BREWING YOUR OWN BEER:
YOUR PERSONAL BREWERY

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Today’s Topics

- What’s in my beer?
- Types of beer
- How is beer made
- Why homebrew
- Your brew session
- Key things to remember
- Resources
What’s in my beer?

Grain
Water (92% water)
Hops
Yeast

What’s in my beer? - grain

Grain
Source of fermentable sugar, flavor and color
Malted barley, wheat, oats, corn
Base versus specialty malts
Crystal malts are cooked to start the enzymatic conversion of starches into fermentable sugars, and some of the sugars are caramelizes. Malt reaches its final color.
What’s in my beer? - grain

Water

Beer styles led to regional beer styles-
> Munich’s soft water is great for brewing of Hefe-Weizen, Oktoberfest, Pils, and Lagers

Get a town water report

Online software can aid in water analysis www.brewersfriend.com

Consider removing chlorine with a charcoal filter
What’s in my beer? - water

Bittering hops are high in alpha acids that are isomerized during the boil to create iso-alpha acids (they also have a high % of cohumulone)

Aroma hops are high in essential oils that become volatile and evaporate after boiling 20 minutes

The timing and quantity of hop additions is critical to the taste of your beer
What’s in my beer? - hops

[Image of hop plant]

BREWING VALUES

<table>
<thead>
<tr>
<th>Alpha Acid</th>
<th>Beta Acid</th>
<th>Total Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>0</td>
<td>15.5-18.5</td>
<td>0</td>
</tr>
</tbody>
</table>

- Alpha Acid 15.5 – 18.5%
- Beta Acid 4.4 – 5.5%
- Co-Humulone 7.0 – 8.5%
- Total Oil 0.1-0.2% of hop weight
- B-Pinene 6.0 – 7.5% of total oil
- Myrcene 46 – 52% of total oil
- Limonene 0.0 – 0.2% of total oil
- Caryophyllene 11 – 16% of total oil
- Farnesane < 1% of total oil
- Humulene 13 – 16% of total oil

What’s in my beer? – aroma hops

[Image of hop plant]

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<td>0</td>
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</tbody>
</table>

- Alpha Acid 11 – 15%
- Beta Acid 3 – 4.5%
- Co-Humulone 23 – 24%
- Total Oil 1.8 – 2.4% of hop weight
- B-Pinene 5.7 – 16% of total oil
- Myrcene 60 – 75% of total oil
- Limonene 6.5 – 8.5% of total oil
- Caryophyllene 0.8% of total oil
- Farnesane < 1% of total oil
- Humulene 7 – 12% of total oil
Types of beer

Lagers
Bottom fermenting yeast (50 degrees)
Crisp, light, low fruit tastes
Range from pilsner to double bock

Ales
Top fermenting (64 – 72 degrees)
Malty, full-bodied, fruity
Pale ales to stout

What’s in my beer? - yeast

Yeast makes beer our of wort.

Style specific- Irish Ale, Belgian ales, Kosch, English Bitters. Good generic “clean yeast” like Fermentis US-05.

Pick a yeast that works in your fermentation environment (average temperature)

Yeast chart -  http://www.mrmalty.com/yeast.htm, also provides yeast
What's in my beer? - Lager Yeast

**STRAIN: 2007 PILSEN LAGER™**

Westend 2007 is the classic American lager strain. This robust, neutral strain produces beers with a nice mellow character and a smooth finish. It ferments dry and crisp with minimal sulfur or diacetyl. Beers from this strain exhibit the characteristics of the most popular lager in America.

<table>
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<tr>
<th>MEDIUM FLOCCULATION</th>
<th>71 - 73% ATTENUATION</th>
<th>48 - 58 TEMPERATURE RANGE</th>
<th>9 ABV</th>
</tr>
</thead>
</table>

**GOOD FOR STYLES:**

- American Lager
- American Light Lager
- Historical Beer: Prohibition Lager
- German Pils
- Schwarzbier

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What's in my beer? – Ale Yeast

**STRAIN: 1056 AMERICAN ALE™**

Very clean, crisp flavor characteristics with low fruitiness and mild ester production. A very versatile yeast for styles that require diminished malt and hop character. This strain makes a wonderful "House" strain. For best results, ferment with cooler 60-80°F (16-26°C) temperatures. Normally requires filtration for bright beers.

<table>
<thead>
<tr>
<th>LOW - MEDIUM FLOCCULATION</th>
<th>73 - 77% ATTENUATION</th>
<th>60 - 70 TEMPERATURE RANGE</th>
<th>11 ABV</th>
</tr>
</thead>
</table>

**GOOD FOR STYLES:**

- American Pale Ale
- American Amber Ale
- American Brown Ale
- American IPA
- Double IPA
Why Homebrew?

You can make great beer

Economics $36 for ingredients to make 2.5 cases

Fun hobby and great group activity

Make beers you like

How is beer made?

Recipe
Steeping
Boiling
Cooling
Fermentation
Filter / Carbonation
Bottling and kegging
Your Brew Session…

Time
Space
Equipment
Ingredients
Brewing steps
Enjoy

Equipment – this??

1 bbl | Brewhouse

$15,999.00

ADD TO CART

For Units Shipping July 2018
Equipment – this??

Your Brew Session – the recipe

Oscar’s Pale Ale

8 oz Munich Malt
6 oz Carapils Malt
4 oz Caramel Malt (80 Lov.)
8.5 lbs Light Extract
0.75 oz Columbus Hops in Boil
1.0 oz Cascade Hops in at MId
1.5 oz Centennial Hops in at 50 minutes
3.0 oz Columbus Hops in at Flame Out
American Ale Yeast
Muslin Bag
Irish Moss
½ cup Corn Sugar
Your Brew Session - the instructions

Five Gallon Brewing Procedures

1) Place the cracked grains in the muslin bag(s) and place in a pot with 2 gallons of cold water. Add gypsum, if applicable. Bring the water temperature up to 150 degrees F. Siphon the grains for 30 minutes, remove and discard the grains.
2) Add the extracts into the pot and stir to thoroughly mix the extract into the water.
3) Bring the liquid to a boil.
4) Add the boiling hops slowly to the pot.
5) At the 30 minute mark, add the Mid hops to the pot.
6) At the 45 minute mark, add the Irish Moss to the pot.
7) At the 55 minute mark, add the Finish hops to the pot.
8) At the 60 minute mark, remove the brew pot from the stove. Cool the wort using an ice bath or a wort chiller.
9) Transfer the chilled wort to a sanitized fermenter. Add enough cold water to bring the total volume up to 5 1/4 gallons.
10) When the temperature of the wort drops to below 85 degrees, add the yeast.
11) Place the airlock onto the fermenter.
12) After primary fermentation has completed, transfer the beer to the secondary fermenter. Add dry hopping hops, if applicable.
13) After secondary fermentation has completed, dissolve corn sugar in 16 oz. water, bring to a boil.
14) Transfer beer from secondary fermenter to bottling bucket. Add cooled priming sugar solution.
15) Transfer beer to sanitized bottles & cap. Allow 7-10 days for carbonization to complete.
16) Enjoy!!

Key Things to Remember

Did I mention cleaning
Heat, air and light are your enemies
Keep it simple
Follow the process
Ask for help
As Charlie Papazian says enjoy a homebrew
Resources

– www.homebrewersassociation.org/how-to-brew/ (how to videos)

– www.mrmalt.com

– www.brewersfriend.com

– www.howtobrew.com