

Welcome!

April 11- 4-H Project Exhibit Judging
 April 18- Foods & Nutrition
 April 25- Foods Preservation

*To help with tonight's webinar, please mute your mic. Thank you!
 This video will be recorded.*




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Meet the Team!


 Linda Beech
 Extension Agent
 Emeritus


 Karen Blakeslee
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 Rapid Response Center
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 Extension Agent,
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 Extension Specialist,
 4-H Youth Development


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 Family & Consumer Sciences

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And the Winner is...

Judging Tips and Food Safety
 Karen Blakeslee, M.S.



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Follow Along!

Refer to the handout

**And the Winner is...
A Guide to Judging Foods**

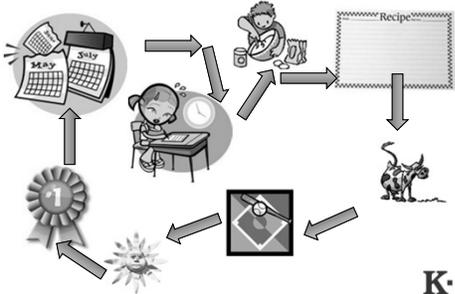


All handouts are at
<https://www.rrc.k-state.edu/judging/index.html>



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The Road to the Fair




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What Makes YOU a Foods Judge?

- You love to educate!
- Know basic food science
- Nutrition knowledge
- Sensory qualities
- Impartial!
- No food allergies or sensitivities
- Show them...
You enjoy baking!




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Take Your Tools!

- Cutting board
- Serrated knife
- Small paring knife
- Offset spatula
- Fork(s)
- Hand towels
- Wash cloths
- Water to drink
- Carrots or plain crackers to cleanse your mouth
- Disinfectant wipes



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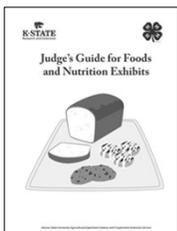
READ THE RULES!



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For Judge's, Leaders, Parents, Youth



Class No _____
Foods Product _____
Name _____
County /District _____

Foods Label
https://www.kansas4-h.org/events-activities/fairs/kansas-state-fair/docs/foods-and-nutrition/Foods_Label.pdf

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

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Many more resources!

Rapid Response Center



A Judge's Role
Check out our new publication from Kansas 4-H on the role of a Judge. Check it out!

Food Safety of Fillings and Fillings
There are many recipes for fillings and fillings. But when creating recipes to cook for fair entries, make food safety a focus in all of our 4-H and 4-H+ projects. See our new publication on this topic and the answers to your questions.

Virtual Fair Judges Training
Find more on our website to learn how to judge and present at our fairs in the State Fair. This publication can be used as a resource for you and to give you the latest news and updates on topics and events.

Session 1 - Overview of Fair Judging
Download our new digital publication from Kansas 4-H on the role of a Judge for State and Fair presentations. Please take the time to review this resource on each topic. These resources were last updated in early 2022.



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

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Other Items

- Gluten Free
- Educational Posters
- Gift Baskets
- Bread Sculpture
- Favorite Food Shows
- Cake Decorating (not in 4-H State Fair)
- Flop Class
- Special Baking Competition
- Others?



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So What Can Be Entered at a Fair?

There are thousands of recipes!!



PRACTICE! PRACTICE! PRACTICE!



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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?
- Unsafe foods will be disqualified!



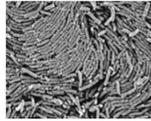
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What Makes a Food Unsafe?

- Three categories of hazards



Chemical



Biological



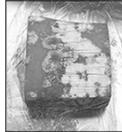
Physical



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Microorganisms

- Biggest risk to human health
- 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 protein
- Some examples include...



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Question #1



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Question #1

- Which item is safe at room temperature?
- A. Frosted Cupcake garnished with Bacon
 - B. Sugar cookies – not frosted
 - C. Homemade Pumpkin pie
 - D. Fresh fruit garnish

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Food Safety at the Fair

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



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Frostings and Fillings

- KSU Study of many frostings and fillings
- Tested 49 recipes
- pH, Aw below 0.85, % Brix, Quality, taste, appearance, shelf life for visible mold growth



Water activity meter



pH meter



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Food Safety of Frostings and Fillings

There are many recipes for frostings and fillings. But when choosing a recipe to use for a fair exhibit, keep food safety in mind as not all are safe to store at room temperature. See our new publication on this topic and the science behind the recipe.

