

ADVANCED HOMEBREWING

TECHNIQUES FOR CONSISTENTLY GREAT BEER

Jamil Zainasheff
Chief Heretic
Heretic Brewing Company

Secret or Philosophy?

- **There aren't any secrets**
 - **Those that have secrets**
 - **Those that know brewing**
- **What works for one brewer may not be for another**
- **Poor brewing is often very “random”**
 - **Successful brewers are consistent**
 - **Great beer is made by mastering your craft**
 - **You can't master brewing until you can learn to be consistent**

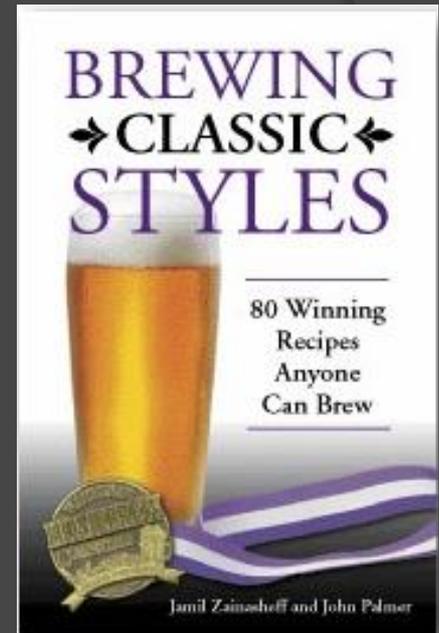
Equipment & Process

- Strive for consistency & control of the process
 - Almost any equipment makes great beer
 - Clean, properly functioning equipment
- Simplify, until easily reproducible
- Remove process complexity
 - Perfect the basics
 - For example, mashing
 - Consistent pH, grist/water ratio, dough-in, single infusion
 - For example, boil
 - Consistent boil times, boil vigor, evaporation rate
- Use “technology” to improve consistency
 - Measure for consistency and repeatability
 - Thermometers, hydrometers, yard stick, measuring cup, scale
 - Full wort boil
 - Fermentation temp control



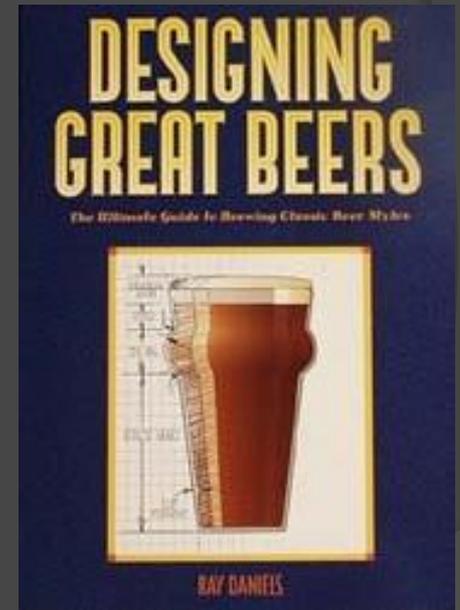
Recipes

- Too much worry about recipe, not enough about everything else
 - Recipe is not the most important thing
 - Best recipe can still equal worst beer
 - Easier to start with known recipes
 - Master the classics, like a chef
 - You can't make adjustments, when process is faulty
- A well brewed beer is often more important than the recipe



Designing Recipes

- **Master one ingredient at a time**
 - Some never use the same ingredient twice
 - Some never try new ingredients
- **Be bold, not excessive**
 - One or two specialty malts
- **Start from trusted recipes**
 - Brew and adjust rather than scratch
 - Later recipe from scratch
- **For creativity take life inspiration**
 - Experiences
 - Meals, songs, art, travel
 - Try to tell a story



Ingredients

- Use the classic grain, extract, hop, yeast for the recipe
 - Brewing continental pilsner, use continental pilsner malt
- Choose fresher over fancy
 - Country/brand means little if not fresh
 - Dry versus liquid extract
 - Find a high turnover shop
 - Ask them to let you know of any changes
- Simplify yeast selection
 - Majority of styles with just a few strains
 - Healthier yeast more important than specific strain
- Use pellet hops
 - Often more consistent
- Water
 - Simplicity and consistency
 - Many make it worse trying to “fix” their water
 - Remove chlorine/chloramine and adjust for pH with acid
 - Limited adjustments/additions
 - Chalk, gypsum



Fermentation

- ① Master fermentation
 - If you don't have great fermentation, you don't have great beer
 - Ruthlessly simplify the rest of your brewing
 - Remove complexity to focus on fermentation
- ② Consistency and repeatability
 - When is it healthy?
 - How far will it attenuate?
 - How long should it take to ferment?
- ③ Master one yeast strain at a time
 - Pitching rates, temperatures, O₂, OG, nutrients, etc
- ④ Control fermentation temperature
 - Beer temp, not room temp
 - Steady or rising temperatures
 - Pitch at fermentation temperature
- ⑤ Fermentation is **EVERYTHING** in fermented beverages



How Much Yeast

○ Pitching rates

- (pitching rate) X (ml wort) X (°P) = cells needed
 - Ales 0.75 million/°P /ml
 - Lagers 1.5 million/°P /ml
- Depends on style, strain
 - British ales, hefe,
 - Belgian, lager
 - Rehydrate dry yeast
- Start with a rate
 - www.mrmalty.com
 - Be consistent, then adjust
 - Best result = the right rate



Measuring Yeast

- Once density is known, you can measure
- By weight
 - 100 billion cells weighs ~8 grams, sans water and non-yeast
 - Repeatable
 - Better with larger volumes of yeast
- By volume
 - Graduated cylinder or other
 - Pumping
 - Other fancy gear
- Eyeball
 - Can be great, don't overthink it
 - Practice, log & repeat

Homebrew to Commercial

Irrational Thoughts

- My beer is so good, I can't fail once people taste it
- I'll do it without a license until I know it will work
- I'll do it without my spouse being 100% on board
- I'll just do it in my spare time
- We are expecting our first child, seems like a good time
- I'll just brew on my homebrew equipment

Rational Thoughts

- Homebrewing does not prepare me for the business of brewing
- Success requires a huge commitment of time
- I will need access to plenty of money
- There are many things I don't know and will need to learn
- Hard work, determination, attention to detail, business sense, and a love of craft beer

You need to have more love for craft beer than common sense to start. You need to have more common sense than love for craft beer to succeed.

Recap

- No secrets
 - Information is out there
- Process over expensive equipment
 - Repeatability, precision, simple measurements
- Recipes
 - Achieve mastery of the basics
- Fresh ingredients, not fancy ingredients
- Master fermentation
 - Temperature control critical
 - Pitching rates necessary
 - Rehydration of dry yeast
- Most important, brew and don't give up

Questions

- jzainasheff@gmail.com