



BREWING NON-ALCOHOLIC & LOW ALCOHOL BEER

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AGENDA

- DEFINITION- NO/LOW
- METHODS
- INGREDIENT OPTIONS
- OTHER CONSIDERATIONS
- RECIPES AND RESOURCES
- SUMMARY



DEFINITIONS (FOOD STANDARDS AUST & NZ, ATO & LALLEMAND WEBSITES)

Alcohol free or Zero Alcohol Beer- needs to have no alcohol at all e.g. Heineken 0.0

Non-alcoholic beer is 0.5% or less Alcohol By Volume (ABV)

Low alcohol - For alcoholic beverages containing **1.15% ABV or less**, the alcohol content must be written in words to the effect 'contains not more than X% alcohol by volume'.

Alcoholic beverages containing **more than 1.15% ABV**, the label must include the alcohol content as a percentage of ABV or mL/100 ml

Low alcohol generally defined as between .5 - 1.5% ABV (Lallemand). This is what I'll focus on

Light beer refers to any beer with less than 3.5% ABV. (Coors light and Bud light have 4.2% ABV!!!, so does Guinness)

Excise duty on beer is payable on the alcohol content above 1.15% by volume in your finished product

WHY DRINK/MAKE LOW OR NON-ALCOHOLIC BEER?

- Lower calories 26 kcal/107 KJ per 100ml (1%) beer, vs 47 kcal/196 KJ per 100ml (5% hazy)
- Less negative health impacts of alcohol
- Stay under blood alcohol limit for driving
- Cheaper to brew beer, as less ingredients used



What Alcohol Does to Your Body, Brain & Health

Andrew Huberman ✓ 7M views • 2 years ago

In this episode, I discuss the physiological effects that drinking alcohol has on the brain and body at different levels of consumption and over time. I also describe genetic differences that...

CC

Do NOT watch this if you want to keep drinking alcohol !!

THE PARTI-GYLE METHOD- COMMON BREWING TECHNIQUE IN UK & EUROPE FOR YEARS

RECIPE:
[HTTPS://WWW.CLAWHAMMERSUPPLY.COM/BLOGS/MOONSHINE-STILL-BLOG/HOW-TO-MAKE-AMAZING-NON-ALCOHOLIC-BEER?UTM_SOURCE=YOUTUBE&UTM_MEDIUM=PRODUCT_SHELF](https://www.clawhammersupply.com/blogs/moonshine-still-blog/how-to-make-amazing-non-alcoholic-beer?utm_source=youtube&utm_medium=product_shelf)

GET MORE BEER FROM YOUR
GRAIN
HAVE A LOW ALCOHOL
VERSION FOR FREE

alcoholic beer. But we think we accidentally stumbled on the absolute best way to make NA Beer. It involves what is called a Parti-Gyle mash, which is a process whereby beer is made using spent grains from a previous batch of beer. We've tried this a half dozen or so times now and every single batch has been absolutely delicious. It's also completely passable for [normal beer](#). Here's **how to make non alcoholic beer.**

How to Make Non-Alcoholic Beer

You can use this process for any beer you brew.

However, in order for this to qualify as non-alcoholic, we recommend that the ABV of your original beer be 5% or less.

- 01** Make a normal beer mash.
- 02** Transfer the spent grains to another kettle (or bucket) and rinse (sparge) them with 5.5 gallons of fresh water.
- 03** Boil for 60 minutes. At the beginning of the boil, add 1 oz of your favorite hops
- 04** Chill to 70F and pitch your favorite yeast.
- 05** Ferment completely under pressure in a keg (no airlock!) for at least 2 weeks
- 06** Cold crash, and put on tap.



