

Sour Beer Production

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Andrew Bell
Experimental Brewer
The Bruery

Background of The Bruery



Core Sour Beers Brewed



- **Sour Blonde:** lambic inspired, wheat/2-row, lots of aged hops
- **Oude Tart:** Flemish Red
- **Tart of Darkness:** Sour Stout (mostly aged in bourbon)
- **Sour in the Rye:** American Wild Ale with 40% malted rye
- **Stainless beers:** Hottenroth, Saison de Lente, Saison Rue

Recipe Design and Fermentation

- Recipes (in general)
 - Low IBU
 - High Mash Temp (Turbid Mash?)
 - Fermentation Temperature
- Fermentation
 - Filling (and racking out of barrels)
 - Type of Barrel Gun (Bulldog Pup/Rack-it-teer/Liverani)
 - We use a slightly modified MoreWine Gas Transfer Tool (#R657)
 - Move with CO2? Pump? Lobe Pump?

The Early Days

- All Stainless Primary
- Mixed Culture Fermentation
 - WLP001, Brett (several strains), Lacto, Pedio, Flor Sherry
- Experimentation
 - Batch 50: Multi step turbid mash
 - Staggered Inoculation
 - Sour Mash + Mixed Culture Fermentation
- Building a yeast library
 - Brett: bruxellensis, lambicus, claussenii, trois, fantome, anomalus, custersianus, canus

Currently

- We brew sours when stainless cellar is full.
- All core sour brands fermented in oak.
 - Primary fermentation generally in 500L Puncheons
 - No yeast/bacteria pitched.
 - All new barrels inoculated with mature sour beer
 - Once primary fermentation finishes, beer is racked from Puncheons to standard wine barrels for conditioning.
- Separate Clean & Sour Barrel Facilities (different cities!)
 - Separate hoses, bottling lines, gaskets, racking tools, ect.
- Spontaneous Fermentation?

Going Forward: Terreux

- Fully separate facility
- Most brands to see primary fermentation in stainless.
 - Why Stainless?
 - Control
 - Complexity?
 - Neutral Primary Fermentation
 - Sour Blonde will continue to be oak primary.
 - Why?

A Word on Barrels

A photograph of a barrel room, likely in a brewery or distillery. The room is filled with numerous wooden barrels, some stacked high on racks and others lying flat on the floor. The barrels are made of light-colored wood and are filled with a golden-brown liquid. In the background, a person wearing a red shirt is standing among the barrels. The lighting is warm and the overall atmosphere is industrial and rustic.

- Types
 - Oak, wine, neutral, spirit
 - Bourbon?
- Reusing Barrels
 - Cleaning
 - Rinsing, steam, ozone...
 - Racking on top of slurry
- Cooperage/Maintenance
 - Swelling
 - Storing barrels.
- Oxygen and Acetic Acid
 - Purge, especially if primary was in stainless.

Aging and Organization

- Barrel Tracking
 - Databasing
 - Barrel Sheets
- What to watch out for
 - Bungs, Spills, Leaks, Mold, ect.
- How long to age?
 - When to taste
- Topping up?

Getting Ready to Blend

- Goals Techniques:
 - Flavor Profile. What do you have to work with?
- Bad Barrels and Off Flavors
 - Off Flavors we see in sour beer
 - Acetic
 - Flemish Reds?
 - Acetone
 - Mousey/Musty
 - “Oceanitus” (Geosmin?)
 - Will it blend away? Long term bottle life?
 - Dumping Barrels
 - DO IT!
 - The above off flavors will generally not clean themselves up with further aging.

Fruit and Spice

- Taste barrels before additions and find the ones that best compliment your treatment plan.
- Types of fruit product
 - Fresh, frozen, dehydrated, aseptic puree, freeze dried, juice, must, zest, peel, concentrate, ect.
 - Other Ingredients (Spices? Vanilla? Chocolate?)
 - How do you treat the fruit?
- How to add and for how long?
 - Barrel Addition? Stainless addition? Referment to dryness?
 - How to separate beer from fruit? Issues with fruit
 - Bag Filter, Mesh Screen, Centrifuge, Filter?

Blending

- Goal: what are you looking to achieve?
- What do you have to work with?
- Multiple brand blends
 - Clean and Sour Blends
- Blending old and young beer

Packaging/Conditioning

- Bottle Conditioning vs Force Carbonation
 - Why bottle condition (beyond tradition)?
 - Partial force carbonation
 - Conditioning yeasts
- Packaging Lines and Oxygen exposure
 - Brett and Oxygen
- Experiments we have done:
 - Corked and Crown vs. Crown
 - Conditioning sideways

CROSS CONTAMINATION!!!!

- What we use to do (2008): what we could get away with.
 - Always had separate packaging equipment, but little else.
- Current/Future Policy
 - Troubleshooting and preventing cross contamination. What we have done:
- Techniques we have employed
 - Ozone, lysozyme, quarterly chemical rotation, foaming, equipment maintenance schedule, SOPs!
- Bugs taking over the brewhouse & barrel cellar
 - Lab Data shows increase in anaerobic CFUs over time around brewhouse when we were still KO-ing into barrels. Numbers have dropped slightly since, but still much higher than fermentation cellar. #s:
- Things to worry about
 - How scary is lab cultured brett?
 - Other Scary stuff
- Ever thought about cross contamination of sour beer?

Questions?

Contact:
andrew.bell@thebruery.com

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