# Make Your Own



# Sourdough Starter Teresa L Greenway

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### How to Make Your Own Sourdough Starter

#### **Capture and Harness the Wild Yeast**

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#### Introduction



Bakers have used wild fermentation for unknown centuries to leaven their bread. Fermentation is a natural process that doesn't need much help to get going. People once thought that the wild yeast was "caught" from the air or the surroundings. Although that is possible, it isn't what usually happens. Grain is naturally covered with microorganisms that are suitable for fermenting. The same process is at work when grapes are pressed to make wine. Grapes are covered with the yeast that is suitable for making wine. So the grains and the grapes bring their own fermentation buddies with them.

Basically, you just add flour and water, give it some time and you will end up with a sourdough starter that you can use to make great sourdough bread with.Some bakers make fresh sourdough starter or "levain" on a regular basis. Other people swear by grandma's century old starter brought over with the covered wagons. Microbiologically, once a starter is stable and kept healthy it doesn't actually get any better with age. But a little romance with the story of the family starter grandma kept alive on the wagon train is perfectly fine. As long as the starter works, produces great flavorful bread and is healthy, it doesn't really matter much.

So let's get right down to it and make some sourdough starter. I will be giving you several types of starters you can make and a "motherdough" pre-ferment. You can also follow videos on how to make sourdough starter and bake sourdough bread on my You Tube channel : NorthwestSourdough

Happy Baking! Teresa L Greenway

#### How to Make Your Own Sourdough Starter



#### How to Make and Care for Your Own Sourdough Starter

When you add water to some flour, a fascinating process is set in motion. The microorganisms that live on the grain, which has been ground into flour, begin to digest the starches and sugars in the flour, producing gas and enzymatic activity.

This process is called fermentation. Fermentation renders flour more digestible by breaking down Phytates present in the grain and predigesting the gluten and starch. During fermentation, strands of gluten (called Glutenin and Gliadin), present in some grains, particularly in wheat, bond together, forming a sticky web which traps gas bubbles and causes dough to rise.

To start this process, it is helpful to have a culture of these microorganisms. In everyday language, one of these cultures is called a sourdough starter. If you can't obtain a sourdough starter from someone, you can make your own. Making your own sourdough starter is easy and fun, it just takes a few ingredients and time (about two weeks). When you are finished, you will be ready to bake sourdough bread in your own kitchen.

#### **Gather Your Equipment and Ingredients**



#### **The Container**

For the container which you will use to keep your sourdough starter in, use a food grade plastic container (a large yogurt container or plastic ware will do fine), a crock pot or a bowl with a lid which can hold around 32- 48 fluid ounces, something that will hold around 4 - 6 cups. Do not use a container that is made of reactive metal. Also, do not use a reactive metal implement to stir your starter with. Stainless steel is fine to use. You can use a glass container, but there is a risk of getting pieces of glass in your starter if you accidentally hit the edge with something. A lid for the container is important because the starter should be covered to keep out dust and insects, especially pesky fruit flies. It will also slow down the rate at which the starter evaporates. You can have a snug fitting or a loose lid, either one works as the oxygen is good to help get the fermentation going ( for some of the yeast activity) but most the micro-organisms themselves are anaerobic (especially the Lactic Acid Bacteria) and don't require oxygen.

#### Flour

Use fresh flour. Unbleached white flour, whole wheat or other whole grain flour can be used. If the flour is old or has been stored in a damp place, it can be moldy, have flour bugs, or have a rancid or undesirable taste. The microorganisms necessary to get your starter fermenting are abundant in fresh flour, especially rye and whole grain flour. Bleached/bromated flour is not especially useful for making a starter; the chemicals can interfere with the process.

#### Water

Use pure water. Try to use water that doesn't contain chlorine or other chemicals in it, if possible. The microorganisms that make up the starter are sensitive to chemicals. If you only have access to tap water, set the tap water out in a container overnight to allow the chlorine to escape. Lightly cover the container with a cloth to keep out dust. You can use filtered water for making a starter. If you have to use bottled water, try to obtain water that has not been distilled, the minerals in the water help keep the starter healthy.

#### Salt

Salt is mentioned here because it can be used in small amounts to control a starter that has a problem with overfermenting. It warmer climates and with some flour, a sourdough starter can have trouble with fermenting too fast, salt helps control fermentation by inhibiting the enzymatic action especially Protease. Use sea salt or salt that has no chemical additives if you can. There are many wonderful sea salts available on the market now. A good sea salt adds not only flavor but minerals to your baking products.

