

# Foods Project for 4-H Clubs

## 4-H BAKE BOOK



Circular 392

**UNIVERSITY OF KENTUCKY**  
**COLLEGE OF AGRICULTURE AND HOME ECONOMICS**  
**AGRICULTURAL EXTENSION SERVICE**

THOMAS P. COOPER, *Dean and Director*

## FOODS PROJECTS FOR 4-H GIRLS

The following six foods projects are available to 4-H Club girls:

- Breakfast
- Supper or Luncheon
- Dinner
- School Lunch
- The 4-H Member Entertains
- 4-H Bake Book

Only one project should be undertaken within any one year of 4-H club work. A girl beginning 4-H club foods work should start with "Breakfast" and the following year take "Supper or Luncheon." After having finished these two units she may choose the following three projects in the order desired. "Dinner," "School Lunch," and "The 4-H Club Member Entertains." The "4-H Bake Book" should be the last food project taken.

All girls should keep complete records of foods work, including the project requirements and the "extras" done at home. At the completion of a series of food projects the records may prove of great value in competing for county, state and national awards.

The work of the 4-H Foods Projects is planned to do at least five things:

- Give knowledge of wholesome foods, their preparation and combination
- To interest girls in sharing the responsibility of preparing foods for themselves and their families
- Improve health habits
- Promote a varied, well-balanced diet
- Teach correct table service and table manners

ABBREVIATIONS	AND THEIR	EQUIVALENTS
T .....	tablespoon .....	3 t
t .....	teaspoon .....	
c .....	cup .....	16 T
oz .....	ounce .....	2 T
lb .....	pound .....	16 oz.
g .....	gill .....	1/2 c
pt .....	pint .....	2 c
qt .....	quart .....	2 pt
gal .....	gallon .....	4 qt



## Foods Project for 4-H Clubs

By EDITH LACY, RUTH LATIMER, and ANITA BURNAM DAVIS

The 4-H Bake Book, a review of the food projects already done, is planned to give you additional practice in cooking. As you do these assignments get rid of the "luck" in baking; know why you fail or succeed.

Shortage of materials, due to food rationing or some other cause, may make it impossible to carry out all 8 assignments. If this happens, use several times a recipe for which you have all the ingredients.

### Demonstration I. ARRANGEMENT OF KITCHEN AND MEASURING INGREDIENTS

#### Study

1. Arrangement of kitchen furniture, kitchen equipment, and supplies for convenience and efficiency
2. Correct height for working surface
3. Relations of accurate measurements to the finished product

#### Things to do

1. Collect well-arranged floor plans. If changes are needed in your kitchen, make as many of the needed changes as you can.
2. Measure flour, sugar, and fats accurately.
3. Check the height of the working surfaces in your home. If you find they are not the correct height, adjust them.

**Make the kitchen convenient.**— Equipment should be arranged so that preparing food and washing and storing dishes and utensils can be done easily and quickly. Refrigerator, cupboard (for staple food and utensils), work table, and stove, when grouped in this order, save steps. In washing and storing dishes the following arrangement is convenient: a drainboard or table on the right-hand side of the sink for scraping and holding unwashed dishes; a drainboard on the left for draining washed dishes, and the cupboard to the left of sink for storing dishes. Utensils should be placed in or near the unit of furniture where most used. If there is not enough storage space additional shelves or cupboards, or both should be provided, arranging them for convenience and efficiency.

No one likes to do work that makes the back ache. Tables, sink, and stove should therefore be just suited to the height of the worker. To find the correct working height of a table, stand straight, hold the arm close to the body and extend the hand. Measure the distance from the floor to the palm of the hand. This is your correct table height.

**Measure ingredients accurately.**— Until a person has had long practice in cooking it is most necessary to measure all ingredients accurately. Make all measurements level. Here are some suggestions to help you measure different kinds of materials accurately.

- Liquids**.....Using a liquid measuring cup, make full measurements, emptying contents completely.
- Fats**.....Pack well to avoid air space. Allow fat to become just soft enough so it will pack. Level off spoon or cup used in measuring.
- Flour**.....Sift flour in small portions, not more than 2 cups at a time. Fill cup with a tablespoon, dipping gently and putting flour lightly into the cup. Level top of cup with the edge of a knife or spatula.
- Granulated Sugar**.....Measure by the same method used for flour. It is not necessary to sift unless sugar is lumpy.
- Confectioner's Sugar**....Roll, sift, and measure. Put lightly into cup.
- Brown Sugar**.....Roll, and pack solidly into cup.

## Demonstration II. QUICK BREADS

### Popovers, Griddle Cakes, Waffles and Muffins

#### Study

1. Proportions of ingredients for pour and drop batters
2. Leavening agents
3. Methods for mixing griddle cakes, waffles, popovers, and muffins
4. Time saving arrangements of utensils and supplies

#### Things to make

1. Popovers
2. Griddle cakes or waffles
3. Muffins and their variations

#### What the Different Ingredients Do

**Flour** forms the framework of all baked products. Flours most widely used are made from wheat and contain proteins that combine in the presence of moisture to form gluten, which gives to batters and doughs a texture and character unlike any other bread mixture. General-purpose flours are used for most breads, while a more refined and starchy flour is often preferred for cakes.

**Shortening** makes a product tender, and adds richness and flavor. The use of too much shortening tends to decrease the volume of the product and make it heavy. Creaming the shortening increases lightness because the creaming process provides a means of entangling air in the mixture.

**Sugar** adds flavor and helps make products brown.



Liquid (water or milk) causes starch grains to swell and thus helps make the framework of the baked product.

Eggs add flavor and protein to the framework and, if they are beaten, increase its volume and tenderness.

