Twice as Tasty

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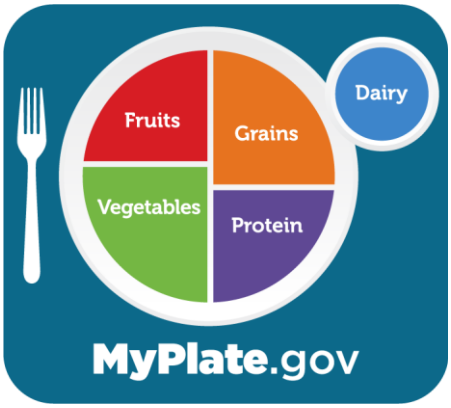
Free the Seeds! Workshop: Making Friends with Ferments

By Julie Laing

Fermentation crosses all food groups, and some ferments are simple to make at home and even share with a wider community. Fermented food tends to be loaded with probiotics and other healthy microorganisms. People who have problems digesting raw or commercially processed food may find home-fermented food easier on their body. And they are oh so tasty.

This workshop focuses on some of my favorite ferments. Read on to learn the basics of fermentation and how to get started with and troubleshoot pickles, sourdough, yogurt and fresh cheeses, and more.

Fermentation across Basic Food Groups



Food can be grouped in so many ways. To keep it simple, we'll focus on the USDA standards: vegetables, fruits, grains, dairy, and proteins. Historically, food from each of these groups has been fermented. That process intentionally introduces and/or encourages healthy bacteria to grow, changing the flavor and texture of the food and helping to preserve it longer than it will keep in its fresh form.

At its most basic, fermentation occurs in two ways: wild and cultured. Wild ferments develop from microorganisms naturally present in the raw food or environment, such as cabbage or cucumbers converted into sauerkraut or pickles with the aid of salt. Culturing ferments food with the aid a starter, such as sourdough, yogurt, or kombucha. Starters can often be purchased, say, to make a new batch of sour cream, but once established, they can often be used repeatedly: save a small amount of that last batch of starter or SCOBY, and you can ferment a new batch.

Common threads run among ferments in the basic food groups. Unchlorinated water and salt appear in many. Chlorine, chloramines, and fluoride can deter beneficial bacteria, and the proper balance of salt keeps harmful bacteria at bay while letting beneficial bacteria thrive. Food in brine generally needs to be fully submerged and have a way to keep oxygen out while letting carbon dioxide escape. You can learn more about tools that help this exchange here.

Temperature and time are also key but can be manipulated once you understand their roles. Fermentation happens at faster at higher temperatures but becomes more complex if with lower temperatures and more time. Yet an overly high temperature, or too much temperature fluctuation, can cause problems and even failure.

If you're taking your first stab at home fermentation, consider this: You eat and drink fermented food all the time. Vinegar, miso, tea, coffee, wine, mead, hard cider, beer, and more are fermented; we're just less likely to invest the time and effort to make them at home. So if you've used store-bought vinegar to pickle cucumbers, you've already started working with a fermented food.

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Vegetables

Fermented vegetables are some of the crispest, most delicious pickles you'll ever taste. Salt brine or dry-salting creates bold, sour pickled food that is never overpowered by a vinegar flavor. It also preserves low-acid food safely, putting the kibosh on bad bacteria and enzymes and letting the good bacteria that are naturally present in the vegetables thrive, produce acid and other preserving byproducts, and prevent spoilage.

Vegetable fermentation can seem daunting, mainly because it requires time. As the fermentation occurs, the jar of pickles changes visibly in ways that may seem odd or even unsettling to first-time fermenters. But like any preservation process, practice produces amazing results. Pickles that never feel the extreme heat of processing are incredibly crisp. And the flavor profiles are complex thanks to the lactic and acetic acids, alcohol, carbon dioxide, and other compounds produced by the process.

Key ingredients: Ultrafresh, unblemished produce without signs of spoilage; salt; possibly unchlorinated water
Essential tools: Large jar or crock, airlock or water-lock lid, weight, storage lid, refrigerator
Favorite Twice as Tasty recipes: Fermented Curtido (Cabbage Slaw), Chinese-Inspired Brined Beans, Spiced Fermented Pearl Onions (all included in *The Complete Guide to Pickling*)

Fruit

When we think of fruit and fermentation, we tend to think of turning just the juice into vinegar or alcohol. You can culture whole fruit too, but it's tricker than making vegetable pickles. Fruit has so much natural sugar that it moves through the lacto-fermentation stage quickly and keeps just a few weeks in the fridge.

Instead of trying to stop a fruit pickle from becoming booze, you can immerse fruit in a premade ferment for a sweet and salty or sour flavor. Miso makes a delicious bed for pickling firm fruit like apples and pears. Soft fruit like bananas and sour cherries can last weeks in a vinegar brine. Instead of masking the flavor of truly sour fruit, like rhubarb, with sugar, a salt brine can make it delicious in savory dishes.

Fruit trimmings can also be given a second life through fermentation. Watermelon rind preserved in a salt brine becomes tangy and sour, without the sweetness typical of a vinegar-based pickle. Pineapple rind mixed with sugar ferments quickly into a delicious beverage called tepache. For a patient enthusiast with a warm kitchen, apple and other scraps can be taken through all of the fermentation stages to become homemade vinegar.

