



# Grains of truth about SOURDOUGH

## Definitions

A sourdough starter is basically a method of growing yeast. The starter is a flour and water mixture—a basic unleavened dough—that serves as a medium for growing either commercial yeast that is added to the mixture or the ever-present wild yeast that is “captured” by the mixture from the air we breathe. (Yogurt is also sometimes added to provide yeast). This mixture is allowed to “sour” through a fermentation process that produces a gas and an acid. It is then used as a “starter” to leaven other breads: the gas produced by the fermentation is trapped in the elastic gluten structure of the dough, causing it to rise, while the acid imparts the final product with a tart flavor.

## History

Thought to be the very first instance of leavened bread, sourdough dates back to 4,000 B.C., when ancient Egyptians are credited for discovering yeast’s leavening power. Since then, it has spread to many cultures and has a solid place in U.S. history and folklore.

In the Old West, sourdough was the only continuous supply of leavening in the wilderness areas, earning the mountain men, shepherders, pioneers, prospectors and miners of the time the nickname “Sourdoughs.” To carry the starter from camp to camp, they would add enough flour to make a ball of dough that was then buried deep in the flour sack. Water and warmth at the next campsite started it growing again.

Tales tell of the cherished sourdough crock with starter given as a part of a bride’s dowry and of the starter going to bed with its owner to assure its survival through the long, cold winters.

## Starter methods

Flour and water are the only two necessary ingredients to grow the yeast.

- To make a basic starter that requires catching yeast from the air, combine in a glass bowl, 1½ cups warm water (80-85°F, **distilled and non-chlorinated water**) and 2 cups of all-purpose flour. Use no sugars and especially, use NO commercial yeasts! Mix well with a wooden or plastic spoon, being sure to incorporate a lot of air into the mixture.

- Pour into a **non-metal** container, preferably glass, stoneware or plastic and large enough to allow for expansion of the starter to twice its original size. Leave uncovered so the natural microorganisms can settle on the surface in a warm 85°F draft-free area.
- Let the mixture proof for 24 hours. Stir the mixture well once or twice during the first 24 hour proof to mix in the microorganisms.
- At the end of the first 24 hours, examine for bubbles and stir the mixture again.
- Repeat the 24 hour proof as described above, including a brisk stirring.
- The starter has now proofed for a total time of 48 hours. Once again examine for bubbles and stir. If after 72 to 96 hours have passed and there are no signs of bubbles, you might need to start over. The bubbles indicate the beginning of the fermentation process.
- Once it does start to bubble, it can remain at room temperature or covered with plastic wrap and store in the refrigerator. It will survive in the refrigerator for about two weeks before needing to be “fed”.
- To make a starter using commercial yeast, combine 1 cup flour, 1 cup warm (105°-115°) water, 1 package of dry yeast and 1 tablespoon of sugar.
- Cover the container with a towel, cheesecloth, waxed paper, or plastic wrap. Or, poke a small hole in the top of the lid to allow gas to escape and the yeast to breathe; otherwise, the accumulated gases may crack or shatter the container.
- Let the starter sit for two to 10 days, depending on the amount of sourness desired, in a warm (85°F) area. Remember to stir the starter, at least two or three times daily to incorporate the yeast and sugar.

## Sourdough hints

- Three kinds of commercial starters are available in stores: dehydrated starters, freeze-dried starters and specially packaged starter ingredients. All three require only the addition of water.
- Once a good, tart starter is achieved, take care of it. The foamy, bubbling container of yeast is a living, self-perpetuating organism—it must be fed and cared for like a living plant

