

SOURDOUGH 101

SOURDOUGH AND SOURDOUGH STARTER

by Richard Packham

Sourdough starter is used in baked goods because it contains an organism that is able to produce the gasses that give baked goods their lightness. This organism is a type of yeast, and is alive (until killed by the heat of baking). It feeds on carbohydrates (such as flour or sugar) and produces gas and alcohol (which the old "sourdough" miners called "hooch") as byproducts. It must be fed and protected from extremes of temperature and anything else which might kill it. Given proper care and conditions, it will live and reproduce itself for years. (My starter is over 35 years old.)

You may increase the amount of starter simply by adding more flour and water, in the proportion of one cup of water to a heaping cup of flour, and letting it stand for 8 to 24 hours. The mixture does not have to be smooth; a few small lumps will disappear as it stands.

Store the starter loosely covered in the refrigerator, preferably in a plastic container. Never use a metal container - metal seems to inhibit its growth. Glass can be dangerous unless the cover is loose enough to allow the gasses being produced to escape. It will stay "active" for as long as four weeks without attention. If you haven't used it in the last month or so, you should probably feed it by stirring it well and then discarding about half of it and replacing the discarded amount with the same amount of flour and water (or slightly more flour). Allow it to set for a few hours, and then refrigerate it.

When you want to bake, or a few hours before (to allow it to come to room temperature), take it out of the refrigerator and stir it well. If it hasn't been used recently, it will have separated into a gray liquid on top and white solids on the bottom. Don't discard the liquid; simply stir everything smooth and proceed.

The usual procedure for using your sourdough starter and keeping it perpetually is to maintain a large enough starter that you will always have at least a cup or two more than you will ever need at one time. Suppose you usually use at most two cups of starter when you bake. You should then always maintain your starter volume at three or four cups. When you bake, remove the two cups you need, and immediately replenish the starter by adding two cups of lukewarm water and two (or two and a half) cups of flour,

and then let it set in a warm place for a few hours. If your recipe calls for preparation of a flour and water sourdough batter the night before, then you can simply return the two cups from the batter to the sourdough container the following morning.

The general rule for substituting sourdough starter for yeast is to use one cup of starter for each one-ounce yeast cake, and then reduce the amounts of flour and liquid each by about one cup. If the recipe is a "quick yeast" or "quick-rise" recipe, it usually calls for double or triple the amount of yeast as a regular recipe, and the above rule does not apply. Try the recipe as an ordinary "slow" method recipe, since that's what sourdough is. For quick breads such as biscuits and muffins, substitute starter for about one-third or one-half of the flour and reduce the liquid by that amount, and use baking soda instead of baking powder.

Sourdough recipes do not adapt well for use in automatic bread machines, which generally require doughs which rise faster than sourdough. Sourdough recipes for such machines generally require the addition of commercial yeast, which - in my opinion - defeats the purpose of using sourdough.

If you want to keep starter unused for a longer period of time than a few weeks, or if you want to send some through the mail to a friend, you can easily dehydrate it into flakes. Using starter that has been fed the day before, spread a paper-thin layer onto a sheet of plastic wrap and let it set a day or two until it dries. It can then be broken into flakes and stored indefinitely in a dry place.

To reconstitute the flakes, put about a tablespoon of flakes into a glass or plastic bowl (not metal) that will hold about four cups. Mix the flakes with about a tablespoon of lukewarm water to form a paste. Gradually mix into the paste another cup of lukewarm water, then stir in one and a quarter cup of flour. Mix well, although the mixture does not have to be free of lumps. You should have approximately one cup of a batter the consistency of pancake batter. Cover the bowl lightly (not air-tight) and put in a warm spot where the temperature is 70 to 80 degrees Fahrenheit (not warmer). Allow it to set overnight.

After standing, there should be bubbles covering the surface and the volume should have increased a little. If so, you now have a starter. If only a few bubbles have formed, let it set another day. If it appears not to have changed, then the reconstitution was not successful.

Do not freeze starter - freezing kills it.

Many recipe books contain instructions for making a sourdough starter from

scratch; however, most of them include commercial yeast - either dried or in cake form - as one of the ingredients. The result, then, is merely more of that strain of commercial yeast, not a traditional starter, which is made originally by capturing wild yeasts. Thousands of strains of yeast have been identified, and commercial bread yeast is only one of them. A starter made from wild yeast will be quite different.