- Food Safety of Frostings and Fillings - MF3544, Kansas State University
- Testing data for above publication
- Food Safety of Frostings and Fillings - presentation, August 2020



Scan for more info!



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State Fair Requirement 2023

- Use a frosting or filling recipe with a **minimum of 65% sugar, by weight**. Must show calculation!
 - If using Corn Syrup, it is only 70% sugar and the rest is water!
 - Does not factor in natural sugars or sugars already in other ingredients
 - Sweetened coconut, chocolate chips, bananas
- Convert household measurements to grams
 - Metric scale
 - Internet search for specific ingredient, amount, and convert to grams
 - Online recipe calculators



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State Fair Requirement 2023



- For any frosting or filling, the **calculation must be shown** on the recipe to show it is at least 65% sugar
- Recommended for county fairs also



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Example 1 – Banana Frosting

| Example 1: Banana Frosting | |
|----------------------------|-----------------|
| Ingredient | Weight in grams |
| 1 large banana | 135 |
| ½ teaspoon lemon juice | 2.5 |
| ¼ cup butter | 57 |
| 3 ½ cups powdered sugar | 420 |
| Total Weight | 614.5 |

$\% \text{ sugar: } (420/614.5) \times 100 = 68.3 \%$
 This frosting is more than 65% sugar and considered stable at room temperature.



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Example 2 – Filling for Lemon Cheese Filled Cake

| Example 2: Filling for Lemon Cheese Filled Cake | |
|--|-----------------|
| Ingredients | Weight in grams |
| 8 ounces cream cheese | 227 |
| ¼ cup sugar | 50 |
| 1 teaspoon lemon juice | 4.79 |
| 2 teaspoons water | 9.86 |
| ½ cup coconut | 40 |
| Total weight | 331.65 |
| % sugar: $(50/331.65) \times 100 = 15\%$ This frosting is below 65% sugar and therefore not stable at room temperature because of the high amount of dairy ingredients. | |



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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 these are cut, they 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



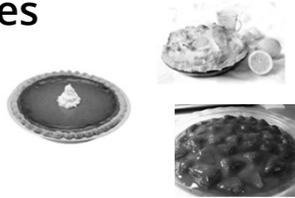
NOT ACCEPTABLE!



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Pies

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



NOT ACCEPTABLE!



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Bread or Cake in a Jar

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



NOT ACCEPTABLE!



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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.”



NOT ACCEPTABLE!

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Source: USDA FSS

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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



NOT ACCEPTABLE!

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[https://www.jamonline.org/article/S0002-8223\(02\)90122-7#text](https://www.jamonline.org/article/S0002-8223(02)90122-7#text)
<https://www.sciencedirect.com/science/article/pii/S1378450X16300422>

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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
- Might show up in a gift basket



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



http://www.foodsafety.wisc.edu/assets/pdf_files/friendship_bread.pdf

NOT ACCEPTABLE!



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Bacon or Meat

- Meat is perishable
- May not be completely cooked
- Best eaten fresh out of the oven
- Better for demonstration or Favorite Food Show



NOT ACCEPTABLE!



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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
- Might be in a gift basket
- www.ext.colostate.edu/pubs/foodnut/09340.html
- <https://www.extension.uidaho.edu/publishing/pdf/PNW/PNW664.pdf>



FLAVORED OILS NOT ACCEPTABLE!



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Raw Flour

- Raw flour linked to foodborne illness
- No raw flour in no-bake foods
 - Includes ALL types of flour
- Does not apply to oatmeal
 - Oats are heat treated in processing



NOT ACCEPTABLE!
<https://www.ksre.k-state.edu/foodsafety/topics/preparation.html>



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Question #2



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Question #2

Which of these foods are perishable and require refrigeration for food safety?

