

While this document contains many links to websites and other files for your learning pleasure, **all of the answers to the reappointment quiz are in this study guide – use only this document as your reference for the questions.** Log 2 hours of continuing education to study and take the quiz.

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MFP Volunteer Resources

<https://mfp.ucanr.edu/Resources/Volunteers/>

On the statewide website is a Resource page for volunteers. (See link above.) In it are the following sections. Please go to the site to familiarize yourself with the content.

1. Internal Resources and Recipe List
2. Annual Reappointment
3. MFP Safety Notes
4. UC Master Food Preserver Program Administrative Handbook
5. Volunteer Management System (VMS) User’s Guide
6. Collaborative Tools (CT) Administration Help Document

Note that in the **Internal Resources and Recipe List**, a major change has been made regarding the 2016 All New Ball Book of Canning and Preserving. The original 2016 edition included multiple recipes which conflicted with USDA testing of using fresh lime juice in salsa instead of bottled lime juice, along with the incorrect amount of balsamic vinegar needed for the Roasted Eggplant and Pepper Puttanesca Sauce. For these reasons, this book was not a source for recipes used in our educational outreach. *(The rest of the recipes were fine, but if we use some recipes from the book, it’s an implicit approval to use all recipes.)*

Good news! The 2023 printing is updated to use bottled lemon juice and has corrected recipes. It is now on our internal list of recipe resources to use in our materials. *(Are you doing a happy chair dance?)* If you have the original 2016 print version of the book to use recipes for class materials, include bottled lemon juice for the salsa recipes and use 1 cup balsamic vinegar in the Roasted Eggplant and Pepper Puttanesca Sauce recipe.

How do you know you have the most current publication?

Unfortunately the print date is still listed as 2016, but in the top right corner is a reference to a 2023 copyright notice for Rubbermaid Inc. If you see this 2023 reference, you know you don't have the original 2016 version.

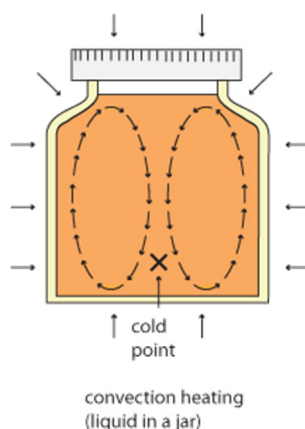
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Unsafe Canning Practice: 'Dry Canning' Vegetables

<https://florence.extension.wisc.edu/unsafe-canning-practice-dry-canning-vegetables/>

Written by Karly Jo Harrison, Posted on July 17, 2020



A second method of 'dry canning' has surfaced, even more unsafe than the first. One unsafe method of dry canning is oven 'canning' of dry goods such as dry beans, nuts or flour. This method of 'preserving' dry foods really isn't canning and it isn't considered safe. A second method of 'dry canning' involves placing raw vegetables such as corn, green beans, carrots, and beets in canning jars with no added liquid, sealing jars, and pressure canning for the same amount of time as if you had added the required liquid. The USDA Hotline has received questions about this method of preserving food. What does research tell us about dry 'canning' of vegetables or other low-acid foods?

Pressure canning low-acid vegetables without adding liquid to the jars is extremely hazardous. The liquid that we add to jars before pressure canning green beans, corn, carrots, beets or other vegetables is required for safety.

Liquid added to canning jars circulates heat inside the jars. As steam builds pressure inside the canner, the temperature inside the canner rises. Hot, circulating steam transfers heat to the glass walls of the jars. Liquid circulating inside the jars then picks up the heat from the glass and transfers the heat to all points inside the container, including to the cold spot, helping to ensure a safe product. This type of heating is known as convection heating.

Without added liquid, food heats by conduction. The food heats from the outside to the inside, similar to when cooking a roast. The time that it takes to heat the cold spot depends on the rate of heat transfer to the food and the rate of heat transfer within the food, and can take much longer than convection heating.

Besides being an efficient way of transferring heat within the jars, the added liquid increases the 'killing power' of the heat. Bacteria and bacterial spores are more sensitive to wet heat than to dry heat. Cooking food in liquid will result in more rapid microbial death than cooking in air.

