

Chapter 6



Butter, Shortening, and Oil
The Fats We Bake With

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Butter, Shortening, and Oil and How We Use Them

Chapter Objectives:

In this chapter you will:

- *Learn about the fats that we use in baking and the roles that they play.*
- *Understand how to substitute butter for shortening in a recipe.*
- *Understand how butter works in a recipe.*
- *Use butter and a pastry blender to make scones.*
- *Use butter to make a cake.*
- *Use shortening to make a cake.*

Part 1: Butter, Shortening, and Oil

Overview

Flour, butter, and sugar are the three cornerstones of baking. We learned about flour in chapter one. We'll learn more about sugar in the next chapter. In this chapter, we'll learn about the fats and oils that we use in our baking, especially butter.

Nearly all recipes call for a fat—and butter is the fat most often called for. In our discussion of dairy products, we explored fats. We will extend that exploration in this chapter. For definitional purposes, fat is so labeled if it is solid at room temperature and an oil if it is liquid at room temperature. A baker is most interested in the function of a fat or oil and usually refers to both fats and oils as fats. In this book, you will find us using the same definitions.

Nearly all recipes call for fat or oil and they usually call for water or milk so the baker is trying to mix water and oil together. To meet that challenge, the baker must use proper mixing techniques. In this chapter, we'll discuss those techniques as well as the roles of flour and eggs in mixing our fats and liquids.

Finally, in this chapter you will find recipes that demonstrate the proper use of fats. We will use butter and shortening in pie crusts and cakes.

Butter

Our fat of choice is butter. While some recipes, especially cakes, rely on shortening and occasionally oil, a mastery of the use of butter is essential to great baking.

The sweet taste of butter is superior to margarine or shortening. Because it has a low melting point, butter melts in your mouth for a wonderful, luxurious mouth feel. Butter does not contain hydrogenated fats as shortening and most margarines do and that is an important health consideration for many.

The disadvantage of butter is that because of the low melting point, doughs made with butter are harder to handle. At room temperature, butter becomes soft and liquid-like and pastry doughs—unless they are kept chilled—can become soggy and tough. The cardinal rule of using butter in a pastry is to keep the dough cold so that the butter does not turn soft and liquid-like.

Composition

By USDA requirement, butter must contain at least 80% dairy fat. Of the remaining 20%, 15% is water and the rest are usually nonfat milk solids. In comparison, shortening is 100% fat and no water with some entrained air.

Salted or Unsalted

Butter can be purchased either salted or unsalted. Salt is a preservative and salted butter can be kept in the refrigerator longer. Unsalted butter has a fresher, sweeter taste and is preferred in those recipes that have a high butter content and in which butter is a dominant flavor. Salted butter has a higher percentage of water but not enough to matter except in those recipes with a high proportion of butter. If the recipe has a high proportion of butter, you may need to modify the salt in the recipe when using salted instead of unsalted butter.

Many recipes call for unsalted butter. Unless the recipe calls for quite a bit of butter, we don't specify unsalted butter. In most recipes, we find salted butter acceptable and more people are more likely to have salted butter in their refrigerator than unsalted. Of course, if you have unsalted butter available, please use it.

Working with Butter

Measure butter accurately. The best way to measure is with a scale. One-half cup (or one cube), weighs four ounces. The next best way to measure is to cut a cube in half for 1/4 cup and in half again for two tablespoons. Don't rely on the marks on the wrapper; wrappers rarely fit properly.

It's okay to melt butter in the microwave. When melting butter, cut the butter into pieces so that it will melt easily and uniformly.

Many recipes call for room temperature butter. You can bring a cube of butter to room temperature—65 degrees--by setting it on the counter for an hour. If you are like we are and don't always plan ahead, don't despair. Use the paddle attachment on your stand-type mixer to soften butter. Beat the butter at medium speed for two or three minutes. The heat caused by friction of the butter beating in the bowl will soften the butter.

When using butter in pie crusts, pastry doughs, or biscuits—any time butter is cut in with a pastry knife—temperature is a key to success and very cold butter should be used. For these recipes, use only rock hard butter--never soft—and then work quickly. Don't overwork the dough. Overworking the dough will melt the butter and ruin the dough. The butter bits should still be hard when complete. If you suspect that your flour and

butter mixture is becoming too warm, stick it back in the refrigerator before the butter melts and let it chill.

