

KEYS TO A SUCCESSFUL SMALL-SCALE BARREL-AGING PROGRAM

BREW YOUR OWN NANO CON 2022

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AGENDA

- Barrel evaluation
- Filling and Draining
- Tracking
- Barrel maintenance
 - “Vinnie” nail installation
- Compliance

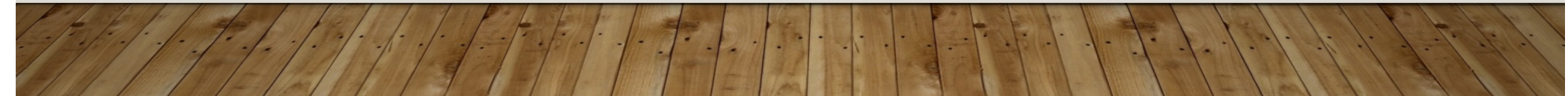
BARREL AGED BEER: HISTORY

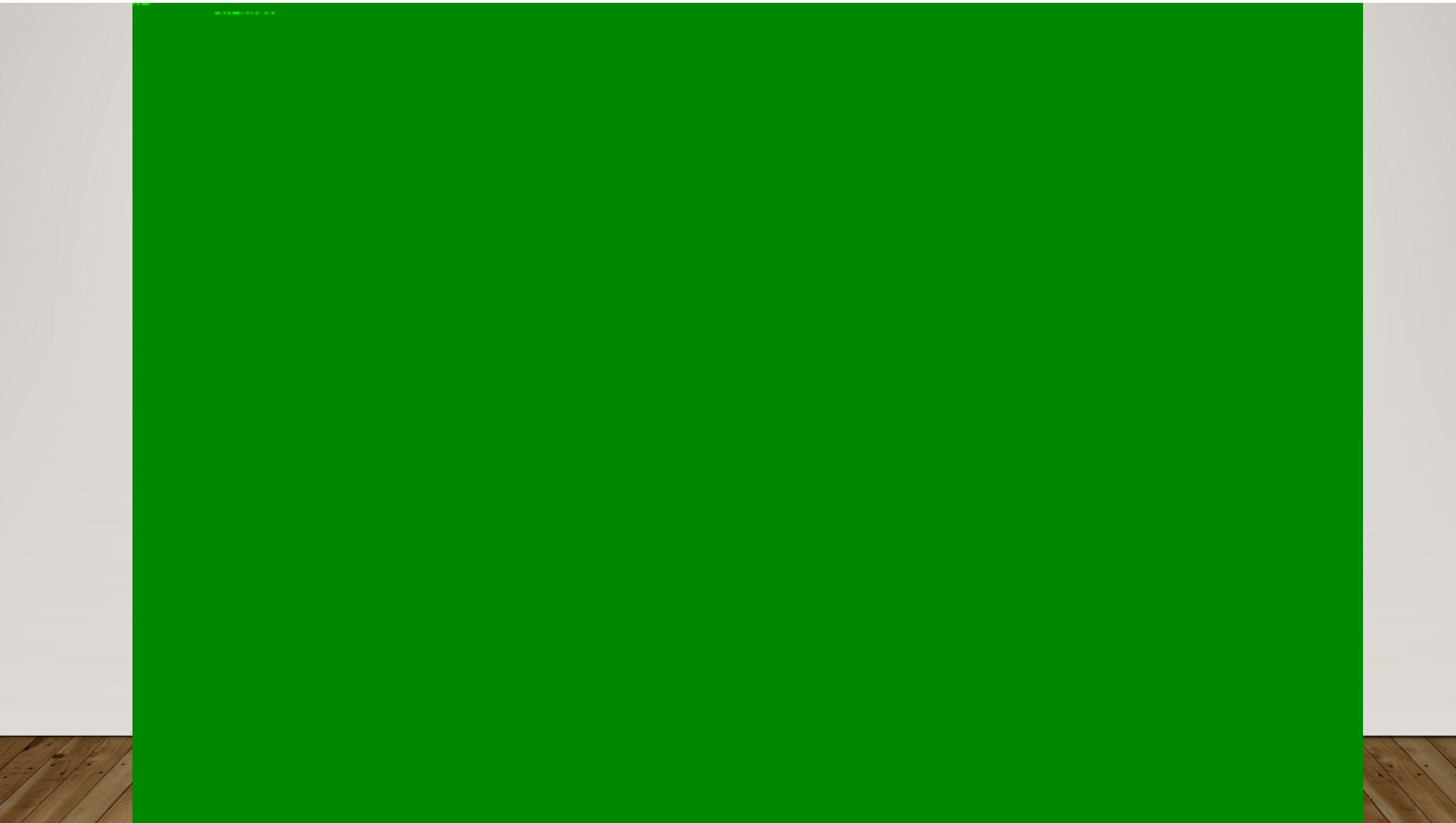




WHY OAK?

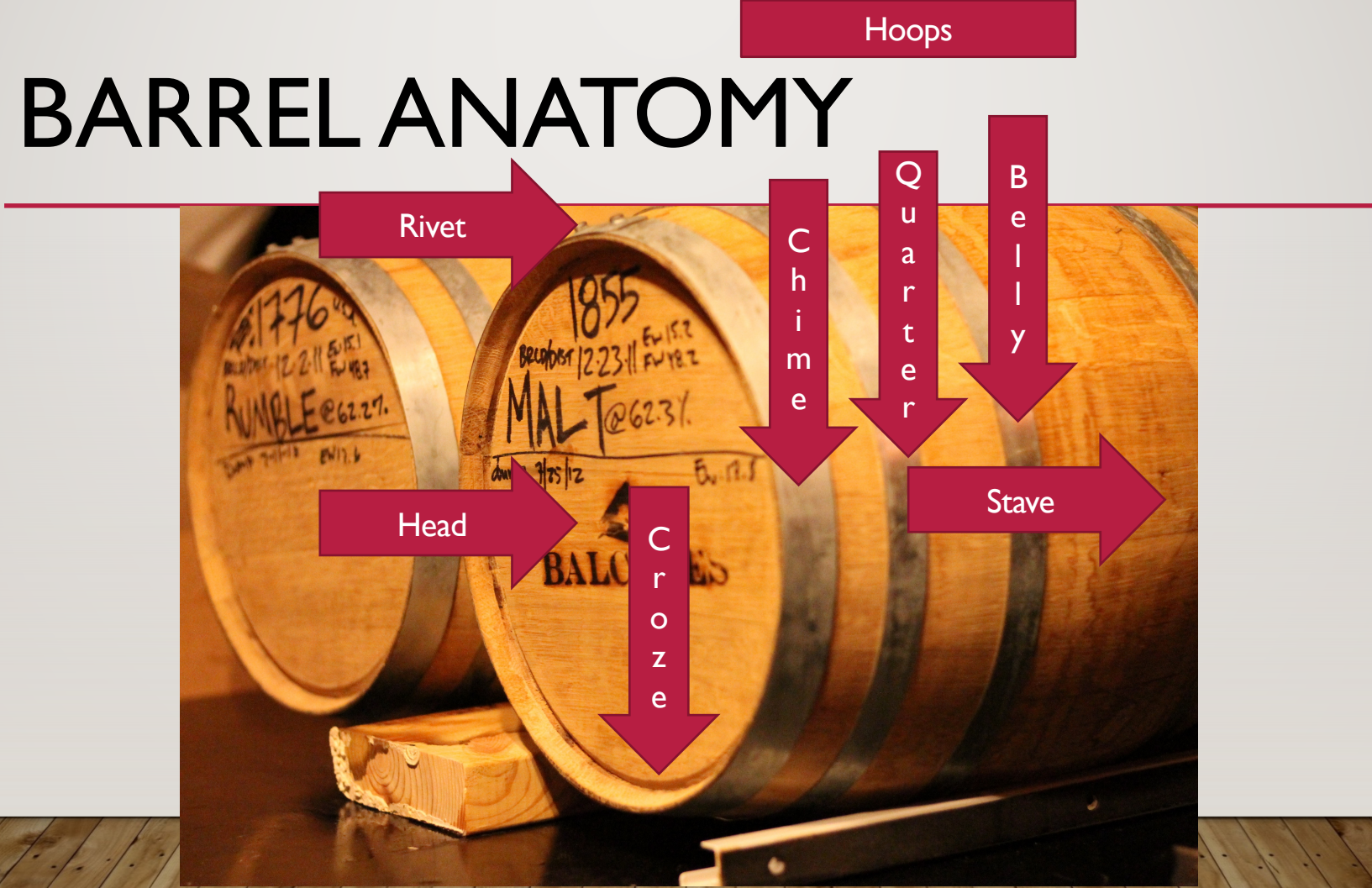
- Non-porous
 - Xylem structure
- Positive flavor contribution
- Widely available





