

Cool, Dark Places

Naomi Johnson, El Dorado County Master Food Preserver

My husband called me out to the garage on a hot summer day in July--103°F in the shade. "Look at this!" he said as he held up a jar of recently canned apricots (see picture).

He asked what happened. I had never seen anything like it. Yes, bacterial growth could produce bubbles, but not this white foam growth! I started my investigation by observing the location. None of the other jars from the same batch had the same reaction.

I took a picture and sent it off to friends, fellow MFPs, and family members for feedback and answered questions—canned 2 weeks ago, low sugar, used new lid (not reused).

I ran through the check list for food safety to see if this reaction could be something I had done when canning.



- Sterilized counters, cutting board, & equipment with bleach water
- Washed hands (20 seconds in running hot water with soap)
- Used gloves
- Washed gloves
- Washed fruit
- Washed jars with hot soapy water and then ran jars through dishwasher
- Used a reputable and scientifically tested recipe
- Used new lids that were heated in pre-boiled hot water
- Double checked lids were sealed before storing
- Labeled lids
- Stored jars in cool, dark place

So, what went wrong? My first strong clues came from questioning my husband about what he saw when he found the jar. At first he couldn't touch it because the glass was hot. HOT?! Why? He had been working with the garage door open for a couple hours when he found this jar in front of the other jars in the far left corner, in the direct sun.

Whoa! Wait a second! Direct sun! That is definitely NOT a cool, dark place. Had the garage door been down, the storage shelves would have been in a much cooler, darker environment because we had insulated the garage (ceiling, walls, and overhead door) just to keep it cool for food storage. But with the door up and sun directly on the jar for hours on end, the temperature inside this jar had obviously risen tremendously. It literally started boiling over and made something of a meringue-like foamy structure.

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Got a Food Preservation Question?

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209-223-6857
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El Dorado County
530-621-5506
edmfp@ucdavis.edu

UCCE Central Sierra MFP Website:
<http://ucanr.org/csmfp>

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So, what to do? Obviously not salvageable, I threw out the apricots and sterilized the jar. Since we don't have space in the house for my 400+ canning jars, my husband and I rearranged the garage and cocooned the space with solid walls and extra insulation so no direct light could ever hit the jars. I explained to my husband that this jar demonstrated the research that shows a key to keeping good quality in jarred foods is to keep them away from temperature extremes.

In our Master Food Preserver classes we tell our attendees to store their home preserved foods in a cool, dry place. Never put them above the stove, under the sink, in a damp garage or basement, an un-insulated attic, near a furnace or water heater, pipes, or any place exposed to high or low temperature extremes. Do not allow sealed glass jars to freeze after canning; freezing changes food textures and leads to broken seals that may let in harmful bacteria. And now we can add that allowing jars to sit in direct sun for hours on end on a 103° day transforms beautiful canned food into a meringue monster!

The experts say to store preserved foods in cool, dark places, and so does our experience.

Resources:

http://www.fsis.usda.gov/help/faqs_hotline_preparation/index.asp

<http://extension.usu.edu/foodstorage/htm/canned-goods/>

The Curious Canner

Question: Please explain the difference between raw and hot packing when preserving food.

Answer: Raw pack is the practice of filling jars tightly with freshly prepared, but unheated food. Hot pack is the practice of heating freshly prepared food to boiling, simmering it three to five minutes and promptly filling jars loosely with the heated food. Boiling-hot juice, syrup or water is added to the jars, whether you're using raw or hot pack method.

Raw packed foods, especially fruit, will float in the jars because air has not been removed by heating the food. Hot packing is the best way to remove air and increases the amount of food that can be added to the jar, since the food shrinks when heated. Raw pack does have an advantage for foods that lose their shape in cooking because they are usually easier to handle if they are packed raw.

Question: Why does my home canned tomato juice separate?

Answer: It is very common for home canned tomato juice to separate because we make it using the "cold-break" method. This is the food scientist's terminology meaning the tomatoes are crushed before they are heated through. As soon as they are crushed, enzymes start to break down the pectin that cement tomato cells together.



Commercial tomato juice is extracted by a "hot-break" method where the tomatoes are heated nearly to boiling in a matter of seconds and the enzymes that break down pectin are destroyed before they have a chance to act. Therefore, the pectin that holds the tomato cells together remains intact and a thick-bodied, homogeneous juice is produced. This commercial method is very difficult to duplicate at home.

Happy canning and preserving to all!



