Welcome!
County Fair Food Judge Training

To help us with quality of the training, please mute your mic and stop video. Thank you!

Meet the Team!

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Just Because It Seals, Doesn’t Mean It’s Safe!

Follow Along!

Refer to the handout

And the Winner is...
A Guide to Judging Food Preservation

All handouts are at https://www.rrc.k-state.edu/judging/index.html

The Road to the Fair

The Science...Yes, it matters!

University of Georgia
For the Fair **AND** Home!

- This is not JUST for the Fair!!
- All foods need to be canned safely for any use!
- Be Smart!
- Be Safe!

Underprocessed Salsa Gone BAD!!

**Conditions for Growth**

<table>
<thead>
<tr>
<th>Food</th>
<th>Acid</th>
<th>Time</th>
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<tr>
<th>Temperature</th>
<th>Oxygen</th>
<th>Moisture</th>
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**Acidity of Foods**

- pH 4.6

**Water Activity**

Water activity is a measure of the amount of moisture in foods that is available for microbes to use. Scale: measured on a scale from 0 to 1.0, with distilled water having a value of 1.0.

Fruits & Vegetables:
- 0.97-0.99: High acidic foods
- 0.55-0.80: Low acidity foods

University of Georgia
Microorganisms have different oxygen needs for growth.
- Aerobic - need oxygen to grow
- Anaerobic - grow only when oxygen is absent
- Facultative - can grow with or without oxygen

**Oxygen Requirements**

**Importance of Heat Penetration**
- Process time is affected by whether food heats by convection, conduction, or a combination of both.
- Heat penetration studies scientifically determine safe processing times.
- The "cold spot" must reach the correct temperature for the correct length of time to destroy target pathogens.
  - Geocentric – conduction – dense recipes
  - Isocentric – convection – liquid recipes

**Heat Penetration, cont.**
- Follow recipe exactly
  - The following slow down heat penetration:
    - Extra sugar or fat
    - Oversize food pieces
    - Added thickeners
- Use recommended canners
  - Heat-up and cool-down times in pressure canners are counted toward sterilizing value of the process.
  - Don’t rush them.
- Science of Canning: Recipe Development (Jarden Home Brands)
  - [https://youtu.be/01lTxSgXlyy](https://youtu.be/01lTxSgXlyy)

**Just Wait!**
- Importance of 5-minute wait
  - After processing and removing canner lid
  - Allows temperature in jars to continue to rise
  - Gives extra chance for lids to seal
  - Allows steam to escape from canner
  - Written into Ball Blue Book recipes, KSRE recipes, in “Preserving Food” chapter of So Easy to Preserve

**How-to Guides to...**
- Water Bath and Steam Canning
  - [https://www.bookstore.ksu.edu/pubs/MF3241.pdf](https://www.bookstore.ksu.edu/pubs/MF3241.pdf)
  - Also in Spanish!
- Pressure Canning
  - [https://www.bookstore.ksu.edu/pubs/MF3242.pdf](https://www.bookstore.ksu.edu/pubs/MF3242.pdf)
  - Also in Spanish!
Question #1

Which of these can be processed safely in a water bath canner?
A. Halved or sliced peaches
B. Corn relish
C. Vegetable soup mix
D. Barbecue sauce
E. A, B, and D

What Makes YOU a Food Preservation Judge?

• You love to educate!
• Know basic food science
• You understand the importance of preserving food safely
• Show them...
  You enjoy preserving food!

Tools to Take

• Towels
• Washcloths
• Flashlight
• Ruler
• Water bottle
• Disinfectant wipes
• Resources
• Scorecards

Many more resources!

https://www.rrc.k-state.edu/judging/index.html

READ THE RULES!

