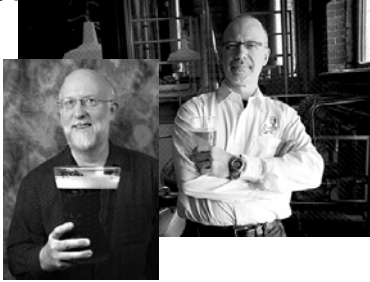


Randy Sez; Ray Sez!



All-Grain Essentials

- Two ends of the spectrum
 - Homebrew unfettered: Randy
 - Homebrew contained: Ray

All-Grain Essentials

- Ray's Story
 - Family
 - Traveling for work
 - Living in a city condo
 - Short on ...
 - Time
 - Space

All-Grain Essentials

- The KISS of Homebrewing!
 - Keep
 - It
 - Simple,
 - Stupid!

All-Grain Essentials

KISS: Keep It Simple, Stupid!

- Goal: Make good tasting beer
- Not:
 - Make beer w/ coolest equipment
 - Make beer w/ complicated procedures
 - Use as many ingredients as possible

All-Grain Essentials

Rule # 1: Keep the recipe simple

- Best beers made from simplest recipes
 - Pilsner
 - Munich Dunkel
 - English Bitter
 - Scottish Ale

All-Grain Essentials

Rule # 1: Keep the recipe simple

- What does each malt do?
- Greatness rarely from another malt!
- Crutches: crystal, wheat, Cascade

All-Grain Essentials

Beware the IMAG BINUE Complex

I'M an All-Grain Brewer—I *Never* Use Extract!

All-Grain Essentials

The IMAG BINUE Complex

- Homebrewing is HARD!
- Don't be afraid of malt extract
 - Gives range & capacity
 - Allowance for other challenges
 - Use dry, pale extract like base malt
 - As gravity and non-malt flavor grow, you can use more and more

All-Grain Essentials

Rule # 2: Keep the process simple

- Homebrewing offers illusion of control
- The simpler you keep it ...
- Learn to crawl before you try to run

All-Grain Essentials

Rule # 2: Keep the process simple

- Simple infusion mash
- Mash tun: insulated NOT heated
- Skip the protein rest
- Simplify water treatment

All-Grain Essentials

Rule # 3: Keep equipment simple

- Simpler
- Smaller
- Smarter

All-Grain Essentials



All-Grain Essentials



All-Grain Essentials



All-Grain Essentials



All-Grain Essentials

One thing missing:

- A pump

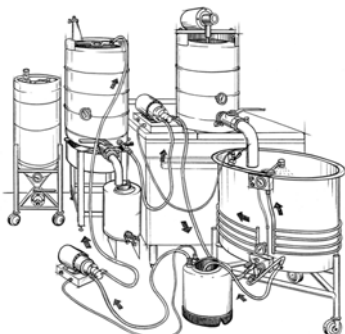


Goofy For All-Grain!



- Simplicity?

Goofy For All-Grain!



- Screw simplicity!

Goofy For All-Grain!

- Seriously...I was looking for
 - Larger batch sizes (15 gals)
 - Can brew any recipe, procedure
 - Some automation allows multitasking
 - Efficient, good yield
 - Correct brewing methodology
 - Good beer quantity-to-time ratio

Goofy For All-Grain!

- The Dark Side
 - Lots of stuff, space
 - Lots of stuff to clean
 - Potential for things to go wrong
 - %\$#@ing Pumps!



Goofy For All-Grain!

- My Process
 - 15-year evolution, refinement
 - Working with salvaged materials
 - Lots of wrong turns
 - Gained a lot of skills



Goofy For All-Grain!

- My Goals
 - Brew any kind of beer
 - Historical mashes: decoctions, slijm, etc.
 - Good-tasting beer
 - Ease of use vs. complexity

Buckapound Brewery

- My setup
 - Three-vessel brewhouse
 - Kettle/hot liquor tank
 - Mash kettle with heat
 - Dedicated lauter
 - Automation
 - Sparging/runoff
 - Water fill
 - Cleaningoff



Buckapound Brewery

- My setup
 - Modular hose connections
 - Modular electrical/sensors
 - Easy disassembly (Tri-Clover clamps)



Buckapound Brewery

- My setup
 - Mechanical stirring
 - Grant with float switches
 - Hop Back
 - 26 gallon kettle, 15 gallon mash kettle, 21" wide lauter tun
 - Can boil 18 gallons for 15-16 gal knockout

