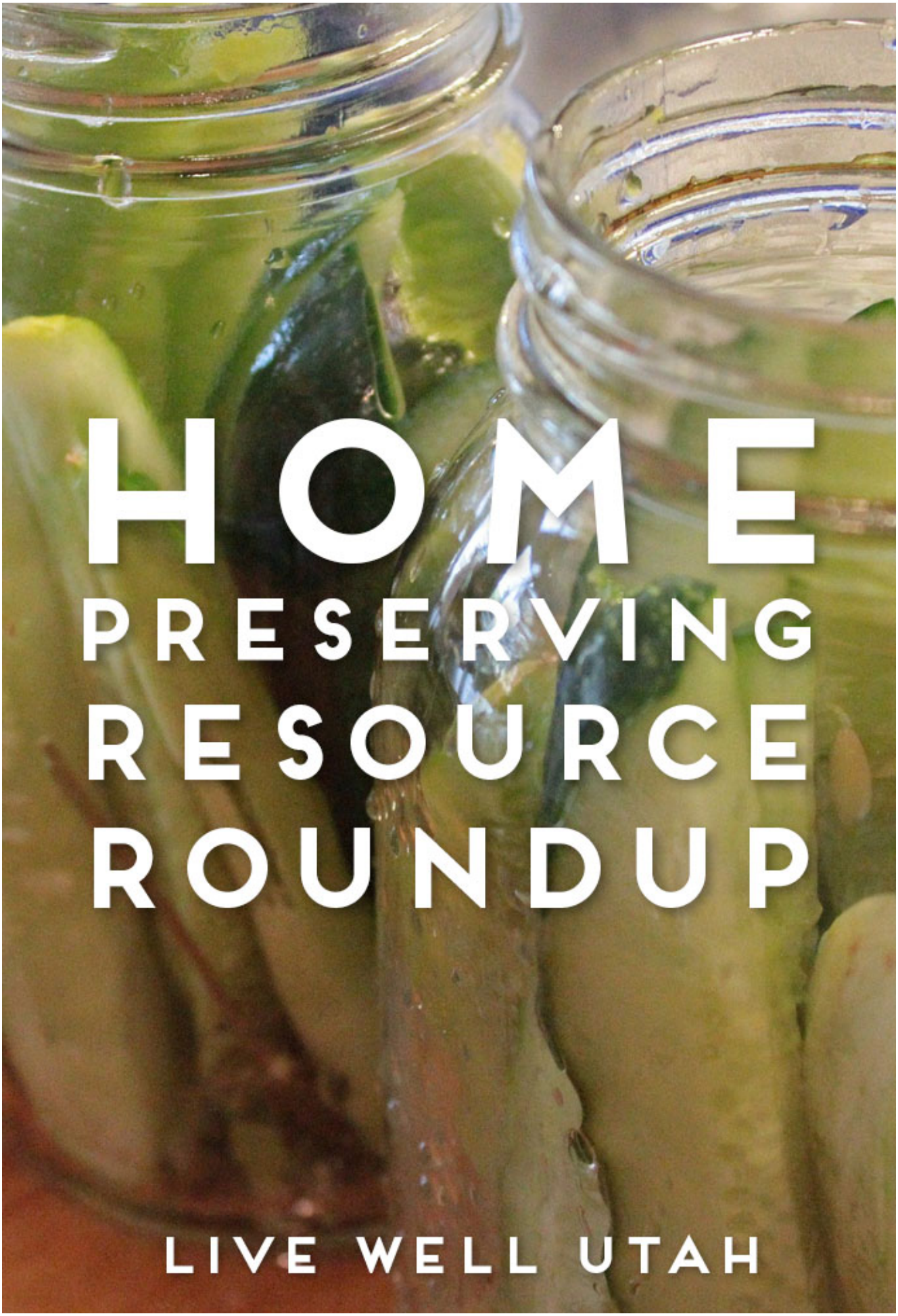
Home Preserving Resource Roundup



HOME PRESERVING RESOURCE ROUNDUP

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Are you interested in canning and preserving your own food? Check out these upcoming classes, or learn about the dos and don’ts of home preserving from this roundup of videos and blogs from USU Extension.

