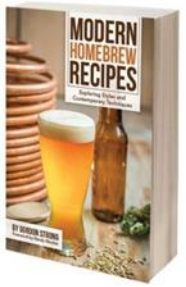
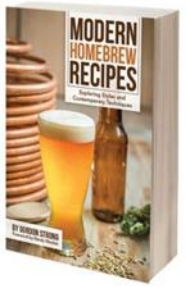


Modern Homebrew Recipes

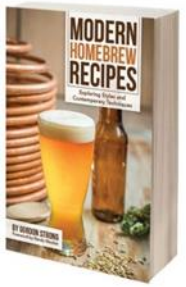
GORDON STRONG

Recipe Formulation Topics



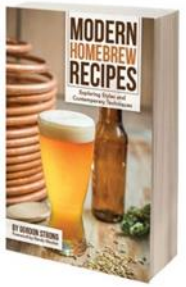
- Skill Inventory
- Understanding Recipes
- Adapting Recipes
- Conceptualizing Recipes
- Recipe Design Examples

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)

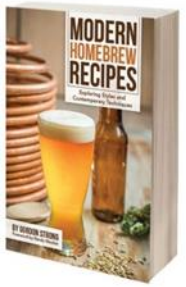
Toolbox of Techniques



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

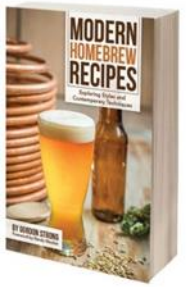
Your Brewing Style = Your Choices and How You Execute Them

Sample Set of Techniques



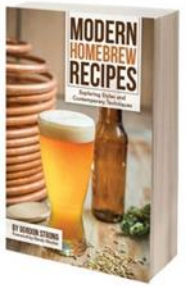
- Water
  - Use RO water
  - Adding acids
  - Adding salts to mash
  - Adding salts to boil
- Mashing
  - Infusion mash
  - Step mash
  - Decoction (single, double, *hochkurz*)
  - Hybrid
  - Round trip
- Mash Finishing
  - Mashout
  - Mash capping
  - Grain steeping
  - Vorlauf
  - No sparge
  - Sparge
- Hops
  - Traditional boil
  - First wort hopping
  - Hop bursting
  - Whirlpool
  - Hop steep/stand
  - Dry hopping
  - Hopback

My Standard Process



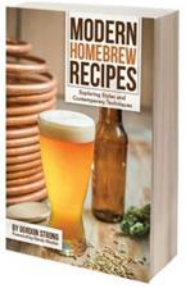
- Account for waste, brew 6.5 gallon recipes
- Use RO water, adjusted to pH 5.5
- Mash base grains, salts in mash
- Add dark grains and crystal malts in vorlauf
- Select hop techniques to reduce harshness
  - FWH, Hop burst, Hop stands, Dry hop selectively
- Use light water treatments for flavor

Understanding Recipes



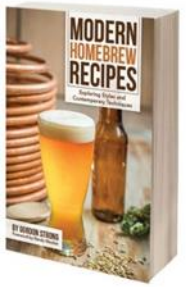
- How and why recipes are constructed
- Understanding original system
- Determining original intent
- Replacing missing information

Standard Recipe Elements



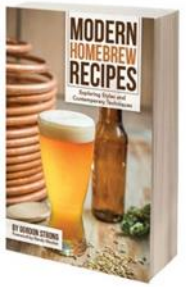
- Parameters
  - Batch size, target style, vital stats
  - System information (mash efficiency, boiloff rate)
- Ingredients
  - Malt, grains, hops, yeast, sometimes water and treatments
- Process
  - Mash schedule, hop schedule, fermentation schedule
- Special notes, unusual items

Adapting Recipes



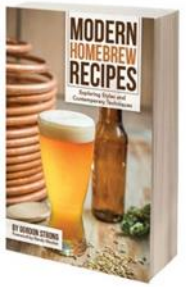
- Scale for batch size
- Account for waste and loss
- Adjust mash efficiency and hop utilization
- Revise mash schedule and techniques
- Process changes (boil length, rate)
- Ingredient availability, substitution, preference
- All-grain or extract conversion?
- Validate calculations
- Maintain flavor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