SOME METHODS FOR PRODUCING LOW ALCOHOL BEER

Factors	*Low grain bill in mash	Cold mashing/non enzymatic	Boil off/Dealcoholizing
Grains	High flavour & character Use specialty malts & adjuncts	Similar grain bill to standard 3-5% beer. Soak at fridge temp overnight	As per normal recipe
Mash	Mash with high temp 72-85	Standard mash temp 66c	As normal & ferment out
Success factors	Complexity, mouthfeel, body, haze	Minimizing conversion of fermentable sugars	After fermentation raise temp to 79c for min 30 mins
	Combine with low attenuating yeast	Use fuller flavour malts	This sounds like a terrible idea 😞

*The rest of this presentation will assume you are using the Low grain bill method above

TYPICAL APA VS LOW GRAIN BILL METHOD/AMOUNT BASED ON 23L BATCH

Style	Grain	Mash & Boil	Yeast
American pale ale O.G 1.045-1.060 F.G 1.010-1.015 IBU: 30-50 ABV: 4.5-6.2%	5.5kg 85-100% ale malt or similar 0-15% mix of crystal, wheat, oats etc	60 min @ 66c Mash out 75c Boil 60 minutes +	US-05 or similar 80% attenuation
Low alcohol O.G 1.025-1.030 F.G 1.018-1.024 IBU: 6-12 ABV: .5-1.5%	2.3kg 85% ale malt 10% crystal 5% non fermentable adjunct- maltodextrin/lactose etc	60 min @ 77-82c Can even go as low as 30 minute mash Boil 30 mins, more if you want	Low attenuating yeast 70% Maltose and/or Maltotriose negative



YEAST SELECTION- WHITE LABS [HTTPS://ULTRALOWBREWING.COM](https://ultralowbrewing.com)

WLP603 (*Torulasporea Delbrueckii*)

High ester production and will lend well to styles such as a fruit-forward IPA or Saison. This species does not ferment maltose or other larger sugars.

WLP618 (*Saccharomyces Ludwigii*)

Lower ethyl acetate production compared to similar strains. This species is maltose negative as it does not ferment maltose or other larger sugars.

WLP686 (*Zygosaccharomyces Lentus*)

Maltose negative strain. The profile of this strain is found to be very neutral. This species is slower and might take longer to reduce sugars and lower the pH of the beer compared to other strains.



YEAST SELECTION- FERMENTIS [HTTPS://ULTRALOWBREWING.COM](https://ultralowbrewing.com)

Safbrew LA-01

Does not assimilate maltose and maltotriose but assimilates simple sugars (glucose, fructose, and sucrose) and is characterized by a subtle aroma profile.

Safale S33

Fruity driven strain, gives a high mouthfeel and body to the beer. Maltotriose negative.

F-2 Cask & Bottling Yeast

Maltotriose negative. Neutral flavour and aroma.



YEAST SELECTION- LALLEMAND [HTTPS://ULTRALOWBREWING.COM](https://ultralowbrewing.com)

LoNa

Performs like an ale yeast producing a clean and neutral aroma profile with no phenolic off-flavours. Does not consume maltose or maltotriose.

Windsor

Balanced fruity aroma and imparts a slight fresh yeasty flavour. Beers created with Windsor are usually described as full-bodied, fruity English ales. Maltotriose negative

CBC-1 Cask & Bottling Yeast

Maltotriose negative. Neutral flavour and aroma.

TECHNICAL INFO RESOURCE

<https://admin.lallemandbrewing.com/wp-content/uploads/2023/07/NABLAB-BP-ENG-Digital-LalBrew.pdf>