### Leavening Agents

A leavening agent is a substance which produces bubbles of gas in a batter or dough, thus making it porous or light. Eggs, steam, soda and sour milk, and baking powder are all leavening agents.

Eggs when beaten entangle air, and thus the real leavening agent is air. Care should be taken not to lose the air when mixing the beaten egg with other ingredients.

Steam is most effective as a leavening agent in thin batters, such as popovers or cream puffs.

Soda, when added to sour milk or sour cream, gives off carbon dioxide which acts as leavening for quick breads. Usually  $\frac{1}{2}$  teaspoon of soda is used for each cup of sour milk. The amount varies according to the acidity of the milk. When very little soda is used, baking powder or eggs may be needed for further leavening.

Baking powder is made up of baking soda, an acid, and starch. The label on the can will indicate what acid is used in the powder. There are three general types of baking powder on the market: They are tartrate, phosphate, and sulphate phosphate. The first two types react very quickly when mixed with liquid and liberate much gas in the batter or dough before heating. Consequently, different amounts of each type of baking powder are required in any recipe. The following rule may be used:

Allow  $1\frac{1}{2}$  to 2 t tartrate or phosphate powder to 1 c flour for mixture without eggs.

Allow 1 to  $1\frac{1}{2}$  t sulphate phosphate or alum phosphate to 1 c flour for mixtures without eggs.

If beaten eggs are used, less baking powder is required. No satisfactory rule is available for reduction of baking powder when eggs are used. More baking powder may be needed in recipes calling for heavy materials such as whole wheat flour.

### Oven Temperatures

A convenient classification for oven temperatures is slow, moderate, hot or quick, and very hot. They may be indicated somewhat as follows:

Slow 250° - 350° F  
Moderate 350° - 400° F

Hot or quick 400° - 450° F  
Very hot 450° - 500° F

These temperatures are for a gas oven. Reduce them somewhat for a coal range. If there is no thermometer on your oven, the best way to determine its temperature is to note the length of time required to brown flour. Place a half teaspoon of flour on a piece of paper as near the center of the oven as possible. Close the door. In 5 minutes open the door and note the color of the flour. If flour is straw color, the temperature is slow; if the flour is light brown, the temperature is moderate; if the flour is golden brown, the temperature is hot; if it is dark brown, the temperature is very hot.

#### POPOVERS

2 eggs, well beaten	1 c sifted flour
1 c milk	½ t salt
1 T butter or other fat, melted	

Combine the beaten eggs, milk, and melted fat. Gradually add the dry ingredients. Beat hard with an egg-beater until smooth. Pour into hot, greased baking cups (preferably glass, earthenware, iron, or enamelware) until the cups are not more than half full of batter. Bake at once for 30 minutes in a hot oven (450° F). Reduce the temperature to moderate (350° F) and bake for 15 minutes longer. Good popovers are crisp and evenly browned, have hollow centers and are not too moist. This recipe makes 8 to 12 popovers.

#### SOUR MILK GRIDDLECAKES

1 c sifted flour	1 egg, beaten
½ t salt	¾ c thick sour milk
⅓-½ t soda (depending on acidity of milk)	1 T fat, melted

Sift the dry ingredients together. Combine the beaten egg, milk, and melted fat. Gradually add the dry ingredients, stirring only until the batter is smooth. Bake the cakes on a hot griddle. When batter has risen and is full of bubbles, turn. Serve at once.

#### WAFFLES

1½ c sifted flour	2 eggs
2 t baking powder	1 c milk
½ t salt	3 T fat, melted
1 T sugar	

Combine the ingredients as for griddlecakes, except the egg whites. Fold the beaten egg whites into the batter after all the other ingredients have been mixed. Bake in a waffle iron hot enough to brown the waffle quickly.

#### MUFFINS

2 c sifted flour	1 egg, beaten
3 t baking powder	1¼ c milk
1 t salt	3 T melted fat
2 T sugar	

Sift dry ingredients together and to them add the combined liquid ingredients. The shortening is usually melted and added with the



liquid ingredients. Mix only until all the dry ingredients are moistened, but not until the batter is smooth. Over-beating causes tunnels in the muffins. Place batter lightly into greased pans as soon as mixed. Bake in a fairly hot oven (400°F to 425°F).

The muffin recipe may be varied as follows: 1 cup of whole-wheat flour may be substituted for 1 cup of white flour; 1 cup of fine rolled oats for 1 cup of the white flour; 1/2 cup of chopped nuts or dried fruit, or 1/4 cup of bits of crisp bacon, may be mixed with the dry ingredients of the muffin batter; 1/3 cup of peanut butter or 1/3 cup of grated cheese may replace the fat to make peanut-butter or cheese muffins.

### Demonstration III. QUICK BREADS (Biscuits and Pastry)

#### Study

1. Methods for mixing biscuits and pastry
2. Characteristics of good biscuits and pastry
3. Variations of biscuit dough

#### Things to make

1. Biscuits
2. Variations of biscuit dough such as shortcakes and quick rolls
3. Pie crust and a fruit pie

#### BISCUIT

2 c flour	1 t salt
1/2 t soda	3-4 T shortening
1 1/2 t baking powder	1 scant c buttermilk

Sift flour, soda (or baking powder), and salt together. Add shortening, cutting in with a knife or pastry blender. Add milk all at one time to make a soft dough. Turn out lightly on board. Knead lightly; roll out 1/2 inch thick; cut; bake on ungreased pan in hot oven (450° F) 10 to 12 minutes. Yield 18 biscuits, 2 inches in diameter.

Drop biscuits are made from a dough too soft to be rolled. They have a rough rounded upper crust and are tender and crisp.

