Foods Project Leader
Pilot Project Webinar #5
March 20, 2012

Your Presenters
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Any follow up questions from the fourth webinar?

Creating Opportunities for Youth to Value and Practice Serve to Others

I pledge my Hands to larger service...

GENEROSITY (serving the community)
• Youth need to feel their lives have meaning and purpose.
• By participating in 4-H community service and citizenship activities, youth connect to communities and learn to give back to others.
Recent findings from Tufts University’s 4-H Study of Positive Youth Development indicate that young people in 4-H are 3.3 times more likely to actively contribute to their communities over youth who do not participate in 4-H.

Research Findings

What is service learning?
Includes both service to others and learning goals for the youth with the intent that both the person being served and the youth will benefit.

Service Learning

How does Service Learning differ from Service?
Allows youth to reflect on what they learned and discover or learn something new in addition to the service to the community.

Service Learning

Strategies:
- Through projects that involve 4-H members serving their communities, 4-H helps to foster a sense of generosity among the members.
- The youth have a wonderful opportunity to identify needs in the community, contact key community leaders, develop a plan of action, and then enact that plan to help others.

Resource: “Essential Elements: Key Ingredients for Program Success” Curriculum

Generosity

Service Learning Ideas

- What are ways foods project members can learn to give back to their community?

- Of the ideas shared above, which will allow youth to reflect on what they have learned or learn something new in addition to service to their community? Are there components to add to make it a service learning activity?

Home Food Preservation
Canning
The Basics
Home Food Preservation

- Enjoy homegrown food year around
- Save about half the cost of commercially canned foods (excluding labor)
- Preserves food at its peak
- Great homemade taste!

What Preservation Does

- Stops growth of microorganisms
  - Spoilage microorganisms
  - Pathogens
- Inactivates enzymes
  - Change color
  - Affects texture
  - Changes flavor
  - Changes nutrition

Conditions that affect growth of bacteria, yeasts and molds

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- F: Food
- A: Acid
- T: Time

- T: Temperature
- O: Oxygen
- M: Moisture

3 Conditions that affect Food Preservation

- A: Acid
- O: Oxygen
- M: Moisture

Acidity of Foods

pH 4.6

Ball Blue Book

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.

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Oxygen Requirements

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

Type of Food

- Foods that support the growth of microorganisms are usually
  - Moist
  - High protein
  - Low acid
- If handled improperly, ANY food can be hazardous.

Time and Temperature

- Temperature Danger Zone
  40-140 °F
- This is the range where bacteria can multiply very rapidly.

Importance of Heat Penetration

- Process time is affected by whether food heats by convection, conduction, or a combination of both.
- Heat penetration studies are used to scientifically determine safe processing times.
- The "cold spot" in the food must reach the correct temperature for the correct length of time to destroy target pathogens.
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.

Packaged mixes

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

Pressure Gauge Testing

- Dial pressure gauges need yearly testing
- If more than 1 pound off, replace
- Weighted gauges do not need testing
- 1 pound error in a 20-minute process causes over 10% decrease in sterilizing value
  - 2 pound error a 30% decrease

Canning Equipment

- Not recommended to can homemade recipes
- Freeze homemade recipes for long-term storage

Old pressure canners

- Check condition
- Is it warped?
- Can you get replacement parts?
- Is there an instruction manual?
- May not be safe!
- May not be a garage sale bargain!
Types of Jars

- Use regular or wide-mouth canning jars
  - 4 oz – ½ gallon sizes
  - ½ gallons for fruit juice only
- Clean, not damaged
- Mayonnaise jars for water-bath use only

Newer Jars

- Ball® Collection Elite™ Platinum Jar
  - Wide mouth 8 oz (half-pint) – “flattened”
  - Wide mouth 16 oz (pint) – “flattened”
  - Platinum color lids
  - Use same process times as regular jars

Other Jars

- Ball® Creative Containers™
  - STORAGE ONLY
    - Wire bales, rubber rings
    - 1, 2 and 4 gallon sizes
    - 1 gallon with spigot

Other Jars

- Weck Jars
  - Non recommended

Types of Lids

- Use two-piece lid
- Always use new lids
- Pretreat lids per manufacturer’s directions

Other Equipment

- Crock
- Pot holders & towels
- Wooden spoon
- Tong
- Measuring cups & spoons
- Cutting board
- Knives
- Grater, zester, corer
- Vegetable peeler
- Funnel
- Bubble freer
- Food scale
- Wire basket
- Jelly bag
- Colander
- Large sauce pot
- Sauce pan
- Timer
- Food mill
- Spice bag
- Cheese cloth
- Jar lifter
Unsafe Canning Methods

- Steam canners
- Pressure cookers not for canning
- Open-kettle canning
- Conventional or microwave ovens
- Dishwashers
- Slow cookers
- Sun
- Aspirin

Unsure of Georgia

Unsafe Canning Methods

- Pressure canners should not exceed 15 psi
- Jars with wire bails and glass caps
- Old antique jars
- One-piece zinc porcelain-lined caps
- Glass and zinc caps with flat rubber rings