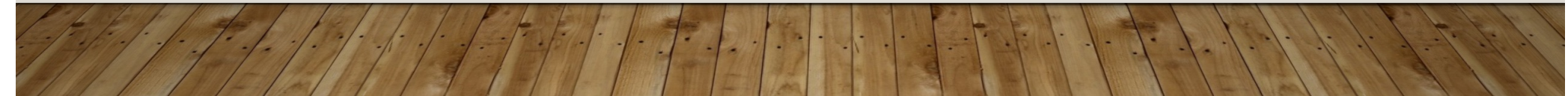


BARREL ANATOMY



BARREL SIZE

- Smaller barrel means more wood and oxygen
- Surface-to-Volume halved with each 10X Volume Increase
- 20L (5.3 gallons)
 - Surface-area per volume 195 cm²/L
- 200L (53 gallons)
 - Surface-area per volume 90 cm²/L
- Foeders































SOURCING

- New (Cooper)
 - Too oaky unless blending
- Original Owner (Winery/Distillery)
 - Easy accessibility
- Broker
 - Questionable History
- Brewery
 - Questionable treatment and storage

PREVIOUS RESIDENT

- Wine (Cabernet Sauvignon, Pinot Noir)
- Fortified Wine (Port, Sherry)
- Spirits (Bourbon, Rum, Tequila, Brandy)
- Beer

BARREL INSPECTION

- Information
- Exterior
- Interior
- Hydration
- See checklist

Barrel Inspection Checklist

Inspection Date: ___/___/___

Source/Location: _____

Identifier: _____

Volume: _____

Oak Source: English French Hungarian Other: _____

Toast: Raw Light Medium Medium+ Heavy Charred

Previous Resident: New Beer Red Wine White Wine

Rum Bourbon Scotch Brandy Unknown Other: _____

Number of Uses: _____

Emptied: ___/___/___

Storage: Ozone Storage Solution Sulfured Purged Nothing

Exterior

Staves: Gap Leak Crack Pinholes Other: _____

Hoops: Rust Moved Hoop nails Rivets Other: _____

Head: Bulged Tool marks Chime intact Other: _____

Bunghole: Burned Crack Other: _____

Modification: Nail Spigot Other: _____

Interior

Visual: Clean Yeast/Lees Inserts Mold Other: _____

Smell: Acetic Ethyl Acetate Mold Brett Other: _____

Hydration

Watertight: Yes No

Holds 5 PSI: Yes No

Notes

BREWING BARREL TEA

- 5% volume of 150°F/66°C water
- Roll around
- Wait 10 minutes
- Taste

CLEANING A BARREL

- Not usually necessary for spirit barrels
- Water
 - Hot vs. Cold
- Chemicals
 - Barrel Kleen
 - Soda ash

MAKE A PLAN

- Beer ready
 - 1-2 month for 5 gallon
 - 4-48 months for 60 gallon
- Same yeast ideally
 - Or less attenuative strain first
- Two or three clean
 - Then sour/funky