You may also find instructions somewhere for making a starting by allowing some liquid (flour batter made with water or milk or fruit) to stand uncovered in your kitchen for several days. If this begins to ferment, you will have captured wild yeasts that were in the air in your kitchen. They may be suitable for making good sourdough bread, or they may not. The safest way to get a sourdough starter is to get some from someone who has a successful starter.

Some starters live on a combination of flour and water. Others are based on flour and milk. Be sure that whatever starter you get, you feed it with the right liquid.

You may be able to get a suitable starter if you just inquire around locally where you live, or ask a local home economics teacher, the food editor of your local paper, or your county extension agent.

I will be happy to send you a small amount of sourdough starter flakes if you will send me \$1.25 to cover postage and packaging. (To U.S. addresses only, please.)

I used to ask only for a dollar, but the Postal Service has imposed stricter packaging requirements, and the cost of packaging material has also increased. Put a dollar bill and a quarter (or a 23-cent stamp instead of a quarter) in an envelope, and you'll get your flakes. Don't send a self-addressed envelope. Please allow a couple of weeks. I assure you that this amount just barely covers my out-of-pocket cost. But sourdough bakers tend to be nice people.

My mailing address: Richard Packham, P.O. Box 422, Roseburg, OR 97470

For sourdough recipes, click here

<<http://home.teleport.com/~packham/sourdo.htm>>

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SOURDOUGH "CHEATER" STARTERS

The safest way to get a sourdough starter is to get some from someone who has a successful starter. Try the internet.

If you want to keep starter unused for a longer period of time than a few weeks, or if you want to send some through the mail to a friend, you can easily dehydrate it into flakes. Using starter that has been fed the day before, spread a paper-thin layer onto a sheet of plastic. wrap and let it set a day or two until it dries. It can then be broken into flakes and stored indefinitely in a dry place.

Do NOT freeze starter – freezing kills it.

DID YOU KNOW?

The acids in sourdough help prevent mold growth and staling.

With all that said, if you just have to start your own, use your choice of the following "cheater" starters:

BASIC SOURDOUGH STARTER

2 c. all-purpose Flour	1 Tbsp. dry yeast
1 tsp. salt	2 c. lukewarm water
3 Tbsp. sugar	

With a wooden spoon, stir dry ingredients together in a large mixing bowl and gradually add lukewarm water. Stir until mixture resembles a smooth paste. Cover with a towel or cheesecloth and set in a warm place - 85 deg F (30 deg C) - to sour.

Stir mixture several times a day. In 2 or 3 days sourdough will be ready. Store in a heavy plastic container, with a hole punched in lid to allow gases to escape.

To make a batter for a favorite sourdough recipe, take out 1 cup sourdough starter and combine with 1 cup all-purpose flour and 1 cup lukewarm water.

Mix well with a wooden spoon. Don't worry about lumps in mixture, fermentation will dissolve them within a few hours. Cover with a towel or plastic wrap and set in a warm location several hours or overnight. Before adding additional ingredients to recipe, return at least 1/2 cup of mixture to sourdough container stored in refrigerator to replenish starter.

If starter is not replenished in this manner at least once a week, add 1/2 cup each of lukewarm water and all-purpose flour to container of sourdough. Mix together; leave out of refrigerator overnight, covered with a towel or

plastic wrap. Next morning stir down mixture, cover with lid and return to refrigerator until needed.

Occasionally pour all of sourdough starter out into a mixing bowl. Wash container to remove flour buildup. To replenish, add equal portions of flour and water, cover, let stand in a warm - 85 deg F (30 deg C) - location overnight.

If starter does not seem as bubbly after continued use, sprinkle with small amount of dry yeast and mix well. This is also recommended if thawed frozen starter does not resume its former bubbly appearance.

If clear liquid forms on top of mixture, simply stir down and continue to use as needed.

