

# Simple Sourdough Class

with Pam Cantrell, Ph.D.

RoseRed Homestead

In this class we will learn the following:

- A little bit about the science of sourdough
- How to start a sourdough culture from scratch
- How to start a sourdough culture from a purchased powdered packet
- How to feed your sourdough culture
- How to manipulate starter and bread dough hydration for desired results
- How to use the same culture for both mild and tangy sourdough bread
- How to make sourdough bread
- How to use starter discard for other recipes to reduce waste

Equipment you will need:

- Quart size mason or other jars with lids
- Mixing bowls and wooden or silicone spoons/spatulas and whisks
- A kitchen scale—this is a must for the greatest accuracy. Here is the one I use <https://amzn.to/3WZWskx>
- Measuring cups and spoons
- 6 quart Cambro round storage container with lid or similar container
- Proofing basket or banneton or bowl lined with a tea towel
- 4 quart cast iron Dutch oven with lid
- Instant read thermometer

Terms to know:

- Dough hydration—the ratio of water compared to flour in a bread dough recipe expressed as a percent. Divide the total weight of the water by the total weight of the flour then multiply by 100. If a recipe calls for 340g water and 500g flour, then  $340/500 = .68 \times 100 = 68\%$  hydration.
- Hooch—the alcohol that sometimes separates from the sourdough starter and forms a brownish liquid layer. For a mild starter, pour it off before feeding. For a more tangy starter, stir it in.

The 4 Golden Rules of Simple Sourdough

1. Understand how sourdough works (basic science).
2. Feed your starter.
3. Let the dough dictate the timeline.
4. Don't get your knickers in a knot.

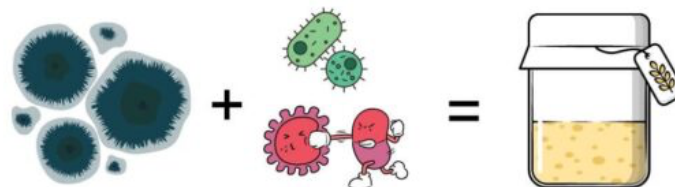
## The Science of Sourdough

A sourdough starter is a wonderful microcosm of organisms including wild yeast and good bacteria. When provided with food (flour and water) and a comfortable environment, the normal life processes of these organisms produce the gas (carbon dioxide) that causes your bread to rise, and the lactic and acetic acids that give your bread its flavor and an environment that favors fermentation. Sourdough bread is easier to digest than breads made with commercial yeast because the enzymes in the fermentation process break down and reduce the gluten content of sourdough bread.

### HOW DOES SOURDOUGH STARTER WORK?



EQUAL PARTS FLOUR AND WATER LEFT TO FERMENT AT ROOM TEMPERATURE



WILD YEAST & GOOD BACTERIA BEGIN TO COLONISE YOUR SOURDOUGH STARTER AND BUBBLES START TO FORM



AS IT MATURES, STARTER RISES BECAUSE YEAST PRODUCE CARBON DIOXIDE GAS WHICH IS TRAPPED IN THE GLUTEN NETWORK.



CARBON DIOXIDE FROM THE YEAST MAKES YOUR SOURDOUGH BREAD RISE WHILE LACTIC AND ACETIC ACIDS FROM THE BACTERIA GIVE YOUR BREAD FLAVOR.

[WWW.PANTRYMAMA.COM](http://WWW.PANTRYMAMA.COM)

## Starting a Sourdough Culture from Scratch

### Day 1

In a small bowl whisk together 1 cup flour and 1½ cups warm (NOT hot) water. You may use any flour you wish. I usually use ¾ cups unbleached all-purpose flour and ¼ cup freshly ground rye flour. Whole grain flour like wheat or rye often contains more wild yeast than white flour. With successive feedings I use all unbleached all-purpose without the rye. Pour the starter into a quart jar and leave out on the counter at least 24 hours. You may see some tiny bubbles have formed, but bubbles or no bubbles, simply proceed.

### Day 2

Measure 1 cup of the starter from the jar, place it in a small bowl, and discard the rest from the jar. Mix in 1 cup flour and ½ cup water. Place back into the jar—don't wash the jar! The residue will contribute to the fermentation of the starter. Within 24 hours you will likely see a few bubbles forming.