Key ingredients: Ultrafresh, unblemished produce without signs of spoilage; salt and/or sugar; unchlorinated water
Essential tools: Large jar or crock, airlock or water-lock lid, weight, storage lid, refrigerator
Favorite Twice as Tasty recipes: Fresh Pears with Lemon, Tepache (Fermented Pineapple Beverage), Rhubarb Kimchi (all included in *The Complete Guide to Pickling*)

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Grains

After beer, sourdough is the most well-known type of grain fermentation. Initially, sourdough can be made from wild yeast and bacteria found in the grain itself. After it ferments for the first time, it's easiest to use and continues to develop flavor if you keep a bit of starter culture on hand.

People often shy away from sourdough from the misconception that it needs continual care and they'll be baking constantly or throwing out discard. I have found that a decent amount of 100% hydration, all-purpose white flour starter is happiest if I bake with it at least once a week but can be woken up after months and even years of dormancy. My current sourdough starter is nearly 9 years old.

If you let flour and water form a wild fermentation, you will have discard throughout that process. But once your starter is established, you don't have to throw out starter when you feed it. Instead, that weaker starter can be baked into crackers, flatbreads, or pancakes or used to add flavor to desserts.

Many types of flours can be used when baking with sourdough, from wheat to rye and even gluten-free with a gluten-free starter and some different techniques. But you don't need a sourdough starter to ferment all grains. Injera, a spongy, pancake-like bread popular in parts of Africa, uses teff flour and only ferments for a day. Dosas, a crepe-like flatbread popular in South India, can be fermented over a few days from grains ranging from rice to semolina.

Key ingredients: Flour or whole grain, unchlorinated water, usually a starter culture, salt
Essential tools: Bowl and/or jar, scale or measuring tools, breathable covering, refrigerator when not active, heat source and tools for cooking
Favorite Twice as Tasty recipes: Pillowy Sourdough Pita, Stovetop Sourdough English Muffins, Sourdough Cabin Bread (all published in the *Flathead Beacon*)

Dairy

Homemade yogurt was my first true foray into fermented food. It's just one ingredient: milk. And you do one thing to it: heat it. Then you stir in a little finished yogurt and ignore it—for hours. Yogurt makes yogurt. I couldn't believe something that tastes so good and that I eat so often makes itself.

From there, I progressed to other dairy products that are easiest to make if you use a powdered starter culture. There are two basic types: Mesophilic cultures work at the lowest temperatures and are used for cultured dairy products like sour cream and fresh cheeses like feta. Thermophilic cultures work at higher temperatures used by a few more complex cheeses, like Parmesan.

Just like I make fermented and vinegar-based pickles, I make cheeses that use a starter culture and ones that just need an added acid, like vinegar or lemon juice, to form a curd. So if you're new to cheese making, fresh, acid-coagulated cheeses, like farmer's cheese, are a good place to start.

Key ingredients: Milk, preferably homogenized; starter culture or acid; salt; sometimes rennet
Essential tools: Pot, thermometer, thermos or other incubator, butter muslin for cheese
Favorite Twice as Tasty recipes: Homemade Yogurt, Homemade Sour Cream, Lemon Cheese

Proteins

Lactobacillus bacteria feed on the sugars in vegetables, fruit, grains, and dairy—sugars that aren't found in meat. Perhaps that's part of why *fermentation* and *curing* are often used interchangeably today when talking about preserving meat, where there's less room for error than with other proteins..

I recommend salt curing in the fridge. Cure pork belly with salt and sugar and you get bacon; do the same with salmon and you get gravlax. Immerse beef brisket in a brine of water, salt, sugar, and spices for several days and you'll be on your way to corned beef. You can instead opt for an acid-based brine. I marinate raw fish in lemon and lime juice for ceviche and pickle cooked fish, cooked shrimp, or hard-boiled eggs in vinegar, keeping everything cold in the fridge to guarantee no spoilage.

Dry legumes can also be fermented, which may make them easier to digest. That's part of why soybeans are so popular in fermented forms, such as soy sauce and miso. If you soak many beans long enough at a warm temperature, their starches will start to ferment using the wild bacteria in the beans. That's what happens when I combine red lentils and basmati rice into a quick ferment for dosas. If you ferment cooked beans, you can use whey or leftover fermented vegetable brine to jump-start a multiday bean fermentation.

Favorite Twice as Tasty recipes: Gravlax (Salt-Cured Salmon), Sweet Vinegar-Pickled Eggs, Red Lentil and Basmati Dosas

Beyond the Food Groups

Not every ferment falls into a food group. A well-known ferment that defies food group categorization is kombucha. This fermented tea has enough nutrients that it could be listed as a vegetable, but the USDA doesn't include it in that category, probably because you'd have to eat the leaves to ingest fiber. When it is included in food categories, it's usually grouped with water.

Kombucha requires a symbiotic culture of bacteria and yeast (SCOBY) that's difficult to balance from just tea, water, and sugar, so it's best to get an active culture from a friend or buy it from a commercial source. Once it's in play, you will quickly have more SCOBY than you can use. The mother culture can make for several batches and will produce baby cultures that can also be used to start kombucha.

Fermentation sometimes works better with partners, like rice and beans for dosas or fruit and vegetables for a fermented chutney. I use fresh yogurt and sourdough starter for a low-gluten naan and last-minute pancakes. For the ultimate Reuben, make the dressing with homemade yogurt or sour cream and pile sauerkraut onto sourdough rye bread.

Favorite Twice as Tasty recipes: Low-Gluten Sourdough Naan, Sourdough–Yogurt Pancakes, Vegetarian Smoked-Beet Reuben

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