Dry canning of vegetables presents the risk of botulism poisoning. To find out more about this deadly illness, visit the [CDC website](https://www.cdc.gov/). Fortunately, there are research-tested recipes for home canning and preserving and following these recipes as directed will yield safe, high quality foods for you and your family. In Wisconsin, safe preserving recipes are part of the [Wisconsin Safe Food Preservation Series](https://www.wisconsin.gov/extension/foodpreservation/) (see the Safe Preserving Recipes tab).

Unveiling the Power of Pectinase: A Citrus Lover's Secret for Pith and Membrane Removal

<https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=58880>

Author: Sherida Phibbs UCCE Master Food Preserver

Published on: February 3, 2024, UC Master Food Preserver of San Joaquin County Newsletter

I am the proud owner of the most adorable mandarin orange tree, gracing my patio with its bounty of luscious mandarin oranges. These little gems, bursting with flavor, become my source of delight throughout the year. Among the myriad ways I enjoy these beauties, my absolute favorite is a refreshing salad featuring butter leaf lettuce adorned with mandarin oranges, candied pecans, and goat cheese, all drizzled with a delectable raspberry vinaigrette.

However, my journey into preserving the essence of mandarins has led me to a crucial revelation: the necessity of supreming the citrus (eliminating the pith and tough membranes) for unparalleled enjoyment. Delving into extensive research, I've discovered a pre-canning technique that transforms the mandarin preparation process – treating the peeled mandarin sections with pectinase.

This innovative method proves to be a game-changer, ensuring that the delicate citrus segments are freed from undesirable textures. By harnessing the power of pectinase, I've elevated the preservation of mandarin oranges to an art form, allowing their natural sweetness and juiciness to shine through without the interference of pith and membranes. As I embark on this culinary adventure, the transformative effects of pectinase have become an indispensable ally in preserving the pure essence of my beloved mandarin oranges.

Pectinase, an enzyme with remarkable capabilities, has found its way into the hearts of citrus enthusiasts by simplifying the process of removing the pith and tough membranes from citrus fruits. Derived from microorganisms like bacteria and fungi, this enzyme plays a pivotal role in breaking down pectin, a complex polysaccharide that gives structure to plant cell walls. In this article, we delve into what pectinase is and how it can be effectively used to enhance the citrus eating experience.

Understanding Pectinase: Pectinase is a collective term for a group of enzymes that includes pectin lyase, polygalacturonase, and pectinesterase. These enzymes work in synergy to break down pectin



Before supreming



After supreming



Membranes removed

into smaller, soluble fragments, thereby softening the cell walls of fruits and vegetables. In the context of citrus fruits, pectinase becomes a valuable tool for simplifying the extraction of segments by targeting the pith and tough membranes that often cling stubbornly to the fruit.

How Pectinase Works: Pectin, a complex carbohydrate found in the cell walls of plants, creates a mesh-like structure that provides rigidity. In citrus fruits, pectin is concentrated in the pith and membranes, making them challenging to remove. Pectinase acts as a catalyst in the hydrolysis of pectin, breaking it down into smaller molecules. This enzymatic action weakens the structural integrity of the pith and membranes, making them more susceptible to mechanical separation.

Using Pectinase for Citrus Fruit:

1. **Selecting the Right Pectinase Product:** Start by choosing a high-quality pectinase product suitable for food applications. Ensure that it is derived from safe and approved sources and follow the recommended dosage instructions provided by the manufacturer.
2. **Preparing the Citrus Fruit:** Wash the citrus fruit thoroughly to remove any dirt or contaminants. Peel the citrus and break it up into the sections of the fruit, exposing the pith and membranes that need to be removed. Place fruit in a container.
3. **Application of Pectinase:** Following the manufacturer's recommendation, add pectinase and water to cover the fruit. Allow the enzyme to work for a recommended duration, which may vary depending on the product.
4. **Mechanical Separation:** Once the pectinase has had time to act, use gentle mechanical pressure or utensils to separate the softened pith and membranes from the fruit. The enzymatic action should make this process more effortless compared to traditional methods.
5. **Rinsing and Enjoying:** Rinse the fruit segments thoroughly to remove any residual enzyme solution. You are now left with citrus segments that are free from the undesirable pith and tough membranes. Enjoy your citrus fruit without the hassle. The fruit is now ready to eat or preserve.