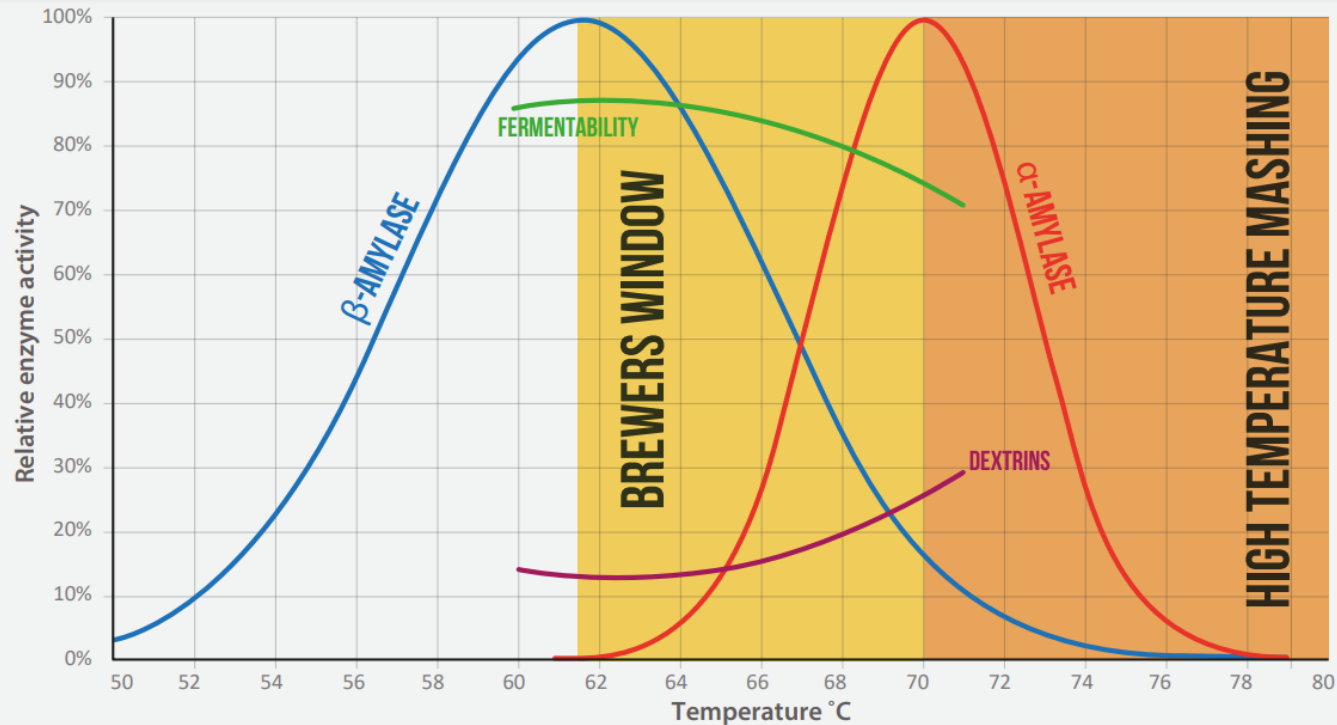


FIG. 2: Different types of enzymes have different specific activities during mash conversion that influence the composition of fermentable and non-fermentable sugars in the wort.

