

Want Better Body in your Beer?

Bryce Capodiecici

3/18/12

How to articulate 'Body' in your beer:

- Characterized as fullness or thickness on the tongue.
- Descriptions often range from 'watery/light' to 'thick/full'
- Examples:
 - American Light Lagers - Light in body.
 - Stouts - Full bodied

Physical sensations related to body.

- Attributes that stimulate the palate:

- Astringency
- Alcoholic warmth
- Carbonation

WHY ARE THESE RELATED TO BODY???

- What determines body?

- Levels of Dextrins
- Medium length proteins

Astringency

- Mouth puckering sensation; chewing on grape skins.
- Often caused by extraction of tannins from grain husks due to over crushing malt
- Often caused by over sparging or sparging with water over 170F.
- Produced by polyphenols that result from spoilage by acetobacter or wild yeast.
- Oxidation
- Spices such as coriander, orange peel and cinnamon can contribute astringency, but these tend to mellow with age.
- Over attenuation combined with low dextrin levels can increase the perception of astringency.

Alcoholic Warmth

- Ethanol is the simplest and most prevalent alcohol in beer.
- Higher, or fusel, alcohols are usually present at sub threshold concentrations, but elevated levels are associated with under pitching, low levels of dissolved oxygen prior to pitching, low levels of free available nitrogen (FAN).
- These deficiencies force the yeast to metabolize fatty acids in the trub as a source of oxygen and carbon, producing a great fraction of long chain alcohols.
- High gravity worts and high fermentation temperatures.

Lack of Dextrins?

- Caused by low saccharification temperatures
- Excessive use of adjuncts (corn, rice, sugar, etc.)
- Highly attenuative yeast strains

Low Proteins?

- Excessively long protein rests.
 - Using a protein rest on fully modified malts tends to remove most of the body of a beer, leaving it thin and watery.
 - A protein rest to produce medium-sized proteins for increased body is only practical when brewing with moderately-modified malts, wheat, or oatmeal, which are loaded with large proteins.
- Excessive use of finings.
- Addition of large amounts of fermentable sugars.

Mastering Mouthfeel

- There are several approaches you can do to increase or decrease the body in your beer.
 - Types of Malts to use
 - Mash Temperature
 - Yeast flocculation
 - Additives; such as brewing sugars
- NOTE: For every action, there is an equal and opposite reaction.
 - Understand that when making changes to your recipe to improve the desired body or perceived mouthfeel, keep in mind that there is always a balance maintained when brewing. For example, if you increase the mash temperature to increase your body, you are allowing more dextrins to remain in your beer, thus making a sweeter beer. You must find the balance here that suits your tastes and/or within the style guidelines.

Specialty Malts

- Use more crystal malt (10-15% of total grain bill)
 - Adds color and caramel sweetness
- Malts such as crystal, black patent, carafe, chocolate, and roasted barley do not have enzymes and therefore do not provide much in fermentable sugars.
 - The total soluble extract (percent by weight) of these malts is close to that of base malt, but just because it's soluble does not mean it is fermentable.
- Substitutive malts can change the perceived body of your beer.
 - Example: Instead of just using American 2-row for your base malt, substitute a portion of your total grain bill with other base malts such as Marris Otter, wheat, oatmeal, rye, Munich Malt, and Vienna Malt.
 - Proteins are also unfermentable and are the main contributor to the mouthfeel of a beer. Compare an oatmeal stout to a regular stout and you will immediately notice the difference.

Specialty Malts Continued.

- Malts such as Victory, Special B, Carapils/Dextrin, and Brown malts add little enzymes and should not exceed 20% of the total grain bill.
 - These malts add body to the beer, but also add subtle caramel, roasty and biscuit notes without adding sweetness.
- For Pale and Amber beer, you can try to use Munich, Vienna, Victory, and Special B.
- For darker beers, you can use brown and amber malts.

Mash Temperature

- Mashing temperatures range from 140 F to 160 F.
- Mashing at lower saccharification temperatures will allow more simple sugars to be extracted.
 - More alcoholic
 - Less body
 - Less residual sugars
- Mashing at higher saccharification temperatures will allow more complex sugars to be extracted.
 - Less alcoholic
 - More body
 - More residual sugars

Choose your yeast wisely

- The more flocculent the yeast is, the less body you will have.
- Higher attenuation equals less body.
 - Yeast ferment more simple sugars.
 - More tolerant to higher alcohol levels, higher alcohol levels thins the beer, thus giving the perception of less body.
- Lower attenuation equals more body.
 - More residual sugars left in the beer.
 - Less alcohol giving a perception of more body.

Additives

- Adding non fermentable sugar to the boil – Lactose; adds perceived body to the beer
 - balance is important. You don't want the beer to be cloyingly sweet.
- Adding honey or other simple sugars will allow you to hit a lower Final Gravity, thus producing a dryer more alcoholic beer – this will give you the perception of a lighter bodied beer.

Decoction Mashing

- A decoction mash is a step mash that is performed by removing a portion of the mash, boiling it and returning it to the main mash. Traditionally, decoction mashing was used to get the most out of malt that was not produced to today's levels of modification. In the past, malt was both less modified and more variable with respect to degree of modification.
- Decoction will increase the body of your beer.
 - Creates melanoidins that provide a perception of more body, the rolling boil accomplishes the same results.

Summary

- Easiest ways to improve the body of your beer:
 - Types of Malts to use:
 - High protein malts such as wheat, rye, and oats
 - Substitutive base malts
 - Mash Temperature
 - Yeast flocculation
 - Additives; such as brewing sugars
- Questions? Comments?