#### How to Make a 100% Hyrdation Starter



Start small, and then increase amounts when you are ready to bake.

**Day 1:** In your container mix together:

- 30 grams of white flour
- 30 grams of whole grain flour (whole wheat, rye, spelt etc)
- 60 grams of water\*\* (or juice, see note below)

Keep the container at room temperature between 68-78F. Cover the container with a cloth or a loose fitting cover.

**Day 2:** Stir the mixture well. Don't feed.

**Day 3:** If the mixture has good fermentation activity, discard half and feed the starter with a mixture of 40 grams of water (or juice) and 40 grams of flour (20 grams of white and 20 grams of whole grain or a mixture of the two as long as the total is 40 grams). Stir well and cover. If the mixture has no or very little activity, just stir and allow it to set another day.

Day 4: Repeat day 3.

**Day 5:** Discard half of the starter and feed it with:

- 60 grams flour (any type you choose)
- 60 grams water (juice is no longer necessary if you were using it).

By day 6 or 7 if your starter is active and fermenting at a good rate, you could add a lot more of the feed (flour and water) in the evening and make up some pancakes, waffles, etc. by the next morning.

#### Day 6 – 14:

Continue to discard half of your starter and feed it 60 grams of water and 60 grams of flour each day. Do not refrigerate it at this point. Keep your new starter at room temperature.

\*\*See "The Pineapple Solution," by Debra Wink for an explanation of why pineapple juice can be used to jumpstart a new sourdough starter (do a Google search).

If your starter seems sluggish or just won't ferment well, discard more of the starter and feed a higher ratio of flour and water. For instance discard all but a small amount of starter (50 grams) and then feed it 100 grams of water and 100 grams of flour. See if the higher ratio of food jump starts it.

When room temperatures are warm, the starter will need to have a higher ratio of food to stay healthy.

How to Make a 166% Hydration Starter (Used in my book, "Discovering Sourdough.")



To make a 166% hydration starter, you would add together flour and salt based on <u>volume</u>. For instance 1/2 cup of water and 1/2 cup of flour. I used this hydration in my book because it is easy for newbies to work with, especially if they want to get a starter going while their new kitchen scale is coming in the mail.

So it would follow the same steps as the 100% starter, only use the same volume measurements instead of the same weight measurements.

If you have a scale and want to measure for a 166% starter, it has 166 grams of water to every 100 grams of flour. So you could mix half those amounts to get begin with-83 grams of water and 50 grams of flour.

It might look like this:

**Day 1:** In your container mix together:

- 1/4 cup of white flour (or 34 grams)
- 1/4 cup of whole grain flour (34 grams)(whole wheat, rye, spelt etc)
- 1/2 cup of water\*\* (or juice, see note below) (113 grams)

Keep the container at room temperature between 68-78F. Cover the container with a cloth or a loose fitting cover.

**Day 2:** Stir the mixture well. Don't feed.

**Day 3:** If the mixture has good fermentation activity, discard half and feed the starter with the same amounts shown above on day 1. Stir well and cover. If the mixture has no or very little activity, just stir and allow it to set another day.

Day 4: Repeat day 3.

**Day 5:** Discard half of the starter and feed it with: (we'll use smaller amounts until you need to use it for baking).

- 1/3 cup flour (any type you choose)(45 grams)
- 1/3 cup water (juice is no longer necessary if you were using it).(75 grams water)

By day 6 or 7 if your starter is active and fermenting at a good rate, you could add a lot more of the feed (flour and water) in the evening and make up some pancakes, waffles, etc. by the next morning.

#### Day 6 – 14:

Continue to discard half of your starter and feed it the same amounts( by volume) of flour and water each day. Do not refrigerate it at this point. Keep your new starter at room temperature.

A thinner starter ferments more quickly but is easier to incorporate into a dough mixture.

\*\*See "The Pineapple Solution," by Debra Wink for an explanation of why pineapple juice can be used to jumpstart a new sourdough starter (do a Google search).

#### How to Change the Hydration Level



It's actually quite easy to change hydration levels for your starter. Discard most of the starter and then begin to feed it the hydration level you wish to have. If you have a 100% hydration starter and wish to have a 166% hydration starter, just pour out most of your 100% starter and begin to feed your starter with the amounts that make up a 166% starter ie: (166grams of water to every 100 grams of flour).

If you have a 166% hydration starter and wish to change it to a 100% hydration starter, pour out most of the starter and begin to feed it equal weights of flour and water ie: (100 grams of water to every 100 grams of flour).