- To ensure a warm (80°-85°F), draft-free place for the starter, place it on a sunny window, a high shelf or a warm corner. Do not allow the starter to be subjected to direct heat sources or temperatures exceeding 95°F.
- Starter that has been sitting for a time will have a thin alcoholic layer of clean grayish liquid settle at the top of the batter. Old-timers referred to this alcohol as "hooch." Just mix it back into the starter. If this layer is green, blue, pink or orange, discard the starter and begin anew.
- If the starter smells particularly sour or is too tart, add 1 cup of warm liquid and 1 cup of flour to 1 cup of starter and mix thoroughly. Pour off all but 1 cup of this batter. This is known as freshening, or sweetening, the starter.
- Replenish or "feed" the starter each time it is used. To "feed" your starter, you will need to remove 1 cup of starter and replace it with 1 cup of water and 1 cup of flour. Whisk these ingredients into the starter until blended but not completely smooth. Any remaining lumps will dissolve as the mixture ferments. Cover and let sit in a warm place for six to 24 hours before using. Never let the starter get below 1 cup of reserve. It is advisable to have several cups of starter on hand in your crock.
- Use and replenish the starter at least once every two weeks (if kept in the refrigerator) and it will live indefinitely, gaining flavor and tang as it grows older. If not used within 10 days, add 1 teaspoon of sugar to feed the yeast.

## Storage

When not in use, date and refrigerate the freshened or replenished starter in a sealed container. Fermentation is slowed during refrigeration, so the starter may not need to be used or freshened for a couple of weeks. Always bring it to room temperature and make sure it is bubbling before using (the process will take about 8 to 12 hours).

## Baking hints

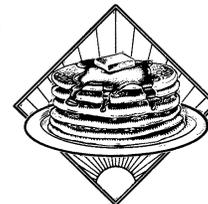
- Sourdough starter may be used as a leavening for pancakes, cakes, cookies and quick breads as well as for traditional yeast breads. Above all, be creative and don't limit yourself.
- To substitute starter for yeast in breads, use 2 cups of starter for 1 package of yeast. Decrease the liquids in the recipe by 1¾ cups and the flour by 1 cup. If milk is the reduced liquid ingredient, stir in enough dry milk to make equivalent milk amounts. For example: 1/3 cup of dry milk makes 1 cup liquid milk, and would be substituted as such. No extra liquid would need to be added and no other change would be necessary. The starter used by itself works very slowly. Bread made with starter only is sometimes quite firm and chewy; adding yeast will give the bread a lighter texture.

- For best results with yeast breads, use bread flour. All-purpose or cake flour are suitable for pancakes, cookies and cakes. Avoid over mixing cakes, cookies, pancakes and batters. Over mixing will knock out the gas used to leaven baked goods.
- If whole wheat flour is preferred, use 1 cup of starter, 1 cup whole wheat flour and 2 cups of warm water. Let stand 24 hours.

## Recipes

### Sourdough Hotcakes

- 1 cup flour**
- 1 cup milk**
- 1 cup starter**
- 2 eggs, beaten**
- 2 tablespoons sugar**
- 2 tablespoons oil**
- 1½ teaspoons baking powder**
- ½ teaspoon of salt**
- ½ teaspoon baking soda**



Measure flour, milk and starter into a large non-metal mixing bowl; beat until smooth. Cover loosely with waxed paper and let stand in a warm (80°-85°F) place at least 8 hours or overnight. Reserve 1 cup of starter back into crock or jar.

Add remaining ingredients and stir until smooth. Bake on a lightly greased, preheated 400°F griddle until golden brown on each side. Makes 6 hotcakes.

**Nutritional Analysis:** One hotcake provides approximately: 237 calories, 8 g protein, 34 g carbohydrates, 2 g fiber, 8 g fat (2 g saturated), 74 mg cholesterol, 116 mcg folate, 2 g iron, 103 mg calcium, 170 mg potassium and 487 mf sodium.



*Wheat Foods*  
C O U N C I L

10841 S. Crossroads Drive, Suite 105  
Parker, Colorado 80138  
Telephone: 303/840-8787, Fax: 303/840-6877  
Web Site: [www.wheatfoods.org](http://www.wheatfoods.org)