

# How to Create a Sourdough Starter

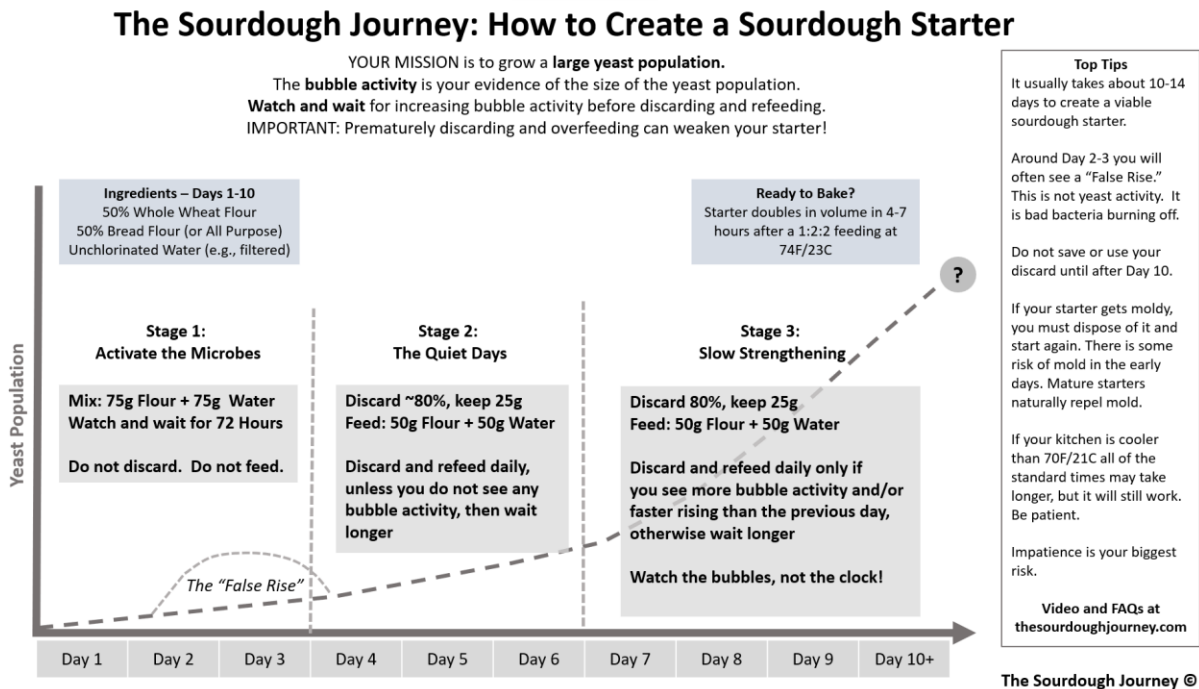
By Tom Cucuzza, The Sourdough Journey © 2023

My method for creating a new starter is based on the general method from Chad Robertson's *Tartine Bread*, with some unique modifications based on my experience.

You can watch my full-length YouTube video, "[How to Create a Sourdough Starter](#)" for step-by-step details. The video includes examples of what your starter should look like in the first nine days. Also consult The Sourdough Journey website at [thesourdoughjourney.com/faq-starter-creation](https://thesourdoughjourney.com/faq-starter-creation) for more tips, videos, and FAQs.

If you follow these instructions, you have a very high likelihood of creating a viable sourdough starter in 10-14 days. Every starter is unique. Yours may develop more quickly or more slowly than the guidance.

The chart below is a summary of the process. A full-size, printable version is included at the end of this document.



## TOOLS

To create your sourdough starter, you need a **food-safe jar** with a lid. I recommend a wide-mouth, one-pint (500ml) glass canning jar with a plastic screw top lid. You can use any food-safe container with loose-fitting, solid lid. Do not cover your starter jar with coffee filters, paper towels, or cheesecloth.