When creaming butter for cookies and cakes, temperature is still a key. If you over mix the batter, the friction will heat the butter until it begins to melt, the tiny air pockets in the batter will be lost, and the cookies will spread too quickly.

Any fat, including butter, acts as a shortening in baking because it shortens the gluten strands formed from the flour. It is shortenings that make for tender and crumbly baked products rather than chewy. Shortening makes for a finer, less open, crumb in breads.

Margarine

Margarine is hydrogenated vegetable oil to which flavors and colors have been added. It has a low water content.

To understand margarine, we need to understand hydrogenation and what it does. Fats are composed of molecules consisting of carbon, hydrogen, and oxygen atoms. Different configurations of the carbon and hydrogen atoms create saturated, polyunsaturated, and monounsaturated fats. With unsaturated fats, whether poly- or monounsaturated, the fat molecules have not been saturated with hydrogen atoms—that is, there are still carbon atoms in the molecules that have the availability to bond with hydrogen atoms. In the hydrogenation process, additional hydrogen atoms are added to unsaturated fat molecules and these hydrogen atoms connect to the carbon atoms.

By adding hydrogen, the processor converts a liquid unsaturated fat—vegetable oil—to a more fully saturated solid—margarine. Hydrogenation slows oxidation of the fat and thereby increases shelf life. (The rancidity that we taste in spoiled butter or nuts is the result of oxidation.)

Because margarine has a higher melting point than butter, it is easier to keep solid and work with in a dough. But of course, it doesn't have the flavor of butter and many of us choose to limit the amount of hydrogenated fats in our diets for health reasons.

Shortening

Shortening is another hydrogenated fat similar to margarine. It has no water and does not have the colors and flavors that are added to margarine. It has air entrained into the fat in processing to increase the volume and enhance the aeration of batters. Some shortenings have added emulsifiers. (Emulsifiers act as a boundary between water and fat molecules so that the water and fat can blend uniformly instead of curdle.) With the entrained air, the higher melting point, and in some cases—emulsifiers--shortening makes a better and more consistent fat than butter for aerating batters. For these reasons and because of the attendant long shelf life of hydrogenated products, commercial bakeries often use shortening in their products. (If the label says "hydrogenated fat" the product is likely to have a shortening-type product in its composition.)

Vegetable and Olive Oils

Although some muffin and quick bread recipes call for vegetable oil, vegetable oils are not used extensively in baking. They lack the ability to aerate as the solid fats do. Because the liquid oil migrates through the batter readily, it is a more effective agent in shortening gluten strands and making baked goods crumbly—and often too crumbly for many baked goods.

We like the taste of olive oils and use them in baking when we can. Most focaccia, ciabatta breads, and pizzas are made with olive oil.

Choosing Healthy Cooking Oils

Fats are an essential part of our diet—but some are “good” and some are “bad”. Here, we'll give you a run down on the best cooking oils and help you choose which to use.

We recommend three oils for the pantry. These, along with a little shortening (we rarely use shortening because of the hydrogenated fat), butter, and vegetable oil in aerosol cans, should meet nearly all of your cooking needs. These three oils are olive oil, peanut oil, and canola oil.

We use olive oil for Italian breads such as ciabatta and focaccia because of the distinct olive flavor. For the same reason, we use olive oil in salad dressings and marinades. It is suitable for low heat or quick cooking but changes flavor rapidly at higher heats.

Olive oil is one of the healthiest of oils. It has a high percentage of monounsaturated fat, a good fat, and a lower percentage of saturated and polyunsaturated fats than vegetable oils. Unlike oils processed from hard seeds with heat and chemicals, oils from the fruit of the olive are soft pressed and healthier.

Peanut oil is more heat tolerant than olive and some other oils and is suitable for frying. The peanut taste of the oil complements some foods well. Peanut oil is higher in monounsaturated fats than most vegetable oils.

Canola oil is neutral flavored and is suitable for frying. It is relatively high in monounsaturated fat and has some omega-3 fatty acids. The safest canola oil is organic, expeller-pressed available in the health food section of the grocery store.

While we recommend olive, peanut, and canola oil, some experts don't. Dr. Andrew Weil, the author of *Eating Well for Optimal Living*, does not endorse peanut oil because of possible harsh processing and because some peanut oil may be tainted with a carcinogenic mold that frequents peanuts.

