

PURDUE UNIVERSITY **PURDUE EXTENSION**

Home Food Preservation Updates 2009

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Determining Safest Processing Method for Home Canning

Strong Acid 1			
Molds 2			
Yeast 3		Plums Gooseberries Apricots Apples Blackberries Sour Cherries Peaches Kraut Sweet Cherries Pears Tomatoes	⇒ Process at 212°F in Boiling Water Bath
Bacteria 4			
5		Okra Carrots Turnips Beets String or Green Beans Spinach Asparagus Lima Beans Peas Corn Lye Hominy	⇒ Process at 240°F In a Pressure Canner
Neutral 7			
Strong Alkali 14			

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Up-to-Date Resources

- USDA Complete Guide to Home Canning
– http://www.uga.edu/nchfp/publications/publications_usda.html
- The University of Georgia Factsheets
– http://www.uga.edu/nchfp/publications/publications_uga.html
 Canning Fruits Sensational Salsas
 Canning Vegetables Canning Tomatoes/Tomato Products
 Jams, Jellies Jellies without Sugar
 Pickled Products
- Preserving Food at Home: A Self-Study

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Resources...

- “So Easy to Preserve”
– Available \$18 (S & H)
– The University of Georgia
– Most up-to-date resource 2006
- Ball Blue Book
– Available \$5-\$6
– Local stores





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Pressure Canners


- Presto, Mirro, All American – recognized by USDA
- Weighted gauge & Dial gauge
- Dial Gauge – test annually; +/- 2° replace gauge
- Prior to season – test canner without food to see if it works
- Recommend replacing gasket and overpressure plug every 2 years
- Oiling gasket (old models, 1/year; new gaskets, no)
- Storing Canner: Wash, rinse & dry completely. Do not LOCK canner lid on canner! Place paper or newspaper inside canner & around lid to wick moisture.



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Dial Gauge Testing Activity




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Equipment for Boiling Water Bath Method

- Boiling water bath canner
 - container with rack;
 - large enough container to allow 1-inch of boiling water over the tops of the jars
 - no larger than 4" over burner size




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Canning Jars – what can I use?

- Pressure Canning
 - Standard Canning Jar
 - Quart, pint, ½ pint
 - Utilizes 2-piece lid and band
- Boiling Water Bath Canning
 - Recommend Standard Canning Jar
 - ½ Gallon for apple/grape juice only
 - Quart, pint, ½ pint
 - Mayo or other jar ok (if rim of jar is exact width & diameter of standard canning jar)




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What NOT to Use...

- Canning jars with wire bales
- Canning jars with rubber rings
- Weck Jars (German)
- 1, 2, or 4 gallon jars




Source: USDA

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Raw Pack vs. Hot Pack

- Raw Pack**
 - Produce raw; cover with boiling water
 - Cannot get as much product in jar
 - More air in produce causing it to float
 - Water temp. in canner prior to adding jars - 140°F
- Hot Pack**
 - Produce cooked minimal time; cover with juice or boiling water
 - Cooking softens tissue permitting more produce to fit in jar
 - Cooking reduces oxygen in tissue, reducing floating
 - Reducing oxygen in tissue can reduce browning in fruits
 - Water temp. in canner prior to adding jars - 180°F



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Canning Tomatoes

Boiling Water Canner




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Acidifying Tomato Products

Type of Acid	Pint Jar – Amt. to Use	Quart Jar – Amt. to Use
Commercial Lemon Juice	1 Tablespoon/ Pint	2 Tablespoons/ Quart
Citric Acid	¼ teaspoon/ Pint	½ teaspoon/ Quart
Vinegar (5% acidity)	2 tablespoons/ Pint*	4 tablespoons/ Quart*

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Preventing Fruit Darkening

- **Best choices**
 - 1 teaspoon (3000 mg) ascorbic acid to 1 gallon of water
 - Commercial ascorbic acid mixture in water
 - Heating the fruit – water or steam blanching
- **Not effective**
 - Citric acid solution
 - Lemon juice
 - Sugar syrup
 - Salt/vinegar solution

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Increasing Sealing in Water Bath

- No cracks or chips on jar rim
- Before processing, remove air with bubble freer
- Rim of jar completely clean prior to placing lid and band
- After processing, turn heat off, remove lid and wait 5 minutes before removing jars


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Canning Vegetables

Pressure Canner




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Successes in Pressure Canning

- Venting canner prior to pressurizing
 - Exhaust for 10 minutes
- Make adjustment for altitude if above sea level
- Maintain pressure for entire processing time
 - Pull juices from jar
 - If pressure falls below recommendation; bring canner back to pressure and start processing time again
- After processing & pressure is 0; remove petcock and wait 10 min. to open canner; increase likelihood of good seal




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Keys to Success

- Only can produce that's in peak condition
- Follow research based recipes only; safety issue
- Headspace needs to be exact
 - ¼ inch jams, jellies, syrups, juices
 - ½ inch acid foods – tomatoes/fruits
 - 1 inch for non acid foods – vegetables/meat
 - Measure with 6-inch sewing gauge
 - Increasing the fill significantly changes the heat penetration to point of doubling processing time



