

# SURLY BITTER BREWER (Partial Mash Pro Series)

Official NORTHERN BREWER Instructional Document

First one in, last one out, sweltering in the summer, freezing in the winter. Years of toiling and boiling have turned Surly Brewing Company head brewer Todd into a cynical, bitter brewer...You too can get bitter without all the fuss. Simply brew this scathingly modern take on the classic British Bitter in the comfort of your own home. Pale orange in color, this ale gets intense toast and marmalade character from British malt and American hops. Dry-hopping brings the floral citrus aromas. So go ahead, get bitter!

**O.G: 1.040 READY: 6 WEEKS**

1-2 weeks primary, 2-4 weeks secondary,  
1-2 weeks bottle conditioning

## KIT INVENTORY:

### SPECIALTY GRAIN

- 1 lb Fawcet Optic Malt
- 1 lb Canada Malting Pale Ale Malt
- 0.75 lbs Simpsons Golden Naked Oats
- 0.38 lbs English Medium Crystal
- 0.05 lbs English Roasted Barley

### FERMENTABLES

- 3 lbs Golden Light DME

### HOPS & FLAVORINGS

- 0.5 oz Glacier (First Wort Hop)
- 0.5 oz Warrior (90 min)
- 1.75 oz Glacier (0 min)
- 2.5 oz Glacier (Dry Hop)

### YEAST

- Wyeast 1335 British Ale II. Apparent attenuation: 73-76%. Flocculation: high. Optimum temp: 63°-75° F.

### PRIMING SUGAR

- 5 oz Priming Sugar (save for Bottling Day)

## BEFORE YOU BEGIN ...

### MINIMUM REQUIREMENTS

- Homebrewing starter kit for brewing 5 gallon batches
- Two kettles, one of at least 4 gallons capacity and one of at least 2 gallons
- A large mesh bag or strainer that can hold 5 lbs of grain
- A thermometer with a range that includes 120-170°F
- A 5 gallon glass carboy, with bung and airlock, to use as a secondary fermenter - If you do not have a secondary fermenter you may skip the secondary fermentation and add an additional week to primary fermentation before bottling
- Approximately two cases of either 12 oz or 22 oz pry-off style beer bottles

### UNPACK THE KIT

- Refrigerate the yeast upon arrival
- Locate the Kit Inventory (above) - this is the recipe for your beer, so keep it handy
- Doublecheck the box contents vs. the Kit Inventory
- Contact us immediately if you have any questions or concerns!

## PARTIAL MASH BASICS

This partial mash kit uses some techniques that may be unfamiliar to the extract brewer. The idea behind partial mash brewing is to use some malt extract for sugar content along with extracting some sugars yourself directly from grains. Basically, you'll be putting the grains in water and holding the mixture (called the mash) at a particular temperature while enzymes in the grain break complex starches down into simpler sugars. Then you will rinse the grains with hot water (a process called sparging) to get as much of the sugar off as possible. The liquid that you collect should be a sweet wort that you can use as a base for adding malt extract and hops. The procedure below will take you through the process step by step.

## PROCEDURE

### A FEW DAYS BEFORE BREWING DAY

1. Remove the liquid Wyeast pack from the refrigerator, and "smack" as shown on the back of the yeast package. Leave it in a warm place (70-80° F) to incubate until the pack begins to inflate. Allow at least 3 hours for inflation; some packs may take up to several days to show inflation. Do not brew with inactive yeast - we can replace the yeast, but not a batch that fails to ferment properly. If you are using dry yeast, no action is needed.

### ON BREWING DAY

2. Heat 1 gallon of water to 169°F in your mash kettle.

3. Crush the grains if they are unmilled. Pour crushed grain and oats into your nylon mesh bag and place in the kettle, or if you are not using a nylon bag pour the grain directly into your mash kettle.

4. Adjust the temperature. Take a temperature reading of the mixture. The temperature should be within 1-2°F of 153°F. If not, adjust by adding cold or hot water as needed.

5. Put the lid on your mash kettle and wrap it in old towels or blankets to insulate it, or put it in an oven set to "warm" or "low" to maintain the temperature (make sure your oven is not too hot! The temperature of the oven should be at or under 153°F). Leave for one hour.