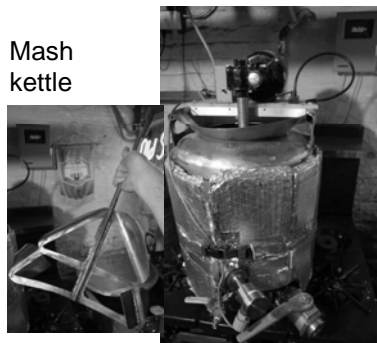
Buckapound Brewery

- Roller mill for malt
- Pin mill for other grain



Buckapound Brewery

- Mash kettle



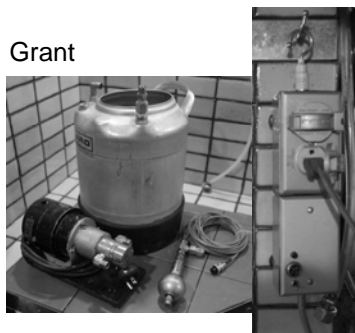
Buckapound Brewery

- Lauter tun



Buckapound Brewery

- Grant



Buckapound Brewery

- Kettle/
hot Liquor
tank



Buckapound Brewery

- Hop back
- Inline
aerator



Buckapound Brewery

- CIP unit



Buckapound Brewery

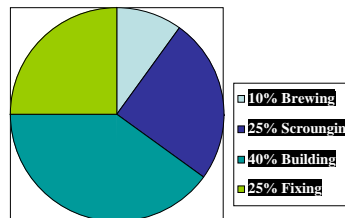
- How does it work?
 - Usually about 85% efficiency
 - Start to finish in 6 hours
 - Usually nothing breaks
 - No problems with beer
 - With additional pot, decoctions and adjunct mashes are just fine

Goofy For All-Grain!

- Should YOU do it?
 - What kind of recipes/procedures?
 - How much beer do you need? (OK, want)
 - How important is:
 - Time for brewing, cleaning
 - The cool factor
 - Resources
 - Skills
 - Junk and/or money

Goofy For All-Grain!

- Does this work for you?



All-Grain Options

- Converted keg w/ false bottom
 - OK for infusions
 - Needs insulation
 - Can't heat mash directly (OK if heavy pot)
- Converted keg with "Bazooka" or braided hose pickup
 - Pretty effective
 - Scorching a possibility
 - May be efficiency issues w/pickup

All-Grain Options

- Recirculating systems
 - All pump wort in and out of mash tun through heater or coil in hot water
- RIMS
 - Moves wort through heater element
 - Usually electric
- HERMS
 - Moves wort through coil in hot liquor tank

All-Grain Options

- Recirculating system advantages
 - Effective
 - Modular—can be added to cooler tun
 - Can be automated/computerized
 - Very precise control possible
 - Decoctions, adjunct mashes with additional heavy-bottomed pot

All-Grain Options

- Recirculating system disadvantages
 - %\$#@ing Pumps!
 - May be expensive, complex
 - Requires a good runoff or flow will be sluggish
 - Most are larger sizes (small ones possible)
 - Rims heaters may have too-high heat density, scorch wort

Mash Types

- Simple infusion
 - Good for 90% of all beer types
 - May require adjustments for classic recipes (like witbier)
 - Historically, mainly British beers
 - Quick and easy
 - Minimal equipment needed
 - Mash-out (at end) with hot water

Mash Types

- Adjunct (American style)
 - Adjuncts ramped up, boiled...
 - Then added to malt mash in progress
 - Useful for all unmalted grains over 15% of recipe
 - Mandatory for corn or rice US pils
 - Works great with unmalted wheat for witbier
 - Requies additional small pot w/heavy bottom or flame-tamer

Mash Types

- Decoction
 - Mash is started, then portion removed, stepped up and boiled
 - Returned boiled mash raises temp of whole mash
 - Very time-consuming (3-5 hrs) and demands constant attention
 - Great for dark lagers!
 - Best simplified for modern malt (skip protein rest)

Mash Types

- Belgian “Slijm” or turbid mash
 - “slijm” means “silt” in Dutch
 - Mash-in cool or warm
 - Liquid portion (slijm) removed, boiled
 - Mash reinfused with hot water, rested
 - Then runoff
 - Slijm added to mash, rested again, drained
 - Creates poorly fermentable wort
 - Lambics, witbier, small beer

Mash Types

- German “Satz” mash
 - Used up to 1900 in Culmbach, Augsburg Bamberg
 - Mashed in at room temp, stand 2-5 hrs
 - Drained, half added to water, boiled, added to mash, short rest at 140-145°F (60-62.5°C)
 - Rest of cold satz added, runoff
 - Wort boiled, added to mash
 - Then decoct, return, rest, runoff

Mash Types

- Historical Belgian Mashes
 - Ridiculously complex
 - Some a result of weird Dutch tax system (tun capacity)
 - Separate mash, boiling of malt, wheat
 - Modernized about 1850
 - Hard to grasp principles, purpose
 - Not for faint of heart!

Mash Types

- Whatever you do



Make it cool!