The same is true if you wish to have a 60% motherdough. Take a portion of your 100% starter and begin feeding it (60 grams of water to every 100 grams of flour). If you wish to be more exact you would need a hydration calculator (there are several free ones available online). I have included a formula for a 60% motherdough in this book. See the chapter "How to Make a Motherdough at 60% Hydration."

#### Change a 100% Starter to a 166% Starter

How to change a 100% hydration starter into a 166% starter (for use in formulas where it calls for 166% hydration but you have a 100% hydration starter).

Most of the formulas in my books, "**Discovering Sourdough**," are based off one cup of 166% sourdough starterwhich equals 9 ounces/254 grams of starter (at 166%).

Convert your 100% hydration starter to 166% easily by:

Combine 191 grams of starter at 100% hydration and 63 grams of water, you will have approximately 1 cup/ 9oz of starter at 166%.

191 grams (100% starter) plus 63 grams of water = I cup/ 9ounces/254 grams (of starter at 166% hydration)



#### When Can I Use My Starter?

After the first week if you want to try using your starter, begin by trying some sourdough pancakes, biscuits or scones. Make sure to feed your starter extra so you have enough for your sourdough recipe. During the second week you can try to bake a loaf of bread and see how well it does.

#### **Doubling Test**

One way to tell if a starter is ready to bake bread is to put some freshly fed starter in a clear or translucent container, mark the level, and then see if the starter doubles over the next 4 to 6 hours.



#### **Float Test**

A popular way to gauge whether your starter is ready to use in your formula after feeding it is to take some and see if it will float on top of water. Once it is bubbly and full of gasses it should float when it is ready. That is a very loose test though as a lower hydration starter would be heavier even when it is fully ready to use and a very high hydration starter won't hold the gasses and so may not pass the test even when it is ready. This test is mainly for a 100% hydration starter.

Hint: You can find lots of free recipes/formulas on my site at: <u>http://www.northwestsourdough.com</u> Just look in the blog tab.

#### Having Enough Starter for Your Formula

Let's say you've been feeding your starter 40 grams of flour and 40 grams of water each day. The evening before, pour out half and feed it the amount the recipe or formula calls for. If the formula calls for 100 grams of starter, then add 50 grams of flour and 50 grams of water to your starter the night before you plan to use it. Then after using the starter in your formula the next day, continue to feed it on the former schedule or whatever you are comfortable with ( if you want to keep more starter feed it more). If you need a lot of starter for a large batch of flapjacks or bread, don't pour out any of the starter, just feed the sourdough starter lots more food and keep it in a warm or room temperature place.

#### **Testing Your Starter's Cabability**

Years ago I set up an experiment where I took all of the starters I was keeping at the time and I tested them for how long it took them to double and then how long until they peaked (the highest level at which they fall back). I fed the starters and then measured the same amount into each jar and marked the level where the starter had risen each hour. It was fascinating because the starters had different capabilities or proofing times.

One starter was so fast at doubling that it only took three hours until it peaked and fell back. Well that might be good for a short, one day ferment for making a quick loaf of bread, but I wanted a starter that would keep on going hours after it was fed. The average or standard starter has great leavening power for about six hours, starters with shorter capabilities should be used for quick breads and one day loafs. I have a starter that will peak in about ten hours and that is a great starter for the very long fermented doughs that I like to work with.

So test your starter and see what it can do. Also don't be surprised if your starter falls back once it peaks,, but then rallies and raises up a small amount again. They will do that, but the first time it falls back is it's peak time. Once you know your starters peak time, you can adjust your bulk ferment to take advantage of your starters capability. If your starter ferments too fast and you want to slow it down, add a pinch of salt. Salt slows down fermentation.

#### **Starter Variations**

#### **Using Different Types of Flour**



If you would like to have a whole wheat or a rye starter or any other different type of starter, continue to feed your starter every day, but feed it with your preferred flour instead of white flour. You may need to adjust the amount of water, because various types of flour are capable of absorbing different amounts of water. An established starter might slow down if you change its diet suddenly. Increasing the new flour while decreasing the old flour over a few days during feeding time can help with the transition.

You will need to feed your starter every day to keep it healthy. After two weeks, with daily feedings, your sourdough starter will be mature. Now you can have fun baking with your sourdough starter. You can refrigerate your new starter for short periods of time when it isn't being used, now that it is mature. Many bakers keep their sourdough starter in the refrigerator. When they want to bake, they will take out their starter, feed it and keep it at room temperature until it is active again, then use it to bake with, feed it again and store it in their refrigerator until they want to use it again.



