

How to make beer



MAKING HOME-BREWED BEER isn't very difficult and doesn't take very long—about five weeks for ale, the easiest type. Plus, the results can be really good: Homemade beer is fresher than anything you can buy at a store, and with beer, freshness is key.

Most home brewers use brewing kits to make beer, so that's what we did too, getting our supplies from William's Brewing in San Leandro, California, not far from our magazine's headquarters. Just for fun, though, we're also making a batch totally from scratch. We planted wheat and barley in our test garden and are malting the grains ourselves. We're growing hop vines on a couple of trellises, and we'll use their flowers to flavor the brew. Watch this space for an update on our progress (and visit our Team Beer blog—go to <http://oneblockdiet.sunset.com> and click on "Team Beer"—for the story of our beer adventures so far).

WHAT WE MADE

Summer wheat beer

Fresh and light, yet very flavorful, it went well with the round, ripe flavors of our summer One-Block Feast (sunset.com/oneblockfeast).

WHAT WE USED

Materials, Prices & Sources

All our materials, except for the bottles and the boiling pot, came from William's Brewing Company (2594 Nicholson St., San Leandro, CA; www.williamsbrewing.com or 800/759-6025).

Honey-wheat brewing kit Beginner-level kit. Contains one 6-lb. pouch of wheat extract, one 2-lb. pouch of blackberry honey, 2 oz. flavoring hop pellets, 1 oz. aromatic hops, 125 ml liquid yeast, and 1 packet corn sugar for carbonation. Yield: 5 gal. beer (48 12-oz. bottles). \$36.

Beer caps \$5.95 for a pack of 320 caps.

Bottles 48, pry-tops only (because the screw-top types are harder to seal), in dark green or brown glass (sunlight shining through clear glass can stimulate the growth of bacteria). These were scrounged from various sources, namely friends, family, and colleagues. Free.

One 7-gal. boiling pot (big enough to help prevent boil-overs), in stainless or enameled steel; prices range depending

on brand. Also known as a brewing pot.

Stirring paddle or spoon from \$4.50 (plastic) to about \$8 (stainless steel).

Immersion chiller A coil of copper tubing placed in the hot wort (the liquid that will become beer) and flushed with cold water to rapidly cool the wort. You can also put the boiling pot in a sink full of cold water and change the water when it gets hot, but the chiller works much faster. About \$50.

Thermometer for measuring temperature of the new wort; critical in preventing destruction of yeast by too high a temperature. About \$5.

Hydrometer A tool that measures density or specific gravity, which tells you how much body the beer has. Some hydrometers have thermometers built in, and some will also measure potential alcohol content. \$9 to \$12.

Fermentation container (also called a fermentor) large enough to hold 5 gal. of beer. Can be anything ranging from a 5-gal. glass carboy (\$34) to a 7-gal. plastic container (\$30).

Strainer, sized to fit into the top of the fermentation container. About \$15.

Rubber stopper to seal the opening at the fermentation container's top. \$0.95 to \$2.25, depending on size.

Airlock A small plastic cylinder that you fill

with water and insert into the rubber stopper on the top of the fermentor; keeps bacteria and other airborne impurities from entering the new wort, which is very susceptible to contamination in its early stages. About \$1.

Capper Used to put caps on bottles; we like the Emily capper (\$14).

Jet bottle washer This fits on any outdoor hose thread faucet (such as those in a typical outdoor or garage sink; \$10.90).

Bottle tree Invert your newly washed and sterilized bottles on this multi-pronged "tree" for easy drying of lots of bottles at once; we like the 81-bottle model. \$29.90.

7-gal. plastic bucket with spigot You'll siphon your newly fermented brew into this for ease of bottling (About \$30).

1 lengths of food-grade vinyl tubing Clear vinyl, 3/8-inch interior diameter, 2 ft. long. Used to siphon beer from the plastic tub into the bottles. About 30 cents/foot online or at a home winemaking or plumbing-supply store.

Or get a complete kit William's Brewing also offers a "home brewery," which includes most of the tools above (excluded: bottles, caps, and boiling pot) and the ingredients for your beer of choice from \$110. The company also throws in a beginner's home brewing book and a DVD guide. If it's your first time making beer,

ordering one of these makes sense cost-wise. You can also order a home brewery without ingredients for about \$85.

Other Equipment

Bleach From \$2 for 96 fl. oz. at the grocery store.

Food-grade gypsum A blend of powdered calcium and sulphur. About \$3 for an 8-oz. bag from Williams Brewing.