Benefits of Using Pectinase:

Improved Efficiency: Pectinase significantly accelerates the removal of pith and membranes, streamlining the preparation process and saving time in the kitchen.

Enhanced Quality: The enzymatic action of pectinase results in a cleaner and more aesthetically pleasing presentation of citrus segments, contributing to an enhanced dining experience.

Consistent Results: Using pectinase ensures a more consistent outcome, as the enzymatic activity is predictable and reproducible when following recommended guidelines.

Pectinase stands as a game-changer for citrus lovers seeking an efficient and hassle-free method to remove the pith and tough membranes from their favorite fruits. By harnessing the power of this remarkable enzyme, individuals can enjoy the pure, unadulterated goodness of citrus without the unwanted textures that often accompany the traditional peeling process. As the popularity of pectinase grows, it is poised to become an indispensable tool in the kitchen, bringing joy to citrus enthusiasts and culinary enthusiasts alike.

Images courtesy of Sherida Phibbs

No Worries, the Alcohol Burns Off During Cooking—But, Does It Really?

<https://www.isu.edu/news/2019-fall/no-worries-the-alcohol-burns-off-during-cooking-but-does-it-really.html>

December 2, 2019

Barbara Gordon, ISU Registered Dietitian

2024 UC Master Food Preserver Note: While the following article addresses cooked food, not canned, the results apply to canning fruit spreads and sauces that include alcohol.

The holiday gathering featured family favorites with a twist. My friend infused each recipe with the unique profiles of booze: beer cornbread, beef with wine sauce, carrots in bourbon sauce, salad greens tossed with a champagne vinaigrette, and amaretto apple crisp. However, this feast worried one of the guests.

I overheard a young man whisper apologetically to the hostess that he was headed out because he did not drink. She responded that there was nothing to worry about—during cooking the alcohol burns off. Luckily, he opted to leave.

It is true that some of the alcohol evaporates, or burns off, during the cooking process. “Some” being the operative word. Exactly how much depends on many factors. To learn more, a group of researchers, funded by a grant from the U.S. Department of Agriculture, marinated, flamed, baked, and simmered a variety of foods with different sources of alcohol. The verdict: after cooking, the amount of alcohol remaining ranged from 4 percent to 95 percent.

Many factors impact the final alcohol content of homemade recipes. How long the dish is cooked at the boiling point of alcohol (173 degrees Fahrenheit) is a big factor (source: USDA Table of Nutrient Retention Factors, Release 6:

Time Cooked at Boiling point of alcohol	Approximate Amount of Alcohol Remaining
15 minutes	40 percent
30 minutes	35 percent
One hour	25 percent
Two hours	10 percent
Two and one-half hours	5 percent

But there’s more...

The other ingredients in the recipe influence the amount of alcohol retained. For example, a bread crumb topping on scallops cooked in wine sauce can prevent some of the alcohol from evaporating, increasing the amount of alcohol in the final dish.

The size of the pan also comes into play. More alcohol remains in recipes made in smaller pans. The reason is that a larger pot has more surface area which lets more of the alcohol evaporate. In addition, recipes that require you to stir during the cooking process, tend to have lower amounts of alcohol because this action also promotes evaporation.

Roughly speaking:

- Beer cheese sauce, bourbon caramel and other sauces brought to a boil and then removed from the heat typically retain about 85 percent of the alcohol.
- Diane, cherries jubilee and other recipes that flame the alcohol may still have 75 percent of the alcohol.
- Marinades that are not cooked can maintain as much as 70 percent of the added alcohol.
- Meats and baked goods that are cooked for 25 minutes without being stirred retain 45 percent of alcohol.
- Stews and other dishes that simmer for two and one-half hours tend to have the lowest amounts, but they retain about five percent of the alcohol.