You will also need a **digital kitchen scale**. The flour and water should be weighed, in grams. If you don't have a scale, you will eventually need one for sourdough baking, so it makes sense to purchase a scale now. Trying to use volume-based measurements, like cups, is very imprecise and will not produce the best results with your starter or your loaves.

## INGREDIENTS

The only ingredients you need to create a sourdough starter are flour and water!

### Flour

When creating a new sourdough starter, it is **essential** to use at least 50% whole wheat flour or 25% rye flour. The remaining 50% or 75% can be bread flour or all-purpose flour. I recommend a blend of **50% whole wheat flour and 50% bread flour**.

Many starter recipes suggest you can create a new sourdough starter by using 100% bread flour or 100% all-purpose flour. **Do not follow these recipes.** They have a very high failure rate if you exclude the whole wheat or rye flour.

Always choose fresh, unbleached flours. Organic is preferred but not required.

Prepare a 50/50 blend of **whole-wheat flour** and bread flour.

Mix:

- 300 grams whole-wheat flour
- 300 grams bread flour (You can substitute all-purpose flour if necessary).

Blend these dry flours in a covered kitchen storage container. You will use this 50/50 flour blend to feed your starter for the first 10 days.

### *Why use two types of flour?*

Dormant, wild yeast cells exist in nature, and they are attached to the outside shell, or **hull**, of wheat berries in the field. When **whole-wheat flour** is milled, the yeast cells (and their microbial companion – lactic acid bacteria cells), end up in your bag of flour.

When all-purpose flour or **bread flour** is milled, the hull (and most of the beneficial microbes) are removed and discarded at the mill. However, these refined flours are more easily converted into sugars – the food for the microbes.

In your 50/50 blend of flours, the whole-wheat flour provides the “bugs,” and the bread flour provides the “food.” It is the perfect combination for growing a new starter.

### Water

You should use **unchlorinated** water to feed your starter. I use kitchen tap water, run through a water filter to de-chlorinate it. You can use spring water, bottled water, or other de-chlorinated water. Distilled water is not recommended. Some reverse osmosis (RO) filters can strip essential minerals from water. Home bakers have mixed results with reverse osmosis water. If you have an RO filter, I’d suggest trying it, but if your starter seems sluggish, try a different source. Generally speaking, any water that you would drink will work with your sourdough starter, but some are better than others.

## THE SCHEDULE

The following “daily” schedule is based on a 24-hour cycle. However, always remember – your starter does not know what time it is.

Many popular starter feeding schedules adhere to strict timing of the feedings (e.g., “every 24 hours,” or “every 12 hours”). My method uses a general daily feeding schedule, but the key to this method is learning to **read the starter** to determine the optimal time to feed it. If your starter is developing ahead of schedule, you may feed it sooner, if it is slower than expected, you may skip a feeding. Follow the instructions below to learn how to **observe** your starter, and determine when it is ready for re-feeding.

In the 10-14 days it takes to create a new starter, your fledgling starter will experience long periods of inactivity. Be patient. It is always better to feed a new starter “too late” versus “too early.” When in doubt, **always watch and wait**. It is never a bad idea to give your starter more time between feedings. It is impossible to starve your starter to death. It is **very possible** to weaken your starter by overfeeding it and being impatient.

If your starter is not following the timeline described below, **always** err on the side of giving it more time between feedings, versus less time. You can’t force-feed a starter to make it grow faster.

## THE “WATCH AND WAIT” METHOD

Your goal is to create a strong sourdough starter. You will do this by growing a large, healthy **yeast population**. Your job is not only to feed the starter, but also to **optimally time** the feedings by “watching and waiting.”

### Watching – for bubbles

Unless you have a microscope in your kitchen, you cannot see or count the yeast cells in your starter, but yeast cells create carbon dioxide when they eat, and carbon dioxide creates **bubbles** in your starter. The bubbles are evidence of the size and health of your yeast population. You want to see growing bubble activity each day because more bubbles indicate that your yeast population is growing!