**NOTE:** The above procedure is a simple way to begin your own starter. Some bakers use pineapple juice (or apple cider) instead of water, to feed their starter for the **first four days**. The acidity of the juice encourages the proper microorganisms to propagate. If you want to try using juice instead of water, you only need to use it for the first four days. After day four, feed your starter with flour and water. Don't use milk, sugar or any ingredients other than water and flour to feed your starter. \*(see the Pineapple Juice Solution by Debra Wink)

Fresh whole grain flour has approximately 200 times the microorganisms\* as white flour so using some whole grain flour really helps to get the starter fermenting. Rye flour or whole wheat flour are good choices to use in making your new starter.

Some bakers prefer to use all whole grain flour without any white flour. Whole grain flour absorbs more water than white flour, so expect a whole grain starter to be drier and add extra water if you feel it is too dry (use a different hydration level).

Your starter should have the consistency of thick pancake batter or a muffin batter. With time, the fermentation process weakens the gluten and the mixture is thinner and can have a layer of liquid on top (especially for higher hydration starters). That isn't a problem, just mix in the liquid, pour out half of your starter and continue to feed it.

When you are ready to use your mature starter, you will have to figure out how much you will need to make your dough and adjust the amount that you feed your starter accordingly.



The warmer you keep your sourdough starter, the more often you will need to feed it. Another thing you can do if you live in a warm area is add a pinch of salt to slow your starter down, or adjust your ratio of starter to feed, pouring out more of the starter and giving it more feed. Also whole grain starters often need to be fed more often or a higher ratio of feed to starter to keep healthy since they ferment more quickly, you can also use a pinch of salt to help control over fermenting.What Does Hydration Mean?What Does Hydration Mean?

#### What Does Hydration Mean?



The term hydration as it applies to baking, means the percentage of water added to the dough, based on the weight of the flour. It basically means how wet a dough or batter is. The weight of the flour is always considered 100%. All of the other ingredient weights are based off of the weight of the flour. This is called Baker's Percentage.

If the weight of the water is 50% of weight of the flour, the dough is considered to be at 50% hydration. If your dough is 100% hydration, it means the water and flour in the dough are the same weight. For instance, dough made of 200 grams of water and 200 grams of flour would be a 100% hydration dough. Dough made with 100 grams of water and 200 grams of flour would be a 50% hydration dough.

If I wanted to make an 80% hydration dough, which is really wet by the way (Ciabbata dough), then I might add 800 grams of water to 1000 grams of flour and that would give me 80% hydration dough. Flour will absorb water differently, so it is not a fast and hard rule, but something to go by.

#### **Taking Care of Your Starter**



Once your starter is mature, at around two weeks, you can use it to make a variety of sourdough baked goods.

Feed your starter extra flour and water so you have enough for your dough. After using your starter, feed and store it, covered, at room temperature. If you keep your starter at room temperature, make sure to pour some out and feed it every day. Some bakers feed their starter two or three times a day. The minimum amount is once a day. If you refrigerate your starter, make sure to take it out once a week and feed it to keep it healthy. However, a starter can take a lot of neglect and still bounce back.

#### Cleaning the Starter Container and Revitalizing a Bad Starter

If you neglect to discard and feed your starter on a regular basis, it can become sick. Bad bacteria can infect it or mold and slime can grow if it is unhealthy. Keeping the container clean and the sides scraped down are other ways to help your starter stay healthy. When there is a build-up of dried starter along the sides, try to scrape some of it out and discard the built up starter. Occasionally, take a small amount of your starter, like 2 oz/56 g, set it aside in a clean bowl. Then take the container and clean it out really well using only hot water. Don't use soap, detergent or bleach for cleaning the container.

When the container is clean, replace the reserved starter and feed it small quantities of food (2 oz/56 g of water and 2 oz/56 g of flour to start with). You can increase the amount of food as necessary depending upon your baking schedule.

#### **Freezing your Starter**



You can freeze your starter for a few months at a time. This is a way to store the starter if you are going on vacation. The longer the starter if frozen, the less viable the microorganisms will be, so plan on using this storage method for a few weeks or months but not for a year. Frost free freezers can be hard on a starter because of the cycle of freezing and thawing. It is best to use a container to freeze the starter and place other items around it.