- A. Chocolate chip cookies
- B. Cream Cheese frosting
- C. Fresh Strawberry pie
- D. Both B & C



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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 fresh Strawberry pie
- Pecan or any Nut Pie
 - High sugar content binds up moisture making it unavailable for bacteria to use



ACCEPTABLE!
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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
 - Note in the recipe



ACCEPTABLE!
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What is Safe and Non-Perishable?

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



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Is it Nutritious?



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

Choose **MyPlate**.gov

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

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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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When are Baked Goods Done?

Check the top
Gently touch the top and it should bounce back.

Use a timer
Use an oven thermometer to check oven accuracy.

Take the Temperature!
Use a timer to follow recommended recipe baking time.

Insert a toothpick or skewer
Insert a toothpick or skewer into the middle to check for stickiness.

Suggested Final Temperatures

- Layer cakes - 205-210°F
- Pound cake - 200°F
- Jelly-roll cakes - 190-195°F
- Muffins - 200°F
- Quick bread - 200°F
- Yeast bread - 195-200°F
- Bread rolls - 200°F
- Yeast rolls - 190-195°F

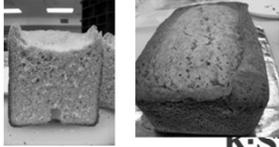


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Most Common Baking Problems

- Incorrect ingredient measurement
- Overmixing
- Undermixing
- Oven problems
 - Temperature wrong
 - Underbaked
- Pans
 - Greasing too much
 - Wrong size
 - Type of pan



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Types of Pans

- Shiny pans reflect heat
 - Gives lighter color
- Dark pans absorb heat
 - Gives darker color
- Reduce oven temp 25°F for glass pans
- Grease bottoms of cake and bread pans
- Greasing sides is optional
- Can use parchment paper



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Question #3



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Question #3

Which tests help determine doneness of baked goods?

- A. Baking time
- B. Color
- C. Touch
- D. Food thermometer
- E. All of the above



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Judging Basics

- Look, touch, smell, taste
- Appearance, shape, size
- Lift product
- Cut into the middle
- Feel the texture
- Smell for pleasant, characteristic odor
- Taste a small piece and check mouthfeel



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Cookies

- Like cake, amount of ingredients and mixing different
- Types of cookies
 - Bar
 - Drop
 - Pressed
 - Molded
 - Rolled
 - Icebox/Refrigerator



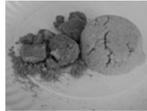
Wheat Foods Council



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Tips for Better Cookies

- Stir dry ingredients before measuring
- Sugar affects spread
- Brown sugar adds moisture
- Margarine & butter gives rich taste, flatter shape, more spread
- Soft fat aids creaming
- Milk and water can be interchanged



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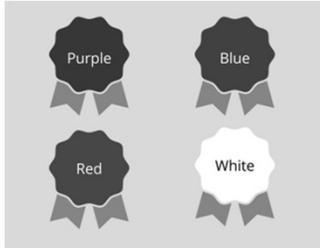
Tips for Better Cookies, cont.

- Sugar and fat should be creamed until fluffy
- Chilled dough will be stiffer and spread less
- Avoid over handling, makes cookies tough
- If dough too stiff, add liquid; if too soft, add flour
- Bake for minimum time and check for doneness



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Choose the ribbon!



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Let's Judge Drop Cookies

Chocolate Chip Cookies

- 2/3 cup margarine
- 2/3 cup butter flavored shortening
- 3/4 cup brown sugar
- 3/4 cup granulated sugar
- 2 eggs
- 2 teaspoons vanilla
- 3 1/4 cups all-purpose flour
- 1 teaspoon baking soda
- 1 teaspoon salt
- 1 cup semi-sweet chocolate chips

| Category | Criteria | 1 | 2 | 3 | 4 | 5 |
|------------|------------|---|---|---|---|---|
| Appearance | Color | | | | | |
| | Texture | | | | | |
| | Shape | | | | | |
| | Size | | | | | |
| Taste | Flavor | | | | | |
| | Texture | | | | | |
| | Moisture | | | | | |
| | Crust | | | | | |
| Overall | Appearance | | | | | |
| | Taste | | | | | |
| | Texture | | | | | |
| | Crust | | | | | |

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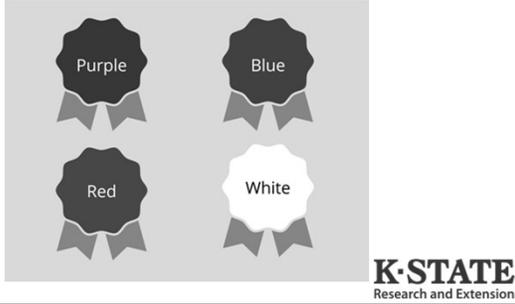
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Choose the ribbon!



