

Foam Ranger CEP BREW Class Outline – February 2007

Beer Category – 19 Strong Ales

- Review style guidelines for 19A, 19B, 19C
- Review notes on barleywines
 - History
 - Ingredients
 - Recipe

Tasting Examples

- English Barleywine, 19B
 - Lee's Harvest Ale, Young's Old Nick
- American Barleywine, 19C
 - Sierra Nevada Bigfoot, Anchor Old Foghorn (judge), Avery Hog Heaven

Technical Discussion – Oxidation

- Acetaldehyde
 - Flavors, Chemistry, Causes, Non-oxidative causes
- Papery, cardboard
 - Flavors, Chemistry, Causes, Non-oxidative causes
- Musty
 - Flavors, Chemistry, Causes, Non-oxidative causes
- Sherry-like
 - Flavors, Chemistry, Causes, Non-oxidative causes

Multiple Flawed Beers - oxidation

Beer to Judge – 19A Old Ale – Flaw: Oxidation

Quiz

Further Reading

- *Barleywine*, Classic Beer Style Series, Allen and Cantwell
- *Designing Great Beers*, Barleywine (ch 15) and Old Ale (ch 21), Daniels
- *Principles of Brewing Science*, Oxidation (ch 4), Fix
- *Brew Chem 101*, Oxidation (pp 74-76), Janson

Handouts

1. BJCP Style Guidelines, Strong Ales, Category 19
2. Beer of the Month, Scott DeWalt, Brewsletter Urquell, Feb 2007
3. Notes on Barleywines and Old Ales, Mike Heniff
4. BJCP Scoresheets
5. Notes on Oxidation, Mike Heniff
6. Quiz

Notes on Barleywine and Old Ales (BJCP Category 19)

History

Pre-1900s - England

- Term “barleywine” rarely used, often “old ale”, “stock ale”, or “strong ale”
 - “Old ale” derives from the aging required to meld the flavors of the strong ale, usually in oak casks
 - “Stock ale” derives from the fact that many of the strong beers were kept in order to blend with younger, smaller beers
 - “-wine” likely derived from the fact that strong ales were meant to compete with stronger beverages, such as wine
- Strong ale character
 - Often aged in wood, often picked up character of wild micro-flora, usually sour, most often lactic acid
- Brewing procedure
 - Brewed as part of a parti-gyle mash: large mash – first runnings were a strong ale, second (and maybe even third) runnings were smaller ale(s)
- Burton well known for strong ale, Bass No. 1 was best known barleywine

Pre-1900s – America

- Strong ales brewed after settlement by pilgrims
 - Often using parti-gyle method
 - Used many simple sugars such as molasses and sugar
 - Ale brewing declined quickly after rise of lager brewing with immigration of Germans and other central Europeans
 - Few holdover strong ales beers, most notably Ballantine Christmastime (until 1950s)

20th Century – England

- Term “barleywine” in typical use to denote strong ale in England
- Barleywine declining in popularity later in century due to both grain rationing (WWI and WWII) and taxation based on beer strength
 - Bass No. 1 discontinued in 1995
- 1968 – Eldridge Pope Brewery (Dorchester) brews Thomas Hardy Ale
 - OG = 1.125
 - ABV = ~ 12% abv
 - Aged 6 months after vintage date
 - Uses lager yeast fermented at ale temperatures
 - Held stint in Guinness Book of World Records for strongest ale in 1970’s

Late 20th Century – America

- 1975 - Anchor Brewery (San Francisco) revives barleywine in US – Old Foghorn
 - OG 1.100
 - Bottled in 6 ounce nips
- Sierra Nevada Brewing follows with Bigfoot
- In late 80’s and early 90’s barleywine becomes very popular with craft brewery boom – one of the most popular GABF categories

Style Characteristics

Review BJCP Style Guidelines for 19A, 19B, 19C

Typical Ingredients

Malts

- Pale Malt – backbone, major contributor in flavor because of high use, very typically highly modified, usually American or English two-row, best variety for quality and flavor is Maris Otter
- Crystal Malt – adds color, body, and sweetness, can use a few different crystal malts to add complexity
- Munich Malt – adds toasty malt flavor and adds to malt complexity
- Adjuncts – typically none