Canning

- Use top quality, fresh food
- Use proper jars and lids
- Follow proper processing times and methods
- Some foods need added acid
  - Tomatoes

Quality of Canned Food

- Remove oxygen
- Quickly destroy food enzymes
- Maintain jar vacuum and airtight seal
- Can depend on type of pack

Raw Pack

- Food is raw, not heated
- Put food directly into hot jars
- Pack food tightly
- Cover with hot liquid
- Food will likely shrink during processing
- Food sometimes floats

Hot Pack

- Food heated to boiling
- Place hot food into hot jars loosely
- Cover with hot liquid
- Less shrinkage of food
- Helps kill some microorganisms
- Fewer jars needed
- Better color and flavor

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Headspace

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Space in jar between bottom of lid and top of food/liquid

Varies by type of food

Proper headspace creates vacuum seal

Usually:

- 1/4" jellied fruit products
- 1/2" fruits, tomatoes and pickles
- 1" to 1-1/4" low acid foods

Closing the Jars

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- Remove air bubbles
- Re-adjust headspace if necessary
- Wipe jar rims
- Adjust two-piece lids, fingertip-tight

Adjusting for Altitude

USDA Complete Guide To Home Canning

Processing Time

- Each food and preparation style has its own processing time
- Time differs with size of jar
- Too Little (Underprocessing)
  - Spoilage
- Too Much (Overprocessing)
  - Overcooked
- After removing canner lid...
  - Let jars sit in canner for minimum of 5 minutes

Reprocessing

- Canned food can safely be re canned if the unsealed jar is discovered within 24 hours. To re can, remove the lid and check the jar sealing surface for tiny nicks. Change the jar; if necessary, add a new treated lid and reprocess using the same processing time.
- Option is to keep refrigerated, freeze, or eat now

Storing Preserved Foods

- Best used within one year
- Keep canned foods in cool, dry, dark location
- Store dried foods in airtight container
- Label and date
- Frozen food storage time varies
  - www.hsre.ksu.edu/library/fntr2/L805.PDF
- Cupboard storage
  - www.hsre.ksu.edu/library/FNTR2/L806.PDF
Spoilage Signals

• Bad seal
• Improper color
• Rising air bubbles
• Unnatural odors
• Spurting liquid
• Mold growth
  • Lid becomes unsealed with no signs of spoilage could mean pathogens present!
  • When in doubt, throw it out!

Types of Spoilage

• Fermentation: beer or yeast smell
  – Carbon dioxide accumulates during fermentation, may break seal resulting in spurting of contents.
  • Fruit, fruit juices affected.
  • Organism: yeast

• Putrefaction
  Very foul odor that intensifies in heating. Slimy, soft food; gas bubbles present.
  – Fat meats, greens, corn, beans, peas, other vegetables and meats affected.
  – Organism: spore-forming bacteria

• Flat sour
  Develops very sour smell or unpleasant odor.
  No gas present. Liquid usually very cloudy.
  – Tomatoes, beans, peas, corn, pumpkin, greens affected.
  – Organism: spore-forming bacteria

• Botulism
  – Rancid or rotten odor accentuated by heating.
  – Gas may be present, food may feel slimy, liquid may be discolored but not always.
  – May occur without these warnings, particularly in beans, greens, and asparagus.
  – Low acid vegetables and meats affected.
  – Organism: Clostridium botulinum
    • spore-forming bacteria commonly found in soil.

• Mold
  – Fuzzy, grayish or white growth on surface
  – May have musty odor, food may be slimy.
    • Fruits, vegetables and meats affected.
Spoilage Signs

- Before opening
  - Bulging lid
  - Leaking
  - Unusual appearance
- After opening
  - Unusual odor
  - Mold
  - Foam
  - Spurting
  - Slimy texture

Handling Spoiled Food

DO NOT TASTE!!!!!

- University of Georgia
  - [www.uga.edu/nchfp/how/general/identify_handle_spoiled_canned_food.html](http://www.uga.edu/nchfp/how/general/identify_handle_spoiled_canned_food.html)

WHEN IN DOUBT...THROW IT OUT!!

Food Preservation Resources

- KSU Publications
  - [http://ksu.ly/6e4z9b](http://ksu.ly/6e4z9b)
- National Center for Home Food Preservation
  - [www.uga.edu/nchfp/](http://www.uga.edu/nchfp/)
- USDA Complete Guide to Home Canning
  - [www.uga.edu/nchfp/publications/publications_usda.html](http://www.uga.edu/nchfp/publications/publications_usda.html)
- So Easy To Preserve
  - [www.uga.edu/srt](http://www.uga.edu/srt)
  - Jarden Home Brands
    - [www.freshpreserving.com](http://www.freshpreserving.com)

Next Webinar

- Webinar #6
  - Salsa, Pickles, Jams & Jellies
  - Tuesday, March 27, 2012
  - 7:00 pm