FAIR BOOK
Labels for Jars

Class No______ Product____________________
Name______________________________
County/District_____________________
Altitude where processed______ Process Time_____
Canning Method: Water Bath OR Pressure
Dial Gauge (psi)______ Weighted Gauge (psi)______
Date processed [month/year]____________________

http://www.kansas4-h.org/events-activities/fairs/kansas-state-fair/
Scroll down to "Food Preservation"
Also on https://www.rrc.k-state.edu/judging/index.html

Other Required Information
• Must have recipe
• Recipe source
• Processing adjustment for altitude, if needed
• Date of recipe source
  – If using Ball or Mrs. Wage’s mix or pectin inserts, indicate date purchased
• Clear jars
• Jerky must list heat treatment

Judging Standards

https://www.rrc.k-state.edu/judging/index.html

• Judging Scorecards
  – Canned Fruits
  – Canned Tomato Products
  – Canned Meats
  – Canned Pickled Products
  – Canned Vegetables
  – Canned Fruit Preserves
  – Dried Fruits and Leathers
  – Dried Vegetables
  – Dried Herbs
  – Dried Meat Jerky

Judge Visually

• We do not recommend opening or tasting any jars of food!
  – For safety of you, the judge
  – For safety of the food product at the fair and return home
• Safety is the #1 consideration in awarding food preservation entries
  – Unsafe methods should not be rewarded!
• Why? Not all spoilage can be seen by normal human senses.

Problems and Solutions

https://www.rrc.k-state.edu/judging/index.html
Judging Home Preserved Foods

Great tips on judging visually

Disqualification
- Jar unsealed
- No recipe
- No label, missing information
- Wrong processing method
- Underprocessing
- Jerky not heated to 160°F
- Jar bigger than recipe states
- Added thickeners, rice, pasta
- Moving bubbles
- Not acidifying tomatoes
- Mash or pureed pumpkin/winter squash
- Paraffin wax on sweet spreads
- Untested recipe source
- Contains alcohol

Lowering a Ribbon Placing
- Not following fair book rules
- Different color rings/bands
- Messy jars, rusty rings
- Not enough liquid
- Improper headspace
- Wrong color (artificial color added if not in recipe)
- Food over mature
- Uneven sized food pieces
- Using colored jars
- Brands of jar/lids not the same
- Food above liquid
- Fancy packs, if not stated in recipe
- Foreign material
- Abnormal sediment in jars
- Using iodized salt

Showmanship Tips

While not critical for food safety or quality, these can affect final ribbon placing.
- Use same color rings and lids
- Using the same brand of jars and lids
- Hard water residue present on jar surface should be removed
- Sticky label residue on the reused jars should be removed
- Rings should be free of rust
- Remove rings, check for sticky residue
- No fabric lid covers or other décor

Recipes

Not recommended to can homemade (your own creation!) recipes
Freeze homemade recipes for long-term storage
Recipes older than 1994 may be unsafe

Recipe Source List

- https://www.kansas4-h.org/events-activities/fairs/kansas-state-fair/index.html

2020 Kansas State Fair

4-H Exhibitor Handbook

You cannot take your own recipe and apply processing recommendations from tested sources!!
Packaged mixes

- For quick and easy canning
  - Pickles
  - Salsa
  - Sauces
  - Many more!

Ball®/McCormick® Mixes

New Canning App

- Canning Timer & Checklist App
- For Apple and Android devices
- Intended for people with previous canning experience
- Provides reminders and timer for specific foods
- [https://catalog.extension.oregonstate.edu/pnw689](https://catalog.extension.oregonstate.edu/pnw689)

Another New App!

- Preserve Smart
- For Apple iOS and Android
- You tell it your elevation and all recipes will highlight the appropriate processing
- About 50 recipes, canning, freezing, drying
- [https://apps.chhs.colostate.edu/preservesmart/](https://apps.chhs.colostate.edu/preservesmart/)

Other Recipe Sources

- [https://www.rrc.k-state.edu/preservation/recipes.html](https://www.rrc.k-state.edu/preservation/recipes.html)

Unsafe Recipes Sources

- Blogs
- Pinterest
- Old recipe books
- Recipe magazines
  - May not be adequately tested
- Many others...

Just because a food is canned commercially doesn’t mean it can be canned safely at home!!
Untested Recipe Example

How much processing is that?

New from Mrs. Wages

• 1 Step Pickling Brines
• ONLY makes 1 pint
• REFRIGERATOR STORAGE ONLY!!

New from Heinz

• Ready to use
• Already diluted with water
• Has sugar and salt included
• ONLY for REFRIGERATOR PICKLES!!