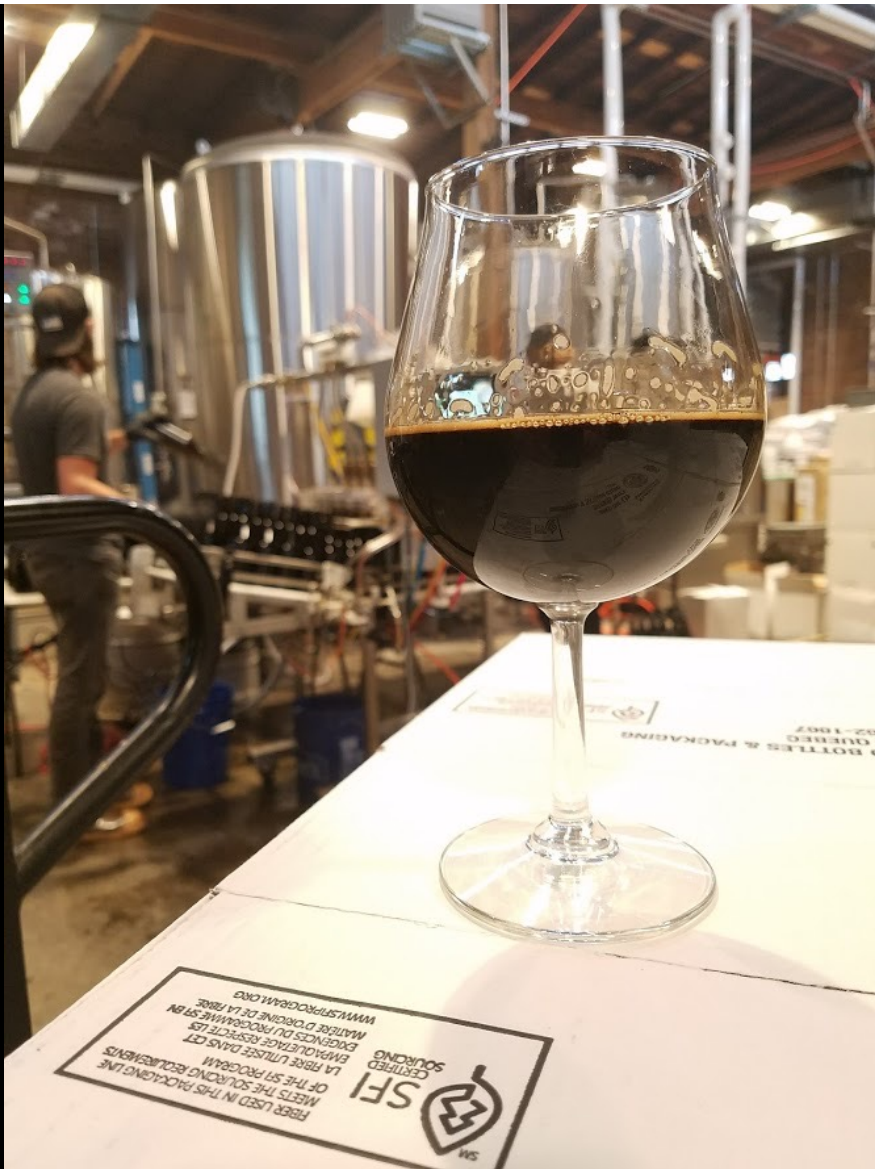
RECIPE CHARACTERISTICS

- First Fill

- Stronger
- Darker
- Richer

- Subsequent

- Lighter
- Paler
- Drier



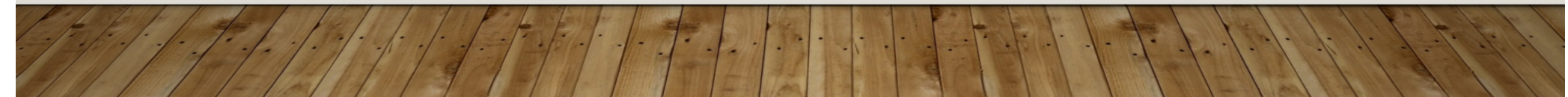
“VINNIE” SAMPLING NAIL

- 7/64” drill bit
- Head of the barrel, center stave
- McMaster-Carr® Type 316 stainless steel nails:
 - 4D size, 1.5 in. long (#97990A102)
 - 6D size, 2 in. long (#97990A104)



BARREL MAGIC

- Evaporation – concentrated flavor in wood
- Soak alternatives to replicate?
 - Dose in spirits or wine to taste
- Micro-oxidation
 - “Positive” oxidation
 - Beneficial to some microbes



WATERTIGHT TESTING

- Cool water
- Fill completely
- Partial-fill and rotate
- Pressurize at 5 PSI...