#### SCORE CARD FOR BISCUITS AND MUFFINS

	<i>Score</i>
GENERAL APPEARANCE .....	15
Size—uniform, standard (about 2 inches in diameter)	
Shape—uniform, typical for biscuit or muffin	
Color—even, golden brown	
CRUST—crisp, tender .....	5
FLAVOR .....	40
No taint of rancid fat or impure ingredients; right amount of salt	
CRUMB .....	40
Lightness—light, but not coarse grained	
Moisture—neither soggy nor crumbly	
Texture and grain—biscuit even and fine grained, tender, flaky; muffins tender, rather coarse	
Color—natural, no streaks	
Total .....	<u>100</u>

## INDIVIDUAL CHICKEN SHORT CAKES

2 T butter	$\frac{3}{4}$ t salt
1 green pepper, diced	$\frac{1}{4}$ t pepper
1 c diced celery (optional)	2 c chicken stock or milk
3 T flour	3 c cooked chicken

Melt butter in pan. Add green pepper and celery. Cook gently for 10 minutes, stirring occasionally. Add flour, stirring to keep smooth. Then add chicken stock or milk, stirring constantly. Season, and add chicken meat. Let simmer for a few minutes. Serve this chicken mixture on biscuits made as follows:

Roll out plain biscuit dough  $\frac{1}{4}$  inch thick. Cut in uniform rounds, using large cookie cutter. Place on ungreased baking sheet, prick with fork and bake in hot oven (450° F) 8 to 10 minutes. Place 1 biscuit on plate, cover with chicken mixture; then another round of biscuit and more chicken. Yield, 8 servings.

## Making Pastries

Pastry is a stiff dough made from flour, water, salt, and shortening. The following stiff doughs are used for pie crust, tarts, and patty shells.

**Plain paste**, used largely for pies, has the fat worked into the flour by the tips of the fingers or by chopping. There is also a hot-water pastry which comes under this heading.

**Puff paste** is used for top crusts of pies, for tarts, and patty shells. The fat is worked in by rolling and folding.

## PLAIN PASTRY (for two crusts)

$1\frac{1}{2}$ c sifted flour	$\frac{1}{2}$ c shortening
1 t salt	4-5 T cold water

All materials cold

Mix the flour and shortening just enough to divide the shortening into small particles and to coat them with flour. Use a knife or a pastry blender for this purpose. Add water slowly, using just the right amount. Too much water makes a dough difficult to handle and the crust tough. Handle the dough as little and lightly as possible. Divide the dough in 2 equal parts. Place 1 portion on floured board and pat flat. Make portion thinner by rolling from center toward the edges. Fold in half and fit into pie pan. This bottom crust should be about  $2\frac{1}{2}$  inches larger than the top of the pan. Bake pie shell in a very hot oven (450° F) from 12 to 15 minutes, until golden brown. The temperatures at which filled pies are baked vary with the filling. As a rule, filled pies are placed in a hot oven for the first few minutes, then the temperature is reduced to that best suited to the filling.



Pastry baked at the right temperature has good shape, uniform color, and small regular blisters. If baked at too hot a temperature it has a burned crust; at too low a temperature it has poor shape, shrinks in bottom of pan, has less flaky appearance, and pale color.

## SCORE CARD FOR PIE

	<i>Score</i>
APPEARANCE—color, thickness .....	10
CRUST .....	60
Tenderness, 20; Lightness, 10; Flakiness, 10; Flavor, 20.	
FILLING .....	30
Flavor, 20; Consistency, 10.	
Total .....	100

## Demonstration IV. YEAST BREADS

## (White and Whole Wheat)

## Study

1. Materials used in making yeast breads
2. Common faults found in yeast breads
3. Score card for yeast breads

## Things to do

1. Make a loaf of white bread and one of whole wheat.
2. Score loaves made.
3. Check cost of bread made.

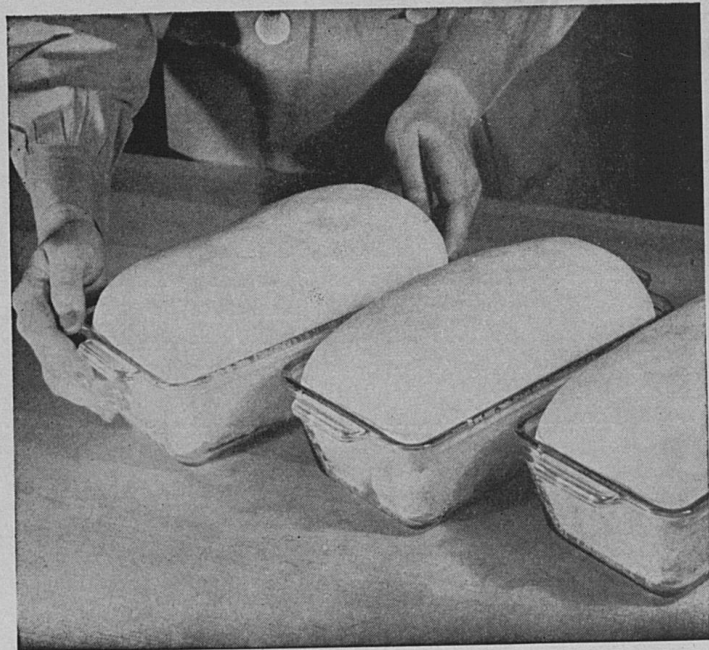
## Materials to Use

**Liquid.**—Use water, potato water, or milk for the liquid; scald and cool it to lukewarm before mixing with the yeast. Water breads rise quickly, produce a fairly large loaf, and dry out quickly. Potato-water breads rise quickly and produce a large moist loaf, inclined to be dark. Sweet milk breads rise slowly; make a smaller loaf with a brown crust; have a good flavor and added nutritive value.