How oil is processed and how you store oil once you get it home may be as important as the type of oil that you buy. Heat, light, and oxygen damage the fatty acids that comprise oils. Store oils in a cool, dark place, preferably the refrigerator and buy smaller bottles and keep them tightly capped. (We'll talk more about storing oils in the next section.)

We suggest that you read labels regularly noting the types and amounts of fats present in the articles that you buy. The nutritional information table will tell you what is considered a serving size and how much saturated or polyunsaturated fat is present—the bad fats. Read in the ingredient listing to discover the presence of hydrogenated fats—another unhealthy fat. You will find that many processed foods contain hydrogenated fat, including most baking mixes found in stores.

Part 2: How We Use Fats and Oil in Baking

In this part, we'll discuss how we use fats and oils in our baking. At the end of this section, you should understand how to use fats and oils in these basic methods as well as understanding how to reduce the fat in your favorite recipes.

- We'll explore pie crusts and how they are made.
- We'll use the creaming method to incorporate butter or shortening in a cake batter.
- We'll describe how to substitute oils and fats in baking.
- Finally, we explore some guidelines for reducing the amount of fat in a recipe.

The Perfect Pie Crust

There are tricks to making perfect pie crusts. The first is maintaining the correct balance of ingredients and the second is temperature.

Pie crusts are a mixture of flour, fat, and water. For years we made pie crusts with a ratio of these ingredients: 1/4 cup water to 1/2 cup shortening to 2 1/2 cups flour. (The flour should be measured by spooning the flour into the measure, not scooping it. Scooping packs the flour and overloads the formula.) Add a teaspoon of salt and you have a recipe for a double crust.



In recent years, we have fallen in love with butter-based crusts. The above ratio will work just fine using butter instead of shortening but we have discovered that we can really load our crusts up with butter adding up to three times as much butter as we did earlier. The recipe for this rich crust can be found in the recipe section of this chapter.

Temperature may be even more important than balance—especially if you are using butter. The trick is to keep the butter and the dough cold enough that the butter pieces remain intact. If it gets too warm, it melts and saturates the flour. (The same thing happens with shortening but the melting temperature of shortening is higher.) It's the little pieces of butter that makes the crust flaky. As the butter heats in baking, little pockets of steam are formed from the butter nodules.

To keep your dough cold, use only the coldest butter and water. Then refrigerate the dough for an hour before forming the pie. If making multiple pies, take only enough dough from the refrigerator for one pie keeping the rest cold until you are ready for it.

The Creaming Method for Mixing Cakes

In chapter four we learned about the creaming method as it applies to most baked goods. The same basic method is used for cakes.

The creaming method for mixing cakes is consistent with the general creaming method that you would use for mixing cookies or muffins. Attention to temperature and mixing the dry and wet ingredients alternately is beneficial.

Temperature of the batter is important when you are making a cake. All ingredients should be at room temperature—65 to 70 degrees. If you are using butter, you may bring cold butter to room temperature by beating it at medium speed for about two minutes with the paddle attachment of your stand-type mixer.



Steps in the Creaming Method for Cake Mixing

1. With the paddle attachment of an electric mixer, beat the butter or shortening at medium speed until it is smooth and creamy.
2. Add the sugars, spices, flavorings (including chocolate, if any), and salt. Beat at medium speed for eight to ten minutes or until it is light and fluffy.
3. Add the eggs one at a time, creaming after each.
4. Mix the flour and leavenings together.
5. Add about one-fourth of the dry ingredients to the creamed mixture. Mix until just combined. Do not over-stir or you may reduce the entrained air in the creamed mixture.
6. Add about one-third of the liquid ingredients and stir them in.
7. Repeat with the dry ingredients and the wet ingredients until all the ingredients are added. You should end by adding the dry ingredients.
8. Add any nuts or raisins by gently folding them in with a spatula. Keep the stirring to a minimum.
9. Place in pans and bake immediately as set forth in the recipe.

Baker's Note: You can make an extra light cake by whipping two egg whites to soft peaks along with some of the sugar called for in the recipe. Gently fold them into the batter in step 8.

