Cherry & Kumquat San Diego Weisse

By Billy Lambert & Theresa Wilks

Fermentables

- 5 lb, 6 oz US Pale 2 Row
- 2 lb, 5 oz Wheat Malt
- 5 lb home grown cherry puree
- 2 lb, 4 oz home grown kumquats, quartered

Hop Additions

*All hops will be added during the boil **after** the initial souring fermentation.*

- 30 min: 0.25 oz Hallertaur (4.5% AA[1])

Bacteria & Yeast

- Goodbelly Supershot (Lactobacillus Plantarum)
  Ideal fermentation temperature: 100F
- 1 liter starter "Valley Center" wild yeast
  Ideal fermentation temperature: 70F

Additives

- Lactic Acid
- Clarifier: 1 tsp Irish Moss **or** 1 tablet Whirlfloc
- Yeast Nutrient: ½ tsp White Labs (½ tsp/gal Biotin)

Target Statistics[2]		Your Results
Orig. Gravity:	1.038	
Final Gravity:	1.005	
Est. % ABV:	4.3%	
Efficiency[3]:	70%	
IBUs:	3	

BJCP Style Guidelines: Berliner Weisse (23A)

Original Gravity: 1.028 – 1.032 SG

Final Gravity: 1.003 – 1.006 SG

Bitterness: 3 – 8 IBUs

ABV: 2.8 – 3.8%

Overall Impression: A very pale, refreshing, low-alcohol German wheat beer with a clean lactic sourness and a very high carbonation level. A regional specialty of Berlin; hop bitterness and aroma very low or undetectable. Brettanomyces funk restrained or absent. A light bread dough malt flavor supports the sourness, which shouldn't seem artificial.

Kettle-Souring, a summary:

Also called "quick-souring," this process is not only a much faster way to sour a beer, but can help home-brewers keep their fermentation and transfer equipment largely free of volatile microbes. The initial souring process takes place between the mash and the boil. Immediately after the lauter, a brewer will inoculate their unbittered wort (or "sweet liquor") with bacteria—usually a strain of lactobacillus. The brewer will then maintain a fairly high temperature of 100F to encourage the bacteria to eat sugar and create lactic acid, souring the beer. After a few days, if successful, the pH of the wort will have dropped to 4 or below. Higher temperatures or even injections of carbon dioxide can help the bacteria get to the lower pH thresholds.

[1] **AA (Alpha Acid):** This is the measure of hops' potential bitterness. Be aware when substituting hops with a higher AA% for your "60 min" hop addition, you will increase the bitterness of your beer. "Flame Out" and "Dry Hop" additions will add hoppy aroma but will contribute little bitterness to your beer. Substituting different hops for these later additions will alter the flavor of your beer, but not the level of bitterness.

[2] **Target Statistics:** These targets were calculated using BeerSmith™ software and are based on the brewing method outlined on the back of this page.

[3] **Efficiency:** This is the percent of sugar you expect to extract compared to the total amount of sugar available in your grain. Home brewers' efficiency can range between 65% to 75% depending on equipment and methods used. We use 70% here as an average, but your results may vary.

Quick Brewing Instructions

Mash

1.) Measure out your water. If you're using city water, it's best to run it slowly (about 1 gal/min) through a carbon filter while you're measuring.
2.) Heat water up to 2-5F more than your strike temperature to compensate for temperature loss while transferring to the mash tun. To minimize temperature loss, try warming up your mash tun by filling it with hot water and leaving it sealed for a few minutes before transferring.
3.) Slowly add your grain, constantly stirring to maximize exposure.
4.) Check that your temperature is on target and seal your mash tun. Once completely stirred in, your mash should have roughly the consistency of watery oatmeal.