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Successful Home Canning

- Use non metal bubble remover; metal ↑ breakage
- Bands – finger-tight
- Do not retighten bands after processing
- Do not let jars sit in canner overnight; spores can become vegetative cells & grow



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Pickling



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Pickling Successes



- Use pickling cucumber; Burpless varieties will result in soft pickles
- Use soft water for pickling. Soften water by:
 - Boil water for 15 min
 - Remove from heat, cover, let stand 24 hrs.
 - Remove scum from top; slowly pour off water so sediment is not disturbed
- Or use distilled water for pickling
- When fermenting pickles or kraut, use the exact amount of canning or pickling salt & correct ambient air temperature (55° - 75°F) for the correct micro-organism to be present
- Use only food grade ingredients
 - Food grade lime; no agricultural lime
 - Food grade canning or pickling salt; not rock or table salt

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Jams & Jellies



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A Jelling Experience


- For jelling, use $\frac{1}{4}$ slightly under ripe fruits with $\frac{3}{4}$ ripe fruits
- Overripe fruits should not be used for jelly
- Vegetable jellies, such as onion or pepper jelly have to have acid added to jell. If recipe fails to jell, dispose of it due to low acidity of onion/pepper
- Follow recipe exactly; pectin molecule is fragile and manipulation of recipes will result in failure
- Do NOT double recipes
- Utilize the type of pectin the recipe calls for; one cannot exchange liquid and powder pectin
- Once processed and removed from canner, do not move jars for 12 hours; movement breaks jell

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Processing Jellies/Jams

- You elect if you wish to pre sterilize clean jelly jars for 10 min.
- Pre-sterilized jars, process for 5 min. in BWB; no pre-sterilization, process for 10 min. in BWB
- Inverting jars for sealing jelly products is not recommended – USDA
- For gelled products without added sugar:
 - use recipe designed for this use
 - follow processing and storage directions exactly
 - don't exchange types of sweeteners



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Alcohol Test for Pectin in Fruit Juice

Purpose of Test: See if there is adequate pectin present in the juice to form gel

Test: Mix 1 teaspoon of juice with 1 tablespoon of rubbing alcohol. Gently stir. If enough pectin is present, a solid jelly like mass will form, which can be picked up with a fork. Discard test liquid; it is poisonous.

If no mass forms, select a recipe that uses a liquid or powder pectin.

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Storage of Home Canned Foods

- Label with date, product, (canner batch - opt)
- Remove and wash, dry and store bands
- Store canned goods in cool dry, dark place
- Use within one year
- Examine all foods before using them
 - Seal still intact
 - No sign of leaking, bulging, or mold
 - No sign of very cloudy liquid, foul smell when opened or heated
 - Discard if seal is broken or any one of these signs are present

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Discarding Suspect Food

- If any signs of spoilage are present, low-acid foods may need de-toxifying before discarding
- If the jar is sealed, wrap up in newspaper and discard
- *If jar is open, detoxify:*
 1. Wear gloves
 2. Place jar of food on side and lid in saucepot
 3. Wash hands and gloves
 4. Cover with hot water, 1-inch above. Boil for 30 min.
 5. Cool and discard container, food and lid.

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Discarding Suspect Food

- *Clean up the area*
 1. Wear rubber or plastic gloves
 2. Use 1 part chlorine bleach to 5 parts water, wet surface (counters, sink, can openers, etc)
 3. Wait 30 min.; wipe up with paper towels. Dispose of towels in plastic bags before discarding
 4. Apply bleach solution again; let stand 30 min. and rinse.
 5. Thoroughly wash all surfaces, equipment, clothing, etc. Discard gloves at end.

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Is It Safe To Eat?


#1 Rule of Food Safety:

WHEN IN DOUBT, THROW IT OUT!

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Tips for Dehydrating Foods




- When dehydrating fruits such as cherries and berries
 - The skins must be "checked", which means the fruit is dipped in boiling water for 30 seconds or more till the skins split
 - This allows moisture to escape during dehydration process
- Consult your manual or Extension publication for determining if product is dry enough to prevent mold growth

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Conditioning Dried Fruits



- After drying fruits, place them in a sealed food storage bag or container for 7 – 10 days, shaking occasionally
- Watch for condensation build up
- If condensation is evident, freeze, dried fruit immediately to prevent mold growth
- If mold is evident, discard entire package

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Drying Fruit Leathers

- When making fruit leathers, the more sugar that is present, the longer the drying process




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Meat Jerky

- To eliminate E-Coli & other pathogens, preheat meat strips and marinate to 160°F prior to placing them in the dehydrator
- If meat was not heated prior to drying, heat 10 min. in an oven preheated to 275°F.



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Freezing Updates

- Freezing cured meats may result in off flavors developing faster than in poultry and other meat products because of the chemicals used in the curing process
- Freeze all foods quickly. Freezing foods quickly reduces the size of the ice crystals, which results in a higher quality product.

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Is Home Food Preservation a Safety Issue?

- Comparing national surveys from 1975 to 2005
 - Need to encourage pressure canner for low acid foods
 - Still a large percentage using oven or open kettle “canning method”
 - Large percentage adapting recommendations in their own way

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- This material is based upon work and training provided by Elizabeth L. Andress, professor and Extension Food Safety Specialist, University of Georgia, Department of Foods and Nutrition, National Center of Home Food Preservation.

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