Improperly Home Canned Foods Eaten at Private BBQ Linked to Three Cases of Botulism

From [barfblog](#) by Ben Chapman, posted July 4, 2012

I'm not sure if it's a function of getting old or whether my circle of friends are changing their habits but my Facebook timeline has been peppered with status updates about trips to the farmers' market, harvesting backyard vegetables and canning. There are a lot of canning-related updates.

Growing up all I was really exposed to was pickles, freezer jam and frozen peaches. All of which I loved to eat, but I always found ways to occupy myself while my mom and grandmother were preserving for fear of having to help. My dad and grandfather usually golfed while this was all going down. I never paid attention to what was happening and didn't really care.

I also didn't know anything about botulism.

In 2011, a 29-year-old man was hospitalized after five days of progressive dizziness, blurred vision, dysphagia, and difficulty breathing. The patient required mechanical ventilation and botulism antitoxin. He remained in the hospital for 57 days and then spent some time in a rehabilitation facility. According to the U.S. Centers for Disease Control, he had tasted some potato soup that included botulinum toxin.

In 1977, 59 patrons of a Detroit Mexican restaurant became ill with botulism after consuming improperly canned peppers. As a result of rumors of a pending shortage of fresh peppers, the restaurant staff decided to stick lightly-cooked peppers and some water in jars and seal them.



Putting low acid foods in a jar and sealing them without either acidifying (with vinegar/fermentation) or processing using pressure is a bad idea. That's why the good folks at UGA's National Center for Home Food Preservation like Elizabeth Andress and Judy Harrison lead efforts to come up with, test, and evaluate recipes for home canning.

According to NewsChannel 21, three Oregonians have been hospitalized after suffering from botulism linked to improperly home-canned foods:

The Oregon State Public Health Lab has confirmed that three Central Oregon residents who were hospitalized contracted botulism at a private barbecue, Deschutes County health officials said Monday. Deschutes County Health Services has conducted an investigation and implicated home-canned food as the source of the Botulism. Final testing results are pending.

No other details were released, though officials told NewsChannel 21 two of the three people affected are back at home recovering.

"This was an isolated incident and Deschutes County Health Services has notified all involved individuals," a news release stated. "Botulism is NOT spread person to person, so there is no risk to the general public as a result of these cases."



County officials called the incident a good reminder of the importance of following strict hygienic procedures to reduce contamination of foods while canning, as well as obtaining the necessary pressure when canning to effectively destroy bacteria and prevent botulism.

Common Myths About Food Safety at Home

The following, compiled by foodsafety.gov, reminds all of us to follow proper procedures when handling food. University Extensions across the nation conduct tests and review procedures for food safety, and the results they get keep everyone safer!

Myth #1: Food poisoning isn't that big of a deal. I just have to tough it out for a day or two and then it's over.

Fact: Many people don't know it, but some foodborne illnesses can actually lead to long-term health conditions, and 3,000 Americans a year die from foodborne illness. [Get the facts on long-term effects of food poisoning.](#)



Myth #2: It's OK to thaw meat on the counter. Since it starts out frozen, bacteria isn't really a problem.

Fact: Actually, bacteria grow surprisingly rapidly at room temperatures, so the counter is never a place you should thaw foods. Instead, thaw foods the right way.

Myth #3: When cleaning my kitchen, the more bleach I use, the better. More bleach kills more bacteria, so it's safer for my family.

Fact: There is actually no advantage to using more bleach than needed. To clean kitchen surfaces effectively, use just one teaspoon of liquid, unscented bleach to one quart of water.



Myth #4: I don't need to wash fruits or vegetables if I'm going to peel them.

Fact: Because it's easy to transfer bacteria from the peel or rind you're cutting to the inside of your fruits and veggies, it's important to wash all produce, even if you plan to peel it.

Myth #5: To get rid of any bacteria on my meat, poultry, or seafood, I should rinse off the juices with water first.

Fact: Actually, rinsing meat, poultry, or seafood with water can increase your chance of food poisoning by splashing juices (and any bacteria they might contain) onto your sink and counters. The best way to cook meat, poultry, or seafood safely is to make sure you cook it to the right temperature.



Myth #6: The only reason to let food sit after it's been microwaved is to make sure you don't burn yourself on food that's too hot.

Fact: In fact, letting microwaved food sit for a few minutes ("standing time") helps your food cook more completely by allowing colder areas of food time to absorb heat from hotter areas of food.



Myth #7: Leftovers are safe to eat until they smell bad.

