Modern Homebrew Recipes

GORDON STRONG
Recipe Formulation Topics

- Skill Inventory
- Understanding Recipes
- Adapting Recipes
- Conceptualizing Recipes
- Recipe Design Examples
Prerequisites

- What should you know before formulating recipes?
  - Beer styles
  - Flavor profiles of ingredients
  - How techniques affect ingredients
  - Basic beer math or how to use recipe software
  - How to brew (duh)
Toolbox of Techniques

- Personalized, not universal
- Based on your equipment
- Adapted to your local conditions
- Efficient, effective set of practices
- Practice matters: repeatable, predictable

Your Brewing Style = Your Choices and How You Execute Them
Sample Set of Techniques

- **Water**
  - Use RO water
  - Adding acids
  - Adding salts to mash
  - Adding salts to boil

- **Mashing**
  - Infusion mash
  - Step mash
  - Decoction (single, double, hochkurz)
  - Hybrid
  - Round trip

- **Mash Finishing**
  - Mashout
  - Mash capping
  - Grain steeping
  - Vorlauf
  - No sparge
  - Sparge

- **Hops**
  - Traditional boil
  - First wort hopping
  - Hop bursting
  - Whirlpool
  - Hop steep/stand
  - Dry hopping
  - Hopback
My Standard Process

- Account for waste, brew 6.5 gallon recipes
- Use RO water, adjusted to pH 5.5
- Mash base grains, salts in mash
- Add dark grains and crystal malts in vorlauf
- Select hop techniques to reduce harshness
  - FWH, Hop burst, Hop stands, Dry hop selectively
- Use light water treatments for flavor
Understanding Recipes

- How and why recipes are constructed
- Understanding original system
- Determining original intent
- Replacing missing information
Standard Recipe Elements

- Parameters
  - Batch size, target style, vital stats
  - System information (mash efficiency, boiloff rate)

- Ingredients
  - Malt, grains, hops, yeast, sometimes water and treatments

- Process
  - Mash schedule, hop schedule, fermentation schedule

- Special notes, unusual items
Adapting Recipes

- Scale for batch size
- Account for waste and loss
- Adjust mash efficiency and hop utilization
- Revise mash schedule and techniques
- Process changes (boil length, rate)
- Ingredient availability, substitution, preference
- All-grain or extract conversion?
- Validate calculations
- Maintain flavor profiles and balance
Learning Recipe Formulation

- Learn how to brew someone’s recipe
- Learn how to adjust a recipe
- Build fundamental skills
- Learn by doing – this is not a book skill
- Learn how to predict outcomes
- But how do you learn creativity?
“Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to connect experiences they've had and synthesize new things.”

– Steve Jobs, Apple, Inc.
Conceptualizing Recipes

- Hold off on recipe software at first
- Write down ideas, notes, inspirations
- Form a general idea of what to brew
  - Beer style, commercial example, ingredients on hand, general parameters, target flavor profile
- Guides
  - Intuition, past experience
  - Knowledge of flavor combinations
  - Understanding how and why good recipes work
Adding Detail

- Determine fermentables
  - Think in percentages
  - Flavor contributions by quantity
  - Constrained choices
  - Bounded ranges
- Build your own models
  - Based on your experience
  - Understand other recipes
- Hops are similar
  - Think of IBU contributions
  - Consider flavor/aroma intensity
Making Choices

- Use your model
  - Select ingredients
  - Set percentages
  - Predict flavor contributions
- Start with largest flavor contributors
- Describe generically or specifically?
- Validate choices in software
- Round final weights to simplify brewing
Reusable Methods

- Build upon things you already know
- Build recipe components like Tinker Toys
  - Base grain combinations
  - Specialty grain combinations
  - Hop combinations
  - Yeast and temperature fermentation regimes
- Apply proven methods in new situations
Balancing Flavors for Style

- IBUs and OG don’t tell the full story
- Consider attenuation and final gravity
- Malty vs. Sweet, Body vs. Sweet
- Impression vs. measured bitterness
  - There’s more to bitterness than IBUs
  - Absence of bitterness may seem sweet
- Offsetting components in balance
- Palate impacts
- Watch clashing combinations
Recipe Design Examples

- Researching a new style
  - Modern Oktoberfest
- Creating an experimental beer
  - Spring IPA
- Updating and scaling a recipe
  - Double IPA
### Example: Modern Oktoberfest

**Goals:** Hit target specs, use mostly Pils to keep it drinkable  
Avoid: Making it too bock-like (Munich/Vienna %, decoction, yeast)

<table>
<thead>
<tr>
<th>Style</th>
<th>Pils</th>
<th>Munich</th>
<th>Aromatic</th>
<th>Vienna</th>
<th>FG</th>
<th>MR</th>
<th>ABV</th>
<th>IBU</th>
<th>Yeast</th>
<th>Hops</th>
<th>Mash</th>
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<tbody>
<tr>
<td><strong>Helles</strong></td>
<td>84%</td>
<td>13%</td>
<td>2%</td>
<td>1%</td>
<td>1.048</td>
<td>1.011</td>
<td>4.9%</td>
<td>17 IBU</td>
<td>WLP833</td>
<td>FWH, Boil</td>
<td>Step</td>
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<td><strong>Oktoberfest</strong></td>
<td>71%</td>
<td>16%</td>
<td>13%</td>
<td>25%</td>
<td>1.057</td>
<td>1.011</td>
<td>6.1%</td>
<td>20 IBU</td>
<td>WY 2124</td>
<td>Boil, late</td>
<td>Step</td>
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<td><strong>Maibock</strong></td>
<td>56%</td>
<td>13%</td>
<td>6%</td>
<td>25%</td>
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<td>1.014</td>
<td>6.7%</td>
<td>29 IBU</td>
<td>WLP833</td>
<td>FWH, boil, late</td>
<td>Decoction</td>
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# Example: Spring IPA

## Concept
- American IPA meets Maibock
- Malty but dry
- Lemon-lime plus white grape
- Hop-accentuated but non-traditional selections
- Hops: Liberty, Hallertauer, Spalt, Centennial, Nelson Sauvin
- FWH and Hop burst
- Mostly German ingredients and methods but American balance

## Recipe
- 63% Pils
- 13% Vienna
- 13% Munich
- 3% Dark Munich
- 3% CaraHell
- 5% Sugar
- 1.064
- 1.014
- 6.6%
- 60 IBU
- WY1272
- Mash: step
### Example: Mosaic Double IPA

#### Single IPA

- 38% Pils
- 38% 2-row
- 6% Pale
- 9% Munich
- 9% Honey

<table>
<thead>
<tr>
<th>Gravity</th>
<th>IBU</th>
<th>Yeast</th>
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<tr>
<td>1.066</td>
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<td>WY1968</td>
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<tr>
<td>1.012</td>
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<td>7.2%</td>
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<td>55 IBU</td>
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Hops: FWH, Hop burst, whirlpool
Mash: Step
Amarillo, Simcoe, Citra, Centennial

#### Double IPA

- 68% 2-row
- 11% Vienna
- 5% Golden Promise
- 5% Munich
- 5% Sugar
- 6% Honey

<table>
<thead>
<tr>
<th>Gravity</th>
<th>IBU</th>
<th>Yeast</th>
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</thead>
<tbody>
<tr>
<td>1.074</td>
<td>72</td>
<td>WY1272</td>
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<tr>
<td>1.011</td>
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<tr>
<td>8.4%</td>
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<td>72 IBU</td>
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Hops: FWH, Hop burst, whirlpool
Mash: Step
Mosaic
Questions?