

How to Substitute Ingredients

Everybody does it (even though they shouldn't). Here are some tips for doing it well. BY SEAN LAWLER



FLOURS

The texture of baked goods depends on, among many other things, the protein content of the particular flour used to prepare them.

ALL-PURPOSE FLOUR: The kitchen workhorse and pantry staple, all-purpose flour has a protein content ranging between 10 and 12 percent. This staple has no substitute.

CAKE FLOUR: With just 6 to 8 percent protein, cake flour will impart a more tender, delicate, fine-crumbed texture to baked goods.

TO REPLACE: 1 cup cake flour

- 7/8 cup all-purpose flour + 2 tablespoons cornstarch

BREAD FLOUR: At the other end of the spectrum from cake flour, bread flour has close to 14 percent protein. This ensures strong gluten development and thereby a sturdy dough.

TO REPLACE: 1 cup bread flour

- 1 cup all-purpose flour

CAUTION: Breads and pizza crusts may bake up with slightly less chew, but results will be acceptable.

LEAVENERS

YEAST: Our favorite is instant yeast (also sold as rapid rise yeast and bread machine yeast) because it is fast acting and can be stirred directly into the other dry ingredients. Active dry yeast, on the other hand, must be dissolved in warm water (around 110 degrees) before being added to the rest of the ingredients. Other than the method of incorporation, instant and active dry yeast are interchangeable.



BAKING POWDER: All chemical leavening is based on the reaction of an acid and a base, or alkali (almost always baking soda), to produce the carbon dioxide gas that makes the baked good rise. Baking powder contains an acid along with baking soda and a small amount of cornstarch to absorb moisture and keep the mixture shelf-stable.



TO REPLACE: 1 teaspoon baking powder

- 1/4 teaspoon baking soda + 1/2 teaspoon cream of tartar. Use right away.
- 1/4 teaspoon baking soda + 1/2 cup of yogurt, buttermilk, or sour cream

NOTE: 1/4 teaspoon of baking soda is the leavening equivalent of 1 teaspoon of baking powder.

"Dear *Cook's Illustrated*: Your chocolate chip cookies are terrible! I followed the recipe exactly, except I made the following substitutions. . . ." We've received more than a few letters like this one over the years. We know that our carefully tested recipes are often subjected to abuse by our readers (and even by members of our staff), and we know the kinds of disasters that can result. For the record, we forgive you. No one wants to run out to the market for just one ingredient. Perhaps something you've got on hand will do the trick. With that in mind, we tested scores of widely published ingredient substitutions to figure out which ones work under what circumstances and which ones simply don't work. If you are going to substitute ingredients, you may as well do it better and smarter. Here's how.

DAIRY PRODUCTS

WHOLE MILK AND HALF-AND-HALF: Use the formulas below to substitute one dairy product for another.



TO REPLACE: 1 cup whole milk

- 5/8 cup skim milk + 3/8 cup half-and-half
- 2/3 cup 1% milk + 1/3 cup half-and-half
- 3/4 cup 2% milk + 1/4 cup half-and-half
- 7/8 cup skim milk + 1/8 cup heavy cream

TO REPLACE: 1 cup half-and-half

- 3/4 cup whole milk + 1/4 cup heavy cream
- 2/3 cup skim or low-fat milk + 1/3 cup heavy cream



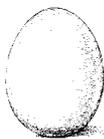
HEAVY CREAM: Evaporated milk can be used in place of heavy cream to enrich soups and sauces.

TO REPLACE: 1 cup heavy cream

- 1 cup evaporated milk

NOT SUITABLE FOR: Whipping or baking recipes.

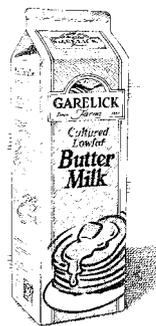
EGGS: All *Cook's Illustrated* recipes are tested with large eggs, but substitutions are possible. For half of an egg, whisk the yolk and white together and use half of the liquid.