Question #2

Which of these recipes is NOT from a reliable source?
A. Bread and Butter pickles – USDA
B. Pumpkin Butter – The Frugal Navy Wife
C. Reduced Sugar Peach Pineapple Spread – Preserve Smart app
D. Elderberry Jelly – Sure Jell website
Types of Jars

- Use regular or wide-mouth canning jars
  - ½-pint up to 1-quart sizes only
  - Do not use jar larger than stated in recipe
- Clean, not damaged
- No colored jars
- No Mayonnaise jars
- Ball, Kerr, Golden Harvest

New Jars from 2017 & 2018

- Ball™ Collection Elite™
  - Spiral Jar
  - Regular mouth 16 oz
  - Wide mouth 28 oz
  - Use like a quart jar!
  - Sharing Mason Jar
  - Regular mouth 16 oz
- Ball™ Smooth-Sided
  - Regular mouth 16 oz
  - Regular mouth 32 oz
  - Wide mouth 32 oz

New in 2020

- Flute Jars
- Pints only
- Safe for canning

Types of Lids

- Use two-pieced lid
- Always use new lids
- Newer lids don’t need pretreating, but if you do...
  - Do not boil! Just simmering hot water
- Sure Tight™ Lids
  - Hold seal 18 months
  - Twice the tinplate coating to reduce rust issues
  - BPA free

New Lids

- Wide and Regular mouth size
- Still use metal rings
- Water bath or pressure can
- FOLLOW THE DIRECTIONS FOR BEST RESULTS!!
- Univ. of Georgia did research
  - https://getd.lib.uga.edu/pdfs/sivanandam_geetha_201412_ms.pdf

Reusable Lids

- Hand Wash Rings
- Do NOT BAKE food in the lids/rings!!

https://reusablecanninglids.com/
**Type of Pack**

- **Hot pack**
- **Raw pack**

**Headspace**

- Space in jar between bottom of lid and top of food/liquid
- Varies by type of food
- Proper headspace creates vacuum seal
- In general,
  - 1/4" jellied fruit products
  - 1/2" fruits, tomatoes and pickles
  - 1" to 1-1/4" low acid foods
- Follow guidelines on the scorecards!

**Adjusting for Altitude**

- This is the number one reason for disqualification at fairs!!

- How to Adjust
  - Boiling Water Bath
  - Pressure Canning

- Reliable recipe sources will give you guidelines

**Examples of Altitude Adjustments**

- From Ball Blue Book
- From USDA recipes

**Canning Equipment**

- Pressure Canner – Dial or Weighted Gauge
- Water Bath Canner

**Unsafe Processing**

- Dishwasher
- Oven or Microwave
- Open Kettle Canning
- Sun Canning
- Pressure Cooker
- Slow Cooker
Fancy Packs

From Univ. of Georgia

- Many types of fancy packs produce potentially unsafe products.
- The adequacy of process times is dependent on using specified preparation procedures.
- Fancy packs may not have received adequate heat penetration to kill harmful microorganisms.

https://nchfp.uga.edu/publications/nchfp/tech_bull/1Judging_Preserved.pdf

Allowed Fancy Packs

- Cucumber spears for pickles
- Asparagus spears
- Pickled asparagus spears
- Pickled okra
- Whole green beans
- Pickled green beans
- Pickled baby carrots

USDA recipes are available for these

Question #3

I live in SE Kansas, where the altitude is 900 feet. But I went to my Grandma’s house in NW Kansas, where the altitude is 2,750 feet, to can food. Which altitude should be listed on the entry label for the fair in SE Kansas?

A. 900 feet
B. 2,750 feet
C. 1,000 feet
D. None

Tomatoes Need Acid

- Tomatoes have pH ~ 4.0 – 5.2
  - Borderline for safe boiling water canning
  - This includes all colors of tomatoes!
  - Must acidify for BW and pressure canning

- For Pints
  - 1 Tablespoon bottled lemon juice
  - ¼ teaspoon citric acid

- For Quarts
  - 2 Tablespoons bottled lemon juice
  - ½ teaspoon citric acid

- Vinegar may be used, but....
  - 4 Tablespoons vinegar per quart or 2 Tablespoons per pint
  - Flavor may be objectionable

- Add acid directly to jar before filling
- If too acidic, add sugar to taste
  - Example: 1 tablespoon per quart

More on Tomatoes

Fermenting tomatoes

- Fermenting
- Canning
- Preservation Methods
- Quality
- Reliability and Relishness
- Recipes
Question #4

Which of these IS safely canned?