**Yeast** is the leavening agent; all bread dough must be kept at temperature favorable to its development (80°-85° F). Dry and compressed yeasts are the kinds commonly used in home baking. Dry yeast is slower in action than compressed yeast but keeps longer. Compressed yeast is better for quick-process bread baking.

**Sugar** provides quick food for the yeast, adds flavor, and helps the bread brown during baking.

**Flour.**—Use soft, all-purpose, or hard-wheat flour. All Kentucky milled flour is soft-wheat flour. Soft-wheat dough should be made as soft as can be handled and kneaded lightly, only enough to make a smooth dough.



Ready for baking

Salt adds flavor and helps to regulate growth of the yeast.

Shortening improves the keeping quality, makes for tenderness, and increases volume of the bread.

### Making Yeast Breads

There are two methods for making yeast breads, the straight dough method and the sponge method. In the straight dough method all the ingredients are combined and kneaded, and the dough set in a warm place (80°-85° F) to rise.

In the sponge method, the liquid and yeast are combined and only enough flour added to make a thick batter. This batter is then set in a warm place to become bubbly and light, whereupon the sugar, salt, shortening, and more flour are added to make a dough that can be kneaded. When this dough has risen it is handled like straight dough. The sponge process is used most often with dry yeast cakes.

Bread making consists of six steps: mixing, kneading, rising or fermentation, shaping or molding, rising, baking.

#### BREAD (Straight Dough Method)

2 c milk  
 1/4 c sugar  
 4 t salt  
 2 T shortening

1 cake yeast (compressed)  
 1/4 c lukewarm water  
 12 c sifted flour (about)  
 2 c water



Scald milk. Add sugar, salt, shortening, and water. Cool to lukewarm. Add yeast which has been softened in  $\frac{1}{4}$  cup lukewarm water. Add flour gradually, mixing it in thoroughly. When dough is stiff, turn out on lightly floured board and knead until smooth and satiny. Shape into smooth ball. Place in greased bowl. Cover and let rise in warm place until doubled in bulk. When light divide into 4 equal portions. Round up each portion into a small ball. Cover well and let rest 10 to 15 minutes. Mold into loaves. Place in greased bread pans. Let rise until doubled in bulk. Bake in moderately hot oven ( $400^{\circ}$  to  $425^{\circ}$  F) 40 to 45 minutes. Yield, 4 1-pound loaves.

## BREAD (Sponge Method)

1 cake dry yeast	4 c sifted flour (about)
2 c lukewarm water	

Crumble yeast into water and let stand 20 to 30 minutes. Add flour to form a thick batter, beating until smooth. Cover, and let rise in a warm place ( $78^{\circ}$  F) overnight, or until very bubbly, and a little more than doubled in bulk.

Prepare dough by the following recipe:

2 c milk	8 c sifted flour (about)
4 t salt	$\frac{1}{4}$ c sugar
2 T shortening	

Stir down risen sponge. Scald milk; add salt, sugar, and shortening. Cool to lukewarm and add to sponge. Add flour gradually, mixing thoroughly. When dough is moderately stiff, turn out on lightly floured board and knead until smooth and satiny. Place in lightly greased bowl, cover and let rise in warm place until doubled in bulk. Punch down and let rise again. Divide into 4 portions, round each into a ball, cover, and let rest for 10 minutes. Mold into loaves. Place in greased pans. Let rise until doubled in bulk. Bake in moderately hot oven ( $400^{\circ}$  to  $425^{\circ}$  F) 40 to 45 minutes. Yield, 4 1-pound loaves.

## WHOLE-WHEAT BREAD

2 c milk	1 c compressed yeast
2 T sugar	2-3 c white flour
2 T fat	2-3 c whole-wheat flour
2 t salt	

Scald the milk in a sauce pan and add sugar, fat, and salt. Cool until lukewarm. Crumble yeast and add it to the milk, stirring until the yeast is dissolved. Add flour (using  $\frac{1}{2}$  whole wheat and  $\frac{1}{2}$  white) to make as soft a dough as can be easily handled. Knead lightly; put into a greased bowl; grease over the top; cover with a clean cloth; place in a warm, moist place until doubled in bulk. (A kettle of water boiling near the bowl of dough will give enough moisture.)

When the dough has doubled in bulk, shape into loaves, place in greased baking pans, and allow to rise until doubled in bulk. Bake at a temperature of  $375^{\circ}$  to  $400^{\circ}$  F. Allow 50 to 60 minutes to

bake a loaf of average size ( $9\frac{1}{2} \times 4\frac{1}{2} \times 3\frac{1}{2}$ ). During the first 15 minutes of baking, the loaf should be turned often to insure an even shape. After the crust has set and begun to brown the temperature should be gradually lowered about 50 degrees.

Whole-grain flours absorb more moisture than white flour, and therefore, about  $\frac{1}{4}$  less flour is used with the same amount of liquid than in making white bread. Both soft whole wheat and rye doughs should be manipulated as soft as possible, and kneaded only until a smooth texture is obtained.

### Common Faults in Bread

<i>When bread is faulty in—</i>	<i>The loaf has—</i>	<i>The cause is due to—</i>
Appearance	An uneven shape	Uneven temperature in the oven; dough too stiff; improper molding; failure to turn loaf during first of baking period; too many loaves in pan.
Volume	Too much weight in proportion to size	Not light enough when put in oven; unfavorable condition of almost any kind during making; poor grade of flour; too much fat; over-kneading of soft wheat dough.
Texture	Cracked crust Bulging shape	Too rapid cooling in draft; too stiff dough; uneven heat in baking.
	Thick crust and is tough	Too slow baking; not light enough when put in oven; too much handling; too much salt.
	Has coarse grain and is crumbly	Overlight when baked; wrong temperature.
Color	Dark crumb	Kind of liquid or flour used; overlight when put in oven; wrong temperature.
	Streaks in loaf	Addition of flour when making out loaves; drying of dough on top before shaping.
Flavor	Sour taste	Poor yeast or other ingredients; rising too long; too high a temperature while rising.