Large	Jumbo	Extra-Large	Medium
1 =	1	1	1
2 =	1 1/2	2	2
3 =	2 1/2	2 1/2	3 1/2
4 =	3	3 1/2	4 1/2
5 =	4	4	6
6 =	5	5	7

CULTURED DAIRY PRODUCTS

BUTTERMILK: Regular milk can be "clabbered" with an acidic ingredient such as lemon juice, vinegar, or cream of tartar; the acid will react with baking soda to produce leavening and will approximate the tang of buttermilk in most pancake batters and baked goods.



NOTE: Lemon juice is our first choice; some sensitive tasters detected off flavors from vinegar and cream of tartar.

TO REPLACE: 1 cup buttermilk

- 1 cup milk + 1 tablespoon lemon juice
- 1 cup milk + 1 tablespoon white vinegar
- 1 cup milk + 1 teaspoon cream of tartar

Let stand to thicken, about 10 minutes

NOT SUITABLE FOR: Raw applications, such as a buttermilk dressing.

SOUR CREAM AND PLAIN, WHOLE MILK YOGURT: These can be swapped for each other in equal measure in most baking recipes with good results, but since sour cream has more than four times the fat, expect cakes and muffins baked with yogurt to have a slightly drier texture. Flavored yogurts such as lemon and vanilla can be substituted for plain in recipes where the flavors won't clash.



TO REPLACE: 1 cup sour cream

- 1 cup plain whole milk yogurt

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- 1 cup sour cream

CAUTION: Nonfat and low-fat yogurts are too lean to use in place of sour cream.

SUGARS AND OTHER SWEETENERS

GRANULATED SUGAR: This staple has no substitute.

BROWN SUGAR: Granulated sugar and molasses make a close approximation.

TO REPLACE: 1 cup light brown sugar

- 1 cup granulated sugar + 1 tablespoon molasses

TO REPLACE: 1 cup dark brown sugar

- 1 cup granulated sugar + 2 tablespoons molasses

Pulse the molasses in a food processor along with the sugar, if desired, or simply add it along with the other wet ingredients.

SUPERFINE SUGAR: This is handy for cold drinks, as it dissolves more readily than granulated sugar.

TO REPLACE: 1 cup superfine sugar

- 1 cup granulated sugar ground in food processor for 15 seconds

POWDERED SUGAR: Because it contains cornstarch, powdered sugar should not be substituted for either brown or granulated sugar in most recipes.

TO REPLACE: 1 cup powdered sugar

- 1 cup granulated sugar + 1 teaspoon cornstarch ground together in blender (not food processor)

CAUTION: This works very well for dusting over desserts, less so in icings and glazes.

LIQUID SWEETENERS: Replacing some of the sugar in a recipe with honey, molasses, or maple syrup to add an extra dimension of flavor is a simple matter, provided you account for the extra moisture.

TO REPLACE: sugar with liquid sweetener

- Reduce liquid in recipe by ¼ cup for each cup of liquid sweetener added

CAUTION: As liquid sweeteners vary in moisture content, acidity, and even sweetness, it is usually not a good idea to replace more than half of the sugar in a recipe with a liquid sweetener.

SALT



For all intents and purposes, table salt is "saltier" than kosher salt or coarse sea salt. (Table salt has smaller individual crystals, so more crystals of table salt than kosher or coarse sea salt will fit into a measuring spoon.)

TO REPLACE: 1 tablespoon table salt

- 1½ tablespoons Morton Kosher Salt or fleur de sel
- 2 tablespoons Diamond Crystal Kosher Salt or Maldon Sea Salt

CAUTION: Kosher salt and coarse sea salt do not dissolve as readily as table salt; for this reason, we do not recommend using them in baking recipes.

HERBS

Dried herbs are more potent than fresh.

They are best used in longer-cooking recipes like soups and stews, while fresh herbs are best added near the end of cooking.