POTATO FLAKE SOURDOUGH STARTER

3 Tbsp. instant mashed potato flakes 1 c. warm water
3 Tbsp. white sugar 2 1/4 tsp. active dry yeast

1. Combine instant potatoes, sugar, water, and yeast in a covered container. Let the starter set on a counter for 5 days, stirring daily with a wooden spoon.
2. On the morning of the fifth day, feed the starter with 3 tablespoons instant potatoes, 3 tablespoons sugar, and 1 cup warm water. In the evening, take out 1 cup of the starter to use in a sourdough recipe. Refrigerate the remaining starter.
3. Every five days, feed the starter 3 tablespoons instant potatoes, 3 tablespoons sugar and 1 cup water. If starter is to be used in a recipe, let the fed starter rest at room temperature 6 hours before use. If starter is not being used in a recipe, keep refrigerated and discard 1 cup of starter after each feeding.

POTATO SOURDOUGH STARTER

4 c. unbleached Flour 2 Tbsp. sugar
2 Tbsp. salt 4 c. lukewarm potato water

Boil some potatoes for supper, save the potato water, and use it lukewarm with enough unbleached flour to make a thick batter. without yeast.

This is a good way to make it in camp, where you have no yeast available and want fast results. This is also the way most farm girls made it in the olden days. Let stand a day or so, or until it smells right.

GRAPE SOURDOUGH STARTER RECIPE

The following Italian sourdough starter, or biga, uses the wild yeast naturally present in grapes. The fruit also provides the sugar on which the yeast feeds.

1 bunch organic grapes
2 c. white bread flour
2 c. water

Crush the grapes slightly, and measure out about 2 c. into a glass bowl. Add the flour and water. Mix with a wooden spoon until the batter has become thick and goeey. Cover the bowl with a clean towel and let it set at room temperature overnight. The next day, check the starter for bubbles of gas coming to the surface, a sure sign of fermentation. Be patient: This can take as long as 5 days in some environments. Once the starter has begun to ferment, strain out the grapes and "feed" the starter with a bit of flour and water. You can use the starter right away, or you can let it set for another few days. The longer you let the starter ferment, the stronger the flavor of your bread will be; after about 4 days, chances are it will be too sour to eat. If you aren't ready to make bread right away, or if you've made enough starter for several loaves, you can freeze your starter and save it for later. Simply divide it into 1-c. portions, wrap each one in 2 layers of plastic, and put them in the freezer. To bring the starter back to life, let it set in a glass bowl overnight at room temperature. When the yeasts "wake up," the fermentation process will start again.

SCOTTISH PIONEER SOURDOUGH BUTTERMILK BISCUITS

(PROVO DAILY HERALD – MORMON HISTORY)

2 c. all-purpose flour 1/2 c. butter
1 tsp. salt 1/2 c. buttermilk
1/2 tsp. baking soda 1 c. sourdough starter
1 tsp. baking powder melted butter

Sift together flour, salt, baking soda and baking powder. Using a pastry blender or a fork, cut in butter until mixture resembles cornmeal. Mix together the buttermilk and starter. With a fork, stir in starter mixture until a soft dough is formed that cleans the sides of the bowl. Turn out onto floured surface and knead gently for 30 seconds. Roll dough to form a circle 1/2-inch thick. Cut into biscuits with a 2-inch round cutter. Place in a lightly greased baking pan with sides touching. Brush tops with melted butter. Cover and let rest for 30 minutes. Bake at 425° for 12-15 minutes or until tops are golden brown.

SOURDOUGH RECIPES

from Richard Packham

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To learn about sourdough and get a free starter, [click here](#).

In all sourdough recipes, the term "fresh starter" means starter that has been "fed" within the past eight to twelve hours and allowed to freshen at room temperature. For fresh starter, take a c. of your stored starter one day ahead of time, add an amount of warm water and an equal (or slightly greater) amount of flour to it. The amount of water should be what is called for as "fresh starter" in the recipe. Allow it to set over night at room temperature, covered loosely. The next day, stir it down, measure out the amount of fresh starter needed for your recipe, and return the remainder to the storage container, stirring it in well (this "feeds" your stored starter). Then proceed with the recipe.