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Quick Breads

- Mixing is key step
- Baked immediately after mixing
- Leavened with air, steam, baking soda or baking powder
- Grease pans first
- Dust berries and nuts with flour to prevent sinking



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What about liners?

- Not needed for muffins!
- Simply grease the pan
- Muffins are sturdy and do not need paper liner support
- Often stick and tear apart the muffin
- These are intended for cupcakes



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What's Wrong with this Muffin?



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Let's Judge Biscuits

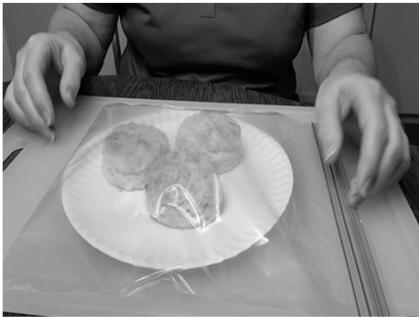
Mile High Biscuits

- 3 cups sifted flour
- 2 tbsp. sugar
- 4 1/2 tsp. baking powder
- 3/4 tsp. cream of tartar
- 3/4 tsp. salt
- 3/4 cup shortening
- 1 egg, beaten
- 1 cup milk

| Product Name | Quantity | Unit | Comments |
|-----------------|----------|-------|----------|
| Flour | 3 | cups | sifted |
| Sugar | 2 | tbsp. | |
| Baking powder | 4 1/2 | tsp. | |
| Cream of tartar | 3/4 | tsp. | |
| Salt | 3/4 | tsp. | |
| Shortening | 3/4 | cup | |
| Egg | 1 | | beaten |
| Milk | 1 | cup | |

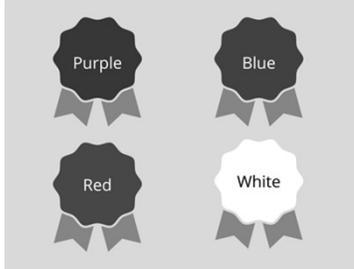


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Bread Making Tips

- Kneaded and no-knead types
- Kneading is critical!
 - By hand or mixer
 - Usually 5-12 minutes
- Let rise in warm, draft-free place
- Scale dough for consistency
- Do the dent test!
- Don't let dough over-rise!



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Key Breadmaking Temperatures

- 100° to 110°F – Temperature to dissolve yeast
- 120° to 130°F – Temperature for fast rising yeast mixed with flour
- 70° to 80°F – Liquid temperature for bread machine bread
- 135°F – Yeast is killed
- 84° to 86°F – Ideal yeast dough temperature
- 80° to 85°F – Ideal rising temperature
- 190° to 205°F – Final internal temperature of baked bread
- 70°F or below – Causes quick staling of bread, but can prevent mold growth



Source: Yeast Breads Made Easy, KWC

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What's Wrong with this Bread?



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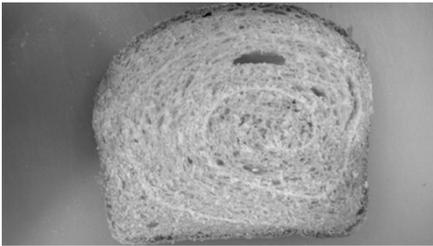
What's Wrong with this Bread?



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What's Wrong with This Bread?



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What's Wrong with This Bread?