To freeze your starter, you need to make a low hydration dough ball. To make a low hydration dough ball, take some of your starter that has been fed previously and is vigorous. Add enough flour to make a piece of dense dough. Here is an example:

#### Mix together:

- 60 grams vigorous starter
- 60 grams flour

Mix and then knead the above ingredient together until you have a stiff dough ball. Allow it to ferment for one hour and then place it in a container or freezer bag, mark the date and freeze it. This makes a 120 grams size dough ball, if you would like a larger dough ball, double the formula above.

#### **Drying and Storing Your Starter**



To keep a back up of your starter or to more easily send it to someone in the mail, dry it. I brought a starter back to life that was dried for over 50 years. It still worked!

To dry your starter, feed it the night before and make sure it is vigorous. Add extra water so it is thin like a thick paint. Then spread the starter out on a stretched piece of plastic wrap using a pastry brush. Allow it to dry completely, then crumble it and store it in an airtight container. No need to freeze dried starter, it lasts better at room temperature or someplace cool. Freezers with their defrost cycle aren't the greatest place for a dried starter. A good way to store it is to use a mason jar with a screw band, a bail top jar or you can put it in a zip bag and place it in a plastic sealed container. A plastic bag might work, but it won't keep out bugs or rodents.

#### Suppliers of dried sourdough starters:

http://www.kingarthurflour.com

http://www.breadtopia.com

#### TIPS

- Stir the starter well after feeding.
- Don't refrigerate your starter until it is mature at around two weeks.
- Clean the container with plain hot water when it needs cleaning.
- Don't use reactive metal when working with sourdough.
- A small pinch of salt can slow down fermentation in a starter.
- Don't feed your starter anything but flour and water.
- Test your starter and see what it can do.
- Keep your starter healthy by feeding and caring for it properly.

# How to Make Motherdough @ 60% Hydration A Different Kind of Starter (cold fermented starter)



Motherdough is pre-fermented dough from which other dough is made. The term "motherdough" may have a different meaning to different people. Motherdough in this book means dough that is kept cool while it is fermenting and then is used to flavor and/or leaven other dough to make delicious bread with complex flavor. When dough is kept cool during fermentation, the microorganisms have time to metabolize the sugars in the starch. Cool fermentation also encourages acetic acid formation, together with bacterial and enzymatic activity, all of which enhance the flavor of the loaf.

To make motherdough you can use any hydration (add any amount of water) you wish, but usually a motherdough is a drier dough from 40 – 80% hydration, whereas a <u>sponge</u> or a <u>poolish</u> is closer to 100% hydration.

Many formulas/recipes utilize Motherdough. Motherdough is a cold pre-ferment which you make up and store in your refrigerator for some time. You can have a low hydration ( like 60%) motherdough ferment in your refrigerator for a long time. You should leave it in your refrigerator for at least 3 – 4 days before using it. Motherdough needs time to ferment.



#### 40% hydration motherdough

As long as the motherdough has some stretch to it and has not become runny, like glue, it can be used. motherdough is sometimes used with another sourdough starter which is fresh and has plenty of wild yeast.

You can also feed your motherdough and keep it going in the fridge. I keep a 40% hydration motherdough in my fridge for months at a time. When kept for long periods of time, the motherdough pre-ferment is used for flavoring and adding acidity and protease enzymes to your freshly made dough, it wouldn't have enough power left to leaven a new dough. When used for flavoring, I also use another fresh vigorous starter along with the motherdough in the formula to bring in the leavening power.

#### 60% Motherdough Formula

#### In a 2 quart container which can be sealed, add together:

- 1. 170 g Vigorous fresh sourdough starter @ 100% hydration (fed within eight hours)
- 2. 170 g Water

#### 3. 340 g - Flour

Mix all of the above ingredients and store, tightly covered, in your refrigerator for at least 3-4 days before using. This will make about 1.5 pounds/680 grams. Double this amount if you wish to keep some on hand for baking. Formulas for using your new starer and motherdough can be found on my site at Northwest Sourdough.

There are many kinds of pre-ferments and sponges. Motherdough is only one type. There's a whole world of sourdough fun out there!

#### About the Author



I've been teaching how to bake sourdough for 11 years. You can find me and my books and all that kind of stuff in the links below. Happy Baking! Teresa

I teach online sourdough baking courses. See here for more information! Here is a special code for you to get into one of my courses for only 39.00

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Find me on Facebook on the group: <u>Perfect Sourdough</u>

Or on my **blog** at : <u>Northwest Sourdough.</u>

#### For more baking fun try my four volume book which is on Amazon and in my Etsy Shop:

"Discovering Sourdough"

http://www.northwestsourdough.com/index.php/store/books/



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