

Home Food Preservation Troubleshooting Guide

Why didn't the lid seal? How do I keep my peaches from floating? Many problems with home canned products can be traced to use of other-than-recommended canning equipment or procedures. Current food preservation fact sheets and publications are available from the National Center for Home Food Preservation website, <http://www.uga.edu/nchfp/>. If you are using recipes and/or procedures written before 1994, you are using outdated materials. For safety sake, please update your methods. Checking your equipment and reviewing current canning recommendations can go a long way towards preventing potential problems. This “troubleshooter’s guide” may help you determine the cause of the problem and how you can prevent it from happening again.

Jars Do Not Seal

- Use of jars other than official canning jars and/or lids.
- Chipped or uneven rim on jar.
- Using one-piece caps instead of two-piece lids.
- Screw bands are rusty or bent, causing poor contact.
- Bands not screwed down tightly enough before processing. (Turn until you meet resistance, then turn it one-quarter turn.)
- Rim on jar not clean. (Wipe rim well before putting lid on.)
- Liquid leaks out of jar during processing, leaving food particles on the sealing edge.
- Insufficient heat during processing – air not removed from jar so a vacuum seal never forms. (Remove air by inserting a rubber spatula or plastic knife inside the jar gently lift food to remove any trapped air.)
- Lids were improperly prepared before placing them on rims. (Follow manufacturer’s directions to prepare lids.)
- Rapid, forced cooling of a pressure canner can cause a rapid pressure and temperature change inside the canner, causing the liquid to “boil” out of the jars, leaving particles on the sealing rim and unsealing the jars. (Canners should not be forced into cooling rapidly by submerging them in water or by adding ice.)
- Insufficient processing of raw-packed food – the air may not have been completely driven out of the food, leaving residual air in the jar so the seal does not form.
- Use of canning procedures which are not recommended, such as open-kettle canning, microwave canning and oven canning.

- Incorrect amount of headspace.
- Failure to clean the rim before sealing.

Reprocessing Procedure

If a lid fails to seal on a jar, you have 3 options:

- 1) Remove the lid and check the jar-sealing surface for tiny nicks. If necessary, change the jar, add a new, properly prepared lid, and reprocess within 24 hours using the same processing time.
- 2) Adjust headspace in unsealed jars to 1½ inch and freeze instead of reprocessing.
- 3) Refrigerate unsealed jars and eat canned product within seven days of refrigeration.



Food Spoils

Processing at an incorrect temperature due to:

- Inaccurate pressure canner gauge (Dial gauges should be checked every year. Free testing available. Contact your local Extension Office.)
- Failure to exhaust canner.
- Failure to make altitude adjustment. (In Minnesota, process at altitudes between 1001 – 2000 feet.)
- Heat source fluctuates – inaccurate pressure or fluctuating pressure.
- Water not at a rolling boil when jars are put into water bath canner.
- Water not covering jars’ caps by 1 inch throughout processing.
- Water not at full boil throughout processing.
- Not processing long enough.
- Use of canning procedures which are not recommended – recommended procedures (USDA) are based on the time it takes to achieve a temperature which will sterilize the food in the jar.
- Improper cooling of jars after processing.

Improper cooling of jars after processing:

- Failure to remove jars from canner when processing time is up (or when pressure gauge reads 0).
- Failure to set jars at least 1 inch apart during cooling.
- Covering jars which retains heat – vacuum does not develop.
- Attempting to cool either the canner or the jars very rapidly.

Other reasons for spoilage:

- Using damaged (freeze-damaged), spoiled, under-ripe or over-ripe food – the pH may not be correct for the type of processing you used (water-bath vs. pressure).
- Ingredients were added that were NOT in an approved recipe.

Food Loses Liquid during Processing

- Jars filled too full (leave recommended headspace).
- Fluctuating pressure in a pressure canner.
- Forced cooling of a pressure canner.
- Jars packed too tightly.
- Removed jars from water bath canner too quickly. (After removing cover, let jars sit 5 minutes in canner before removing to reduce boil overs and ensure a tight seal.)
- Removed jar from pressure canner too quickly. After pressure returns to 0 and weight is removed, let jars sit in canner for 10 minutes before removing.
- The canner stood too long after pressure returned to zero.
- Not exhausting pressure canner long enough. Allow steam to escape for 10 minutes before closing vent/value.
- Starchy foods absorb some liquid.
- Water not 1 inch over jar lids during processing.



Food Turns Dark (Not Spoiled)

- Insufficient processing time.
- Processing temperature too low – water not at a full boil at beginning of processing or drops below full boil during processing.
- Water not 1 inch over jar lids during processing.
- Packing foods raw that should be precooked (pears).
- Liquid loss during processing, causing fruit at the top to be out of the liquid.

Fruit or Tomatoes Float or Separate from Liquid

- Using overripe fruit.
- Packing fruit too loosely.
- Syrup too heavy.
- Processing too long – destroys pectin.
- Processing at too high a temperature (pressure canner).
- Raw packing – food contains a lot of air.
- Smashing or pureeing food prior to heating it activates enzymes which break down pectin in the juice so the food pieces are lighter and rise to the top. (Heat or crush while heating any food to be pureed or food to be packed in its own juice to help prevent separation.)

- Enzyme changes during handling causes separation of juice (especially tomato). (Heat tomatoes quickly to simmering temperatures.)

Sediment in Jars (not necessarily a sign of spoilage)

- Starch in vegetables like peas and dry beans.
- Minerals in water. (Use soft water.)
- Fillers in table salt. (Use pure or refined canning salt.)
- Yellow sediment in green vegetables or onions (natural occurrence).
- White crystals in spinach (natural occurrence).
- Overripe fruit.
- Spoilage. Process using recommended method and recommended **time**.

Discoloration in Canned Foods

- Overcooking or heating at a higher temperature in hot-packed products. Excessive heat changes all natural food pigments.
- Very dry, hot weather, fruit often turns pink (natural occurrence).
- Cauliflower with a purplish tinge is commonly grown. Purple cauliflower is safe to eat. Purpling can develop in white varieties of cauliflower if the heads are exposed to light while developing. Heat may induce a color change from purple to gray or slate blue – especially if the water is hard or had an alkaline pH. If you prefer to have cooked cauliflower, add a little vinegar or cream of tartar (tartaric acid) to the water.
- Red pigments in beets fade if the beets are overcooked before canning or over-processed during canning.
- You can eat the food if the liquid is clear, the odor is natural, and if you used the recommended processing methods, time and temperature.
- Garlic has an iridescent greenish or purplish coloring, this is the result of using immature garlic – it was not completely **dry**.

References:

- The National Food Safety Database, <http://www.foodsafety.org> by Susan Brewer, Ph.D. Foods and Nutrition Specialist, Illinois Cooperative Extension, University of Illinois at Urbana-Champaign
- So Easy To Preserve, Cooperative Extension Service, The University of Georgia, 5th edition, 2006
- North Dakota State University, Ask Extension. <http://ndsuxext.nodak.edu>

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