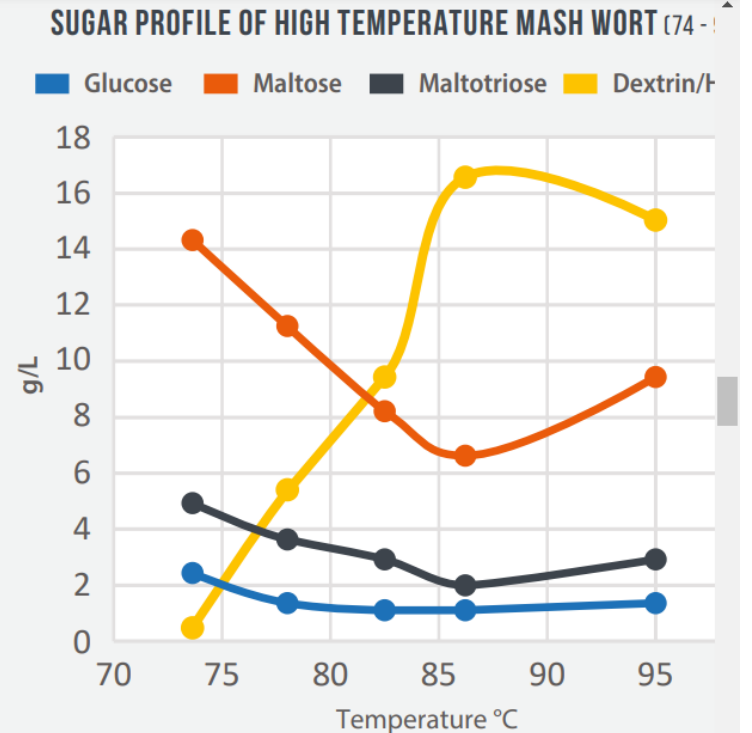


FIG. 3: The sugar profile of wort produced by high temperature mashing between 74 - 95°C. A 60 minute mash was performed at different temperatures before collecting wort. Highest concentration of dextrin/HMW sugars and low concentration of simple sugars were observed.

FERMENTABILITY vs MASH TEMPERATURE FOR SPECIFIC YEAST STRAINS



OTHER CONSIDERATIONS

- pH is very important in finished beer- without alcohol to act as a preservative there is increased risk to food safety- finished pH needs to be below 4.5, 4.2 is what I've been aiming for or lower (Lallemand recommend 3.7-4.1)
- Beer will contain higher than usual unfermented sugars, potentially available to pathogens in the finished product
- Beer stability- best kept cold and under co₂
- Bottle conditioning NOT recommended
- Pasteurization is typically used in commercial settings
- Need to reduce IBU's in recipes as bitterness will be accentuated

RECIPES

LOOKING FOR SOMETHING?

ALES



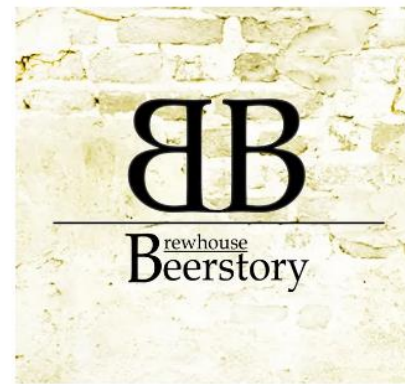
Zachary's Gluten Free Red 0.4%

Ale, Gluten Free, Red



Hops & Gnarly Stout 0.5% Abv

Ale, Stout



Lars' A Lunch Brownie 0.9% Abv

Ale, Brown

Categories

- ALE (41)
- AMERICAN PALE (5)
- AUSSIE (5)
- BERLINER WEISSE (2)
- BROWN (2)
- COMMERCIAL BEERS (5)
- CZECH (2)
- DARK (1)
- GLUTEN FREE (3)
- GOLDEN (1)
- GOSE (1)
- HAZY (7)
- INDIA RED (1)
- IPA (10)
- JAPANESE (2)
- KOLSCH (1)
- LAGER (11)
- MARZEN (1)
- NEIPA (2)
- OTHER (3)
- PALE (9)
- PILSNER (1)
- RED (2)
- SAISON (1)
- STOUT (3)
- WITBIER (1)
- XPA (1)

Tags

- ALE (39)
- AMERICAN PALE (3)
- AUSSIE (2)
- BEN SANDERSON (3)
- BERLINER WEISSE (2)
- BREWDOG (5)
- BROWN ALE (2)
- CRAIG DILLON (14)
- CZECH DARK (1)
- DAVID HEATH (1)
- GINGER (1)

SOME RESOURCES

The Brewing Network podcast: https://www.youtube.com/watch?v=_YDwxUoNo_Y
'Non-Alcoholic beer with Fieldwork Brewing'

Many commercial breweries are now making a LA or NA beer as drinking habits are changing

<https://www.pushkin.fm/podcasts/whats-your-problem/beer-without-the-buzz>

How Athletic Brewing went about making NA beer and selling it

With NA, large breweries are using processes like:

- Vacuum distillation
- Tunnel pasteurization

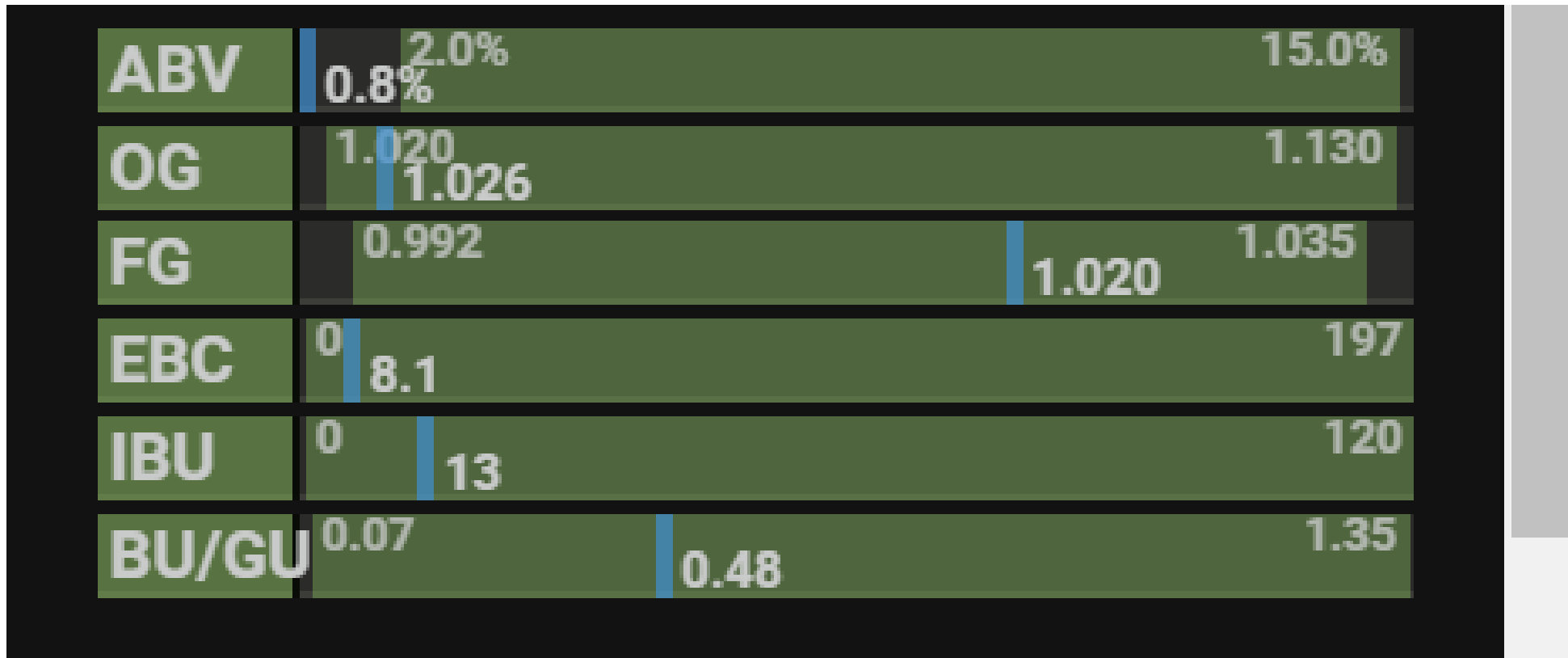
Enables them to release NA beer into the market in take away format, meeting food safety guidelines

This is just a summary of my experience, together with some resources I have consulted.