The bubble activity will tell you when your starter is eating and reproducing. **Yeast cells do not eat in secret**. Yeast cells always create bubbles when they eat. If you do not see any bubble activity, this means the yeast cells have not yet eaten the flour from the last feeding – they still have a full plate of food.

### Waiting – to feed at the right time

In the early days of creating a new starter, you will see many days of very minimal activity. Be patient. If you feed your starter and it does not produce **any** bubbles before the next scheduled feeding time, just **give it more time**.

During these days of minimal activity, some people grow impatient and believe they can speed up their starter’s growth by discarding and refeeding it more frequently. This is the **biggest mistake** you can make with a new sourdough starter. Discarding and refeeding a weak starter before it shows increasing bubble activity can **make it weaker!**

There is one exception to this general rule. You will read more about the “**Stall Point Test**” in the troubleshooting section of this document.

## THE FIRST 10 DAYS OF CREATING A NEW SOURDOUGH STARTER

All new sourdough starters go through a very similar growth cycle in the first 10 days. The cycle is depicted on the charts and described in detail here.

### DAYS 1-3: STAGE 1 - ACTIVATING THE MICROBES

#### Day 1 – The Initial Mix

Create your initial mix by combining 75g of your flour blend with 75g of water in a jar. Stir the mix vigorously. Your starter should be a thick enough consistency that if you turn the jar upside-down, the mix will not pour out. Scrape down the sides of your jar and clean the rim. Seal the jar with a loose-fitting lid. Put your jar in a slightly cool (68F/20C) place, if possible. In this step, you are rehydrating and reactivating the dormant yeast cells and lactic acid bacteria cells that are naturally found on the flour (mostly the whole-wheat flour).

#### Day 2 – A Few Bubbles

24 hours after the initial feeding, inspect your starter. You should start to see some bubbles forming on the surface. This is a good sign. Your starter may emit all kinds of strange odors in the first few days (e.g., cheese, alcohol, dirty socks, vomit). This is normal. Let it rest for another day.

If your starter is drying out on top, or if you see clear liquid separating on the top, middle or bottom of your starter, stir it up every 12 or 24 hours.

#### *What is the clear liquid in my starter?*

In the early days, you will often see a **clear layer of liquid** forming on the top, middle, or bottom of your starter. This is **water separation**, and it is commonly found in new, weak starters.

It is easy to mistake this clear liquid for “hooch.” Hooch is a type of alcohol that forms on top of a very mature starter when it has vigorously risen and fallen and has consumed all the flour. It is virtually **impossible** for a new starter to produce hooch. Ignore people or guidance telling you your clear liquid is hooch (which is an indication of a hungry starter). Hooch only occurs in mature starters. Your starter still has plenty of food. Stir it up and be patient.

#### Day 3 – The False Rise

48 hours after the initial feeding, inspect your starter. On Day 3 (or sometimes Day 2), you will see a lot of activity and frothy bubbles on top. Sometimes the starter will vigorously rise in the jar. This is a **false rise**. It is not the yeast rising. It is bad bacteria burning off of the flour. Although it looks strong, your starter is not ready to use. It will take another 7-10 days to flush out the bad bacteria and slowly build the yeast population. Your starter may smell disgusting during the false rise. This is normal.

Do not discard or feed on Day 3. Your yeast population is still growing. You want to give your starter **72 hours** after the initial feeding, before your first discard and refeeding. This guidance is different than many other methods which may tell you to feed and/or discard in the early days, but the three-day activation period, without discard or feeding, is the key to getting your starter off to a strong start.

If, at the beginning of Day 3 (48 hours after the initial mixing), your starter has vigorously risen and fallen, and all the bubbles have **disappeared** (this would be very uncommon), then your starter is ahead of schedule, and you should follow the discard and feeding instructions from Day 4.

### ***What about mold?***

Mold spores are everywhere in our environment, including in bags of flour. When creating a new starter, there is always a risk of mold growth until the starter is fully established (around Day 10). Keep an eye out for mold growth on the surface of your starter.