6. While the mash rests, collect and heat sparge water in your second pot. Collect 2 quarts of water and heat to 170°F. Hold at this temperature until the mash is finished.

7. When the one hour mash is finished, return the mash kettle to the stove (without towels!) and apply very low heat. Raise the temperature of the mash to 170°F, being careful not to scorch the grains.

8. Separate the grain from the liquid portion of the mash. Remove the grains from the mash - don't spill or waste the liquid, which is now the wort. If using a mesh bag, you can simply lift it out. If not using a mesh bag, scoop the grain into a colander or sieve over a bowl or pan to collect the drips. If you are using a separate kettle to boil with, pour the wort from the mash kettle to the boil kettle.

9. Sparge the grain. Using a strainer or mesh bag, hold the grain over the wort in the kettle. Slowly pour the 170° F sparge water through the grain, one quart at a time, until it's gone. Collect the sparge water along with the wort in the boil kettle. When finished, you may discard the grain.

10. Top up the kettle. Add more water if necessary to achieve your normal boil volume.

11. Add 0.5 oz Glacier hops to the kettle. Adding the hops at this stage is known as first wort hopping.

12. Bring to a boil and add in 3 lbs of Golden Light dry malt extract. Remove the kettle from the burner and stir in the Golden Light DME, then bring back up to a boil.

- Add 0.5 oz Warrior hops and boil for 90 minutes.

- Add 1.75 oz Glacier at the end of the boil, saving the remainder of the bag for dry hopping.

13. Cool the wort. When the 90-minute boil is finished, cool the wort to approximately 100° F as rapidly as possible. Use a wort chiller, or put the kettle in an ice bath in your sink.

14. Sanitize fermenting equipment and yeast pack. While the wort cools, sanitize the fermenting equipment - fermenter, lid or stopper, fermentation lock, funnel, etc - along with the yeast pack and a pair of scissors.

15. Pour the cooled wort into your fermenter. Leave any thick sludge in the bottom of the kettle.

16. Add cold water as needed to bring the volume to 5 gallons.

17. Aerate the wort. Seal the fermenter and rock back and forth to splash for a few minutes, or use an aeration system and diffusion stone.

18. **OPTIONAL:** if you have our Mad Brewer Upgrade or Gravity Testing kits, measure specific gravity of the wort with a hydrometer and record.

19. Add yeast once the temperature of the wort is 78°F or lower (not warm to the touch). Use the sanitized scissors to cut off a corner of the yeast pack, and carefully pour the yeast into the primary fermenter.

20. Seal the fermenter. Add approximately 1 tablespoon of water to the sanitized fermentation lock. Insert the lock into rubber stopper or lid, and seal the fermenter.

21. Move the fermenter to a warm, dark, quiet spot until fermentation begins.

### BEYOND BREWING DAY, WEEKS 1-2

22. Fermentation should begin within 48 hours. The optimum fermentation temperature for this beer is 63-75° F - move the fermenter to a warmer or cooler spot as needed.

### BEYOND BREWING DAY— SECONDARY FERMENTATION

23. Active fermentation should complete within 1-2 weeks, after which you can transfer your beer to a sanitized secondary fermenter for 2-4 weeks conditioning.

24. Add the dry hops. Add in 2.5 oz of Glacier hops to your secondary fermenter a week before bottling or kegging.

### BOTTLING DAY—ABOUT 1 MONTH AFTER BREWING DAY

25. Mix a priming solution (a measured amount of sugar dissolved in water to carbonate the bottled beer) of  $\frac{2}{3}$  cup priming sugar in 16 oz water. Bring the solution to a boil and pour into the bottling bucket.

26. Siphon beer into bottling bucket and mix with priming solution. Stir gently to mix, don't splash.

27. Fill and cap bottles.

1-2 weeks after Bottling Day

28. Condition bottles at room temperature for 1-2 weeks. After this point, the bottles can be stored cool or cold.

29. Serving. Pour into a clean glass, being careful to leave the layer of sediment at the bottom of the bottle. Cheers!