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# It's More Than Keeping Your Fingers Out of the Cookie Dough!

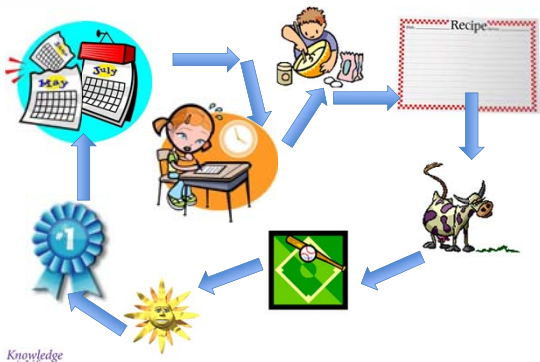
Food Safety for Fair Exhibits  
Karen Blakeslee, M.S.



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## The Road to the Fair



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## Why is Food Safety Important?

Every time you cook or bake in the kitchen you are doing a science experiment!

Not all recipes are appropriate for the fair!!

**Be smart about food safety!!**



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## Is This Food Exhibit Safe?

- Ask Yourself...
  - Does this food require refrigeration?
  - Would you eat this food at room temperature?
  - Will this product hold up to its standard when it is judged or displayed?
- **Food Safety violations will be disqualified!**



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## What Makes a Food Unsafe?

- Three categories of hazards



Chemical



Physical



Biological

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## Microorganisms







- Biggest risk to humans
- Loss of shelf life
- Loss of product quality
- Can lead to foodborne illness



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### Conditions for Growth


F  Food	A  Acid	T  Time
T  Temperature	O  Oxygen	M  Moisture

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### What Grows Where?

- Bacteria, yeast, and molds can grow on just about any food
  - They really like carbohydrates and proteins
- What foods spoil the quickest?
  - These are the ones of concern



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### Food Safety at the Fair

- What is perishable?
  - High in moisture, protein and neutral acidity
  - Anything that needs refrigeration
- Many fairs have a Perishable Foods class
  - Bring at proper temperature, judge, take home
- Perishable foods are good options for a Favorite Food Show
- **County Fairs that have refrigeration can allow perishable exhibits**
  - Not allowed at State Fair 4-H Foods!

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### Perishable Foods

- Icings and frostings made with RAW eggs
- Cream cheese frosting
- Chocolate Ganache
- Heavy cream frosting
- Lemon curd



**NOT ACCEPTABLE!**

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### Perishable Foods

- Fresh fruit OR vegetable as a garnish
  - Once a fruit is cut it must be refrigerated
  - Many whole fruits need refrigeration
    - Strawberries
    - Raspberries
  - Many vegetables need refrigeration after harvest
    - Peppers



**NOT ACCEPTABLE!**

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### Fillings with High Amount of Dairy

- **Any Dairy based filling**
  - Cream cheese
  - Sour cream
  - Ricotta
- Moisture level is higher in the filling and the food would need refrigeration to prevent microbial growth



**NOT ACCEPTABLE!**

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### Pies

- Custard Pie
  - Pumpkin
  - Cheesecake
- Cream/Meringue Pie
  - Coconut
  - Chocolate
  - Lemon
  - Any flavor!
- Strawberry pie
- Chiffon pie
- Bacteria can multiply in these moist desserts high in dairy and eggs



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**NOT ACCEPTABLE!**

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### Bread or Cake in a Jar

- Jars should not be used in oven
  - Per manufacturer
- Sealed jar creates anaerobic environment that supports growth of Botulism!



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### Baking in Brown Paper Bags

- “Do **not** use **brown paper bags** from the grocery or other stores for cooking. They are not sanitary, may cause a fire, and may emit toxic fumes. Intense heat may cause a bag to ignite, causing a fire in the oven and possibly contaminating the food. **The ink, glue, and recycled materials in paper bags may emit toxic fumes when they are exposed to heat.** Instead, use commercial oven cooking bags.”

<http://1.usa.gov/1zWb300>



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### Say NO to Alcohol!

- 4-H Youth are not of legal age to purchase or possess alcohol
- Not all of the alcohol is evaporated or baked off during cooking or baking.
  - Alcohol retention ranged between 4% and 85%
  - Depends on severity of heat treatment



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**NOT ACCEPTABLE!**

<http://uafanswers.com/detail.php?id=128>

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### Cooking in Clay Pots

- Non-glazed terra cotta clay pots
  - Flower pots
  - Not food grade
  - May contain lead
- Use pots with food grade glaze
  - Labeled for food use



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**NOT ACCEPTABLE!**

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### Friendship Bread Safety

- If starter was NOT fermented in the refrigerator, it will NOT be acceptable
  - Studies have shown that *Salmonella* and *Staphylococcus aureus* can grow during prolonged fermentation at room temperature
- Typically use milk which can spoil



