

# FOR THE LOVE OF BEER

*An overview of Beer and The Brewing Process*

- Detecting Flavors
- Judging Techniques

26 May 2011

# 6A. Cream Ale

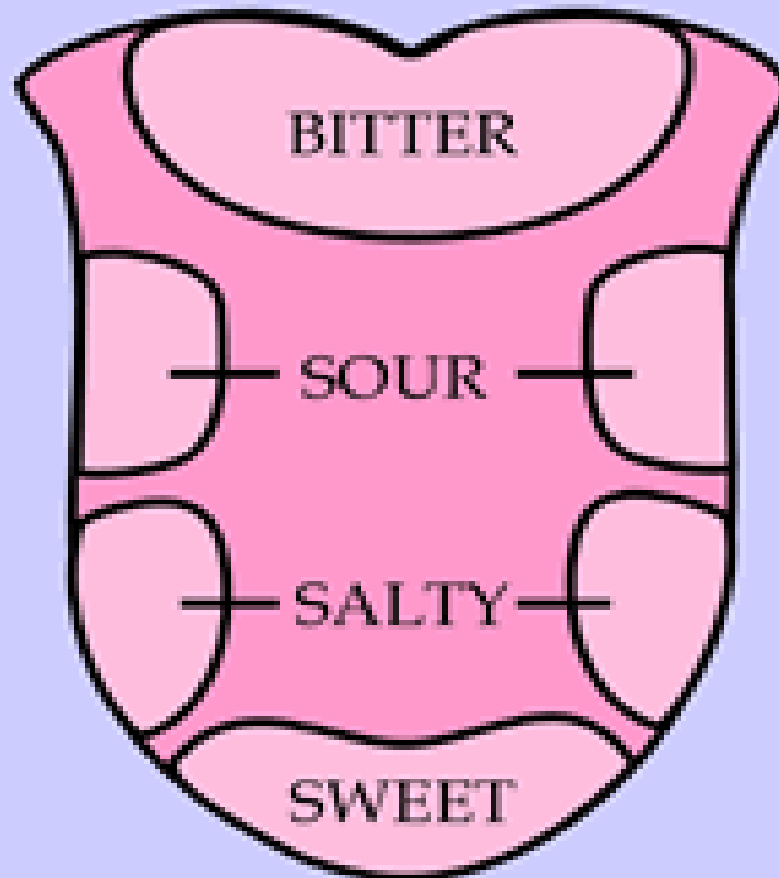
- **Aroma:** Faint malt notes. A sweet, corn-like aroma and low levels of DMS are commonly found. Hop aroma low to none. Any variety of hops may be used, but neither hops nor malt dominate. Faint esters may be present in some examples, but are not required. No diacetyl.
- **Appearance:** Pale straw to moderate gold color, although usually on the pale side. Low to medium head with medium to high carbonation. Head retention may be no better than fair due to adjunct use. Brilliant, sparkling clarity.
- **Flavor:** Low to medium-low hop bitterness. Low to moderate maltiness and sweetness, varying with gravity and attenuation. Usually well attenuated. Neither malt nor hops prevail in the taste. A low to moderate corny flavor from corn adjuncts is commonly found, as is some DMS. Finish can vary from somewhat dry to faintly sweet from the corn, malt, and sugar. Faint fruity esters are optional. No diacetyl.
- **Mouthfeel:** Generally light and crisp, although body can reach medium. Smooth mouthfeel with medium to high attenuation; higher attenuation levels can lend a “thirst quenching” finish. High carbonation. Higher gravity examples may exhibit a slight alcohol warmth.
- **Overall Impression:** A clean, well-attenuated, flavorful American lawnmower beer.
- **Comments:** Classic American (i.e., pre-prohibition) Cream Ales were slightly stronger, hoppier (including some dry hopping) and more bitter (25-30+ IBUs). These versions should be entered in the specialty/experimental category. Most commercial examples are in the 1.050–1.053 OG range, and bitterness rarely rises above 20 IBUs.
- **History:** An ale version of the American lager style. Produced by ale brewers to compete with lager brewers in the Northeast and Mid-Atlantic States. Originally known as sparkling or present use ales, lager strains were (and sometimes still are) used by some brewers, but were not historically mixed with ale strains. Many examples are kräusened to achieve carbonation. Cold conditioning isn’t traditional, although modern brewers sometimes use it.
- **Ingredients:** American ingredients most commonly used. A grain bill of six-row malt, or a combination of six-row and North American two-row, is common. Adjuncts can include up to 20% flaked maize in the mash, and up to 20% glucose or other sugars in the boil. Soft water preferred. Any variety of hops can be used for bittering and finishing.
- **Vital Statistics:** OG: 1.042 – 1.055 IBUs: 15 – 20 FG: 1.006 – 1.012 SRM: 2.5 – 5 ABV: 4.2– 5.6% Commercial Examples: Genesee Cream Ale, Little Kings Cream Ale (Hudepohl), Anderson Valley Summer Solstice Cerveza Crema, Sleeman Cream Ale, New Glarus Spotted Cow, Wisconsin Brewing Whitetail Cream Ale

# Outline of Activities

- **Detecting Flavors**
- **Judging Techniques**
- **The BJCP Program**
- **BJCP Exam Preview**

# Flavor & Perception

## MAP OF TASTE RECEPTORS





# Detecting Flavors

- Acetaldehyde
- Alcoholic
- Astringent
- Bitter
- Body
- Carbonation
- Clarity
- Color

# Detecting Flavors (cont.)

- Cooked Vegetable
- Diacetyl
- Dimethyl Sulfide (DMS)
- Fruity/Floral Esters
- Grassy
- Head Formation/Retention
- Husky/Grainy
- Light Struck
- Metallic