The takeaway: For individuals in recovery, women who are pregnant or breastfeeding, and those who choose not to drink for religious, health or other reasons, all of the alcohol does NOT burn off. They may need to opt-out of holiday recipes that include alcohol as an ingredient. And, for those of us toasting in the holiday, some sauces may be contributing more to our blood alcohol levels than we realize.

Canning on Portable Burners

<https://nchfp.uqa.edu/newsflash#qsc.tab=0>

February, 2024

National Center for Home Food Preservation

Can I can on portable gas or electric burners?

If you have a smooth cooktop and the manufacturer says not to can on it, then you might find yourself looking for an alternative. The alternatives for canning (if you have one of these no-canning recommended smooth cooktop ranges) are either to purchase and install a permanent set of electric coil or gas burners as a range top (without an oven) or to purchase a portable electric coil or gas burner.

And that is where important decisions come in to play. An installed range top requires the utilities to support it and can be quite expensive as a second range top. As for portable burners, they are not all alike and not all portable burners are appropriate for canning. First of all, check the burner manufacturer's specifications and directions or contact their customer service department for more specific information about the appropriate use of a particular burner for canning.

We cannot endorse a particular brand, but here are a few basic guidelines for you to keep in mind when selecting a portable burner for canning purposes:

1. The burner must be level, sturdy, and secure. Look for enough height to allow air to flow under the burner, but not such that it will become unsteady with a full, heavy canner resting on it. One we have tested was about 4 inches high off the counter top, on short legs that allowed air circulation underneath but was plenty stable.
2. Look for a burner diameter that is no more than 4 inches smaller than the diameter of your canner. In other words, the canner should not extend more than 2 inches from the burner on any side. This

is a common recommendation, but also make sure this is the recommendation for your canner brand.

3. For electric burners, you want the wattage to be about equal to that of a typical household range large burner. We have been successful bringing a boiling water canner to boiling with one that is 1500W/120V, but household range burners are more typically 1750W or higher and this kind of wattage may actually be a better choice if you can find it. We have not yet tried using a pressure canner on a portable electric burner.
4. You want the burner to have housing that will hold up to the high heat under the canner for long heating periods, and not damage counter tops with reflected heat. We contacted a foodservice supply store to help us identify one like this; it cost us about \$200. We used it successfully a few times to bring water to a boil, but have not used one repeatedly for canning.
5. At least one pressure canner manufacturer advises not to can on any outdoor heat source. Your pressure canner can be damaged if the gas burner puts out too much heat. Higher BTU burners (over 12,000 BTUs) could also produce so much heat that the recommended come-up time for canning could be altered, potentially producing an unsafe final product.
6. Again, *check manufacturer's directions and/or contact their customer service for more information about appropriate burners.* When you are asking manufacturers about canning, specify whether you are asking about pressure canning (much more heat concentration) or boiling water canning. If the manufacturer's directions have been followed, and canning problems occur, then you must take it up with the manufacturer.

Canning Fruit-based Baby Foods

<https://nchfp.uqa.edu/how/can/general-information/canning-fruit-based-baby-foods/#qsc.tab=0>

You may prepare any chunk-style or pureed fruit with or without sugar, using the procedure for preparing each fruit as given in Guide 2 (of the USDA Complete Guide to Home Canning). Pack in half-pint, preferably, or pint jars and use the following processing times.

Process time for fruit-based baby foods in a boiling-water canner				
		Process Time at Elevations of		
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 6,000 ft	Above 6,000 ft
Hot	Half-pints Pints	20 min	25	30

Caution: Do not attempt to can pureed vegetables, red meats, or poultry meats, because proper processing times for pureed foods have not been determined for home use. Instead, can and store these foods using the standard processing procedures; puree or blend them at serving time. Heat the blended foods to boiling, simmer for 10 minutes, cool, and serve. Store unused portions in the refrigerator and use within 2 days for best quality.

Maintaining Color and Flavor in Canned Food

<https://nchfp.uga.edu/how/can/general-information/maintaining-color-and-flavor-in-canned-food/#gsc.tab=0>

To maintain good natural color and flavor in stored canned food, you must:

- Remove oxygen from food tissues and jars,
- Quickly destroy the food enzymes,
- Obtain high jar vacuums and airtight jar seals.