Substituting Oils and Fats in Baking

We have experimented with substituting butter, oil, and shortening in quick bread and muffin recipes. In many recipes, one works better than the others. We have not yet been able to determine which will work better by studying the recipe, only by trial and error.

We have found that changing the mixing method called for in the recipe has a more dramatic affect on the baked good than does changing the fat—though we are very partial to the rich flavor of butter.

As you recall from chapter 4, muffins and quick breads can be made by either the muffin method or the creaming method. Only liquids—vegetable oil or melted butter--can be used in the muffin method.

Guidelines for Substituting Butter and Shortening in Cake Recipes

Some of us try to limit our intake of hydrogenated fats. Shortening, a hydrogenated fat, is most often used in cake recipes. Because of the performance characteristics of shortening, we sometimes splurge and use shortening in our cakes.

It is possible to substitute butter for shortening or shortening for butter in cake recipes. To do so, use the following guidelines. Generally, you will be successful with these guidelines though some cakes may require additional experimentation.

To substitute shortening for butter:

- For each cup of butter, use one cup plus two tablespoons of shortening.
- Since butter contains water and shortening does not, add 2 1/2 tablespoons of water or milk for every cup of butter eliminated.

To substitute butter for shortening:

- For each cup of shortening, use 3/4 cup plus two tablespoons of butter.
- Since butter contains water and shortening does not, subtract 2 1/2 tablespoons of water or milk from the recipe for every cup of butter added.

How to Reduce Fats in Baking

In many baked goods, some fat is necessary to create the proper mouth feel and texture. Often those same baked goods are acceptable in a fat-reduced variation. Here are ways that fat can be reduced:

- Use fruit purées or applesauce for some of the fat. Purées made from dried apples or dried apricots have less affect on the flavor of the baked goods than most other purées.
- Use reduced fat dairy products for whole fat products. Nonfat dairy products typically do not perform well in baked goods.
- Replace some of the whole fat product with low fat buttermilk.
- Replace all or some of the whole eggs with egg whites.
- Xanthan gum can be used to replace some of the eggs. Follow the package directions but with most gums, a small amount will have a significant effect. We have had very good success with xanthan gum though it takes some experimentation and good results are easier to achieve if the xanthan gum replaces only a part of the eggs.

Part 3: Recipes—The Chapter in Practice

Rich Buttery Pie Crusts

If you haven't tried making pies with buttery crusts, do so. Most pie crusts are made with shortening but shortening is tasteless while butter is rich and fulfilling. And it's not hard to make butter-based pie crusts.

As we mentioned earlier in this chapter, the tricks to making perfect pie crusts are maintaining the correct balance of ingredients and temperature. Temperature is especially important with butter-based crusts.



Ingredients:

2 1/2 cups all-purpose or pastry flour
2 tablespoons sugar
1 teaspoon salt
1 1/2 cups cold butter
1/2 cup ice water

Directions:

1. Mix the flour, sugar, and salt together in a medium bowl.
2. Your butter should be ice cold and rock hard. Cut the butter into one-inch chunks. Cut the butter into the flour mixture with a pastry knife until the butter pieces are pea-sized or smaller.
3. Add the ice water. Mix the water into the flour and butter mixture with a fork until it becomes to come together. Knead it together by hand. Work quickly and do not over mix. The dough must remain cold. Wrap the dough in plastic and refrigerate it for an hour before shaping the crust.

Baker's note: Temperature may be even more important than balance—especially if you are using butter. The trick is to keep the butter and the dough cold enough that the butter pieces remain intact. If it gets too warm, it melts and saturates the flour. (The same thing happens with shortening but the melting temperature of shortening is higher.) It's the little pieces of butter that makes the crust flaky. As the butter heats in baking, little pockets of steam are formed from the butter nodules.

American Walnut Pie Crust Recipe

Adding nuts to a crust can make all the difference. This one combines walnuts, lots of cinnamon, and butter. This crust works wonderfully well with creamy smooth pies from vanilla cream to pumpkin. It also works well with fruit pies with precooked fillings. A canned fruit filling can be used with this crust and then garnished with whipped cream for a quick, elegant dessert. Since it is a crumbly crust, it even works well as a crust for a cheesecake.



Pair this crust with your favorite pie and you'll love the combination.