A. Salsa in a quart jar
B. Green beans processed in a boiling water bath canner
C. Strawberry jam inverted to seal (open kettle canning)
D. Acidified whole tomatoes in a pressure canner
Judging Steps

- Review recipe and label information
- Check lid seal
- Examine jar appearance
- Remove ring, check for residue
- Measure headspace
- Examine contents with flashlight
- Rotate jar, lean on its side to check food consistency
  - Look for defects
  - Refer to judging scorecards for details
- Provide comments, how to improve
- Award ribbon placing

Judging Tomatoes

Italian Tomatoes
12 cups halved cored peeled tomatoes
Water
Spice blend, see below
Ball® Citric Acid or bottled lemon juice
Salt, optional

Italian Spice Blend
4 tsp basil
2 tsp thyme
2-1/2 tsp oregano
1 tsp garlic powder
1 tsp hot pepper flakes, optional
Add 2-1/4 tsp of spice blend to each pint jar. If omitting hot pepper flakes, use only 2 tsp.

Processed 40 + 5 minutes for altitude
Source: www.freshpreserving.com, 2019

Choose the ribbon!

Sensational Salsa!

Please do not experiment with canning your own recipe that mixes low-acid vegetables together, even with "some" acid like vinegar or lime juice. If done improperly, you put yourself at risk for botulism, a potentially fatal foodborne illness.

http://nchfp.uga.edu/publications/nchfp/factsheets/salsa.html
http://www.kre.k-state.edu/bookstore/pubs/NF3171.pdf
http://www.bookstore.kre.k-state.edu/pubs/NF3171S.pdf
Mrs. Wages Salsa
6 pounds tomatoes
1 pouch Mrs. Wages Salsa mix
½ cup 5% vinegar

Judging Salsa

Processed 40 + 5 minutes for altitude
Mrs. Wages Salsa mix, purchased August 2019

Choose the ribbon!

Fruit Pie Filling

• Don’t use cornstarch!
• Use Clear Jel – cook type
  – Do not use instant!
### Cherry Pie Filling

**Quantities of Ingredients Needed**

- For 1 Quart:
  - Fresh or thawed sour cherries: 3 1/3 cups
  - Granulated sugar: 1 cup
  - Clear Jel®: 1/4 cup + 1 tbsp
  - Cold water: 1-1/3 cups
  - Bottled Lemon Juice: 1 tbsp + 1 tsp
  - Cinnamon (optional): 1/8 tsp
  - Almond extract (optional): 1/4 tsp
  - Red food coloring (optional): 6 drops

- For 7 Quarts:
  - Fresh or thawed sour cherries: 6 quarts
  - Granulated sugar: 7 cups
  - Clear Jel®: 1-3/4 cups
  - Cold water: 9-1/3 cups
  - Bottled Lemon Juice: 1/2 cup
  - Cinnamon (optional): 1 tsp
  - Almond extract (optional): 2 tsp
  - Red food coloring (optional): 1/4 tsp

**Judging Pie Filling**

Processed 30 + 5 minutes for altitude

Source: Preserving Cherries, KSRE, 2015

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### Judging Fruit

**Peaches-Halved or Sliced**

Choose ripe, mature, yellow-flesh peaches of ideal quality for eating fresh or cooking.

- Dip fruit in boiling water for 30 to 60 seconds until skins loosen. Dip quickly in cold water and slip off skins. Cut in half, remove pits and slice if desired. To prevent darkening, keep peeled fruit in ascorbic acid solution.
- Prepare and boil a very light, light, or medium syrup or pack peaches in water, apple juice, or white grape juice. Raw packs make poor quality peaches.
- Hot pack or raw pack

**Judging Fruit**

Processed 20 + 5 minutes for altitude

Source: Preserving Peaches, KSRE, 2015

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### Choose the ribbon!
Jam and Jelly... Do Not...