Canning Resources

Shelf-life of Home Preserved Foods

7 Foods You Shouldn’t Can at Home

5 Tips for Failproof Home Preserving

Steam Canning Uncovered

Freezing Vegetables

Making Homemade Jams and Jellies

Plan Today to Preserve Tomorrow

5 Fruit Freezing Tips

How to Preserve Wild Game

Home Canning No-no’s

4 Tips and Reminders for Harvest Preservation

How to Can Apricots

Where to Go for Safe Canning Recipes

Master Preserver Program

Do you enjoy the art and science of food preservation and canning? Become a Master Food Preserver. Register here for the

Salt Lake County Master Preserver Program, July 25, 26 and 27, 9 a.m. – 4 p.m. Contact your county USU Extension office to find out about the Master Preserver Program in your county.

Weber County Master Food Preserver Classes (can be taken individually or as a series)

Canning Pickles and Relish, July 11 – 11:30 – 2:30 p.m.
Canning Fruits, July 13 – 8 – 11 a.m.
Jams, Jellies and Spreads, July 13 – 11:30 a.m. – 2:30 p.m.
Freeze Drying and Dehydrating Veggies and Meats, July 18 – 8 – 11 a.m.
Dehydrating Fruit and Fruit Leathers, July 18 – 11:30 a.m. – 2:30 p.m.
Pressure Canning Low Acid Foods, July 20 – 8 – 11 a.m.
Freezing, July 20 – 11:30 a.m. – 2:30 p.m.
Canning Tomatoes and Tomato Mixtures, July 25 – 8 a.m. – 2:30 p.m.
Wrap Up and Final Exam, July 27 – 8 a.m. – 1 p.m.

All classes will be held at Roy High School, FACS kitchens, North West side of school. Find out more and register here.

Individual Canning Classes

Weber County

Canning Tomatoes and Tomato Mixtures (salsa included)
August 15 – 10 a.m. and 6 p.m.
Pressure Canning September 19 – 6 p.m.

All classes will be held at USU Extension Weber County office – 181 North Fairgrounds Dr., Ogden.

Davis County

Freezing/Dehydrating July 26 – 9 a.m.-noon
Jams/Jellies August 2 – 9 a.m.- noon
Fruit Canning August 9 – 3 – 6 p.m.
Tomato Canning August 16 – 9 a.m.-noon

All classes will be held at the USU Botanical Center, Utah House – 920 South 50 West, Kaysville

Utah County

Canning: Safe, Easy Basics June 20 – 7-9 p.m.
Canning: Tomatoes and Salsas June 27 – 7-9 p.m.
Canning: Pressure Method for Meats and Vegetables June 27 – 7-9 p.m.
No Can "Canning"–Freezing and Dehydrating June 29 – 7-9 p.m.

All classes will be held at Utah Valley University To register, call 801-863-8012 or visit uvu.edu/ce

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Visit canning.usu.edu for more online canning resources from USU Extension. Find more classes near you at http://extension.usu.edu/calendar.

Steam Canning Uncovered

STEAM CANNING UNCOVERED

LIVE WELL UTAH

Grandma used a steam canner all summer long, but you've heard they are not safe. Read up on what the latest research has to say about steam canning.

In recent decades, atmospheric steam canning has not been recommended for home food preservation. However, recent studies have been published that no longer condemn steam canners. The University of Wisconsin-Madison has published research confirming that atmospheric steam canners are acceptable to use for preserving naturally acidic foods, or acidified-foods such as salsas or pickle varieties. The research comes with assurances that this tool can be used, with conditions that need to be controlled first, such as the following:

High Acid

Foods must register at a pH of 4.6 or below. This includes fruits such as peaches, pears and apples. This method is **not** suitable for vegetables or meats that generally fall into lower-acid categories. It is not recommended to use a steam canner for tomatoes. The exception is for products such as salsa where additional acid is used.

Approved Recipe Use

A research-tested recipe must be used with the atmospheric steam canner. Approved recipes can be found on websites such as the USDA Complete Guide to Home Canning, and the National Center for Home Food Processing and Preservation: nchfp.uga.edu. Standard canning jars and two-piece lids are required. An atmospheric steam canner is approved for use with recipes approved for half-pint, pint or quart jars.

Pure Steam at 212°F

Prior to processing, canners must be vented until a full plume of steam appears. A plume of steam approx. 8 inches coming from the sides of the canner should be visible throughout the entire processing time. When purchasing a steam canner, be aware of features such as a built-in temperature sensor in the lid. The canner should remain at a steady 212°F temperature.