American Walnut Pie Crust Recipe

Ingredients:

1 cup pastry or all-purpose flour
1/3 cup sugar
1/2 teaspoon cinnamon
Dash salt
3/4 cup walnut pieces
6 tablespoons butter, melted

Directions:

Preheat the oven to 350 degrees. You will need one buttered, nine-inch deep-dish pie pan either a light-colored or glass pie pan.

1. Place the flour, sugar, cinnamon, and salt in a small bowl and stir to combine.
2. Place the nuts in a food processor or blender and pulse just long enough to chop the nuts finely, not into a paste. Scrape the nuts into the flour mixture and stir to combine.
3. Add the melted butter and combine well.
4. Press the mixture into the buttered pie pan making certain that the crust is evenly thick.
5. Bake for 15 to 18 minutes or until it just starts to brown on the edges. Do not over bake. A light-colored or glass pan will absorb less heat than a dark one and help ensure against over baking.

Vanilla Nut Pie Crust

This recipe is similar to the American Walnut Pie Crust but is made with vanilla wafer crumbs and fewer walnuts. The vanilla and walnuts make a splendid combination. This crust works best with a cream pie or a cheesecake.

Vanilla Nut Pie Crust Recipe

This wonderful crust marries crushed vanilla wafers with rich walnuts for a nutty, vanilla crust. You'll love the combination. We recommend this with cream pies. Again, don't over bake the crust. This recipe makes a nine-inch deep dish pie.



Ingredients

2 cups crushed vanilla wafers
2 tablespoons granulated sugar
2/3 cup walnut pieces
6 tablespoons butter, melted

Directions

Preheat the oven to 400 degrees. You will need one buttered, nine-inch deep-dish pie pan either a light-colored or glass pan.

1. Crush the vanilla wafers. (See The Baker's Note.) Place the crushed wafers in a deep-dish pan.
2. Place the nuts in a food processor or blender and pulse just long enough to chop the nuts finely, not into a paste. Scrape the nuts into the pie pan. Add the sugar. Stir to combine.
3. Add the melted butter and combine well.
4. Press the mixture into the buttered pie pan making certain that the crust is evenly thick.
5. Bake for eight minutes or until it just starts to brown on the edges. Do not over bake. A light-colored or glass pan will absorb less heat than a dark one and help ensure against over baking.

The Baker's Note: This is how we crush cookies, vanilla, wafers, and graham cracker. Place handful of crackers or cookies in a heavy-duty plastic bag. Using a rolling pin, roll over the cookies to crush them. When crushed, empty the bag into a measuring cup and repeat the process until you have the desired amount of crumbs.

Peach Chiffon Pie with Gingersnap Crust Recipe

In this recipe, the creamy peach filling is complemented perfectly by the gingersnap crust. The peach filling is fresh and sweet and the ginger creates a contrast. If you have access to fresh peaches, try this pie.



Peach Chiffon Pie with Gingersnap Crust Recipe

The crust for this pie is simply made with crushed gingersnaps and butter. The filling is chiffon with a fresh peach puree. You will need a nine-inch, deep-dish pie pan for this pie.

For the crust

2 cups gingersnaps, crushed
5 tablespoons butter, melted

For the filling

1 cup whipping cream
1 teaspoon vanilla
2 cups puree from ripe, peeled peaches
1 tablespoon lemon juice
2 drops red food coloring
2 envelopes unflavored gelatin
3 large egg whites
1 cup granulated sugar

Directions

Preheat the oven to 350 degrees

1. In a nine-inch, deep-dish pie pan, mix the cookie crumbs and melted butter. With a large spoon or stiff spatula, press the crumbs into the bottom and up the sides of the pie pan. Bake the crust for ten minutes.
2. Whip the cream until soft peaks form. Add the vanilla and continue whipping until mixed.
3. Mix the puree, lemon juice, and red food coloring together.

Baker's Note: The lemon juice helps the peach puree from turning dark. The touch of red food coloring should give the puree just a blush of pink.