EVERYDAY SOURDOUGH BREAD (for five loaves)

The night before baking, mix in a very large bowl a batter made of:

- 2 c. sourdough starter
- 4 c. lukewarm water
- 5 c. flour

Mix well, although there may still be small lumps. Cover lightly and leave overnight at room temperature. The next morning, stir down the batter and return 2 c. to your permanent sourdough container. Add:

- 3 c. lukewarm water
- 1/4 c. sugar
- 1 Tbsp. salt
- 1 c. powdered milk
- 1/4 c. margarine or butter, melted and cooled (1/2 stick)
or vegetable oil
- flour (white, whole wheat, or a combination thereof; up to 10% other flours may be used)

Stir in about 5 c. of flour and beat well. Add about 5 or 6 more c. gradually, until too stiff to stir, then turn out and knead well, adding flour as necessary until the dough is smooth and stands about 1/3 as high as it is wide when resting, or more. Place in a greased bowl, let rise until double. Punch down, let

rest 15 minutes. Shape into 5 loaves, place in greased bread pans (9 x 5 x 3). Brush tops with 1 tablespoon melted margarine or butter. Let rise until tops are almost even with top edge of pan. Bake 45 minutes at 375. Turn out immediately onto racks. For a soft crust, rub with hard butter or margarine while still hot. Freeze in plastic bags when cool.

For one or two loaves, you may use the following amounts, per loaf:

- 1 c. fresh starter
- 1/2 c. warm water
- 1 Tbsp. sugar
- 1/2 tsp. salt
- 2 Tbsp. dry milk powder
- 1 Tbsp. vegetable oil or melted shortening
- flour to make a stiff dough (2 - 3 cups)

I always weigh my dough before shaping, to make sure the loaves are equal. The dough for one loaf should weigh 28 oz. (1 lb. 12 oz.) for a perfect-sized loaf.

SOURDOUGH FRENCH BREAD

(I won a blue ribbon with this recipe at the 1995 Douglas County Fair)

Combine 1 + 1/2 c. fresh starter, 1 c. lukewarm water, 1/2 tablespoon salt, and 4 to 5 c. flour (preferably "bread" flour or hard wheat flour), kneading well until dough is smooth and very stiff. Let stand, covered, until double. Shape into two round or oblong loaves. Place on greased cookie sheets. Let rise until double in size. Slash the tops with a very sharp knife. Bake 35 minutes or until done at 425 F. During the first half of the baking time, spray the oven every ten minutes with water (or leave a pan of water in the oven while baking).

HAMBURGER BUNS

- 2 c. fresh sourdough starter, room temperature
- 1 c. water
- 1/2 c. sugar
- 1/4 c. vegetable oil
- 1 egg yolk (or 1 egg)
- 1/2 tsp. salt
- 5 to 6 c. flour

Mix all ingredients except flour together. Add half the flour, beat well. Gradually add remaining flour until too stiff to stir,

then knead 5 to 10 minutes, adding flour as necessary to keep from sticking, until dough is smooth and about 1/3 as tall as wide when allowed to rest. Place in greased bowl, turn, cover lightly to rise until doubled. Punch down, let rest 15 minutes.

Pinch off balls about the size of a medium lemon (or divide dough into 20 equal pieces), shape each piece into a smooth ball, and flatten until about 3/4 inches thick. Place two inches apart on greased cookie sheets. Let rise until almost the desired size.

Bake 15 to 20 minutes at 375 F. Makes about 20 buns.

For hot-dog buns, pinch off pieces the size of a medium egg or lime. Shape to the length of a hot-dog, and about 3/4 inch thick. (Use a wooden cutting board with a handle as a roller, rolling the dough between the board and the table top, holding the board perfectly parallel to the table.) Place 1 inch apart on the greased cookie sheets. Makes about 24.

SOURDOUGH MUFFINS

(I won a blue ribbon with this recipe at the 1995 Douglas County Fair)

Preheat oven to 375 degrees. Grease muffin tin or line with paper c. for 12 muffins. Combine in a large bowl:

- 1 c. white all-purpose flour
- 1 c. of any combination of flour, oatmeal and/or bran
- 1/2 c. granulated sugar
- 1/3 c. dry milk powder
- 1 tsp. baking soda
- (1/2 c. chopped, pitted dried prunes, blueberries or raisins)
- (1/2 c. chopped walnuts)
- (1/4 tsp. powdered coriander, cardamom or cinnamon)

Combine in another bowl until well blended:

- 1/2 c. warm water
- 1/2 c. vegetable oil
- 1 egg
- 1 c. fresh sourdough starter

Add the liquid ingredients to the dry ingredients gradually, stirring only enough to moisten and bring to an even consistency. Spoon evenly into the muffin tins. Bake 30 to 35 minutes, until done. Remove immediately from the tin.