### Day 3

Repeat day 2. Within 24 hours you will likely see the starter rising in the jar, then falling.

Repeat the Day 2 instructions daily until the starter has a regular cycle of feeding, rising almost to the top of the jar, and then falling within about a 12 hour period. Once the cycle is regular, continue strengthening the starter by keeping it out on the counter and feeding once or twice daily for another 3-7 days.

Your starter is now ready to use in recipes although it will continue to mature for the next few weeks as you use it. From here on out you will need to always hold back a portion of the starter, known as the “mother” when you remove some of the starter for a recipe. If you are not going to use the starter regularly, refrigerate it after a feeding when it has risen and fallen.

### Regular Feeding—100% Hydration

From now on we will use a 100% hydration for feeding, meaning we will use the same amount by weight of starter, water, and flour. The table below provides approximate equivalent volumes for the weights for convenience; however, the weights (grams) are more accurate. An easy 100% hydration not shown in the table is if you have a kitchen scale, simply weigh out 100g of each of the 3 ingredients.

Ingredient	135 Gram Ratio		150 Gram Ratio		250 Gram Ratio	
	Grams	Cups	Grams	Cups	Grams	Cups
Starter	135g	½ cup	150g	2/3 cup	250g	Scant 1 cup
Water	135g	½ cup	150g	2/3 cup	250g	Scant 1 cup
Flour	135g	1 cup	150g	1 1/3 cups	250g	1¾ cups

If you keep the starter on your counter for frequent use, feed every day. If you refrigerated the starter, feed it at least once every 7 to 10 days. Remove it from the refrigerator and measure out the desired amounts. Mix together and put back into the jar. Allow it to rise and fall, then refrigerate. This mixture will yield about a cup of starter for a recipe and ½ cup for the mother to keep your starter going.

#### To use

The morning of the day before you plan to use ripe starter (Ripe means freshly fed and at its peak rise.), remove jar from the refrigerator and feed. Feed again just before you go to bed and it will be ripe by morning. In the morning, remove up to 1 cup for your recipe from the jar and feed the remaining mother as usual after discarding any extra. Leave the jar out on the counter until it has completed the rise and fall cycle, then refrigerate. If a larger amount of ripe starter is needed, simply feed according to the larger amounts from the table.

Note: Some people like me often do only the nighttime feeding. With a robust and mature starter, it seems to work just fine.

### Flexibility with Your Starter

Now that you have experienced the process of culturing a starter from scratch and understand the basics of hydration, you can use your starter to develop different starters for different purposes and flavors. For instance, the tips on p. 6 suggest several ways you can adjust your starter to get a more tangy sourdough bread. Here is what I do when I want to adjust my starter.

- I always keep the mother of my 100% hydration starter pure and unaltered. It is my basic starter, so I always want to have it available.
- To make a new adjusted starter I wait until I am ready to feed my basic starter and then use the discard for making the adjusted one and I put it in a new jar.
  - For a stiff starter I might use 100g discard, 100g flour, and 70g water for a 70% hydration.
  - For a looser starter, say 125% hydration, I use 100g discard, 100g flour, and 125g water.

## Recipes

### Mild Sourdough Boule (12-24 hour process, depending)

Begin process early in the morning. You will work with the dough several times during the day, but your total time will be under 30 minutes. Most of the time the dough is proofing and fermenting. You may be able to bake the same day depending on how fast your starter acts, or you can refrigerate the shaped dough and bake the next morning.

120g (½ cup) ripe starter (100% hydration)

310g water (room temp—about 70°F)

Mix together then add:

10g (1¼ tsp) salt

500g (4 cups + 2 tbsp) bread flour or 300g all-purpose flour and 200g wheat flour

Mix using a wooden spoon until dough is shaggy then pull the dough together using the caterpillar mixing method\*. Cover with wet towel or plastic wrap and allow to rest for 60 minutes. Do 4 stretch and folds with 20 minutes between. After 4<sup>th</sup> fold, remove dough the Cambo container or to a clean oiled bowl, cover, and allow to rise at a room temperature for about 2-12 hours until just about double—this is the bulk fermentation. Remove dough to counter and lightly flour top and bottom. Bring corners into center to make a ball. Place ball on un-floured counter and pull toward you to stretch top to shape the boule. Repeat several times going all around the ball.