Follow these guidelines to ensure that your canned foods retain optimum colors and flavors during processing and storage:

- Use only high-quality foods which are at the proper maturity and are free of diseases and bruises.
- Use the hot-pack method, especially with acid foods to be processed in boiling water
- Don't unnecessarily expose prepared foods to air. Can them as soon as possible.
- While preparing a canner load of jars, keep peeled, halved, quartered, sliced, or diced apples, apricots, nectarines, peaches, and pears in a solution of 3 grams (3,000 milligrams) ascorbic acid to 1 gallon of cold water. This procedure is also useful in maintaining the natural color of mushrooms and potatoes, and for preventing stem-end discoloration in cherries and grapes.

You can get ascorbic acid in several forms:

- *Pure powdered form* – seasonally available among canners' supplies in supermarkets. One level teaspoon of pure powder weighs about 3 grams. Use 1 teaspoon per gallon of water as a treatment solution.
- *Vitamin C tablets* – economical and available year-round in many stores. Buy 500-milligram tablets; crush and dissolve six tablets per gallon of water as a treatment solution.
- *Commercially prepared mixes of ascorbic and citric acid* – seasonally available among canners' supplies in supermarkets. Sometimes citric acid powder is sold in supermarkets, but it is less effective in controlling discoloration. If you choose to use these products, follow the manufacturer's directions.
- Fill hot foods into jars and adjust headspace as specified in recipes.
- Tighten screw bands securely, but if you are especially strong, not as tightly as possible.
- Process and cool jars.
- Store the jars in a relatively cool, dark place, preferably between 50°F and 70°F.
- Can no more food than you will use within a year.

Freezing Eggs

<https://nchfp.uga.edu/how/freeze/dairy-products/freezing-eggs/#gsc.tab=0>

Eggs can be stored for at least 1 month, covered in the refrigerator. Freezing is often unnecessary, but it can be done.

Preparation – Select fresh eggs and break each separately into a clean saucer. Examine each for freshness and remove any pieces of shell before mixing with other eggs.

WHOLE EGGS — Thoroughly mix yolks and whites. Do not whip in air. To prevent graininess of the yolks, add 1-½ tablespoons sugar, 1-½ tablespoons corn syrup OR ½ teaspoon salt per cup whole eggs, depending on intended use. Strain through a sieve or colander to improve uniformity. Package, allowing ½-inch headspace. Seal and freeze.

Another method of freezing a whole-egg mixture is to use ice trays. Measure 3 tablespoons of egg mixture into each compartment of an ice tray. Freeze until solid. Remove frozen cubes, and package in moisture-vapor resistant containers. Seal and freeze. Three tablespoons of the egg mixture (one cube) equal one whole egg.

EGG YOLKS — Separate eggs. Stir yolks gently. To prevent graininess, add 1-½ tablespoons sugar, 1-½ tablespoons corn syrup OR ½ teaspoon salt per cup of egg yolks, depending on intended use. Strain through a sieve. Package, allowing ½-inch headspace. Seal and freeze. One tablespoon of the yolk mixture equals one egg yolk.

EGG WHITES — Gently mix whites; do not whip. Strain through a sieve. No sugar or salt is needed. Package, leaving ½-inch headspace. Seal and freeze. Two tablespoons of the egg-white mixture equal one egg white.

The Science Behind Freeze Drying

Excerpt from <https://extension.usu.edu/preserve-the-harvest/research/buying-a-home-freeze-dryer-what-to-know-before-you-go>

What is freeze drying? According to the FDA:

“Lyophilization or freeze drying is a process in which water removed from a product after it is frozen and placed under vacuum, allowing the ice to change directly from solid to vapor without passing through a liquid phase. The process consists of three separate, unique, and interdependent processes; freezing, primary drying (sublimation) and secondary drying (desorption)” (FDA Inspection Guides, 7/93, updated 2014). Freeze drying takes advantage of the scientific principle of “sublimation,” the direct transition of a solid to a gas, by removing ice (the solid) from frozen food water vapor (a gas). Using sublimation, the food retains much of its original texture, flavor, and nutrition when rehydrated.