## SCORE CARD FOR YEAST BREAD

	<i>Score</i>
GENERAL APPEARANCE .....	30
Shape—well proportioned, well rounded top .....	10
Crust—uniform browning (except slightly darker on top) about 1/8 inch deep, crisp, tender, smooth, free from cracks and bulges .....	10
Volume—light in weight in proportion to size .....	10
TEXTURE .....	30
Crumb—tender, elastic, free from dryness or doughiness .....	20
Grain—fine cells elongated upward, evenly distributed; cell walls thin .....	10
COLOR—natural, even, free from streaks .....	10
FLAVOR—A blend of well baked ingredients, free from undesirable flavors .....	30
Total .....	100

## Demonstration V. YEAST ROLLS

## Study

1. Different types of dough for rolls—plain, sweet, and ice-box
2. Shaping of rolls and glazes for the same

## Things to do

1. Make plain roll dough into different shapes.
2. Make ice-box rolls.
3. Judge rolls made.

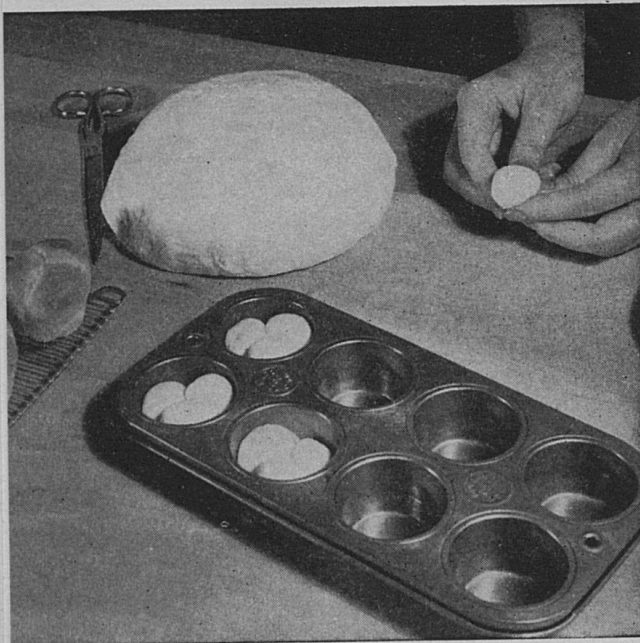
Rolls as a rule are sweeter and richer than yeast breads. Usually the dough is softer and lighter when baked. Rolls should be baked in a hotter oven than bread (400° to 450° F); when baked too slowly, they dry out. Rolls may be glazed before or during the baking.

Doughs for plain rolls, sweet rolls, and ice-box rolls are foundation doughs that may be used as a basis for making any kind of rolls. It is better, however, to use the plain dough when much sugar is added in the variation, as in butterscotch rolls or Swedish Ring. Rolls may be shaped into clover leaves, parker-house, crescents, bowknots, rosettes, and so on.

## PLAIN ROLLS

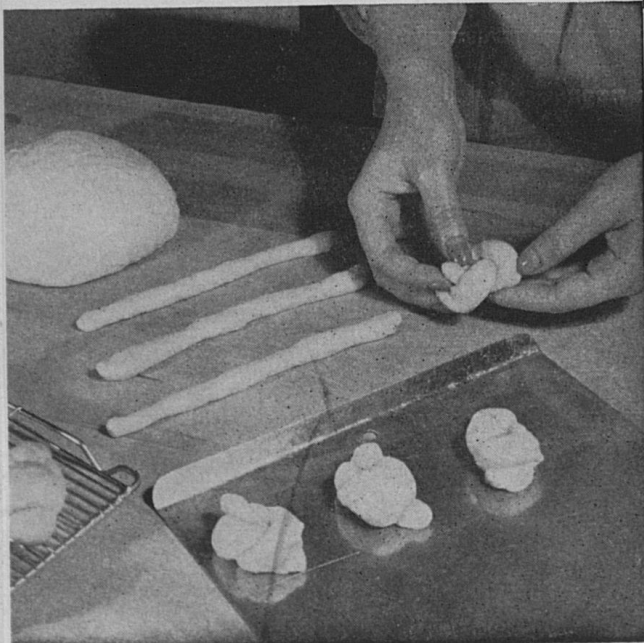
2 c milk	1 cake compressed yeast
2 T sugar	1/2 c lukewarm water
3 T fat	2 t salt
7-8 c soft-wheat flour	

Scald the milk; add sugar, salt, and fat. Allow to cool until lukewarm. Add yeast cake, dissolved in the 1/4 c water, and enough flour to make as soft a dough as can be handled. Knead lightly a few minutes to obtain a smooth surface. Place dough in a well-greased bowl, brush with melted fat, and cover with a cloth. Set the bowl in a warm place and allow the dough to rise until doubled in bulk. Shape the rolls and place on a greased pan. Set in a warm place. Allow to rise until light. Bake. Yield, 50 to 60 medium size rolls.



**CLOVERLEAF ROLLS:** Form dough into small balls. Dip each into melted butter and place 2 balls in each section of a greased muffin pan.

**CRESCENTS:** Roll ball of dough into circular shape about  $\frac{1}{4}$  inch thick. Cut in pie-shaped pieces. Brush with melted butter and roll up, beginning at the wide end. Curve into crescents on greased baking sheet.