For cranberry muffins, omit the dry milk, use orange juice instead of water, increase the sugar to 3/4 cup, and use 1 c. raw cranberries instead of the fruit and nuts.

SOURDOUGH BISCUITS

This recipe makes eight very flaky biscuits.

Sift twice to combine well:

- 1 c. flour
- 1 Tbsp. sugar
- 2 Tbsp. dry milk powder
- 1 tsp. salt
- 1 tsp. baking soda

With a pastry blender, or two knives, cut in 1/3 c. shortening.

Add:

- 1 c. fresh starter
- 1/2 c. flour, or more to make the dough kneadable

When blended, knead two or three times. Roll out or pat until 1/2 inch thick. Cut in half, place one half over the other and roll out again. Repeat this about eight times. Cut out biscuits, place on ungreased cookie sheet. If desired, brush tops with oil or melted butter. Let stand 30 minutes. Bake 30 minutes at 375 F or 10-12 minutes at 450 F.

For dessert shortcakes, increase the sugar to 3 tablespoons and add one egg.

SOURDOUGH BAGELS

- 1 c. fresh sourdough starter
- 1/4 c. vegetable oil
- 1/4 c. warm water
- 2 tsp. salt
- 2+ 1/2 c. flour

Combine all ingredients and knead until smooth. Let rise until doubled in bulk. Divide into eight portions, and form each into a smooth ball. Punch a hole in the center of each and stretch evenly until about 3 or 4 inches across. Place on a floured surface and bring a large pot of water to a boil. Boil the bagels (four at a time if the pot is large enough) 3 minutes on each side. Drain and place on a greased baking sheet. Bake about 15 minutes at 450.

SOURDOUGH PIZZA

Combine 1 c. fresh starter, 1/2 c. warm water, 1/4 c. (olive) oil, 2 tablespoons sugar, 1/2 teaspoon salt. Stir in 2 to 3 c. flour, or enough to form a stiff dough. Knead until smooth. Let rise until doubled. Roll out or gently shape with hands until about 14" across and about 1/4 inch thick. Place on a greased and floured 14" pizza pan (or you can shape it to fit a rectangular jelly-roll pan). Let stand about 1 hour. Prepare the sauce by combining one 7 or 8 oz. can tomato sauce, 1 crushed clove of garlic, 1 teaspoon crushed dried oregano leaves, 1 teaspoon crushed dried basil leaves, (1/4 teaspoon ground fennel). Preheat oven to 425. Just before baking, spread sauce on dough, cover with desired toppings (1/4 lb. sliced mushrooms, 1/4 lb. cooked sausage, sliced salami, etc., 1/4 to 1/2 lb. grated mozzarella, sliced olives, sliced peppers, etc.). Sprinkle top with grated parmesan and/or romano cheese and a few dried parsley flakes. Bake 20 to 25 minutes, until done.

SOURDOUGH CINNAMON ROLLS

Combine 3/4 c. fresh sourdough starter, 1/4 c. warm water, two eggs, 3/4 c. sugar (granulated or brown), 1/4 teaspoon salt, 1/2 stick butter or margarine, melted and slightly cooled. Stir in gradually 2 to 3 c. flour, or enough to form a slightly stiff dough. Knead until smooth. Let stand, covered, until double. Roll out into a large rectangle, about 18" by 15". Melt 2 to 4 tablespoons butter, spread over the dough. Combine 1/2 to 1 c. brown sugar, 1 tablespoon ground cinnamon (1/4 to 1/2 teaspoon ground coriander or other spice). Sprinkle evenly over the dough. (Sprinkle 3/4 c. chopped nuts and/or raisins over the dough). Roll up tightly, starting at a long side. Seal the edge. Slice evenly into twelve slices. Place, cut side down, in a large greased baking pan. Let rise. Bake 20 to 25 minutes at 400. Cool on a rack. Drizzle with icing made from 1/2 c. confectioner's sugar, 1/4 teaspoon vanilla (or lemon juice), 1 tablespoon milk, enough additional confectioner's sugar to make the right consistency.