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Freeze drying is broken down into two simple processes: freezing and vacuum drying. Foods are first frozen to well below 0°F. The colder the freeze the more efficient the next step will be. Once frozen, foods are subjected to vacuum drying. The air and water vapor (gas) are removed from the food processing chamber using a vacuum pump. This includes removing the water vapor that was once inside of the foods. When these two steps are properly completed, the food is dry enough to allow for safe storage at room temperature.

Is freeze drying food safe?**Yes, if...**

1. The two sub-processes, freezing and vacuum drying are done correctly:
 - a. The freezing process must be quick and the vacuum process should leave only residual moisture.
 - b. For example, chilling foods safely is defined as reaching 41°F (refrigeration temperature) in 1-4 hours or less. Pre-refrigerated or pre-frozen foods can be placed in the freeze-dryer to minimize this concern.
 - c. Drying foods safely is defined as reaching “a safe residual moisture level.” To determine this at home, most Cooperative Extension resources suggest that foods should be dried to a “crisp” or “breakable” texture, although foods with high levels of sugars, such as fruits, may be flexible, but not sticky, when correctly dried (Andress, Harrison, Reynolds, and Williams, 2014)
2. Proper safe food handling techniques were employed in the preparation of the food prior to freeze-drying. Freeze-drying does not kill bacteria.

What happens to microorganisms in the freeze-drying process?

Nothing. The microorganisms stay viable, but dormant, even under the extreme conditions of freeze drying. In fact, scientists use a laboratory version of freeze drying to preserve microorganisms for future studies because the microorganisms can be rehydrated alive for decades (see Kupletskaya & Netrusov, 2011). Therefore, when home freeze drying raw foods the microorganisms on those raw foods will remain viable, then activate upon rehydration. Food items that are traditionally cooked before eating must also be cooked before eating as a freeze-dried food. Examples are raw meats, raw seafood, raw eggs, and foods containing these raw ingredients.

Can freeze dried foods be safely vacuum packaged?

Yes. As long as the food is dried to a low residual moisture, vacuum packaging is safe. Remember, vacuum packaging is not a food safety process itself. In fact, removing oxygen from a package may make it more of a concern for the botulism bacteria to grow and produce toxin if there is a moist environment. Fortunately, without moisture (water) the botulism bacteria (and all bacteria, yeast, and molds) cannot grow. Therefore, it is safe to place properly dried or freeze-dried foods in vacuum packaging or in containers that also have oxygen absorber packets placed inside.

2024 Reappointment Quiz Questions

All of the answers to the reappointment quiz are in this 2024 study guide. This document is for study purposes. Take the quiz online at <http://ucanr.edu/2024mfpquiz> by June 30, 2024.

- 1 For what reason was the 2016 version of *The All New Ball Book of Canning and Preserving* not allowed to be used by UC Master Food Preserver Volunteers as a tested source for recipes?
 - A. It had several recipe errors
 - B. It had canned salsa recipes that used fresh lime juice
 - C. It had recipes that conflicted with USDA testing
 - D. All of the above

- 2 How do you know if you have the updated revised 2023 version of *The All New Ball Book of Canning and Preserving*?
 - A. The print date is listed as 2023 only
 - B. The print date is listed as 2016 and there is a 2023 Rubbermaid copyright date
 - C. The print date is listed as both 2016 and 2023

- 3 In the updated revised 2023 version of *The All New Ball Book of Canning and Preserving*, salsa recipes were corrected to use bottled lemon/lime juice instead of fresh juice, making these recipes safe.
 - A. Yes
 - B. No

- 4 *Apologies; this question's information and answers did not come from the study guide and has been pulled from the online quiz.*
The risks of 'dry canning' include:
 - ~~A. increased chance of the jars shattering during use~~
 - ~~B. increased chance of the jars developing mold issues~~
 - ~~C. Increased chance of the jars leaking~~
 - D. All of the above

- 5 The liquid utilized in traditional canning, inside and outside the jars, serves multiple roles including:
 - A. Movement of heat
 - B. Acceleration of microbial death
 - C. Sealing of the jars
 - D. All of the above

