Practical Brewing for Better Beer
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Home Brewing Options
It’s not the toys that matter...

- RIMS, HERMS, sculptures, cylindro-conical fermenters, counter-flow chillers are all great toys...eh, tools.
- Excellent beer can be made by the beginner with simple equipment.
- Whether kit, extract/specialty grain or all-grain, the principles of good brewing apply.
- There are many excellent books on brewing so I won’t try to summarize them here; **first recommendation:** *Read a lot.*
Common Beginner Faults

- Scorched extract/wort
- Sanitation issues
- Chlorophenols from chlorinated water
- Oxidation (introduction of air O2)
- Diacetyl (removing from yeast too soon)
- Vegetal (long lag times, DMS)
- Unbalanced (hop/malt) recipe
- Miss-understanding of styles
Ten Steps to Better Beer for the Beginner

1. Brewing software/recipe formulation
2. Fresh ingredients
3. De-chlorination / water management
4. Fastidious sanitation
5. Full boil (5 gallon recipes start with 6+ gallons of wort)
6. Rapid cooling (to avoid DMS reformation)
7. Yeast management (re-hydration of dry yeast, starters, yeast volume)
8. Aeration/oxygenation of wort
9. Kettle (e.g. Irish moss) and beer fining (e.g. gelatin)
10. Secondary ageing / laagering at proper temperature
11. Patience!
Where do we need to be very accurate and where can we be approximate?

“Measure with a micrometer, mark with chalk and cut with an axe!”

<table>
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<th>Care Needed</th>
<th>Not As Critical</th>
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<td>Sanitation of hops</td>
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<tr>
<td>Mash pH</td>
<td>Boil pH</td>
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<tr>
<td>Measuring hops</td>
<td>Measuring malt/extract</td>
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<tr>
<td>Amount of priming sugar</td>
<td>Amount of grain</td>
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<td>Time of hop additions</td>
<td>Time of boil</td>
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<td>Water quality (potable)</td>
<td>Mineral content of water</td>
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<td>Crush of grain</td>
<td>Time of fermentation</td>
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<td>Rapid cooling of wort</td>
<td>Yeast temperature drops</td>
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Where can we avoid problems before they happen?

- Plan your brewing in advance
- Remove chlorine from water prior to brewing
- Take a kettle off the fire/stove before adding malt extract
- Take precautions with sanitation
  - Items must be clean before they can be sanitized
  - Use proper sanitizer (Iodophor, Star-San)
  - Don’t count on sterility
- Measure everything and collect together prior to brewing – “mis en place.”
What is process and how does it help the brewer?

While the homebrewer can make a beer as good as any pro, the majority of homebrewers cannot do this consistently.

Process is having and routinely using a methodology, or steps of actions, leading to an end result. Under the same or similar circumstances, it’s executing the same steps each time.

Establish habits and stick to them:
– This will help you not forget a step
– It will make the outcome more predictable
– It will make your brewing consistent batch to batch

Examples:
– Always using Irish moss or the equivalent
– Always using the same sanitation techniques
– When adding LME to boiling water, always move the pot off the burner
– Always aerate wort, re-hydrate dry yeast, fill a bubbler with something you’d put in your beer (vodka)
– Create a recipe, take notes and save for future reference; keep records
When to experiment and when to "follow the rules?"

- It’s good to question “why” and to experiment. The general rules of thumb and conventional wisdom may be wrong. E.g.: First Wort Hopping
- But recognize that brewing has been occurring for centuries and modern homebrewing the USA legally for nearly 36 years. A lot has been learned. Some of which is correct.
- Experiment from a basis of knowledge and understanding.
- Understand how different ingredients affect the finished beer.
- Understand brewing processes and the affect on finished beer.
- Understand beer styles and what makes them so.
- Then experiment from this understanding.
What are styles and how can you make the beer you like?

- Styles originated in geographies where beer was successfully made from the ingredients and water that were available. The fact that a style persisted was because it was liked and therefore successful.
- There is nothing wrong with just making any beer that you like, but most people have some preconceptions about what they like based on what they’ve had and these were most likely some interpretation of a style.
- Key is meeting your expectations, whether it’s just making something you personally enjoy or you are brewing for competition.
- Read about styles so that you understand them. Brewers Publications style series and BJCP Style Guidelines are excellent sources of information.
What are styles and how can you make the beer you like?

• Some styles are relatively easy to make from beginner kits and for the extract brewer:
  – Porters, Pale Ales, Scotish Ales, Stouts, IPAs

• Some styles are more difficult to make from beginner kits or for the extract brewer:
  – Light beers, lagers, Weizens, Lambics

• Use the lightest DME you can buy along with specialty grains (crystal, chocolate, black patent malts and roasted barley) rather than LME or amber/dark DME.
  – Light extract is more predictable than amber or dark extract; what was used to make the amber or dark extract affects flavor.
  – Dried extract is easier to measure and won’t oxidize as easily as liquid extract.
Practical Tips

• Sanitize bottles in automatic dish washer (without soap) on the heated drying cycle.
• Sanitize cleaned, rinsed bottles in the oven, capped with aluminum foil.
• Buckets are fine for primary fermentation, so long as you are careful against scratches, and much easier and safer to carry than glass carboys.
• Up to 25% of the tannins in beer come from hops. To reduce tannins (astringency) use less of a more bitter hop for same IBUs.
• The same “darkness” of beer (SRM) can represent multiple colors (hues). For a redder color use higher kilned malts. For a more yellow hue, use lower kilned malts.
Collect extra wort from mash tun, boil and can in mason jars to create wort for starters.

Make a ss wire screen filter for your racking cane to filter hops and trub when racking.

Soak off labels with water, dishwasher detergent and TIME.

Irish moss is available as large flakes, refined flakes and powder; overall best clarity and least damage to the beer is achieved from 1 tablespoon of refined flakes per 10 gallons, rehydrated in water (George Fix, MCAB 1, 1998).

Whirlpool to separate hops/break material from wort! Rack or run-off clear wort to the fermenter.
• Cold steeping of specialty grains maximizes extraction of desirable melanoidins while minimizing extraction of undesirable tannins.
• Increase clove phenols with ferulic acid rest at 113°F / 5.8pH.
• Use a couple teaspoons of dry malt extract to acidify you sparge water.
• Choose low co-humulone hops for softer bitterness.
• Reuse yeast; rack beer off yeast then add new wort. Start with smaller, lighter, less bitter beers and move to the bigger, hoppier darker beers. Split packages of White Labs and Wyeast and use starters.
• Aerate/oxygenate wort – simply by shaking carboy or whisking wort in bucket fermenter. Introduce air, not airborne contaminants.
What household items can be pressed into brewing service?

We have many items around the house to help with brewing:

- Aluminum foil to make temporarily cap bottles
- Plastic wrap to temporarily cover fermenters and our tools to keep them sanitary; hint – watch airborne contamination
- Large SS spoons; large SS kitchen pots; SS strainers; perforated pizza pans; turkey basters
- Canning jars and lids; pressure cookers
- Electronic kitchen thermometers
- Inexpensive postal scales for measuring hops and small amounts of grain. Baby scales for larger quantities of grains.
- Paper grocery bags over carboys to keep light out
- Tee shirts over carboys in a tub of water for evaporative cooling
- Knox gelatin fining
- Zinc tablets for yeast health
Summary

• Brewing is both science and art; you can make it as much or little of each, as you like
• Even beginning brewers can make great beer with kits and extract, but some knowledge and guidance will help tremendously

Questions?