However, also keep in mind, that whole wheat flour contains black specks, it is made from “red wheat” which can give it a pinkish hue, and when it forms bubbles on the surface, the bubbles can be white. When whole wheat flour dries out or oxidizes, it may turn dark brown.

*The type of mold you are looking for is generally the classic, gray, fuzzy stuff that you would see on stale bread or old cheese. It is unmistakable. Red, orange and yellow bacteria can also occur, but is even less common than mold. You will know it when you see it.*

If you find mold in your starter, you need to dispose of it, sterilize your tools and start again. It is uncommon but does happen from time to time.

## **DAYS 4-6: STAGE 2 - THE QUIET DAYS**

After seeing the vigorous bubble activity of the “false rise” in the first few days, many bakers become discouraged when their starter then becomes very quiet, with little activity around Day 4. This is perfectly normal. This period is known as the “quiet phase” as the bad bacteria have subsided, and the yeast begins the hard work of slowly reproducing and building its population.

### **Day 4 – First Discard and Feeding**

72 hours after the initial feeding, inspect your starter. The “false rise” may still be peaking, or it may have subsided.

First Discard and Feeding – Discard approximately 80% of the contents of the jar (keep 25g of carryover starter). Feed the 25g of carryover starter with 50g of your flour blend and 50g water. Stir it vigorously. Scrape down the sides of your jar. Cover it with a loose-fitting lid. Mark the height of your starter, after mixing, on your jar with a marker or rubber band.

This blend of carryover starter, flour and water is known as a **1:2:2 feeding ratio**, with one part starter, two parts flour, and two parts water, by weight, in grams. You will follow this ratio for 10-14 days.

From Day 4 forward, your starter can benefit from being kept slightly warmer. Try to keep it between 75F/24C and 80F/27C, if possible. If your kitchen is cooler, the process will still work, but the timing may be slower than indicated here. Never maintain your starter above 80F/27C for long periods of time. You won't kill your starter until it reaches 130F/54C, but keeping it above 80F/27C can make it very acidic. Do not keep your starter in the oven with the light on. Too many people bake their new starters.

Also, do not save your discard for the first 10 days. It can contain undesirable bacteria.

If you have not yet seen **any** bubble activity on the surface since the initial feeding on Day 1, your starter is likely not going to activate. Restart the process using a different bag of whole wheat flour.

## Day 5 – Surface Bubbles

On Day 5, you should see bubbles on the surface of your starter, but it may be fewer bubbles than you saw during the “false rise.” This is common and is perfectly normal.

Inspect your starter. If you do not see **any** bubbles, stir it up and wait 12 to 24 hours. This is the most critical time to be patient. Premature discarding and refeeding at this point will **weaken** your starter.

When you discard, you are removing 80% of the nascent yeast population you are trying to grow. The yeast needs to re-grow its population by 400%, just to get back to the pre-discard population! Give it time to do its work.

When you see some bubble activity on the surface, you can discard approximately 80% (keep 25g of carryover starter) and feed it 50g flour and 50g water. Stir it vigorously. Scrape down the sides of the jar and cover it with a loose-fitting lid.

## Day 6 – More Bubble Activity on the Surface

On Day 6, you should see more vigorous bubble activity on top of your starter than you saw on Day 5. If you do not see more activity, then wait until you see increased activity before discarding and refeeding. You may need to wait 6 hours, 12 hours, or 24 hours longer than expected. Ignore the clock, watch for increased bubble activity over the previous day’s activity.

When you see increased bubble activity on the surface, you can discard approximately 80% (keep 25g of carryover starter) and feed it 50g flour and 50g water. Stir it vigorously. Scrape down the sides of the jar and cover it with a loose-fitting lid. Do not save your discard until at least Day 10 it can contain harmful bacteria.