**BOWKNOTS:** Roll dough under hand to  $\frac{1}{2}$  inch thickness. Cut in pieces about 6 inches long. Tie in knots. Place on greased baking sheet.



LS: Form  
. Dip each  
and place  
of a greased



**FAN TANS:** Roll dough into very thin rectangular sheet. Brush with melted butter. Cut in strips about 1 inch wide. Pile 6 or 7 strips together. Cut pieces  $1\frac{1}{2}$  inches long and place on end in greased muffin pans.

**BUTTERFLIES:** Roll dough into rectangular sheet  $\frac{1}{4}$  inch thick and 6 inches wide. Brush with melted butter. Roll up jelly-roll fashion. Cut into pieces 2 inches long. Press across center of each piece with knife handle or small rolling pin.



dough  
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about 6  
n knots.  
ng sheet.



**ROSETTES:** Follow directions for Bowknots. After tying, bring one end through center and the other over the side.

## SWEET ROLLS

2 c milk	1 cake compressed yeast
3 T sugar	1/4 c lukewarm water
3 T fat	2 t salt
2 eggs	7-8 c soft-wheat flour

Scald the milk, add sugar, salt, and fat. Allow to cool until lukewarm. Add yeast, dissolved in lukewarm water, and about half of the flour. Beat the egg well and add to mixture. Add enough more flour to make as soft a dough as can be handled. Place in a well-greased bowl, cover with a cloth, and set in a warm place until the dough has doubled in bulk. Shape rolls and place on a greased pan. Set in a warm place. Allow to rise until light. Bake. Yield, 50 to 60 medium size rolls.

## ICE-BOX ROLLS

2 c milk, or 2 c boiling water	1 cake compressed yeast
1/2 c sugar	1/4 c lukewarm water
4 T fat	2 t salt
2 eggs	7-8 c soft-wheat flour

Mix according to directions for sweet-roll dough, place in a greased bowl in a refrigerator until ready to use. Shape rolls, place on a greased pan, set in a warm place. Allow to rise until light. Bake. Yield, 50 to 60 medium size rolls.

## Glazes for Rolls

*Milk glaze.*— Mix 1 T sugar and 1/2 c milk. Brush rolls with this mixture when they are about half baked. Brush again just before taking the rolls from the oven.

*Butter glaze.*— Brush rolls with melted butter before baking and when removing from the oven.

*Egg glaze.*— Dilute 1 slightly beaten egg white or whole egg with 1 T of milk. Brush rolls with mixture a few minutes before removing from the oven.

*Sugar glaze.*— Moisten powdered sugar with milk or cream. Brush rolls with mixture when they are nearly cool.

*Apricot glaze.*— Cook together 1 c apricot pulp and 1/2 c sugar to the consistency of a thick sirup. Brush rolls with the mixture just before removing them from the oven.



## Demonstration VI. BUTTER CAKES

### Study

1. Ingredients
2. Preparation; and methods of mixing; time for baking
3. Characteristics of a good butter cake
4. Scoring butter cakes

### What to make

1. Standard butter cake
2. Variations using part of the same batter
3. Butter cake using a sugar substitute

### Selecting the Ingredients

You have on your farm the chief ingredients of a good cake—butter, eggs, and milk. Other fats may be used besides butter; however, butter gives the best flavor. If sugar is a problem, use a substitute. The better the ingredients you use the better the cake. Stale eggs and strong fat give an objectionable flavor. Coarse-grained sugar gives a coarse texture and a hard crust. Pastry flour is more desirable than ordinary flour for making cakes, but if you do not have it substitute 2 T cornstarch for an equal amount of flour or decrease very slightly the amount of flour used. Sour milk makes a thicker batter than sweet milk. Fruit mixtures should be stiffer than plain mixtures to keep the fruit from settling to the bottom during baking.

### Preparation for Baking

Measure all ingredients; first the dry ones, then the fat, and last the liquid. Add baking powder to the last cup of flour. Sift flour 3 times. Oil the pans; then flour them if a smooth surface is desired. Oiled paper may be used instead. Pre-heat the oven so it will be at the desired temperature when the cake is mixed.

First cream the fat. Add the sugar gradually and cream with the fat until the sugar is dissolved. If the sugar is coarse and hard to dissolve, add 1 to 2 T of flour and an equal amount of milk. Continue to cream until sugar is dissolved. If eggs are separated, the yolk is added to the sugar and butter mixture; the white is beaten until stiff but not dry, then folded into the batter after all other ingredients have been added. Add the flavoring to the liquid. Add liquid alternately with the flour mixture. Combine with a beating motion.

### Baking the Cake

A cup or layer cake of average size should bake in an oven of moderate temperature for 20 to 30 minutes. Loaf cakes require a slower oven; an average size loaf cake should bake in about 1 hour. Place the pan as near the center of the oven as possible to assure

even baking. The oven door may be opened and closed without causing a cake to fall. When done, the cake will break away from the sides of the pan. A clean toothpick may be inserted into the center of the cake; if it comes out clean the cake is done. Remove the cake from the pan at once. To do this loosen the edges with a spatula or knife and turn the cake upside down on a wire rack to cool.

## STANDARD OR PLAIN BUTTER CAKE

$\frac{1}{2}$ c fat	$1\frac{3}{4}$ c flour
1 c sugar	$2\frac{1}{2}$ t baking powder
$\frac{2}{2}$ eggs	Pinch of salt
$\frac{2}{3}$ c milk	1 t flavoring

Corn sirup may be substituted for part or all of the sugar. If  $\frac{1}{2}$  c corn sirup is used and  $\frac{1}{2}$  cup sugar, reduce the milk 3 T. If 1 c corn syrup is used reduce milk to about  $\frac{1}{2}$  c. Follow method given for mixing and baking. Bake in one loaf, or in layers, or in muffin rings. For spice cake add  $\frac{1}{2}$  t cinnamon,  $\frac{1}{4}$  t cloves and  $\frac{1}{4}$  t nutmeg to the standard recipe. For nut cake add  $\frac{1}{2}$  c chopped nuts to the recipe for standard cake.