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**NOT ACCEPTABLE!**

[http://www.foodsafety.wisc.edu/assets/pdf\\_files/friendship\\_bread.pdf](http://www.foodsafety.wisc.edu/assets/pdf_files/friendship_bread.pdf)

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### Bacon or Meat

- Meat is perishable
- May not be completely cooked



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### Flavored Oils

- Herbs, vegetables, and garlic in oil
  - Garlic in oil has caused Botulism
  - Must be refrigerated
- Flavored vinegars are safe
- [www.ext.colostate.edu/pubs/foodnut/09340.html](http://www.ext.colostate.edu/pubs/foodnut/09340.html)



**OILS NOT ACCEPTABLE!**

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### What is Safe and Non-Perishable?

- Dairy products incorporated into the entire batter
  - Not as separate layer
- Examples include
  - Cream cheese
  - Sour cream
  - Milk
  - Cream
- These get baked into a drier environment



**ACCEPTABLE!**

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### What is Safe and Non-Perishable?

- Eggs mixed into the batter and baked
- Egg glazes on top of breads prior to baking
- Egg white powder
  - Meringue powder
  - Used in place of raw egg whites for frosting
- Egg in pie crust




**ACCEPTABLE!**

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### What is Safe and Non-Perishable?

- Fruit baked into a product
  - Pineapple Upside Down Cake
  - Blueberry muffins



**ACCEPTABLE!**

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### What is Safe and Non-Perishable?

- Fruit Pie
  - High sugar content takes moisture away from bacteria
  - Baking reduces bacteria issues
  - Exception is refrigerated pie like Strawberry
- Pecan or any Nut Pie
  - High sugar binds up moisture making it unavailable for bacteria to use



**ACCEPTABLE!**

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**K-STATE** Research and Extension **What is Safe and Non-Perishable?**

- Frostings/Icings
  - High sugar content suppresses bacterial growth
  - Use small amount of liquid
    - Milk, juice, water
  - Add flavorings
    - Cream cheese flavor
    - Fruit flavor
  - Shortening withstands heat better than butter
  - German Chocolate Frosting
  - Commercial frosting
    - If permitted at your fair
    - Note in the recipe




**ACCEPTABLE!**

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**K-STATE** Research and Extension **What is Safe and Non-Perishable?**

- Cheese mixed into batter
  - Hard Cheese
    - Shredded Cheddar
  - Cottage Cheese
  - Ricotta Cheese
  - Cream Cheese
- These are baked into a dry environment, less moisture



**ACCEPTABLE!**

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**K-STATE** Research and Extension **Underbaked Foods**

- White Ribbon at State Fair
- What do you think?
- Will be dropped **at least** one ribbon placing




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**K-STATE** Research and Extension **When Are Baked Goods Done?**

Internal temperatures


- Layer cakes - 205-210°F
- Pound cake - 210°F
- Jelly roll cakes - 190-195°F
- Muffins - 210°F
- Quick bread - 210°F
- Yeast bread - 195-210°F
- Bundt cake - 212°F
- Yeast rolls - 190-195°F
- **Seeing a thermometer hole is OK!**



Insert thermometer into the end or side to reach the middle of the bread

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**K-STATE** Research and Extension **Is it Nutritious?**



ChooseMyPlate.gov


- Consider the Dietary Guidelines
- Use of whole grains, fiber
- Low in fat
- Low in sodium
- Reduce added sugars
- Proper portion size

*Prize winners do not always = high fat or high sugar!*

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**K-STATE** Research and Extension **Portion Size**

- Portion size!
  - Bar cookies – 2-inch
  - Drop cookies – 2 half dollar coins
  - Cinnamon roll – hockey puck
  - Roll – bar of soap
  - Muffin – tennis ball
  - Biscuit – hockey puck



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### Modified Foods Class

- Original recipe changed to improve nutritive value or fit diet needs
- Standard Blueberry Muffin recipe changed by:
  - All purpose flour replaced with whole wheat flour
  - All purpose flour replace with gluten free flours
  - Fat content changed by using fruit puree
- A recipe already gluten-free is NOT a modified food!

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### So What Can Be Entered at a Fair?

There are thousands of recipes!!



**PRACTICE! PRACTICE! PRACTICE!**

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# READ THE RULES!



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### For Judge's, Leaders, Parents, Youth



Class No \_\_\_\_\_  
Foods Product \_\_\_\_\_  
Name \_\_\_\_\_  
County /District \_\_\_\_\_

Foods Label  
<http://www.kansas4-h.org/doc13311.ashx>

<http://www.ksre.ksu.edu/bookstore/pubs/4H488.pdf>

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Need a judge's or leader's training?  
Need a foods training?  
**How can I help?**

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