Hops

- Lower bittering utilization due to higher OG (need to add 20% more bittering hops than for small beers)
- Higher IBU levels are needed to balance higher residual sweetness
- Varieties
 - Usually higher alpha acid hops for bittering
 - American - flavor/aroma – Centennial, Amarillo, Columbus, Cascade
 - English - flavor/aroma – East Kent Goldings, Fuggles, Challenger

Yeast

- American
 - Cleanly fermenting, alcohol tolerant, highly attenuative
 - Wyeast 1056, White Labs 001
- English
 - Alcohol tolerant, attenuative, balanced ester level
 - White Labs 005 or 007

Water

- Most waters suitable including moderate sulfate (<400 ppm) and moderate carbonate (<70 ppm) waters

Recipe

Adapted from Zymurgy, Sep/Oct 2005, AHA NHC 1st place winner, Todd Russell

5 gallons, OG = 1.088, FG = 1.026

Malts (mash at 152-153 F)

Maris Otter Pale – 16 lb

Munich malt – 1.6 lb

Dark Crystal malt (77 L) – 0.5 lb

Hops

Bittering (60 min.) – 1.2 oz Columbus, 1.3 oz Centennial

Bittering/Flavoring (30 min.) – 1 oz Centennial

Flavoring (10 min.) – 1 oz Amarillo

Flavoring/Aroma (5 min.) – 1 oz Centennial

Aroma (0 min.) – 0.5 oz Amarillo
Dry (secondary) – 0.5 oz Amarillo, 0.5 oz Centennial

Water

Light carbonate (<30 ppm CO₃²⁻) and moderate sulfate water (50 ppm SO₄²⁻)

Yeast

California Ale (White Labs WLP001 or Wyeast 1056), fermented at 66 F for at least 28 days total, use at least a ½ gallon starter and pure oxygen in the cool wort

Notes on Oxidation

Acetaldehyde

- Flavors
 - Green-apple, tangy mouthfeel, sometimes solvent (nail polish)
- Chemistry
 - Oxidation of ethanol to acetaldehyde
- Causes
 - Oxidation of packaged beer
 - Splashing of beer at racking or bottling
- Non-oxidative causes
 - Normal metabolic pathway of production of ethanol in beer
 - Found in young beer
 - Can be caused when beer is racked off yeast too early (which can also produce diacetyl as well)
 - Bacterial spoilage (but will likely have acetic/vinegar or other spoilage flavors as well)

Papery, cardboard

- Flavors
 - Paper, wet paper, wet cardboard
- Chemistry
 - Oxidation of fusel/higher alcohols to the aldehyde trans-2-nonenal
 - Oxidation of fatty acids from trub
- Causes
 - Splashing of beer at racking or bottling
- Non-oxidative causes
 - None

Musty

- Flavors
 - Musty, old woodshed, old cottage
- Chemistry
 - Oxidation of melanoidins
- Causes
 - Splashing of beer at racking or bottling
 - Splashing of hot wort (also called hot side aeration)
- Non-oxidative causes

- None

Sherry-like

- Flavors
 - Sherry, Madeira, sometimes nutty or almond
- Chemistry
 - Oxidation of melanoidins
- Causes
 - Splashing of beer at racking or bottling
 - Splashing of hot wort (also called hot side aeration)
- Non-oxidative causes
 - None
- Appropriate beer styles
 - Appropriate at low to moderate levels in Old Ales, Barleywines, and Strong Scotch ales

Foam Ranger CEP BREW Class Quiz – Febrewary 2007

Name: _____

BJCP #: _____

1. Name two commercial examples of English Barleywines.
2. Name two commercial examples of American Barleywines.
3. Name three aromas or flavors associated with oxidation.
4. What is the most common base malt associated with barleywines?
 - a. Pils
 - b. Pale
 - c. Munich
 - d. Crystal
5. Which typical oxidation character is acceptable (and often expected) in barleywines?
6. What was the key flaw in the flawed beer presented?
7. Describe the aroma/flavor of acetaldehyde.
8. Provide one typical flavor/aroma hop for each an English and American barleywine.
9. At what stages during brewing can oxidation occur?
10. What are the primary differences between an American and English barleywine?