Time is of the Essence

Processing time needs to be adjusted for elevation as required by a tested recipe. The USDA guide is a reliable resource to determine the amount of added processing time needed. With this in mind, processing times must be limited to 45 minutes or less. This includes time modifications for elevation. Time is limited due to the amount of water in the base of the canner. While food is processing, water should **not** be added. If the heat temperature is too high, water can boil dry before processing is complete, and this is deemed unsafe.

Jar Care

Jars must be heated before adding product or processing. It is important not to let much cooling occur prior to processing. After processing, jars should be placed on a rack or towel away from drafts and not force-cooled.

This article was written by Erin Floyd, Intern with USU Extension, and Mealanie D. Jewkes, Extension Associate Professor, Utah State University Salt Lake County Extension.

Source: http://nchfp.uga.edu/publications/nchfp/factsheets/steam_canners.html

Plan Today to Preserve Tomorrow

Before you know it, you'll be up to your ears in fresh garden pickin's. Make sure you're ready for the harvest so that you can enjoy every last bit of it!

Prepping For Your Preservation

With summer upon us, it's time to plan for a great season of home food preservation. The first step is to assess your canning equipment and supplies to ensure they are in proper working condition to assure safe, high-quality preserved foods.

Canning Jars and Lids

Assess the amount and condition of your canning jars to determine if additional bottles are needed. It is recommended to only use Mason-type jars that are made specifically for home canning. Check the bottles for scratches, cracks, nicks or chips. Nicked or chipped bottle rims will not seal properly, and scratched bottles may cause cracking or breakage while processing, so it is best to dispose of those bottles. Bottles that are not made specifically for canning may break under high heat or pressure and may experience more seal failures. The same is true for very old Mason jars that have weakened over time.

Jars come in many sizes from half-pint to half-gallon, and it is important to use the jar size that is specified in a recipe. Half-gallon jars should only be used for canning very acidic juices such as apple juice or grape juice.

It is recommended to use two-piece flat metal lids and screwing bands for processing. The USDA Complete Guide to Home Canning states that gaskets in unused lids work well for at least five years from the manufacturing date. Do not use old, used, dented or deformed lids, but the screw bands are reusable as long as they are not bent, dented or rusted.

Boiling Water Canners

Boiling water canners, or water bath canners, are used for canning high-acid foods such as fruits, pickles, jams/jellies and acidified tomatoes. Most water bath canners are designed to hold seven quart jars or eight to nine pint jars. These canners are made of aluminum or porcelain-coated steel with a removable rack and a lid.

A water bath canner should be deep enough to allow at least an inch or two of boiling water to cover the bottles during processing. Flat bottom water bath canners are recommended for electric ranges and the canner should be no more than 4-inches wider in diameter than the electric element to ensure uniform

processing of all the jars in the canner. Flat or ridged-bottom canners can be used on gas burners.

Pressure Canners

Low-acid foods, such as meat, poultry, fish, vegetables and dried beans, must be processed in a pressure canner. There are two types of pressure canners: dial-gauge and weighted-gauge. The dial gauge on pressure canners should be checked for accuracy every year. Inaccurate gauges that read high may cause under-processing resulting in unsafe food, and low readings cause over-processing.

Every pound of pressure is very important to the temperature needed inside the canner for properly processed food. Gauges may be checked at local Extension offices. Weighted-gauges do not need to be checked for accuracy. For most altitudes in Utah, weighted-gauges must be operated at a canner pressure of 15 PSI.

Useful Tools

Helpful tools for home canning include a jar lifter to aid in removing hot jars from the canner. A bubble remover frees air bubbles from inside the jar to aid in maintaining a proper headspace. Some bubble removers have a headspace measurer on one end. A lid lifter is a tool with a magnet on the end to lift lids from hot water.

A very important tool to have for food preservation is using research-tested recipes. The USDA Complete Guide to Home Canning has updated canning instructions. The National Center for Home Food Preservation (http://nchfp.uga.edu/) is another excellent source for current research-based recommendations for most methods of home food preservation. Most local Extension offices have current research-based information for safe home food preservation.

Proper planning now will help to ensure a successful canning season.

This article was written by Marie Anderson.