Fact: The kinds of bacteria that cause food poisoning do not affect the look, smell, or taste of food. To be safe, use our (foodsafety.gov) Safe Storage Times chart to make sure you know the right time to throw food out. (See page 5.)

Myth #8: Once food has been cooked, all the bacteria have been killed, so I don't need to worry once it's "done."

Fact: Actually, the possibility of bacterial growth actually increases after cooking, because the drop in temperature allows bacteria to thrive. This is why keeping cooked food warmed to the right temperature is critical for food safety.

Myth #9: Marinades are acidic, which kills bacteria—so it's OK to marinate foods on the counter.

Fact: Even in the presence of acidic marinade, bacteria can grow very rapidly at room temperatures. To marinate foods safely, it's important to marinate them in the refrigerator.



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Common Myths *(Continued from page 4)*

Myth #10: If I really want my produce to be safe, I should wash fruits and veggies with soap or detergent before I use them.

Fact: In fact, it's best not to use soaps or detergents on produce, since these products can linger on foods and are not safe for consumption. Using clean running water is actually the best way to remove bacteria and wash produce safely.



Storage Times for the Refrigerator and Freezer

These short but safe time limits for home-refrigerated foods will keep them from spoiling or becoming dangerous to eat. The guidelines for freezer storage are for quality only. Frozen foods remain safe indefinitely.

For storage times for eggs and foods made with eggs, see [Egg Storage Chart](#).

Category	Food	Refrigerator (40 °F or below)	Freezer (0 °F or below)
Salads	Egg, chicken, ham, tuna & macaroni salads	3 to 5 days	Does not freeze well
Hot dogs	opened package	1 week	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Luncheon meat	opened package or deli sliced	3 to 5 days	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Bacon & Sausage	Bacon	7 days	1 month
	Sausage, raw — from chicken, turkey, pork, beef	1 to 2 days	1 to 2 months
Hamburger & Other Ground Meats	Hamburger, ground beef, turkey, veal, pork, lamb, & mixtures of them	1 to 2 days	3 to 4 months
Fresh Beef, Veal, Lamb & Pork	Steaks	3 to 5 days	6 to 12 months
	Chops	3 to 5 days	4 to 6 months
	Roasts	3 to 5 days	4 to 12 months
Fresh Poultry	Chicken or turkey, whole	1 to 2 days	1 year
	Chicken or turkey, pieces	1 to 2 days	9 months
Soups & Stews	Vegetable or meat added	3 to 4 days	2 to 3 months
Leftovers	Cooked meat or poultry	3 to 4 days	2 to 6 months
	Chicken nuggets or patties	3 to 4 days	1 to 3 months
	Pizza	3 to 4 days	1 to 2 months

Dangers of Reusable Shopping Bags

Ok, we all want to be “green” and save the environment. That’s alright, as long as you aren’t harming yourself and your family while doing so. Many people have started using cloth bags as an alternative to the sterile plastic or paper recyclable bags offered by stores. When shopping for food, however, the cloth bag might not be the best choice, unless you remember to wash the bags between shopping trips.



[Check out the entire report on shopping bag safety research results](http://cecentralsierra.ucanr.org/Master_Food_Preservers) on the MFP website at http://cecentralsierra.ucanr.org/Master_Food_Preservers in the Resources, Publications section.

Safety of Canning Quick Breads

*Dr. Charlotte P. Brennand, USU Extension Food Safety/Preservation Specialist
October 2000 FN-FS-250.10*

BACKGROUND

For many years there have been questions about the safety of home canning breads and cakes. Products such as zucchini bread are baked in wide rimmed canning jars and covered with lids and rings immediately after removing from the oven. As the mixture cools, a vacuum seal is formed. The problem with this is that the final system is anaerobic (no oxygen), and has both the pH and available moisture in the right range for the growth of *C. botulinum*. The product has the potential to cause botulism poisoning and kill or seriously impair the person eating the bread. *C. botulinum* is found in soil throughout the world. The cleaning and processing of the ingredients that are used in bread would decrease its likelihood of being present, but by no means insure that it is not present. For example, it could be introduced into the batter by being in honey, on grated zucchini, or dust in the mixing bowl.



Although no cases of botulism have been identified as being caused specifically by a home canned quick bread, the potential is there. The product meets all the necessary criteria for the organism to grow.