Learning Recipe Formulation



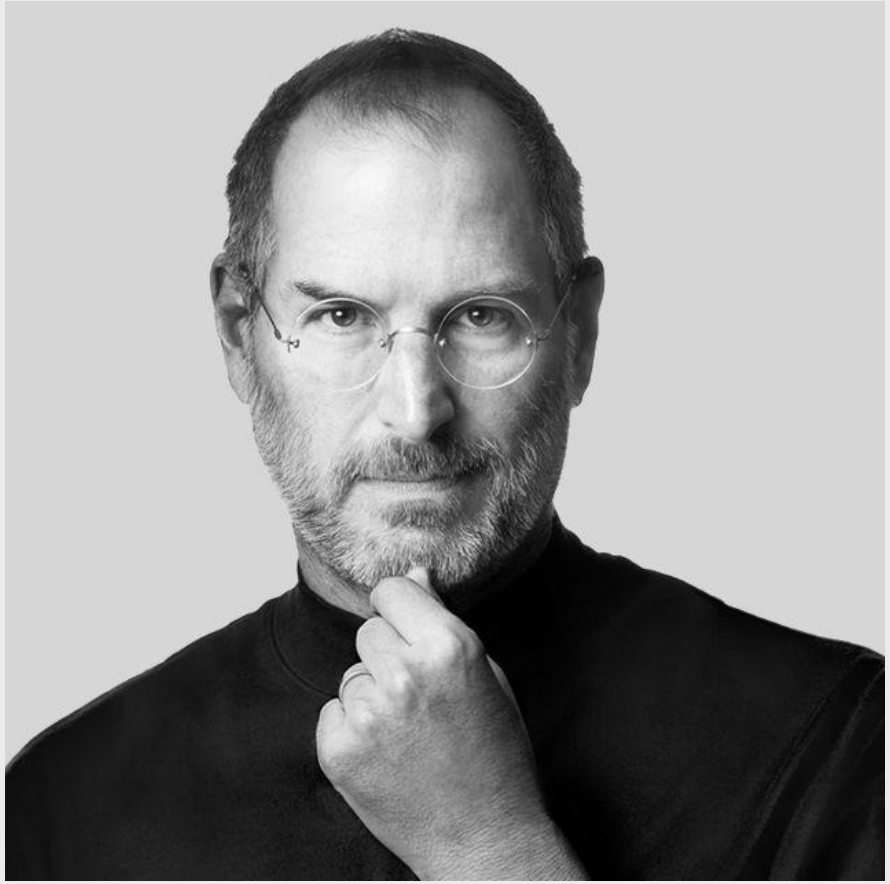
- Learn how to brew someone's recipe
- Learn how to adjust a recipe
- Build fundamental skills
- Learn by doing – this is not a book skill
- Learn how to predict outcomes
- But how do you learn creativity?

Steve Jobs on Creativity

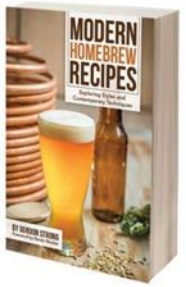


"**Creativity is just connecting things**. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to connect experiences they've had and synthesize new things."