Place boule in a floured banneton or in a bowl lined with a tea towel and cover with a plastic bag or wrap. At this point you can choose to refrigerate it for 12-36 hours for final proofing and flavor development, or if you want to bake the same day and have several hours left, leave it on the counter until fully proofed, which may take 1-6 hours.

Preparing to bake after fully proofed

If dough was refrigerated, remove it from fridge and allow to warm for about 60 minutes. Test to ensure it is fully proofed with finger poke test\*\*. Meanwhile preheat oven with Dutch oven inside to 500°F for 45-60 minutes. Turn the dough out of the banneton onto a piece of parchment paper. You can turn it seam side up if you want the dough to expand and open naturally while baking or turn it smooth side up and score the top to control the expansion of the loaf while baking. Remove the lid from the Dutch oven and place the dough in the pot using the parchment paper as a sling to lower it into the pot and then leave the paper in place while it bakes, or without the paper using oven mitts. Replace the lid. Immediately lower oven temp to 450°F. Bake about 20 minutes and remove the lid for final browning. Continue baking for 5-7 minutes until the bread is golden brown and an instant read thermometer reads 190-195°F. Turn the bread out on a rack to cool.

\*The caterpillar mixing method is best understood by watching the video. It involves pinching the dough in a way that makes it look like segments.

\*\*Finger poke method for testing proofing

Flour your index finger and press it into the dough up to your first knuckle then pull it out. If the hole bounces back immediately the dough needs more proofing. If it moves back slowly and leaves a slight impression, it is ready.

How to Get More Tang into Sourdough Bread

The degree of tang depends on several variables and not just the tang of the starter. You can use your regular starter for making bread with more tang by making a few simple changes:

- Use a bit of rye flour in the recipe or when feeding the starter.
- Keep your starter at room temperature and starve it by not feeding for 2 days at a time. It will develop more acid that way. If hooch forms, stir it back into the starter. Feed it the night before you plan to mix the bread and allow it to go beyond the ripe stage until it starts to fall before using it for the dough.
- Use a stiffer starter that has the same hydration as the final dough.
- Use less starter to produce a longer fermenting time, about 10% of the weight of the flour.
- Perform more folds on the dough—6 to 8—after bulk fermentation degas the dough before shaping to kickstart the yeast again.
- Use a warmer spot in your kitchen for the bulk fermentation to encourage the formation of lactic acid, and then a long refrigerated final fermentation and proofing time after shaping to encourage the formation of acetic acid.
- If all else fails, you can add up to 1/8 to 1/4 tsp citric acid to the dough along with the salt. Adding more than that will ruin the taste. Some folks think this is cheating!

## Moderately Tangy Sourdough (about 3 days)

The amount of starter in this recipe is 10% of the weight of the flour, or 50g. In addition, the starter should be the same hydration as the dough, which is 62%. The night before you plan to make the dough, feed your regular starter then take 100g of the discard, add 100g flour and 62g water to make the 62% hydration starter for morning. This recipe also uses a warm bulk fermentation and a long cold final fermentation and proofing period in the refrigerator to encourage the development of the acids that will result in the tangy taste. Be sure your starter is just beyond the ripe stage and starting to fall for best results. Your total work time will be about 30-45 minutes.

50g (¼ cup) slightly overripe starter (62% hydration)

310g (1⅓ cups) water at room temperature

450g (3⅓ cups + 2 tbsp) bread flour (12% or more protein)

50g (⅓ cup + 1 tbsp) whole grain flour—rye or wheat

10g (1¼ tsp) salt

In a large bowl mix starter with the water to soften the starter. Add flour and salt and stir together with a wooden spoon until the shaggy dough stage. Complete mixing using the caterpillar method\*. Cover with plastic and allow to rest for 30 minutes. Stretch and fold the dough at least 6 times with 15 minutes in between. Place dough in the bulk fermentation container (Cambro 6 quart container or bowl covered with plastic wrap) and allow to rise until almost double in a warm spot in your kitchen, roughly 4-12 hours. Remove the dough and shape into a boule as described in the above recipes. Place boule in a banneton or a bowl or basket lined with a tea towel and cover it loosely with a large plastic bag and place in the refrigerator for final proofing and fermenting for 12 to 48 hours.

