Bottling with Brettanomyces

Karen Palcho at Bruclear Homebrew Club

Commercial Examples

Orval, the original. Clean until bottling. Ommegeddon the same. Terry Hawbaker early adapter. All Anchorage; Rayon Vert; Wild Devil, Helios? Blvd. Saison Brett, Avery 22 with Drie; Ithaca Excelsior; Ithaca Brute; Ithaca White Gold (English Ale and 'wild'); RR/SN collab Brux (900K C/ML T-58 and 100K C/ML Brett B for total of 1 million C/ML); Bruery Saison Rue and De Lente; Boulevard/SN colla Terra Inconita (champage and brett). Please note, there is a lot of conflicting info out there.

Relax, have a homebrew?

- Easiest thing: pitch a vial of Brett C to 5-7 gallons of low terminal gravity wort with normal priming sugar. That's it. But if it were that easy, our best beloved brewers would not be putting out poorly carbonated beer. You have no way of knowing what you are pitching unless you count cells. In bottle conditioning with brett, the numbers really matter. And wait til you see the numbers!

Recent yeast numbers vis Tonsmeire, manufacturers, and other places.

White Labs Vial: 47 ml. Average fill 35 ML.

Mfg date 6 mos. before for brett and bacteria, 4 mos. for sacc.

Sacc: average of 1.5-4 billion C/ML = supposed to be 100 billion cells total.

Brett: 50-80 million C/ML **= 1.8-2.7 billion cells total**. Low count due to assumption for use in secondary only.
Bacteria: Less, but don't know for sure.

Wyeast Sacc: 125 ML Activator= 1.2 billion C/ML= at least 100 billion cells total.

Wyeast Brett: 100 ML package= 750 million C/ML= **75 billion cells total!!!**

Wyeast bacteria: 150 million C/ML= 15 billion cells total

Recent yeast numbers vis Tonsmeire, manufacturers, and other places

Dry Yeast: Nobody agrees. Brewer's Friend says guess 10 billion C/GR.

Mr.Malty says 20 billion C/GR.

Fermentis: > 6B cells/gram for US-05 and S-04

Danstar: > 5B cells/gram for Nottingham yeast.

Safale ranges from SO4 (8 billion C/GR) to T58 (18 billion C/GR)

So, there is a huge range of cell counts.

If you don’t count, you don’t know

- The variation in cell counts in packaged yeast became very clear recently. My counts for Brett C vials have been consistently close to 500 million C/ML. It's supposed to be 50-80 million C/ML! I emailed White Labs. On 1/22/2016, Kara Taylor Lab Manager replied "your counts are accurate. We have been working to increase cell counts. Our new estimates for Brett are 200-500 million C/ML.”
- Then, this when asked about C/ML in Ale yeast: "Our new Purepitch packs contain 40-42 ML and 1.5-2.5 billion C/ML. We are trying to get those numbers up now." But that is only a range of 60-105 billion total. And, the package says 35 ML.
- Again, counts don’t matter unless they matter. For bottle conditioning they matter. No wonder the gushers!

Gabe Fletcher at Anchorage

- I started bottle conditioning with Brett in 2012 after reading about Gabe Fletcher at Anchorage on Embrace (03/09/2012):
- Flavors produced by brett under pressure in the bottle (for 6-8 weeks) are unique
- O2 scavenging nature of the brett preserves hop character in the bottle
- He didn't say how much he pitches

Michael Tonsmeire

- Then Tons posted (8/13/12) "10 drops of loose Brett slurry to each 12 oz bottle, and 20 drops to each bomber and 750." This is roughly equivalent to one WL vial in 5 gallons. I did this to several batches of tripel. Eventual gush if not well chilled and settled. But since there was no way to know exactly how many viable cells I was pitching, I started counting cells with a compound light microscope and a hemacytometer (Surplus Shed, Fleetwood, PA) Thanks to Panek.

Chad Yacobson at Crooked Stave

Then, Chad Yacobson gave numbers. (AHA presentation 2011 "Brewing with Brett- the Horse, the Goat, and the Barnyard.") He said to start with 100,000 c/ml. The first time I saw a pitch rate.

- Allows alot of control, low risk of contamination
- Takes 2-8 weeks to condition thoroughly
- If alot of sacc is left in beer at bottling, autolysis can lead to capric acid goat-y-ness. Good practice is to drop bright or filter.

Priming/Bottling Rates for Aged, Brett, and Sour Beers

- Assumption for residual CO2 in normal beer is .5-.8 volumes. For barrel-aged beer, it drops by approx. half to .3-.4 volumes. Good calculator: http://www.themadfermentationist.com/2014/07/priming-barrel-aged-and-blended-sour.html

Priming/Bottling Rates for Aged, Brett, and Sour Beers

You are supposed to input PEAK temp but for beer that has been through various stages (cold conditioned or crashed, fruit added,) it can be very hard to know the temp and therefore how much residual CO2 there is. For low pH beers aged over a year, esp. high abv, remaining yeast will not have high viability. It may do the trick but brett will be the dominant yeast at this point and may take months to referment. So, RE-YEAST.

Re-Yeasting with Sacc.

- Vinnie uses DV-10 and so do I. Low pH, alcohol, and high heat tolerant. Vinnie conditions at 75-85○ Takes 6-8 week minimum. 12 is best. The long time really matters for consistency.
- Vinnie reyeasts at 2 million C/ML. 5 gallons= 19,000 ML. So, 2M X 19,000= 38 billion cells
- Tonsmeire uses 2- 2.5 gr dry yeast per 5 gallons= 20 billion to 50 billion cells

Re-Yeasting with Brett- My current technique

- I have settled on 200,000 C/ML after experimenting with 10 batches of beer. I target 2- 2.5 volumes of CO2 instead of 3-3.3 for clean belgians. Per 5.5 gals:
- 42a: Tripel with Brett C, 10 ML
- 42b: Tripel with Brett B+L, 4 ML each
- 49: Saison with Brett B+L, 9 ML each
- 50: Bitter Saison with Brett C, one full vial (experiment)

Re-Yeasting with Brett- My current technique

- So, going to back to my counts and WL confirmation of them:
- 5 gallons of beer= 19,000 ML
- I want 200K C/ML of brett= 3,800,000,000 total cells needed
- I count 500 million C/ML in a 40 ML Brett C vial= 20,000,000,000 total. 20 billion cells.
- That means I need only 7.6 ML
- If it were 50 million count, I'd need 76 ML!