## WHITE CAKE

4 egg whites	2 c flour
1 c sugar	$\frac{1}{2}$ c butter
$\frac{1}{2}$ c milk	$\frac{2}{2}$ t baking powder
Pinch of salt	1 t flavoring

Follow directions for mixing and baking. Bake in layers.

## DEVILS'-FOOD CAKE

$1\frac{1}{2}$ c flour	1 c sugar
$1\frac{1}{2}$ t baking powder	2 eggs, well beaten
$\frac{1}{4}$ t salt	$\frac{1}{3}$ c boiling water
$\frac{1}{2}$ c sour milk	2 squares unsweetened chocolate
1 t soda	1 t vanilla
4 T butter	

Cream butter, add sugar, beat until creamy. Add eggs and beat vigorously. Add milk and flour alternately. Pour boiling water over melted chocolate and mix quickly. Add soda to chocolate and stir until thick. Cool and add to cake mixture. Add vanilla. Bake in oven of moderate temperature (350° F).

## Common Difficulties with Butter Cakes, and Their Causes

<i>Difficulty</i>	<i>Cause</i>
Cracks on top.....	Too stiff a batter; too hot an oven at first.
Peaks in center.....	Too stiff a batter; too hot an oven at first; too much mixing.
Hollow in center.....	Too much fat or sugar; too slow an oven; too much leavening.
Tough crust or crumb.	Too little fat or sugar; too much flour; too much mixing.
Sticky crust.....	Too much sugar; insufficient baking.



- Sugary crust..... Too much sugar; too much leavening.
- Sogginess ..... Steaming during cooling; wrong proportion liquid to flour.
- Bitter flavor..... Too much baking powder.
- Heaviness ..... Not enough leavening; too much mixing; too much fat; insufficient baking.
- Overlight and crumbly. Too much leavening.
- Coarse texture ..... Too much leavening; insufficient creaming of fat and sugar; use of liquid fat.
- Dryness ..... Not enough fat or liquid; egg whites over-beaten; over baking.

SCORE CARD FOR BUTTER CAKES

	<i>Score</i>
GENERAL APPEARANCE .....	10
Shape—uniform with flat or only slightly rounded top, free from cracks	
Size	
Color—light-colored cakes a uniform golden brown on top, sides, and bottom	
CRUST—smooth and tender .....	10
FLAVOR—wholesome, sweet, no taste of impure ingredients .....	40
CRUMB .....	40
Grain and texture tender, fine and even	
Moisture—neither soggy nor crumbly	
Lightness—no heavy streaks	
Color—uniformity of color	
Total .....	100

Demonstration VII. SPONGE CAKES

Study

1. Ingredients
2. Preparation and mixing
3. Characteristics of a good sponge cake
4. Scoring a sponge cake

What to make

1. A yellow sponge cake
2. An angel food cake

Ingredients

**Selection.**— All cakes made without fats are called sponge cakes whether yellow or white. The ingredients should be of good quality. Use fresh eggs, fresh cream of tartar or baking powder, fine grained sugar and a good quality of flour. If the eggs are not fresh they will not beat well and a poor cake will be the result. Eggs will beat to greater volume if taken out of the refrigerator long enough before using, for them to reach room temperature (70° to 75° F).

**Preparation and mixing.**— Assemble the utensils. Measure all ingredients. Separate the whites from the yolks of the eggs. Sift the

flour with the salt at least 3 times. Also sift the sugar. Beat egg yolks until thick and lemon colored. Add the sugar gradually, beating constantly. Add flavoring. Fold in egg whites beaten stiff but not dry. Cut and fold in flour and salt. Do not stir or beat after the flour is added. Use ungreased pans.

Sponge and angel-food cakes are leavened by air beaten into the egg whites. If this air is lost the cakes will be compact and heavy. Therefore, it is necessary to *fold* the egg whites into the cake mixture. If the whites are not well mixed with the other ingredients the cake will be coarse in texture. If the cutting and folding motion is gently done with the wire egg whip, there is not much likelihood of over-mixing. Rough handling for even a short time will ruin the cake.

**Time of baking.**—The oven should be barely warm when the cake goes in and should be slow throughout the baking. White sponge cakes (Angel Food) require a slightly hotter oven than yellow ones. Allow about 1 hour for the sponge cake to bake. Remove from pan after cake is cool.

#### SPONGE CAKE

6 egg yolks	1 c flour
1 c sugar	¼ t salt
1 t lemon juice or rind	

Follow directions for mixing sponge cake. Bake in slow oven (300° to 325° F) for 1 hour.

#### ANGEL FOOD

1 c egg whites	¼ t salt
1 c sugar	1 t vanilla
1 c flour	1 t cream of tartar

Beat egg whites until foamy. Add cream of tartar, and continue beating until just stiff enough to hold up in peaks. Add ½ of the sugar, mix, then the remaining sugar. Fold in flour that has been sifted at least 3 times. Continue as directed for mixing sponge cake.