Preparing to bake when the dough is fully proofed

Preheat the Dutch oven inside the oven to 500°F for 45-60 minutes. Leave the dough in the fridge until just before placing it in the oven. Use the finger poke method\*\* to check dough for readiness. Turn the dough out of the banneton onto a piece of parchment paper. You can turn it seam side up if you want the dough to expand and open naturally while baking (This only works if there are visible dough overlaps on the bottom from when you formed the boule.) or turn it smooth side up and score the top to control the expansion of the loaf while baking. Remove the lid from the Dutch oven and place the dough in the pot using the parchment paper as a sling to lower it into the pot and then leave the paper in place while it bakes, or without the paper using oven mitts. Replace the lid. Immediately lower oven temp to 450°F. Bake about 20 minutes and remove the lid for final browning. Continue baking for 5-7 minutes until the bread is golden brown and an instant read thermometer reads 190-195°F. Turn the bread out on a rack to cool.

## Notes:

- The timeline from feeding a starter until it reaches ripeness varies, often with each feeding, making it challenging to predict a timeline when making a batch of bread. It is best to set aside a day when you will be home doing other projects and can be flexible according to how your bread dough is progressing.
- The tangy flavor of sourdough bread is due to the lactic (more like yogurt) and acetic acids produced by the bacteria. Lactic acid (smells more like yogurt) contributes the most acid but acetic acid has a more vinegary smell. Since more than 80% of our taste is due to the smell of the food, we want to encourage the development of acetic acid resulting in a more tangy taste. Lactic acid is produced in higher temperatures ranging from about 86°-95°F while acetic acid production occurs in cooler temperatures ranging from about 52° to 72°F.
- Steam is needed for a good crust formation while baking a loaf of sourdough bread. This can be accomplished several ways. We bake the dough inside a very hot cast iron Dutch oven which traps the steam from the dough as it bakes. If you don't have a Dutch oven, you can place an empty cast iron skillet in the oven while preheating and then when you put the loaf in, add some water to the skillet for steam. Another way is to fill a disposable foil roasting pan with a layer of lava rock and preheat. Add water to the foil pan when you put the bread in to bake. We have even heard of some people tossing ice cubes into the bottom of the oven when they put the loaf in to bake.
- Good sourdough needs a sturdy dough in the 60%-70% hydration range. Be careful not to allow the dough to over-proof or it will fall. When fully proofed you should be able to handle it gently without it deflating.



## Links for Recipes Using Sourdough Discard

See the Sourdough Chapter in our book, *Baking Bread for Survival and Enjoyment*, with recipes for pancakes, biscuits, bread, pizza dough <https://payhip.com/b/KPfZu>

### Sourdough Pancakes:

- <https://www.theclevercarrot.com/2020/05/homemade-fluffy-sourdough-pancakes/>
- <https://www.kingarthurbaking.com/recipes/classic-sourdough-pancakes-recipe>

### Sourdough Biscuits:

- <https://www.theclevercarrot.com/2024/11/easy-sourdough-discard-biscuits-recipe-cheddar-scallions/>
- <https://www.kingarthurbaking.com/recipes/buttery-sourdough-biscuits-recipe>

### Sourdough Pizza Crust

- <https://www.kingarthurbaking.com/recipes/sourdough-discard-pizza-crust-recipe>
- <https://www.pantrymama.com/quick-sourdough-discard-pizza-dough/#wprm-recipe-container-12163>

### Sourdough Discard Recipe Collections

- <https://www.kingarthurbaking.com/recipes/collections/sourdough-discard-recipes>
- <https://www.theclevercarrot.com/2020/10/sourdough-discard-101-recipes-faqs-answered-pancakes/>