SUMMARY

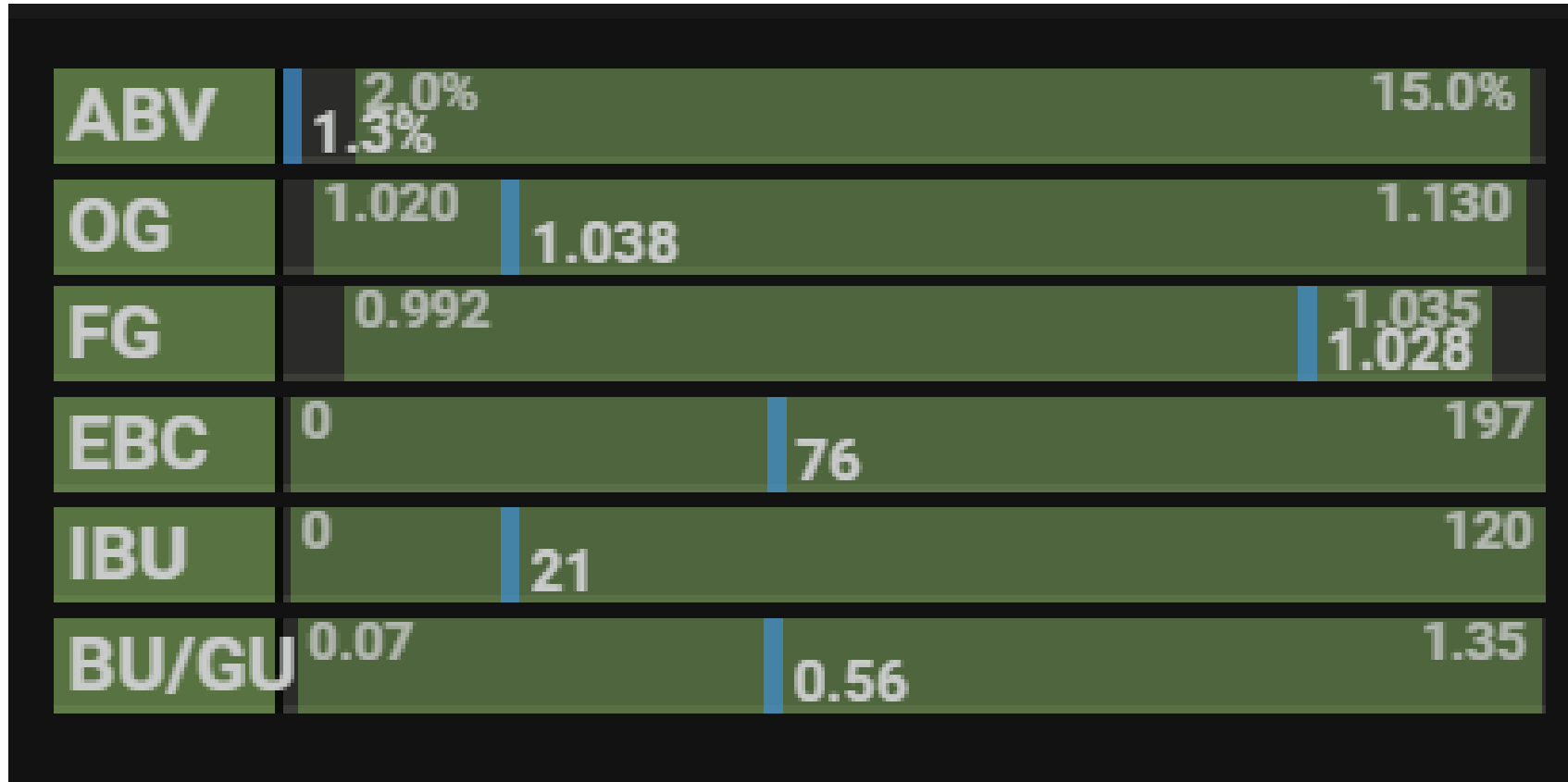
- I've brewed APA, IPA and Porter/Stout using these techniques- These work well for me
- In my experience low grain bill and low attenuating yeast gives good results
- Consider adjuncts – maltodextrin, lactose, etc. to increase body & mouthfeel
- Keep IBU's way lower than usual for recipe style
- Manage pH and finished beer for food safety
- You can make really tasty beer with 1% alcohol that seems more like 4%
- Making beer with less than .5% alcohol that tastes good is difficult
- The club is planning to hold a group brew challenge later in the year...get practicing!

WHAT DO YOU THINK THE BEER YOU ARE TASTING IS?



Style- APA

WHAT DO YOU THINK THE BEER YOU ARE TASTING IS?



Style-
American
Porter