## DAYS 7-10+: STAGE 3 – SLOW STRENGTHENING

### Day 7 – The First Rise

On Day 7, inspect your starter. After the feeding on Day 6, you should see your starter beginning to rise in height/volume. You should wait until your starter rises, peaks, and begins falling (i.e., “past peak”) before refeeding. However, some starters will not fall after peaking in height. If the peak is reached and has plateaued for a few hours but not fallen, this is still considered “past-peak.”

If your starter is not rising in height, look for “peak bubble activity” on the surface of the starter.

You should not discard and refeed until the starter is past-peak height, or the bubbles are receding. When in doubt, it is always better to feed your starter “too late” rather than “too early.” You can even wait until your starter completely falls flat and the bubbles have subsided before refeeding. Don’t worry about your starter “starving” in these early days. It is nearly impossible. If you choose to skip a feeding entirely, stir up your starter and wait 24 hours.

After your starter is clearly “**past peak**,” (in volume and/or bubble activity), discard 80% (keep 25g) and refeed your starter 50g of flour and 50g of water. Stir it vigorously, scrape down the sides, and cover it with a loose-fitting lid.

### ***What if my starter is not doing anything by Day 7?***

If your starter is showing minimal bubble activity by Day 7, your starter may have reached a “**stall point.**”

You can perform a test to determine if your starter has stalled. See the troubleshooting section at the end of this document for instructions on how to perform the **Stall Point Test.**

### **Day 8-10+ – Faster Rising Times**

You should see your starter rising each day now. Monitor your starter and not how long it takes for your starter to rise and peak in height after feeding. Each day, your starter should peak more quickly than the previous day. This indicates the growing strength of your starter. Also, note the temperature of your starter, as warm starters will rise faster than cool starters.

For Day 8-10, follow the same steps as indicated on Day 7. Inspect your starter and wait until the starter is clearly “past peak” in volume and/or bubble activity before discarding and refeeding. When it is clearly “past peak,” discard 80% and feed it 50g flour and 50g water.

### **When is my starter ready for baking?**

The “standard test” of a starter’s readiness for baking is when it is roughly doubling in volume in 4-6 hours after a 1:1:1 feeding (equal parts starter, flour and water) at 74F/23C.

With this method, we are using a 1:2:2 feeding ratio, so your target rise time may be 4-7 hours after feeding.

A cooler starter will rise more slowly. This does not mean it is weaker – it is just cooler. A strong starter that doubles in volume at 74F/23C in 6 hours may require 10 hours to double at 65F/18C. The starter is not “weaker,” – it is just cooler.

Also, some starters will not double in volume. The height of the rise is a function of the type of flour, the hydration, and other factors. You should be focused more on the **speed to peak** than the **height of the rise**. A fast-rising starter that doubles in four hours is stronger than a slow-rising starter that triples in eight hours.

You typically want to see your starter passing the rising test for **three consecutive days** before using it for baking. After your starter has passed the test, you can use it to make your first loaf, but the rising times may be slower than indicated because your starter is immature. Adjust your timing expectation and get started baking! Your starter will continue strengthening during its first 30 days.

You can also begin saving your discard once it has passed the “ready to bake” test. You can find recipes that use sourdough discard to add a unique flavor to all kinds of baked goods. There are also ways to reduce or eliminate discard once your starter has matured.

### ***What about mold after Day 10?***

After 10 days, a mature starter has a low pH (high acidity) that will repel mold and other pathogens. If your starter gets moldy, you must throw it away and start again. Mold is much less of a risk in a mature starter. It is uncommon, but it does happen from time to time. Once your starter is ready for baking, store a jar of your starter in the back of your refrigerator. This is your “insurance policy.” If something goes wrong with your main starter you can recover it from your backup jar. Replace that jar monthly.

## **TROUBLESHOOTING AND TIPS**

Periodically check my website's [Starter Creation Page](#) for updates, FAQs, troubleshooting tips and new videos.

## **NEXT STEPS**

Once your starter is established, check out [thesourdoughjourney.com/faq-starter-maintenance](https://thesourdoughjourney.com/faq-starter-maintenance) to begin the next stage of your sourdough journey!

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