SOURDOUGH DEEP-FRY BATTER

This batter can be used to deep-fry fish, prawns, vegetables or any other food which requires a batter for deep-frying.

Combine 1 c. fresh sourdough starter, 1 egg yolk, 1 T oil, salt and pepper to taste. Stir in enough flour to make the batter the right consistency (when poured from a spoon, it should form a

triangle off the edge of the spoon before dropping rather than forming a steady stream). Beat well for one or two minutes.

Let stand an hour or so.

SOURDOUGH PANCAKES

Any pancake batter is simply a flour batter with milk, eggs, sugar, salt and liquid fat, with some kind of leavening. Use your favorite recipe, but substitute starter for most of the flour and liquid, and omit baking powder (or use a small amount of soda instead). Allowing the batter to stand for half an hour may make it lighter. If you don't have a pancake recipe, try the following:

For about a dozen 4" pancakes, combine:

1 c. starter, preferably freshened the day before
2 - 3 Tbsp. sugar
1/2 tsp. salt
2 Tbsp. melted butter or vegetable oil
1/4 to 1/2 c. flour
1/4 c. powdered milk dissolved in 1/8 c. warm water
1/2 tsp. soda
2 egg yolks
(dash of ground cinnamon or ground cardamon)

Let stand half an hour or more, if convenient. Just before baking, fold in gently 2 egg whites, beaten until peaks form. Bake on a lightly greased griddle or large frying pan, heated until a few drops of water immediately form balls and dance around. Turn once, when the bottoms are golden brown.

Another recipe for pancakes, given to me by Mrs. Edith Saxton of Glide, Oregon. Her sourdough starter came across the Oregon Trail and went to Alaska during the Alaskan gold rush. Makes a dozen pancakes.

1 + 1/2 c. fresh starter, fairly thick
1 egg
2 Tbsp. vegetable oil
1 tsp. salt
2 Tbsp. sugar
3 Tbsp. dry milk powder

Combine all ingredients. Just before baking, stir in 1 teaspoon baking soda dissolved in 2 tablespoons warm water.

SOURDOUGH BELGIAN WAFFLES

Combine and let stand overnight:

1 c. starter
1 c. water
1/2 c. powdered milk
1/2 tsp. salt
2 Tbsp. sugar
1/2 c. oil or melted butter or margarine
4 egg yolks
1 1/4 c. flour
1 tsp. vanilla extract

Just before baking in a Belgian waffle iron, beat 4 egg whites almost stiff and gently fold in. Makes 8 or 9 7" waffles, using 7/8 c. batter each.

SOURDOUGH CARROT CAKE

Grate two medium carrots, or enough for 1 cup. In a small saucepan, add just enough water to cover, and simmer about 20 minutes.

Cream 1/4 c. shortening, 1/2 c. granulated sugar and 1/2 c. brown sugar. Add 1 egg and beat until smooth. Mix in a dash of salt, 1/4 teaspoon each nutmeg and allspice, 1/2 teaspoon ground cinnamon, and 2 teaspoons baking soda.

In a separate bowl, combine 1 c. starter, 1/4 c. milk, 1 + 1/2 c. flour and the cooked carrots with their cooking water (to make 1 cup). Add 1/2 c. raisins and/or chopped nuts, if you wish.

Combine all ingredients well. Grease the bottom of a 13" x 9" pan, line its bottom with wax paper and grease the paper. Pour the batter into the pan and bake about 40 minutes in a 350 degree oven until it tests done.

For Applesauce Cake, substitute 1 c. applesauce for the carrots.

SOURDOUGH GINGERBREAD CAKE

Mix and let stand overnight:

3/4 c. starter
1 c. milk

1 c. flour

Next day, cream together

3/4 c. butter (1 + 1/2 sticks, 6 oz.)
1 c. sugar

Add
2 eggs
the starter mixture
1 c. dark molasses

Combine and add:

3 c. flour
2 + 1/2 tsp. baking powder
2 tsp. ground cinnamon
1 + 1/2 tsp. baking soda
1 + 1/2 tsp. nutmeg
1 + 1/2 tsp. ground ginger
1/2 tsp. salt
1/4 tsp. ground cloves

Pour into a greased and floured 10-inch tube pan.
Bake one hour at 325 degrees F.