4. Sprinkle the gelatin over 1/2 cup of the peach puree. Place the puree and gelatin in the microwave and heat for fifteen seconds. Take the puree out and stir it with a spoon. Heat it again for 15 seconds and stir again. Repeat the process until the mixture is very hot and the gelatin is dissolved. Mix the hot puree with the rest of the puree and refrigerate it for ten minutes.
5. Place the egg whites in a metal or Pyrex bowl. Stir in the sugar. Place the bowl in a pan of water on the stove. Heat the water and stir the egg whites with a whisk until the egg white mixture reaches 160 degrees. (Use your insta-read thermometer. If you don't have a thermometer, the mixture will be very hot but not bubbling.) Remove from the heat. Beat with an electric mixer until soft peaks form.
6. Fold the peach mixture into the egg white mixture. Fold the whipped cream into the mixture. Refrigerate for two or three hours or until firm. Store in the refrigerator.

Sour Cream Chocolate Cake with Raspberry Divinity Frosting

Nearly everyone likes chocolate cake. This one has the deep, rich taste of unsweetened chocolate and sour cream. The light airy, raspberry divinity frosting is really a seven-minute frosting with added raspberry jam. Both the raspberries and the fluffy frosting complement the rich chocolate cake.



Chocolate Sour Cream Cake Recipe with Raspberry Divinity Frosting

As with all cake recipes, it is important that the temperature of the ingredients is at room temperature. You may beat cold butter for about two minutes to bring that to room temperature. You will heat the chocolate with milk. By letting it cool for several minutes and then adding cold sour cream, the resulting mixture should be near room temperature.

Ingredients:

For the cake:

3 ounces unsweetened chocolate
1/2 cup milk
3/4 cup sour cream

1/2 cup butter
1 2/3 cups brown sugar
1/4 teaspoon salt
2 large eggs

2 cups all-purpose flour
1/2 tablespoon baking powder
1/2 teaspoon baking soda

For the frosting:

3 egg whites
2 cups granulated sugar
1/2 cup cold water
1/2 teaspoon cream of tartar

1 cup seedless raspberry jam
1/2 teaspoon almond extract

Directions

For the cake

Prepare three eight-inch cake pans by greasing them and dusting them with flour.

Preheat the oven to 350 degrees.

1. Heat the chocolate and milk together in a small saucepan, stirring until the chocolate is melted. Remove the pan from the heat and stir in the sour cream. Set the mixture aside to cool to room temperature.
2. With the paddle attachment of an electric mixer, beat the butter at medium speed until it is smooth and creamy. Add the brown sugar and salt. Beat until it is light and fluffy.
3. Add the eggs one at a time, creaming after each. Beat at medium speed for eight to ten minutes or until it is light and fluffy.
4. Mix the flour, baking powder, and baking soda together.
5. Add about one-third of the dry ingredients to the creamed mixture. Mix until just combined. Do not over-stir or you may reduce the entrained air in the creamed mixture.
6. Add about one-half of the liquid ingredients and stir them in.
7. Add another one-third of the dry ingredients to the creamed mixture and mix until just combined.
8. Add the last of the liquid ingredients and stir them in.
9. Add the last of the dry ingredients to the creamed mixture and mix until just combined.
10. Place in pans, smooth the tops, and bake immediately for 25 minutes at 350 degrees or until a toothpick stuck in the center of the cake comes out clean.
11. Cool for five to ten minutes in the pans. Remove the cakes to wire racks to cool completely. Frost after cooling.

For the frosting

1. In the top of a double boiler, mix the egg whites, sugar, water, and cream of tartar. Whisk them together for thirty seconds or beat slow speed with an electric mixer.
2. Over boiling water, cook the mixture while beating constantly at high speed with your electric mixer. Continue for about seven minutes or until peaks begin to form.
3. Add the extract and jam. Continue beating until stiff peaks form. Frost the cake.

Baker's note: Use a good quality jam. If your jam has seeds in it, remove them by pressing the jam through a sieve. As with all cake recipes, it is important that the temperature of the ingredients is at room temperature. You may beat cold butter for

about two minutes to bring that to room temperature. You will heat the chocolate with the milk. By letting it cool for several minutes and then adding cold sour cream, the resulting mixture should be near room temperature.

Cherry Dream Cake

This snack cake is unbelievably light and moist and fluffy. It doesn't have much fat and has a lot of egg whites--almost like an angel food cake. The cherry flavor comes from a whole jar of maraschino cherries chopped finely in the blender.



Cherry Dream Cake Recipe

This cake works best in a rectangular pan and is sweet enough that it doesn't have to be frosted. If you do choose to frost it, choose a light frosting, either a glaze or a fluffy, light frosting. Our choice for this cake is a dab of whipped cream or maybe a little ice cream.