BARREL LOCATION

- Permanence
- Temperature
 - 35-80°F
- Humidity
 - 60-75%
- Aromas

FILLING

- Sanitize Rig
- Purge for 20 minutes
- Gentle



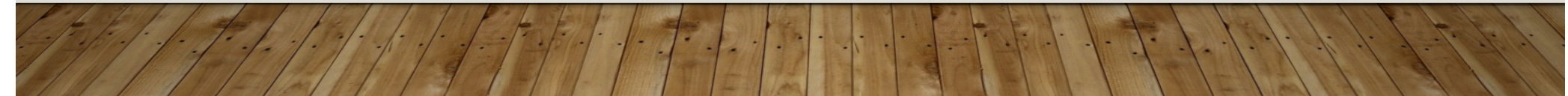
BARREL TRANSFER TOOLS

Use <5 PSI of CO₂ Pressure

- MoreFlavor! Gas Transfer Tool (\$230)
- Bulldog Barrel Transfer Tube (\$475)
- Rack-it-teer (\$1,300)

BARREL STORAGE

- Commercial double metal racks (~\$100/each)
- Homemade from pallet
- Chocks
 - Isosceles triangle, sides: long 5", short 3", and 2" thick
- Sitting on the floor









CLOSURE

- 10.5 Stopper with Airlock
- Alasco Dalco Dual Complete



TOPPING OFF

- Reduce excess head space
 - Reduce oxidation
- Store extra beer in a keg
- Timing
 - Temperature and humidity

DRAINING A BARREL

- CO₂ Pressure
- Peristaltic or Diaphragm pump
- Centrifugal pump
- Russian River's solution
 - 15/16" hole, 15/16" tubing, and a Belgian cork



KEEPING TRACK

- Affixed to barrel
 - Fill date, beer, microbes, barrel type
- Spreadsheet
 - All of the details, history, treatment, notes