– *Steve Jobs, Apple, Inc.*

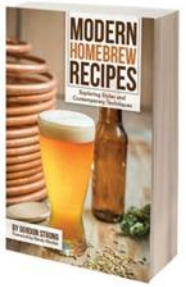


Conceptualizing Recipes

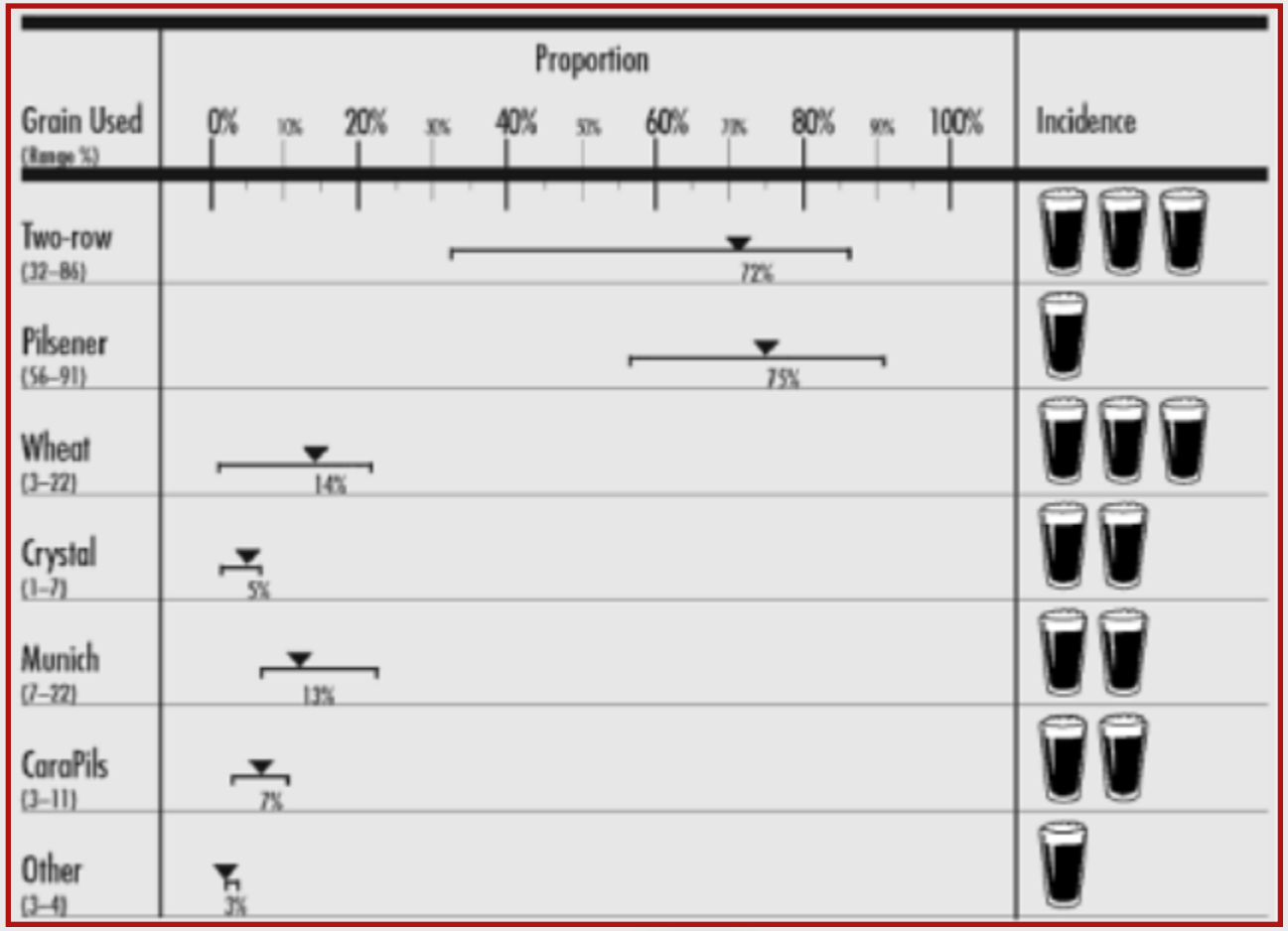


- Hold off on recipe software at first
- Write down ideas, notes, inspirations
- Form a general idea of what to brew
  - Beer style, commercial example, ingredients on hand, general parameters, target flavor profile
- Guides
  - Intuition, past experience
  - Knowledge of flavor combinations
  - Understanding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

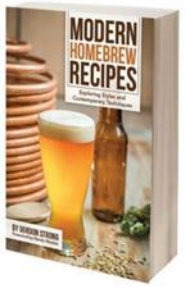
Adding Detail



- 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

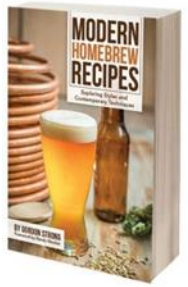


Making Choices



- 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

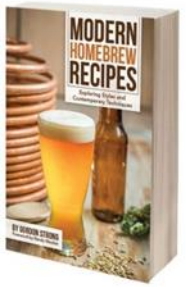


- Build upon things you already know
- Build recipe components like Tinker Toys
  - Base grain combinations
  - Specialty grain combinations
  - Hop combinations
  - Yeast and temperature fermentation regimes
- Apply proven methods in new situations

Balancing Flavors for Style

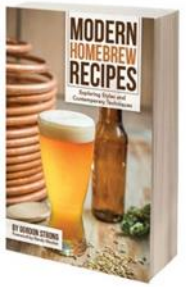
- IBUs and OG don't tell the full story
- Consider attenuation and final gravity
- Malty vs. Sweet, Body vs. Sweet
- Impression vs. measured bitterness
  - There's more to bitterness than IBUs
  - Absence of bitterness may seem sweet
- Offsetting components in balance
- Palate impacts
- Watch clashing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

Helles

84% Pils
13% Munich
2% Aromatic
1% Carapils
1.048
1.011
4.9%
17 IBU
WLP833
Hops: FWH, Boil
Mash: Step

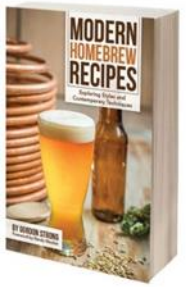
Oktoberfest

71% Pils
16% Munich
13% Vienna
1.057
1.011
6.1%
20 IBU
WY 2124
Hops: Boil, late
Mash: Step

Maibock

56% Pils
13% Munich
6% Aromatic
25% Vienna
1.065
1.014
6.7%
29 IBU
WLP833
Hops: FWH, boil, late
Mash: Decoction

Example: Spring IPA



Concept

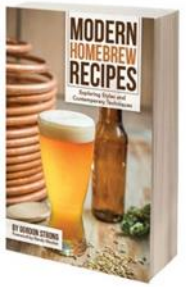
- American IPA meets Maibock
- Malty but dry
- Lemon-lime plus white grape
- Hop-accentuated but non-traditional selections
- Hops: Liberty, Hallertauer, Spalt, Centennial, Nelson Sauvin
- FWH and Hop burst
- Mostly German ingredients and methods but American balance

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

1.066
1.012
7.2%
55 IBU
WY1968
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

1.074
1.011
8.4%
72 IBU
WY1272
Hops: FWH, Hop burst, whirlpool
Mash: Step
Mosaic

Questions?