Ingredients:

- 2 cups all-purpose flour
- 1 teaspoon baking powder
- 1/2 teaspoon baking soda

- 1/2 cup shortening
- 1 1/3 cups granulated sugar
- 1/4 teaspoon salt
- 4 large egg whites
- 1/2 teaspoon almond extract

- 1 ten-ounce jar of maraschino cherries
- 1/2 cup or more of buttermilk
- 2 drops red food coloring (optional)

Directions

Prepare an 8 x 13-inch pan by greasing the pan and dusting it with flour.

Preheat the oven to 350 degrees.

1. Mix the flour, baking powder, and baking soda together in a medium bowl. Set aside.
2. With the paddle attachment of an electric mixer, beat the shortening at medium speed for 30 seconds. Add the granulated sugar and salt in two additions, beating after each.

3. Add the egg whites in three or four additions, beating after each. Add the almond extract. Beat at medium speed for eight to ten minutes. The mixture should be very light and fluffy.
4. Place the cherries from the jar in a blender along with a tablespoon or so of juice. In the blender, finely chop the cherries. Add the buttermilk. You should have about 1 1/4 cups of the cherry-buttermilk mixture. Add more buttermilk to reach exactly 1 1/4 cups.
5. Add about one-fourth of the dry ingredients to the creamed mixture. Mix until almost combined. Do not over-stir or you may reduce the entrained air in the creamed mixture.
6. Add about one-third of the liquid ingredients and optional red food coloring and stir them in. Repeat with the rest of the flour mixture and cherry mixture until all ingredients are combined.
7. Place in pan, smooth the top, and bake immediately for 30 to 35 minutes at 350 degrees or until a toothpick stuck in the center of the cake comes out clean.
8. Cool in the pan on a wire rack. If you have lined the pan with parchment paper, after ten minutes lift the cake from the pan by grasping the edges of the parchment paper.

Baker's note: This cake is light and airy because there is so much air entrained into the shortening, sugar, and egg white mixture. Be sure that the mixture is very light and fluffy before proceeding. The baking soda, an alkaline substance, reacts chemically with the buttermilk, an acid, to create carbon dioxide and lift the batter even more.

Bonus Bulletin: Storing Fats and Oils

Fats turn rancid as they oxidize and oxidization is accelerated by exposure to heat, light, and oxygen. Butter, of course, must be refrigerated and should be used within two weeks of purchase. Other fats, such as vegetable oil and shortening, should be stored with tight-fitting lids in cool dark places. Do not store your oils above the stove which is probably the warmest spot in your kitchen

The human body requires the intake of six types of substances for survival: Fats, carbohydrates, proteins, water, vitamins, and minerals. Certain fatty acids are essential to our health and fats and oils are important components of our food and their preparation. Fat is responsible for much of the texture, appearance, and taste of our baked goods. Since fat is both required for human health and an important part of our diets, we should include fat in our emergency preparedness plans--some combination of butter, margarine, vegetable oil, olive oil, and shortening. (Oils are liquid at room temperature; fats are solid.) Though we need to store these foods to maintain our lifestyles and our health, they represent a particular food storage challenge. As oils and fats age, they oxidize. Oxidation is the process that turns fats rancid. Rancid foods not only taste bad, they are unhealthy. As fats and oils breakdown, they become toxic. These oxidized oils promote arterial damage, cancer, inflammation, degenerative diseases, and premature aging.¹ So it is important that we store fats properly, use all fatty foods well before they become rancid, and discard those foods that have been stored too long.

So what is the proper way to store fats and oils? Since three conditions accelerate the oxidation of fats--the exposure to heat, to oxygen, and to light--fats should be stored in cool or cold conditions, in the dark, and sealed so that they are not exposed to air. We store our vegetable oil, olive oil, and shortening in a dark, fifty-degree room. Once opened, we store our vegetable and olive oils in the refrigerator.