- 6 Pectinase is helpful in canning mandarin oranges because...
- A. It helps breakdown the pectin in the mandarins.
 - B. It makes supreming much faster.
 - C. It's used to soak the mandarin sections to remove any bitter taste.
 - D. Both A and B
- 7 Pectinase is which of the following?
- A. A form of pectin
 - B. A protein found in oranges
 - C. An enzyme(s)
 - D. All of the above
- 8 Pectinase can be used in canning which fruits?
- A. Only mandarins
 - B. Only grapefruit
 - C. Only apples
 - D. All citrus fruits
- 9 Sue made a Bourbon Caramel sauce for her custard at a dinner party. What is it safe to tell her 2 pregnant guests?
- A. The alcohol in the Bourbon is not a concern
 - B. All of the alcohol burns off when the sauce is cooked.
 - C. About 2% of the alcohol in the Bourbon will remain in the sauce after cooking.
 - D. About 85% of the alcohol in the Bourbon will remain in the sauce after cooking.
- 10 Which of the following actions has the most impact on increasing the amount of alcohol burnt off when making Ball's [Fig Rosemary and Red Wine Jam](#)?
- A. Adding the sugar all at once.
 - B. Using bottled lemon juice.
 - C. Covering the pot while steeping the wine and rosemary.
 - D. Stirring constantly while boiling.
- 11 All of the following are considerations when selecting a portable burner for canning EXCEPT:
- A. At least 1500W, if electric
 - B. Level, sturdy, and secure with room for air flow beneath the burner
 - C. Greater than 12,000 BTUs, if gas
 - D. Burner diameter that is no more than 4 inches smaller than the canner diameter
 - E. Manufacturer recommends the burner used for canning

- 12 The process time for fruit based baby foods in a boiling water canner for half pints at an elevation of 1325 feet is:
- A. 10 minutes
 - B. 15 minutes
 - C. 20 minutes
 - D. 25 minutes
- 13 Pureed fruit should always be boiling water canned with some sugar to preserve color.
- A. Yes
 - B. No
- 14 All of the following will maintain good color and flavor in canned food EXCEPT:
- A. destroying the food enzymes quickly
 - B. using over ripe food
 - C. removing oxygen from food tissues and jars
 - D. obtaining high jar vacuums and air tight seals
- 15 To maintain optimum color and flavor during processing and storing you should use the hot-pack method, especially with acid foods to be processed in a boiling water canner or atmospheric steam canner.
- A. Yes
 - B. No
- 16 When freezing egg yolks, sugar, corn syrup or salt must be added in order to _____.
- A. Ensure color retention
 - B. Prevent graininess
 - C. Prevent bacteria from growing in the freezer
 - D. Ensure uniformity
- 17 When freezing gently mixed and strained egg whites, no sugar or salt is needed to ensure a consistent texture.
- A. Yes
 - B. No

- 18 Freeze drying largely differs from traditional dehydration methods in that the former accomplishes a significant reduction in moisture content via _____ and the latter via _____.
- A. melting (solid to liquid) ... evaporation (liquid to gas)
 - B. freezing (liquid to solid) ... condensation (gas to liquid)
 - C. sublimation (solid to gas) ... evaporation (liquid to gas)
 - D. deposition (gas to solid) ... evaporation (liquid to gas)
- 19 Chilling foods safely' is defined as reaching _____ (refrigeration temperature) in _____ hours or less.
- A. 41°C, 1-4
 - B. 41°C, 4-8
 - C. 41°F, 1-4
 - D. 41°F, 4-8
- 20 Botulism could be a major food safety concern when vacuum packaging freeze dried food with an unsafe residual moisture level because *Clostridium botulinum* produces toxins in _____ conditions.
- A. low moisture, low oxygen
 - B. high moisture, high oxygen
 - C. low moisture, high oxygen
 - D. high moisture, low oxygen

We need your input! To help with statewide and local program planning, your responses to the following questions will help with local program development and statewide strategic planning.

- 21 What are your goals for volunteering/participation this next year?
- 22 What are your plans to maintain/improve your food preservation knowledge and experience?
- 23 How do you plan to reach your goals for next year, and what support do you need to accomplish your goals either from other volunteers or your coordinator?