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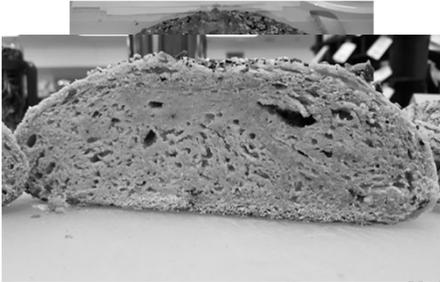
What's Wrong with This Bread?



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What's Wrong with This Bread?



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What's Wrong With This Bread?



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What's Wrong With This Bread?



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Let's Judge Rolls

Cinnamon Rolls

- 1 cup milk, scalded
- 1/2 cup cold water
- 1/3 cup sugar
- 1 package active dry yeast
- 1 egg
- 1 teaspoon salt
- 1/2 cup vegetable oil
- 4 1/2 - 5 1/2 cups all purpose flour

Filling: softened margarine, granulated sugar, cinnamon
 Icing: 1 T melted margarine, 1 cup powdered sugar, milk to desired consistency

| Product | Quantity | Unit | Weight | Volume |
|---------|---------------|----------|--------|--------|
| Flour | 4 1/2 - 5 1/2 | cups | | |
| Milk | 1 | cup | | |
| Water | 1/2 | cup | | |
| Sugar | 1/3 | cup | | |
| Yeast | 1 | package | | |
| Egg | 1 | egg | | |
| Salt | 1 | teaspoon | | |
| Oil | 1/2 | cup | | |

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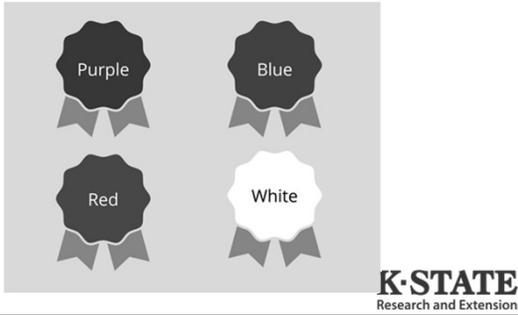
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Choose the ribbon!



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Unshortened Cakes

- Angel Food Cake
 - Egg whites, sugar and cake flour
 - Small amounts of cream of tartar, salt, flavoring
- Sponge Cake
 - Has egg yolk foam and egg white foam
- Chiffon Cake
 - Sponge Cake with vegetable oil added



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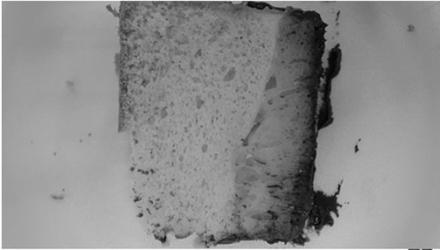
Unshortened Cake Tips

- For Angel Food Cakes, no fat present
- Don't use plastic or wooden bowls
- Make a good egg white foam
- Add cream of tartar at beginning
- Fold, don't stir!
- Bake until cake springs back when touched
- Cool upside down to stretch and set cake



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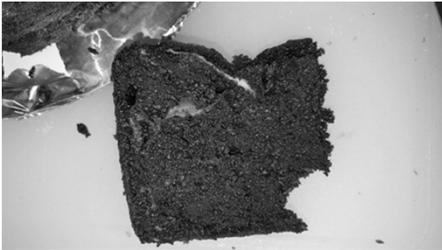
What's Wrong with this Cake?



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What's Wrong with this Cake?



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What's Wrong with this Cake?



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Shortened Cakes

- Creaming method
 - Gives light, well-aerated texture
 - Beat butter and sugar until light and fluffy
 - Add eggs, one at a time, beat well
 - Alternate dry and liquid ingredients
 - Alternating ensures even blending
 - Don't over mix



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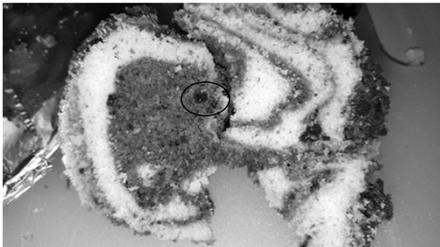
Shaping Layer Cakes

- Measure ingredients properly
 - Spoon ingredients into measuring cups
 - Level with a knife
- Sift or stir the flour, it compacts over time
- Grease pan thoroughly
 - Line bottoms with wax or parchment paper
- Weigh the pans of batter
 - Fill no more than 2/3 full
 - Spread batter evenly in pan



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What's Wrong with this Cake?