How long can we safely store fats and oils? That, of course, depends on the storage conditions. At seventy degrees, shortening can be kept for eight months.² Butter does not last long at all in the refrigerator--only two weeks--but can be stored for up to nine months in the freezer (not the freezing compartment of a refrigerator which is usually not as cold).³ Margarine can also be frozen though some margarine tends to be flaky once thawed. While I do not have a government source for the shelf life of vegetable oils, I would not store oils for over eight to ten months.⁴ My recommendation is to store butter in the freezer for up to nine months and store oils and shortening for eight months at seventy degrees--slightly longer at cooler temperatures. Maybe more so than any other food group, fatty foods must be carefully and conscientiously rotated to maintain adequate and healthy stocks. Use what you store and store what you use.

Not just oils and fats have to be carefully stored. Any food with a significant fat content such as nuts, cookies, or whole wheat flour is subject to rancidity. Nuts should be stored in a cool, dark environment and always checked for rancidity before they are used. Ideally, nuts should be stored in metal or metalized containers; plastic bags are permeable to air and slowly allow oxygen to seep into the package and accelerate oxidation. We keep our nuts in the freezer--even unopened bags. Freshly ground whole

wheat should be kept in the refrigerator and used within two weeks. (The commercial milling process removes most of the fat from wheat. Most white flour is nearly fat free. Any whole wheat flour with a fat content higher than two percent should not be stored.) Any food that has any rancid odor should be discarded.

So what fats should we store? Flaxseed oil and safflower oil oxidize very rapidly and are not good candidates for storage. Most commonly purchased vegetable oils are extracted with heat, pressure, and chemical additives, which may accelerate oxidation.⁵ Cold pressed oils are better though more expensive. I know of no government source for the shelf life of cold pressed oils. Check any oil carefully for rancidity before using.

The modern diet is high in the consumption of Omega-6 essential fatty acids and low in Omega-3 fatty acids. Flesh from grain and corn fed animals and most vegetable oils are high in Omega-6. The National Institutes of Health urges nearly all people to reduce the consumption of the Omega-6 fatty acids and increase the consumption of Omega-3 believing that this is critical to achieving optimal brain and cardiovascular functions.⁶ Of the commonly used oils, canola oil and soybean oil contain Omega-3 fatty acids. Avocados and nutmeats, especially walnuts, are high in Omega-3.⁷

Andrew Weil in his excellent book, *Eating Well for Optimum Health*¹, promotes olive oil as a healthy substitute for vegetable oils. It has the highest percentage (77%) of monounsaturated fats of any of the oils but is low in Omega-3. There are many different varieties of olive oil available, each with a little different flavor. Choose what you like but watch it carefully for rancidity. Stored in the refrigerator or a cool basement, olive oil may turn cloudy-but the quality is unaffected.

Nutritionists advise us to reduce our intake of hydrogenated fats-margarine and shortening. Margarine is not a healthy substitute for butter.⁸ Hydrogenated means that hydrogen atoms have been added to stabilize the oil and turn it from a liquid at room temperature to a solid. A saturated fat is a fat that has been saturated with hydrogen atoms, is stable and less prone to oxidation but the molecular composition of saturated fats is believed to raise serum cholesterol levels.⁹

Store oils and fats-they are essential to a well-prepared household and some fat is necessary to maintain health. However, choose the right fats and oils, store them properly, rotate religiously, and discard any that happen to get old.

¹Weil, Andrew, M.D., *Eating Well for Optimum Health*, The Essential Guide to Food, Diet, and Nutrition, Alfred A. Knopf, New York, 2000, p.89, and:

Amendola, Joseph and Rees, Nicole, *Understanding Baking: The Art and Science of Baking*, Third Edition, John Wiley and Sons, Inc. Hoboken, New Jersey, 2003, p. 84.

²Kansas State University, "Cupboard Storage Chart" www.oznet.ksu.edu/dp_fmud/hrap/storage, Sept. 9, 2002.

³Clemson University, <http://hgic.clemson.edu/factsheets>, Nov. 11, 2002.

⁴Salsbury, Barbara G., *Just in Case: A Manual for Home Preparedness*, Bookcraft, Salt Lake City, 1975, p. 158. This source states that oils can be kept for six to twelve months depending on storage conditions. The author believes this is accurate.

⁵Weil, *Ibid.*, p. 91. In addition to accelerating oxidation, common extraction methods may create detrimental trans -fatty acids.

⁶*Ibid.*, p. 88.

⁷*Ibid.*, p. 95.

⁸*Ibid.*, p. 93.

⁹Amendola and Rees, *Ibid.*, p. 83.