Mash Targets:

Volume: 2.5 gal
Strike Temp: 165F
Mash Temp: 152F
Duration: 60min

Lauter & Sparge

1.) Heat up your sparge water to 2-5F higher than desired sparge temperature. Then, transfer the water to the hot liquor tank (HLT) and carefully place your HLT in position above the mash tun.
2.) Position your kettle below the mash tun to prepare for the lauter.
3.) Recirculate your mash. Partially open the valve on your mash tun so that a moderate stream of sweet wort comes out. Use 2 pitchers or large measuring cups to catch this stream; you will notice a lot of small particles floating in the wort for the first couple minutes. As each pitcher fills, replace it with the empty and gently pour the full pitcher back into the mash tun. Continue doing this until you your wort is free of particulates.
4.) Begin lautering into the souring vessel. Set up sparge arm above grain bed and open valve on HLT partway to begin sparge. Continue until you reach your target boil volume. This recipe calls for pre-souring the wort to 4.5pH with lactic acid.

Sparge Targets:

Volume: 5.25 gal
Temp: 168F

Boil Targets:

Volume: 6.5 gal
Duration: 30 min

Sour

1.) Your ideal souring vessel will be one that can not only maintain ~100F for several days, but can also double as your boil kettle. Temperature-controlled, all-in-one systems are great for this.
2.) For best results, set your target souring temperature (100F). You may need to wait for the temperature to drop from your mash out before adding your bacteria, which will perish at temperatures exceeding 130F.
3.) Once cooled to souring temperature, pitch bacteria and seal your fermentor. Souring is an anaerobic fermentation and can be inhibited by the presence of oxygen. Some brewers will go so far as to rouse their souring vessel with CO2 purges to encourage acidification.
4.) After 2-3 days, test the pH of your wort. If it has reached your target, begin the boil to kill the bacteria, transferring the soured wort to a kettle if necessary.

Souring Targets:

pH: 3.9
Temp: 100F

Bacteria:

- *Good Belly Supershot (Lactobacillus plantarum)*

Boil

1.) Bring your wort to a boil. Watch for boil overs! Once you achieve a stable, rolling boil, slowly add your first hop addition and start your timer for 90 minutes (counting down). Add all subsequent boil additions at their appropriate times.
2.) Sanitize any equipment that will come into contact with your wort after the boil.
3.) Add your wort chiller to the pot near the end of the boil. You want it to spend a couple minutes at boiling temperatures to sanitize it. Be sure to connect the hoses before putting it into your pot.
4.) Once you're finished boiling, start your cooldown by turning on the hose connected to your wort chiller to a slow rate of flow. The water coming out should be steaming hot, so be sure the outflow hose is directed somewhere safe.
5.) Use a sanitized metal spoon to rapidly stir your cooled wort to create a whirlpool. The hop sediment and other break material will be sucked to the center of the pot, and if you allow it to settle for 10-15 min, it will sink to the bottom. This allows you to rack off the clear wort.
6.) Once cooled to fermentation temperature, rack into sanitized fermentor.

Boil Additions

30 MIN
- *0.25 oz Hallertaur*

15 MIN
- *Clarifier & Nutrient*

0 MIN
(Flame Out)

Pitch

1.) Take a sample of your wort and use your hydrometer to measure your original gravity.
2.) Oxygenate your wort by shaking the carboy for 5 min or spraying pure O_2 for 30 seconds.
3.) Sanitize the exterior of the yeast package and use sanitized scissors to open.
4.) Add your yeast to your fermentor. Fill your airlock with sanitizer and fix in place with the stopper.

PITCH
- *1 Liter starter "Valley Center" wild yeast*

Ferment temp: 70F

Fruit

1.) After 13 days of fermentation, add both the puree and quartered kumquats to fermentor. If you wish to prevent a Brettanomyces funk from developing, you can sanitize the fruit additions by heat or Camden tablets ahead of time.

- *5 lb cherry puree*
- *2.25 lb quartered kumquats*

These measurements can vary with different equipment, brewing procedures, and boil temperatures. For more in-depth brewing instructions, please see our "All Grain Brewing Instructions."