The organism *C. botulinum* itself is harmless; however, when conditions are right, it can form an extremely potent toxin. Three factors determine if *C. botulinum* will grow or not: a nonacid pH, adequate moisture and an airless environment. Canned breads meet all the requirements. Normally these products are not being held under vacuum and therefore botulism is not a concern. However, sealing the bread in a jar provides the necessary airless condition. The alternative of putting the lids on **after** the product has cooled would solve the problem of growth of *C. botulinum* but the presence of air would allow mold to grow. A recipe for canning zucchini bread which is widely distributed has a 45 minute baking time at 325 degrees F. The baking of the bread does not kill the *C. botulinum*. It is a spore forming organism and spores are resistant to destruction by heat or other environmental factors.

MICROBIAL EXPERIMENTS IN CANNED BREADS

One research group looked at the effect of oven temperatures and cooking times on the safety of banana nut bread with spores intentionally added to the batter. Half of the samples were inoculated with a nonpathogenic spore (*C. sporogenes*) which has a similar heat resistance to that of *C. botulinum*. The other half of the samples were not inoculated. Samples were baked at three different temperatures (350, 375 and 400 degrees F) from 30 to 55 minutes. Immediately after baking, the active form of the bacteria could not be detected in either the inoculated or non-inoculated samples. The microbial testing methods were such that black colonies represented *Clostridium* organisms, either the *C. sporogenes* inoculated into part of the samples or naturally present *C. botulinum* or *C. perfringens* (both are pathogens). Black colonies were not detected in any of the non-inoculated samples immediately after baking; however, they were found at a reduced level in the inoculated samples. Or in other words, many of the spores survived the baking of the

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Safety of Canning Quick Breads *(Continued from page 6)*

bread. These could become active over time.

A second part of the study was to see what effect storage times would have on the canned bread samples. The banana nut bread baked at 350 degrees F for 30 minutes was considered to be the best quality product, therefore this variable was used for a further storage study. The samples were stored for 90 days at room temperature and at 95 degrees F. Non-inoculated samples held at room temperature did not have detectable Clostridium-like organisms; however, those stored at 95 degrees F did show microbial growth. The higher temperature was more favorable to repair and growth of organisms. These products would not be safe.

EFFORTS TO MAKE A SAFE PRODUCT

We have conducted research at USU to see if it was possible to either raise or lower the acid level enough to control *C. botulinum* or add enough sugar to control water activity (the amount of moisture available to the microorganism) while still having a palatable zucchini bread. Our efforts were based on the measurement of pH and water activity, not by the measurement of survival of spores inoculated into the batter. We were unable to formulate a safe product.

RECOMMENDATION

Banana nut bread, zucchini bread or similar products should be either fresh or frozen.

DON'T CAN IT! DON'T EAT IT IF SOMEONE GIVES YOU A HOME CANNED PRODUCT!

<http://extension.usu.edu/htm/food>



Free Pressure Canner Testing

With all the garden goodies getting ripe at the same time, the pressure canner is sure to be needed soon.

Pressure canners should be tested for accuracy about once a year, so call the Extension Office at (530) 621-5506 to schedule a time to bring in your pressure canner for a FREE test!



Polka Dot Pickled Asparagus?

Sue Mosbacher, UCCE Master Food Preserver Program Representative

I spoke with a lot of people about canning at the 2012 Amador County Fair's Master Food Preserver booth and was asked some great questions. The most interesting one by far was from a woman who was using a recipe for pickled asparagus using a nice mix of pickling spices. She looked at the jar I'd brought from home and said hers didn't turn out like that and they didn't taste like she remembers her grandmother's batches. In fact, there were a lot of jars that had purple spots on the asparagus, but the jars were still sealed. She threw them out but wanted to know what caused the spots.

She was using her grandmother's recipe, handed down through several generations. Without looking at the recipe, my first thought was that this may be a case of using an old recipe with current commercial products. Vinegar is a key ingredient in pickled products. In the past vinegar was sold as 7% acetic acid. Commercial vinegar is now 5% acetic acid. Old recipes developed for a stronger vinegar may not contain enough acid to be used with today's 5% vinegar. Instead of pickling the asparagus, she may have been providing a perfect environment for pathogens to grow.

If you use an old pickle recipe, use equal parts of vinegar and water.



Simulated version of pickled asparagus gone bad

How Much is a Cup of Fruit or Veggies?