SOURDOUGH CROISSANTS (makes one dozen)

(Although the time for preparation from start to finish is quite long, the actual working time required is short, and these croissants are as flaky and tender as any you can buy at the pastry shop. And they cost only a fraction as much!)

Combine well:

1/2 c. starter
2 Tbsp. sugar
1/2 c. warm water
3/4 c. flour (preferably bread flour)

Let stand three hours or overnight, until expanded to about 2 cups.

Slice 2 sticks of cold butter (no substitutes!) into quarter-inch slices. Place side-by-side on a sheet of waxed paper, forming a square. Dust with 1 tablespoon flour. Cover with another sheet of waxed paper and roll or press the butter between the papers until

the slices are combined into a single slab of butter about 9" x 9".
Chill the butter about 1 hour in the refrigerator.

Mix into the starter to form a soft dough:

3 Tbsp. sugar
1 tsp. salt
1/4 c. cold milk
1 c. flour (preferably bread flour)

Knead a few times on a well-floured surface, adding up to 1/4 c. more flour as necessary. Cover and chill about 1/2 hour in the refrigerator.

On a well-floured surface, quickly roll out the cold dough into a rectangle about 15" x 10". Cut the cold butter in half and place one slab of butter across the center one-third of the dough. Fold one end of the dough over the butter, and then place the other half-slab of butter on it. Then fold the last third of the dough over the butter, forming a package of dough-butter-dough-butter-dough, about 10" x 5". Pinch the edges together so that there is no butter showing.

Quickly roll out this package of dough and butter into a rectangle about 10" x 15". Fold it again into thirds, forming a package about 10" x 5" and chill in the refrigerator at least an hour.

Repeat the previous step once more (roll out to 10" x 15", fold in thirds, roll out and fold again, chill).

Prepare two large jelly-roll pans by lining them with waxed paper and grease the paper lightly. (Do not use rimless cookie sheets.)

Roll out the dough into a rectangle about 10" x 15". Cut the dough into six 5" x 5" squares, then cut each square diagonally forming twelve triangles, 5" x 5" x 7". Flatten each triangle to about 1/8 thickness, by rolling from the longest side to the point, stretching it until the point is about 8" from the longest side. Starting at the longest side, roll it up tightly. Turn so that the point is underneath the roll, then bend the two ends so that they curl around toward the point. Place each croissant on the pans. Let rise in a warm place about one hour.

Preheat the oven to 375 degrees. Bake the croissants 20 minutes, then turn off the oven and let them set in the warm oven an additional

10 minutes. (If you bake both batches at the same time, one on an upper shelf and one on a lower shelf, you might want to reverse their positions half-way through the baking time.)

(If you wish, you may glaze the croissants, just before baking, with a glaze made of 1 egg beaten with 1 tablespoon of milk.)

SOURDOUGH PUMPERNICKEL BREAD

(This recipe is the result of numerous unsuccessful experiments to try to get a firm, dark pumpernickel that slices very thin. I finally found that this combination works very well.)

Combine:

1 c. fresh starter
1/4 c. warm water
1 Tbsp. vegetable oil
2 Tbsp. dark molasses

Add:

2 Tbsp. gluten flour
1 Tbsp. baking cocoa
1/2 tsp. salt
1 Tbsp. dry milk powder
1 Tbsp. ground caraway
1 c. rye flour
1 c. whole wheat flour

Knead well (at least ten minutes!), shape into a loaf, place in a greased loaf pan 7.5 x 3.5 x 2.25 inches. Grease the top lightly. Let rise until almost doubled, four to six hours. Bake 30 to 35 minutes at 375 F.

For one large loaf, double the recipe, use a regular size loaf pan, and increase the baking time by ten to fifteen minutes.

SOURDOUGH PASTRY (PIE CRUST)

For a 9" double-crust pie:

Sift together:

1 + 2/3 c. all-purpose flour

1/2 tsp. salt

1/4 tsp. baking soda

Cut in 2/3 c. shortening until it resembles coarse crumbs.
Stir in 1/2 c. fresh starter, just until all ingredients are
moistened. Add a few drops water if too dry, a spoonful
more flour if too moist. Cover or wrap and let stand 30
minutes. Roll out, use and bake as for any pie crust.

<<http://home.teleport.com/~packham/sourdrec.htm>>

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