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What's Wrong With These Cupcakes?



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Difficult Cake for a Fair



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Let's Judge Layer Cake

Layer Cake

White cake mix prepared according to package directions
Commercial raspberry jam between layers

Frosting

- 2 cups powdered sugar
- 2 tablespoons margarine
- 2 tablespoons butter-flavor shortening
- 2 tablespoons milk
- 1/4 teaspoon clear vanilla

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| Year | Class | Year | Class |
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| 2017 | 2017 | 2017 | 2017 |
| 2016 | 2016 | 2016 | 2016 |
| 2015 | 2015 | 2015 | 2015 |
| 2014 | 2014 | 2014 | 2014 |
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Choose the ribbon!



Purple



Blue



Red



White

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Pie Crust Problems

- Soggy bottoms
 - Filling not fully thickened
 - Not baked long enough
 - Baked at too low of temperature
 - Pie pan placed on baking sheet or aluminum foil which can interfere with heat transfer
 - Crust torn and filling ran underneath crust

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Pie Crust Problems

- Crust too brown
 - Too much protein and sugar
 - Baked too long or too hot
 - Burnt spots due to uneven dough thickness
 - Use pie shield to prevent edges from browning too much
- Crust shrank
 - Dough stretched
 - Too much gluten formation
 - Too much water added
 - Dough overworked



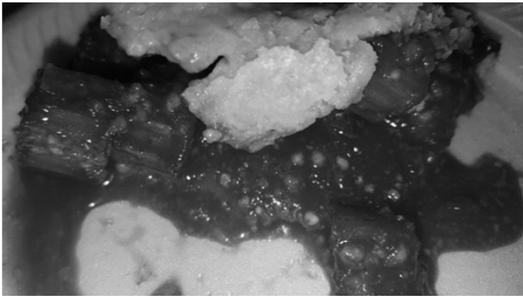
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Fruit Fillings

- Balance between fruit, juice, sweetener, and thickener
- Use fresh, frozen, cooked, canned or rehydrated dried fruit
- Starch thickener typically used
 - Cornstarch – makes firm gel
 - Clear Jel – waxy maize or modified starch, makes soft paste
 - Tapioca
- Flour makes a cloudy gel, breaks down



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Let's Judge Pie

Fresh Cherry Pie

Filling

- 3 1/2 cups fresh sour cherries
- 3/4 cup sugar
- 3 tablespoons cornstarch
- 1/2 teaspoon salt
- 1/4 teaspoon almond extract
- 2-3 drops red food coloring

Crust

- 2 cups flour
- 10 tablespoons white solid shortening
- 2 tablespoons butter-flavor solid shortening
- 1/2 teaspoon salt
- 1/2 cup cold water whisked with 1 tablespoon oil (use just enough to moisten flour mixture; will not need all of this)

| Category | Item | Quantity | Unit | |
|------------|----------------|--------------------------------|-------------|-------------|
| Filling | Sour cherries | 3 1/2 | cups | |
| | Sugar | 3/4 | cup | |
| | Cornstarch | 3 | tablespoons | |
| | Salt | 1/2 | teaspoon | |
| | Almond extract | 1/4 | teaspoon | |
| | Food coloring | 2-3 | drops | |
| | Crust | Flour | 2 | cups |
| | | White solid shortening | 10 | tablespoons |
| | | Butter-flavor solid shortening | 2 | tablespoons |
| | | Salt | 1/2 | teaspoon |
| Cold water | | 1/2 | cup | |

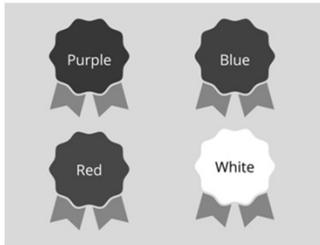


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Choose the ribbon!



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NEXT SESSION

April 25, 7:00 pm- How to Judge Food: Food Preservation

See you then!

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April 2023

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