- Use Paraffin wax
  - Can cause mold growth
  - Heat processing prevents mold growth
- Invert jars to seal
  - Not recommended by USDA
- Alter sugar or pectin
  - Exception - If using low- or no-sugar pectin, sugar can be altered
- Double recipes
  - Product will not set

Cherry Jelly

with liquid pectin

3 cups sour cherry juice
  (about 3 pounds or 2 quart boxes sour cherries and ½ cup water)
7 cups sugar
2 pouches liquid pectin

Judging Jelly

Processed 5 + 5 minutes for altitude
https://nchfp.uga.edu/how/can_07/cherry_jellyLiquid.html
June 2005
Spiced Plum Jam
3 1/2 cups finely chopped fresh red plums (about 2 pounds plums)
1-2 Tablespoons water if needed to prevent sticking
2 teaspoons cinnamon
1/4 teaspoon ground cloves
1/4 teaspoon ground allspice
3 Tablespoons powdered pectin
4 cups sugar

Processed 10 + 5 minutes for altitude
Sure Jell pectin insert
2019
Summer Squash Relish
4 pounds fresh, firm yellow and/or zucchini summer squash (as purchased)
½ cup diced sweet onion (about 2.4 ounces prepared)
2 cups cider vinegar (5%)
2½ cups white sugar
2 teaspoons celery seed
2 teaspoons turmeric
4 teaspoons mustard seed

Judging Pickles

Processed 15 + 5 minutes for altitude
https://nchfp.uga.edu/how/can_06/summer_squash_relish.html
April 2015

Choose the ribbon!
Carrots - Sliced or Diced
Select small carrots, preferably 1 to 1-1/4 inches in diameter. Larger carrots are often too fibrous.

Hot pack or Raw pack
1 teaspoon of salt per quart to the jar, if desired. Add hot cooking liquid or water, leaving 1-inch headspace.

Judging Vegetables
Processed at 15# pressure, weighted gauge canner
https://nchfp.uga.edu/how/can_04/carrots_sliced.html
USDA, 2015

Choose the ribbon!
Purple  Blue
Red  White
Judging Meat

Strips, Cubes or Chunks of Meat

Choose high quality chilled meat. Remove excess fat. Soak strong-flavored wild meats for 1 hour in brine water containing 1 tablespoon of salt per quart. Rinse. Remove large bones. The hot pack is preferred for best liquid cover and quality during storage. The natural amount of fat and juices in today’s leaner meat cuts are usually not enough to cover most of the meat in raw packs.

Hot pack or Raw pack
Add 1 teaspoon of salt per quart to the jar, if desired.

Processed at 15 psi pressure, weighted gauge canner
https://nchfp.uga.edu/how/can_05/strips_cubes_chunks.html
USDA, 2009

Choose the ribbon!

Purple
Blue
Red
White

Drying Foods

• Convenient
• Lightweight
• Uses minimal space
• No refrigeration needed
• Prevents growth of microorganisms
• Slows enzyme activity
• Long shelf life

University of Georgia

Types of Dried Foods

• Leather
  – Fruit Leather
  – Vegetable Leather
• No visible moisture
• Dry but pliable

University of Georgia

Types of Dried Foods

• Fruit
  – Pretreat to prevent browning
    • Ascorbic acid
    • Sulfites
    • Fruit juice
    • Honey
  – Slice thin and even
  – Peeled fruit dries best

University of Georgia
Types of Dried Foods

- **Vegetables**
  - Keep pieces uniform for even drying
  - Steam or water blanch
  - Brittle or crisp

Types of Dried Foods

- **Herbs**
  - Food dehydrator
  - Microwave
  - Paper bag with holes

Types of Dried Foods

- **Jerky**
  - Must be heated to 160°F
  - This is not the drying temp!
  - Heat in marinade prior to drying
  - Heat in 275°F oven for 10 minutes after drying
  - Strips should be ¼-inch thick or less

Get Educated!

- 4-H Foods Project Curriculum and online resources
  - [https://nchfp.uga.edu/putitup.html](https://nchfp.uga.edu/putitup.html)
  - [https://www.rrc.k-state.edu/judging/index.html](https://www.rrc.k-state.edu/judging/index.html)
Big thanks to my video producer!

kblakesl@ksu.edu

Just Because It Seals, Doesn’t Mean It’s Safe!