TO REPLACE: 1 tablespoon fresh herbs

- 1 teaspoon dried herbs

CAUTION: Quite a few herbs should be avoided in dried form because they are tasteless; these include basil, chives, dill, parsley, and tarragon.

WINE

Vermouth makes an acceptable substitute for white wine in recipes that don't call for very much. Nonalcoholic substitutes are more difficult to come by. For soups and pan sauces, the best course of action is to use extra broth, adding wine vinegar (red or white, depending on the recipe) or lemon juice just before serving.

TO REPLACE: ½ cup wine

- ½ cup broth + 1 teaspoon wine vinegar
- ½ cup broth + 1 teaspoon lemon juice



CHOCOLATES

UNSWEETENED: Use this substitution in recipes that call for small quantities of chocolate or to replace the unsweetened chocolate in a recipe that calls for both unsweetened and bittersweet or semisweet chocolate.

TO REPLACE: 1 ounce unsweetened chocolate

- 3 tablespoons cocoa powder + 1 tablespoon vegetable oil
- 1½ ounces bittersweet or semisweet chocolate (remove 1 tablespoon sugar from recipe)

CAUTION: If making chocolate cake, brownies, or any other intensely chocolate-flavored baked good, do not replace all of the chocolate with cocoa powder; it will have a drastic effect on the texture.



BITTERSWEET/SEMISWEET: These are pure chocolates to which sugar, vanilla, and emulsifiers have been added. The terms themselves are not surefire indicators of relative sweetness. They can be freely interchanged in most recipes, but expect variations in flavor.

TO REPLACE: 1 ounce bittersweet chocolate or 1 ounce semisweet chocolate

- ⅔ ounce unsweetened chocolate + 2 teaspoons sugar

CAUTION: Unsweetened chocolate is starchier than sweetened chocolate, so while this substitution will work well with fudgy brownies, it could wreak havoc on a delicate custard or an airy cake.

CHIPS: These morsels of sweetened chocolate have added stabilizers to help them hold their shape when baked into cookies. As a result, we don't recommend using them in chocolate sauces or puddings, but they do produce acceptable results when substituted for bittersweet or semisweet chocolate in a simple brownie recipe.



ETHNIC INGREDIENTS

Supermarkets are getting better about stocking ethnic ingredients, but they can still be hard to find. Here are a few of the items that we stock in our pantry and suggestions for approximating their flavors if unavailable.

COCONUT MILK: Do not use canned cream of coconut, which is sweetened. If you have dried, shredded unsweetened coconut on hand, you can make a crude approximation of coconut milk. Bring equal parts whole milk and shredded coconut to a simmer and let steep, covered, for 15 minutes. Grind the mixture in a blender or food processor and let steep for another 15 minutes. Strain the mixture, pressing down on the coconut in the strainer to extract the most flavor. This will make an

acceptable substitute for curries and stir-fry sauces, but it's less reliable in baked goods.

FISH SAUCE: One tablespoon of soy sauce mixed with 1 finely minced anchovy fillet will make a crude stand-in for 1 tablespoon of this salty, pungent Thai sauce.

MIRIN: To replace 2 tablespoons of this sweet, Japanese rice wine, substitute an equal amount of white wine or sake plus 1 teaspoon sugar.

PANKO: To make your own coarse Japanese bread crumbs, process some chunks of bread through the shredding disk of a food processor. Spread the crumbs out on a baking sheet and bake, shaking the sheet once

or twice, in a 300-degree oven until dry but not toasted, about 6 minutes.

TAHINI: To replace this sesame paste, grind up an equal amount of sesame seeds in a blender with just enough peanut or vegetable oil to make a fairly smooth mixture. Add 1 teaspoon toasted sesame oil, or to taste, if you have some on hand. Another option is to blend 3 parts peanut butter with 1 part sesame oil, then use half the quantity of tahini called for in the recipe.

TAMARIND: To replace 2 tablespoons of tamarind paste soaked in ¾ cup hot water and strained, mix ⅓ cup lime juice and ⅓ cup water.