#### Common Difficulties with Sponge Cakes, and Their Causes

<i>Difficulty</i>	<i>Cause</i>
Thick, hard crust	Too hot an oven at first; too long baking.
Sticky crust . . . . .	Too much sugar; damp flour; insufficient baking.
Cracked crust . . . . .	Too stiff a mixture; over-beaten eggs; too hot an oven.
Tough crumb . . . . .	Too high a baking temperature; too much mixing.
Coarse crumb . . . . .	Under-beaten eggs; too little mixing; too hot an oven; inferior flour; wrong proportions.
Dryness . . . . .	Over-beaten egg whites; too much flour; too little sugar; over-baked; too slow a baking temperature.
Heaviness . . . . .	Loss of air in mixing; omitting cream of tartar.
Shrinkage . . . . .	Too low a baking temperature; too little cream of tartar; insufficient baking.



## SCORE CARD FOR SPONGE CAKE

	<i>Score</i>
<b>GENERAL APPEARANCE</b> .....	15
Size—medium size most acceptable	
Shape—preferably baked in angel food pan	
Color—even, delicate brown	
<b>CRUST</b> .....	5
Rough, slightly sugary, medium thickness, tender	
<b>FLAVOR</b> .....	40
Delicate, wholesome flavor	
<b>CRUMB</b> .....	40
Texture and grain—soft, velvety tender, fine and even grained, flaky when torn apart	
Moisture—neither soggy or crumby	
Elasticity—springs back when pressed with finger	
Lightness—very light, equally light throughout	
Color—uniformity of color	
<b>Total</b> .....	100

## Demonstration VIII. COOKIES

## Study

1. Methods for making drop and rolled cookies
2. Sugar substitutes to use
3. Cookies for every occasion

## What to make

1. Drop cookies
2. Rolled cookies

## CRISP COOKIES

1 c fat	4 c sifted soft-wheat flour
2 t flavoring	4 t baking powder
2 c sugar	½ t salt
2 eggs	¼ c milk, or less

Mix the ingredients as for foundation cake. Form the dough into a roll in waxed paper and chill thoroughly. Cut off thin slices from the roll and bake. For rolled cookies cut off pieces of dough, roll on a lightly floured board to about ¼ inch in thickness. Cut into any desired shape and bake the cookies on a greased baking sheet in a moderately hot oven (375° to 400° F) for about 10 minutes.

In making rolled cookies work with as soft a dough as can be handled, as too much flour makes the product dry and hard. Chilling the dough makes it possible to handle a very soft dough. Roll only a small amount of dough at a time and handle as lightly as possible, on a slightly floured board. Cutters should be floured as used. The beginner may find that rolling the dough between layers of waxed paper is an excellent method. Remove cookies from board to pan with a flexible spatula. All trimmings should be combined for the last rolling, as they make less desirable cookies.

Cookies containing chocolate, molasses, or a large amount of fruit should be baked in a moderately hot oven as they burn easily.

#### PLAIN DROP COOKIES

1/2 c fat	2 1/4 c sifted flour
1 c sorghum, cane, corn, or maple syrup	2 t baking powder
1 egg, beaten	1/2 t salt
	1 t flavoring

Cream the fat, add the sirup mixed with the beaten egg, and beat well. Add the sifted dry ingredients and flavoring. Drop by teaspoonfuls onto a greased baking sheet, allowing room for the cookies to spread. Bake to a golden brown in moderately hot oven (375° to 400° F). Remove from sheet while hot. Yield, about 60 cookies.

#### OATMEAL COOKIES

1/2 c fat	1/4 c milk
1 c sorghum, cane, corn, or maple syrup	1 1/2 c ground oatmeal or rolled oats
1 egg, beaten	1/2 c chopped nuts
1 1/2 c sifted flour	1 c seedless raisins or dried fruit
2 t baking powder	

Cream the fat and add the sirup with the beaten egg. Sift together the dry ingredients, except the ground oatmeal, and add with the milk to the first mixture. Add the ground oatmeal, nuts, and raisins. Mix well. Drop by spoonfuls onto a greased baking pan.

#### SCORE CARD FOR COOKIES

	<i>Score</i>
EXTERNAL CHARACTERISTICS .....	30
Shape—regular, even .....	15
Crust—color uniform, characteristic of the kind .....	15
INTERNAL CHARACTERISTICS .....	40
Texture .....	20
Thin cookies—crisp, tender	
Drop cookies—soft, tender	
Grain—even cells .....	10
Color—characteristic of the kind .....	10
FLAVOR .....	30
Blended flavor of well-baked ingredients, characteristic of the kind, free from excessive flavor of spices, flavoring, or molasses or other sweetening .....	30
Total .....	100



fruit

beat  
7 tea-  
cookies  
5° to  
es.

d fruit

gether  
h the  
raisins.

*(Project record on back page)*

Score

. 30

. 40

. 30

—  
. 100

## 4-H BAKE BOOK RECORD

_____		_____
<i>Name</i>		<i>Age</i>
_____		194_____
<i>County</i>		<i>Date</i>
_____		_____
<i>Post Office</i>		<i>R. F. D.</i>

I have been in 4-H Club work\_\_\_\_\_years. In 4-H Foods\_\_\_\_\_years.

Number of times I have baked light bread\_\_\_\_\_

Number of times I have baked rolls\_\_\_\_\_

Number of times I have baked biscuit\_\_\_\_\_

Number of times I have baked muffins\_\_\_\_\_

Number of times I have baked other breads\_\_\_\_\_

Number of cakes baked\_\_\_\_\_

Number of cookies baked\_\_\_\_\_

Number of times I have prepared a meal\_\_\_\_\_

Number cakes or breads sold\_\_\_\_\_ Amount \$\_\_\_\_\_

I have done my project without leadership\_\_\_\_\_

I have done my project with leadership\_\_\_\_\_

\_\_\_\_\_  
*Name of leader*

\_\_\_\_\_  
*Name of parent*

Approved: \_\_\_\_\_  
*County Extension Agent*

Lexington, Kentucky

October, 1943

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