The following charts, from the CDC, illustrates just what a cup (or ½ cup) of common fruits and vegetables looks like. The CDC says “One cup refers to a common measuring cup (the kind used in recipes). In general, 1 cup of raw or cooked vegetables or 100% vegetable juice, or 2 cups of raw leafy greens can be considered as 1 cup from the vegetable group. One cup of fruit or 100% fruit juice, or ½ cup of dried fruit can be considered as 1 cup from the fruit group.” Check out the CDC website (<http://www.cdc.gov/nutrition/everyone/fruitsvegetables/howmany.html>) for a nifty calculator that tells you how many servings of fruits and veggies you need each day, and heed this advice, also from the CDC: “Compared to people who eat only small amounts of fruits and vegetables, those who eat more generous amounts—as part of a healthy diet—are likely to have reduced risk of chronic diseases. These diseases include stroke, type 2 diabetes, some types of cancer, and perhaps heart disease.”

Examples of 1 Cup



1 small apple



1 large banana



1 medium grapefruit



1 large orange



1 medium pear



1 small wedge watermelon



2 large or 3 medium plums



8 large strawberries



1 large bell pepper



1 medium potato



2 large stalks of celery



1 cup cooked greens or 2 cups raw
(spinach, collards, mustard greens,
turnip greens)



12 baby carrots
(or 2 medium carrots)



1 large sweet potato



1 large ear of corn

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Interested in Becoming a Master Food Preserver?

You may have seen them at the County Fair or attended one of their classes. Master Food Preservers are agents of the University of California and work through the UC Cooperative Extension to educate their community on the safe practices of food preservation, including pickling, making cheeses, sausages, preserves, dried foods and much more. Our volunteers donate their community service hours in their program's home county of El Dorado, Amador or Calaveras.



Interested in joining this volunteer organization? The El Dorado MFPs train in March of 2013. The Amador/Calaveras MFPs will train in the fall of 2012, dates TBD. For more information and to sign up on our interest list to be contacted with more information, go to http://cecentralsierra.ucanr.edu/Master_Food_Preservers/Becoming_a_MFP/.

How Much is a Cup? (Continued from page 8)

Examples of 1/2 Cup



1 snack container of applesauce (4oz)



16 grapes



1 medium cantaloupe wedge



1/2 medium grapefruit



4 large strawberries



5 broccoli florets



6 baby carrots



1 large plum



1 small box (1/4 cup) of raisins

Here is a recipe from the University of Maryland Extension that makes good use of vegetables and fruits. To make it even healthier, use fat-free dressing.

Asian Coleslaw

Serves 12

Coleslaw Ingredients

1 bag (16 ounces) shredded cabbage/ broccoli slaw
1 can (11 ounces) mandarin oranges, drained
1/2 cup peanuts, optional

Dressing Ingredients

2/3 cup light Italian dressing
2 tablespoons low-sodium soy sauce

Directions

1. Mix together the coleslaw mix, nuts and mandarin oranges in a large bowl.
2. Stir in the Italian dressing and soy sauce.



August Master Food Preserver Classes

Join us on **August 18 from 9-11am** for the first official Master Food Preserver Class in Amador County!

No reservations required.

Learn the basic techniques of water bath canning through demonstrations making jams & jellies.

The class is at the Amador County GSA Building at 12200-B Airport Road in Jackson.



El Dorado MFPs teach at several locations and times during August. [Click here to download the full class schedule.](#) No rsvp needed.

Thursday, 6:30-8:30 pm: UCCE Office

2: Pickles, Relishes & Sauerkraut

Saturdays, 10-Noon, UCCE Office

4: Tomatoes, Basic & Fancy

11: Pressure Canning

18: Low Sugar

25: Cheese Making

Tuesdays, 10-Noon, Marshall Grange, Garden Valley

7: Tomatoes, Basic & Fancy

14: Pressure Canning

21: Dehydrating & Freezing

28: Low Sugar

Master Food Preserver Services

- Free public classes
- Food preservation hotline
- Free pressure canner testing
- Speakers for custom training for your organization
- Regular articles in local newspapers

To get information about our program, visit our website at: http://cecentralsierra.ucanr.org/Master_Food_Preservers/.

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Know someone who would like to receive our newsletters and notifications on classes and events?

Sign up at <http://ucanr.org/mfpenews>.

August MG Classes & Events



Join our fellow educators at Master Gardener classes and events. [Click here](#) for full class descriptions and directions.

Amador County

25: Summer Fruit Tree Pruning Clinic

El Dorado County

4: Fall & Winter Vegetables

11: Lawns & Lawn Alternatives

18: Mediterranean Gardening

25: Perennials

Calaveras County

25: Tips for growing tomatoes and peppers

Tuolumne County

4: All About Berries @ Demo Garden



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