HOW WE DID IT

A Step-by-Step Guide

1. Get the yeast going The very first thing to do is pop the puffy center of your liquid-yeast packet and shake well. This may sound weird, but inside the packet is a bubble containing your yeast, and surrounding the bubble is wort (a liquid made from sweet malted grains) for the yeast to feed on and then multiply. Let the packet swell; this takes several hours, usually. *Do not start the beer until the yeast packet has swollen.* You need a good strong colony of yeast before moving ahead.

2. Prepare your boiling pot Sterilize it with a solution of 2 oz. bleach in 1 gal. water. Rinse off the sanitizing solution with clean water and fill with 5 gal. water. Add 2 tsp. gypsum to the water to harden it. Hard water makes for clearer beer by helping coagulate malt proteins and encouraging the sedimentation of yeast.

3. Mix wheat extract with hot water Cover the pot with a lid and let the water come to a complete boil. (Five gallons of water can take a long time to boil, so don't be in a hurry.) When the water boils, turn off the heat and squeeze the 6-lb. pouch of wheat extract into the hot water. Use a ladle or the stirring paddle to scoop hot water into the pouch to remove the residual extract. You might have to swish it around in the pouch. It's important to reduce the heat when adding the extract; otherwise it will scorch the bottom of the pot, and it's no fun scrubbing *that* off. Use your stirring paddle to mix the extract with the water.

4. Bring it to a boil When the extract is well mixed, turn the heat back up and wait for the mixture to boil. At this point, it is considered wort. Be very careful not to let the wort boil over the top of the boiling pot

because it is one hell of a sticky mess to clean up.

5. Add flavoring hops Five minutes after the wort has resumed its boil, add the flavoring hop pellets.

6. Add honey Boil the mixture for 45 minutes, then add the honey as you did the wheat extract, ladling some of the hot wort into the pouch to loosen the honey.

7. Add aromatic hops Boil the honeyed wort mixture 5 minutes, then stir in the aromatic hops. The entire boil should not last more than an hour.

8. Cool the wort Put the pot in a cold-water bath or use an immersion chiller (see Materials, Prices & Sources, above) to cool down the wort. Depending on which method you use, the chilling process can take anywhere from about 30 minutes to more than an hour.

9. Check the wort temperature It needs to be less than 80° when you add the yeast (each yeast packet will state that strain's ideal fermentation temperature). When the wort is cool, use a hydrometer to check the specific gravity; make a note of it. This will tell you how dense the wort is and give you a way to measure the progress of the fermentation (as the sugars in the wort convert to alcohol, the mixture will get less dense).

10. Start fermenting the wort Pour the wort through the strainer into the fermentation container, add the yeast, and give the wort a good stir. Seal the container with the rubber stopper and insert an airlock into it.

Keep the wort at the ideal fermentation temperature for its particular strain of yeast (the package will specify). We've even used a hotpad in a pinch, when the room was too chilly. After a few days, the wort should start to ferment.

11. Start carbonating In two weeks, check the specific gravity with your hydrometer to see whether it's low enough to bottle. The instructions in the kit will tell you the ideal numbers. When the beer has reached its ideal specific gravity, it's finished fermenting. Add the corn sugar, which will start the carbonation. We've seen carbonation in bottles after a week, but in general it takes two weeks for beer to carbonate fully. Once

that happens, it's ready to bottle.

12. Bottle your brew. Mix up a plastic bucketful of sanitizing solution (2 oz. bleach to 1 gal. water) and put a batch of bottles in it for a few minutes, making sure the solution fills them completely. Then empty the bleach out of the bottles, back into the bucket, and rinse out the bottles with hot water using your jet bottle washer (see above). Make sure to rinse the lip and neck of the bottles, too, to wash off any excess sanitizer. Invert the bottles on a bottle tree (see above) to drain.

To bottle, siphon the carbonated beer from your fermenting vessel into the 7-gal. plastic bucket with spigot. Then rehook the vinyl siphoning tube to the bucket's spigot and put the other end in the neck of your first empty bottle. Just open the spigot and start filling. Fill each bottle to about halfway up the neck.

13. Cap the bottles. Put a cap on the bottle, place the capper over it, and push down on the capper's arms to seal.

14. Let the beer rest for about two weeks, and then drink as soon as possible. Unlike wine, beer is best when fresh. Our beer kept well in the refrigerator for months, but the fizz and flavor were at their peak right after bottling.

Helpful Info

+ For more information about brewing: William's Brewing Company website, www.williamsbrewing.com (see the product questions section)

+ *The Home Brewer's Answer Book* by Ashton Lewis, columnist for *Brew Your Own* magazine (www.byo.com)

+ John Palmer's easygoing introduction to making beer at home: www.howtobrew.com