Sapwood Cellars - Barrel #23

Name: Smiles for Miles

Sponsor: Michael Miles

Fill Date: 2/7/19

Barrel: Chardonnay

Beer: Old Westminster

Primary Microbes: House Saison

Barrel Microbes: Afterthought

Additions: Chardonnay Pomace



Sapwood Barrel Log



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	A	B	C	D	E	F	G	H	I	J	K	
	Barrel #	Base Beer	Fill #	Fill Date	Empty Date	Release	Winery/Distillery	Source	Original	Microbe Primary	Size	Oak
113	38	Flanders RED	3	1/7/20	1/11/21	Bestagon	Koval	Northeast Barrel Co.	Gin	Order to Chaos Microbes	30 gallons	Amer
114	38	Belgian Pale #2	4	1/11/21	4/10/22	Neologism	Koval	Northeast Barrel Co.	Gin	71B	30 gallons	Amer
115	39	Porter	1	7/25/19	10/1/19	Barrel Cured	Elijah Craig	Cured	Bourbon	RVA Manchester	53 gallons	Amer
116	39	Belgian Pale	2	10/1/19	4/28/21		Elijah Craig	Cured	Bourbon	T-58	53 gallons	Amer
117	40	RAR Collab	1	7/25/19	1/7/20	365.24	McClintock	Cured	Gin (Maderia)	House Saison	61 gallons	Frenc
118	40	Flanders RED	2	1/7/20	1/11/21	Bestagon	McClintock	Cured	Gin (Maderia)	Order to Chaos Microbes	61 gallons	Frenc
119	36	Shadows Blacker	2	5/28/21	6/24/22	Cherries Blacker	?	Northeast Barrel Co.	Pinot Noir	WLP833	59 gallons	MTL+
120	36	Marylambic #7	3	6/27/22			?	Northeast Barrel Co.	Pinot Noir	T-58	59 gallons	MTL+
121	41	Marylambic #3	1	8/12/19	8/10/20	Stallion Cover	?	Northeast Barrel Co.	Merlot	East Coast Yeast Senne Valley		Frenc
122	37	Rings of Beauty	1	5/15/19	6/14/19	Gin Spin	Koval	Northeast Barrel Co.	Gin	RVA Manchester	30 gallons	Amer
123	40	Belgian Pale #2	3	1/11/21	5/4/22	Neologism	McClintock	Cured	Gin (Maderia)	71B	61 gallons	Frenc
124	40	Marylambic #7	4	5/4/22			McClintock	Cured	Gin (Maderia)	T58	61 gallons	Frenc
125	41	Golden Strong #2	2	8/10/20	8/13/21	Growing Season Plum	?	Northeast Barrel Co.	Merlot	58W3 + Marylambic #4		Frenc
126	41	Marylambic #6	2	8/13/21			?	Northeast Barrel Co.	Merlot	58W3 + Marylambic #4		Frenc
127	45	Marylambic #3	1	8/12/19	8/10/20	Stallion Cover	?	Northeast Barrel Co.	Cabernet	East Coast Yeast Senne Valley		Frenc
128	42	Marylambic #3	1	8/12/19			?	Northeast Barrel Co.	Merlot	East Coast Yeast Senne Valley		Frenc
129	46	Courage RIS	1	8/20/19	4/22/20	Sir Rupert Barrelton	Sagamore	Sagamore	Cognac (Rémy Martin)	RVA Manchester	80 gallons	Frenc
130	46	Big Funky Ale	2	4/22/20	8/12/21	Single Barrel Still Bottling!	Sagamore	Sagamore	Cognac (Rémy Martin)	S-04	80 gallons	Frenc
131	47	Courage RIS	1	8/20/19	4/22/20	Sir Rupert Barrelton	Sagamore	Sagamore	Cognac (Rémy Martin)	RVA Manchester	80 gallons	Frenc
132	47	Big Funky Ale	2	4/22/20	8/12/21	Pomegranate	Sagamore	Sagamore	Cognac (Rémy Martin)	S-04	80 gallons	Frenc
133	43	Marylambic #3	1	8/12/19			?	Northeast Barrel Co.	Merlot	East Coast Yeast Senne Valley		Frenc
134	49	Disadulations	1	11/21/19	4/22/20	Weaponized Nonsense	Maker's Mark	Northeast Barrel Co.	Bourbon	S-04	53 gallons	Amer
135	44	Marylambic #3	1	8/12/19			?	Northeast Barrel Co.	Cabernet	East Coast Yeast Senne Valley		Frenc
136	50	Disadulations	1	11/21/19	4/22/20	Weaponized Nonsense	Buffalo Trace	Northeast Barrel Co.	Bourbon	S-04	53 gallons	Amer
137	45	Golden Strong #2	2	8/10/20			?	Northeast Barrel Co.	Cabernet	58W3 + Marylambic #4		Frenc

+ ☰ Barrels ▾ Blends ▾

Explore

BETWEEN BATCHES

- Ideally: Refill immediately
- Rinse (or not)
- Purge with CO₂
- Steam/Ozone
- Holding Solution
 - 0.25 oz/gal (2 g/L) of potassium metabisulfite
 - 0.15 oz/gal (1 g/L) of citric acid

SULFURING A BARREL

- Never in a Fresh Spirit Barrel
- Reduces oxygen and creates SO_2
- Equipment
 - Sulfur burner
 - Sulfur wick
 - Fire
- Potential off-flavors?

LEAK REPAIR GEAR

- Barrel wax (gate tallow)
- Beeswax
- Awl
 - Spile
- Chisel
 - Wedge

ESSENTIAL TOOLS

- Cooper's hoop hammer (small sledge)
- Rubber/plastic mallet
- Hoop driver
- Head puller
- Head hammer



COMPLIANCE

- As accurate as it is specific:

- Ale Aged in Oak Barrels

Vs

- Ale Aged in Bourbon Barrels for 2 Years

RESOURCES

- *Wood & Beer: A Brewer's Guide*
- *American Sour Beers*
- <http://barrelbuilders.com/>
- <http://www.mcmaster.com/>