



Even A Little Lab Can Do Big Science

Presented by Jazzy Lauder

Good morning!

Jazzy Lauder

Brewery Microbiologist

Pelican Brewing Company

Jazzy@pelicanbrewing.com



The Evolution of a Little Lab in a Growing Brewery

Objectives:

- Provide insight on starting a lab from the ground up
- Define lab starting point and current format
- Outline major points of lab development in relation to brewery growth
- Highlight examples of practical sustainability



2016 Brewery

- Building expansion created room for a lab
- 10,000 bbls/year
- Bottling line ran @ 30 bot/min

Brewery Growth

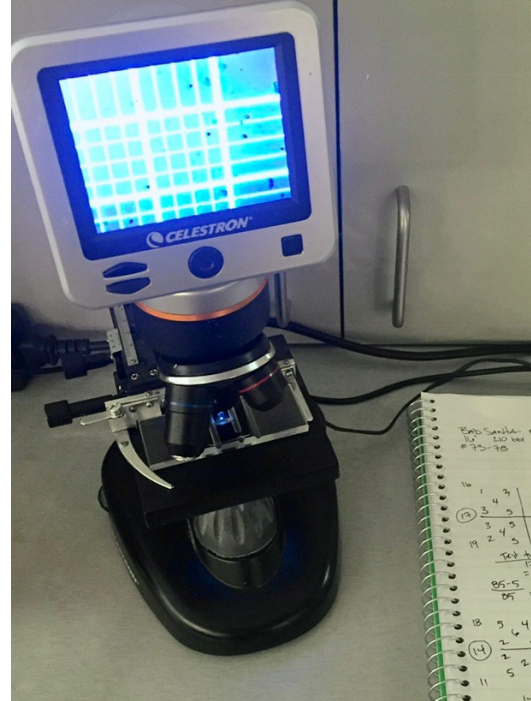
- 22,000+ bbls (2017): Bottling line upgraded to 165 bot/min
- 38,000+ bbls (2019): Canning line added @ 300 cans/min
- Increased output = Increased need for Yeast, Micro and QA/QC



2016 Lab Space

- 7'x12' lab area
 - Sink
 - Counters/Cabinets
 - Refrigerator
 - 3 Standard outlets





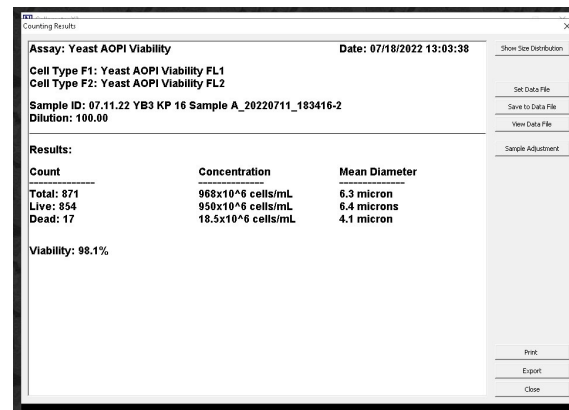
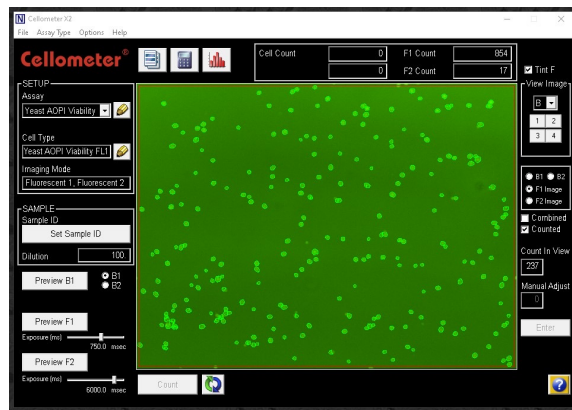
2016 Lab Setup

- Cell counts + pitch calculations
 - Hemocytometer
 - Microscope
- Daily Ferm Reports
 - Density Meter
 - Tabletop Centrifuge
 - pH Meter
- Sensory prep for VDK & TTB
 - Hot H2O Bath
 - Ultrasonic bath
 - Off flavor dosing



Yeast Count Methods

- 2016: Cellometer
- Faster and more accurate results
- Takes human error out of defining “blue”



Yeast Management

- 15,000+ bbls (2016):
 - Crashed FV Cone $> \frac{1}{2}$ and $\frac{1}{4}$ bbl kegs for storage in cooler
- 22,000+ bbls (2017):
 - 1st Yeast Brink for storage
- 31,000+ bbls (2018):
 - Propagation began
- 41,000+ bbls (2020):
 - Kveik becomes 3rd house strain



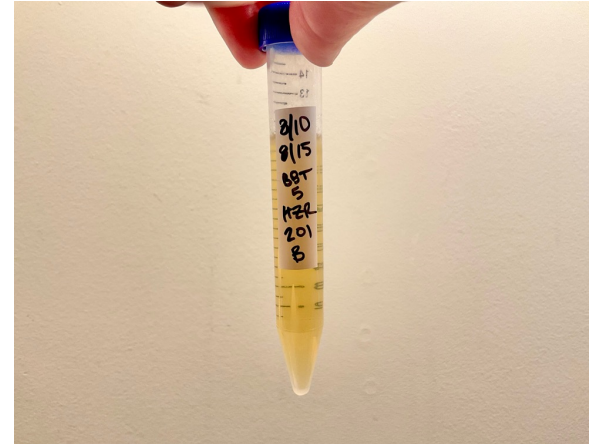


Yeast Storage

- 2022: 4 Yeast Brinks
 - Ale x2 (YB1 5000 #, YB2 3000 #)
 - Kveik (YB3 2000 #)
 - Lager (YB4 2000 #)
- Positive Impacts
 - Yeast health
 - Fewer cell counts
 - Reduced cellar labor
 - Pitching consistency

Micro Testing

- 15,000+ bbls (2016): 3M Plating @ KO
- 38,000+ bbls (2019): Small Scale PCR @ BBT & PKG
- 42,000+ bbls (2021): HLP @ FV, Fuge, BBT, PKG
- ~46,000 bbls (2022): qPCR @ FV, Fuge, BBT, PKG



2022 Microbio Lab

7'x12' space, 1 person

- Yeast Management
- PCR & Plating
- Fermentation Analysis
- QA/QC



2022 Analytics Lab

12'x16' space, 1 person

- GC/MS
- Spectrophotometry
- QA/QC



Thank You!

Jazzy Lauder

Pelican Brewing Company

Tillamook, Oregon

Jazzy@pelicanbrewing.com