# Detecting Flavors (cont.)

- **Moldy/Musty**
- **Oxidation**
- **Phenolic**
- **Salty**
- **Solvent-like**
- **Sour**
- **Sulfur/Yeasty**
- **Sweet**
- **Winey/Sherry-like**

## 6B. Blonde Ale

- **Aroma:** Light to moderate sweet malty aroma. Low to moderate fruitiness is optional, but acceptable. May have a low to medium hop aroma, and can reflect almost any hop variety. No diacetyl.
- **Appearance:** Light yellow to deep gold in color. Clear to brilliant. Low to medium white head with fair to good retention.
- **Flavor:** Initial soft malty sweetness, but optionally some light character malt flavor (e.g., bread, toast, biscuit, wheat) can also be present. Caramel flavors typically absent. Low to medium esters optional, but are commonly found in many examples. Light to moderate hop flavor (any variety), but shouldn't be overly aggressive. Low to medium bitterness, but the balance is normally towards the malt. Finishes medium-dry to somewhat sweet. No diacetyl.
- **Mouthfeel:** Medium-light to medium body. Medium to high carbonation. Smooth without harsh bitterness or astringency.
- **Overall Impression:** Easy-drinking, approachable, malt-oriented American craft beer.
- **Comments:** In addition to the more common American Blonde Ale, this category can also include modern English Summer Ales, American Kölsch-style beers, and less assertive American and English pale ales.
- **History:** Currently produced by many (American) microbreweries and brewpubs. Regional variations exist (many West Coast brewpub examples are more assertive, like pale ales) but in most areas this beer is designed as the entry-level craft beer.
- **Ingredients:** Generally all malt, but can include up to 25% wheat malt and some sugar adjuncts. Any hop variety can be used. Clean American, lightly fruity English, or Kölsch yeast. May also be made with lager yeast, or cold-conditioned. Some versions may have honey, spices and/or fruit added, although if any of these ingredients are stronger than a background flavor they should be entered in specialty, spiced or fruit beer categories instead. Extract versions should only use the lightest malt extracts and avoid kettle caramelization.
- **Vital Statistics:** OG: 1.038 – 1.054 IBUs: 15 – 28 FG: 1.008 – 1.013 SRM: 3 – 6 ABV: 3.8 – 5.5% Commercial Examples: Pelican Kiwanda Cream Ale, Russian River Aud Blonde, Rogue Oregon Golden Ale, Widmer Blonde Ale, Fuller's Summer Ale, Hollywood Blonde, Redhook Blonde



# Acetaldehyde

- **Perception:**
    - Green apple aroma and flavor
  - **Causes:**
    - Characteristic of yeast strain
    - Poorly oxygenate wort before pitching yeast
    - Premature flocculation of yeast
    - Excessive sucrose in wort
  - **Prevention:**
    - Select good yeast strain (occasionally occurs in dry yeast)
    - Properly oxygenate wort
    - Do not aerate after respiration phase
    - minimize use of sucrose
- Sample 1

# Alcohol

- **Perception:**

- Sweet, solvent aroma/flavor
- Warm sensation
- Thin body
- Higher alcohols (fusels) unpleasant aroma/flavor

- **Causes:**

- By-Product of metabolism of simple carbohydrates to  $\text{CO}_2$
- High fermentation temp. or poor yeast strain causes excess fusel alcohols

- **Prevention:**

- Control of starting gravity of wort
- Select proper yeast strain for desired attenuation
- Control of fermentation environment to reduce fusel production

- Sample 25

# Astringent

- **Perception:**

- Dry, puckering sensation throughout the mouth and throat
- Similar to sensation from grape or plum skins or persimmons

- **Causes:**

- Excessive crushing of grain
- Alkaline brewing water, particularly sparge or high sulfate water
- Too high temperature of sparge water
- Sparging too long (above pH 6.0 or specific gravity below 1.006)
- Mash with too low pH (below 5.0)
- Boiling husks of grain (avoid particle carry over when lautering)
- Too high attenuation from yeast accentuates astringency
- Too high hop levels with very long boil
- Letting wort sit too long on trub (cold break)
- Several forms of bacterial infection during fermentation

- **Prevention:**

- Avoid all of the above

# Bitter

- **Perception:**
  - Dry, crisp, refreshing sensation on rear of tongue and roof of mouth
  - Generally desired in many types of beer
- **Causes:**
  - Isomerization of alpha acids in hops
  - Presence of dark roasted grains
  - Excessively alkaline water
- **Prevention:**
  - Reduce quantity of hops, particularly high alpha varieties
  - Reduce length of hop boil (use multiple additions)
  - Reduce use of dark roasted grains and add at mash out
  - Adjust pH/mineral content of water
- Sample 22

# Body

- **Perception:**
  - Full mouth feel, creamy, thick
- **Causes:**
  - Presence of medium molecular weight proteins (albumins)
  - Presence of unfermentable sugars (dextrins)
  - Use of caramel & crystal malts
  - High wort gravity
  - Use of body building adjuncts such as barley, oats, wheat
  - Low attenuation
  - Presence of yeast in suspension
- **Prevention:**
  - Normally desirable in certain styles
  - To increase dextrins, increase temperature of mash (156-158°F)
  - Reduce the length of protein rest
  - Increase use of dextrinous malts (crystal, cara-pils)
  - Use body building adjuncts



# Carbonation

- **Perception:**

- CO<sub>2</sub> (sometimes with N<sub>2</sub>) dissolved in beer
- Pleasant, prickly, spritzy sensation in mouth
- Some increase in acidity (carbonic acid)
- Perceived as lightening body

- **Causes:**

- CO<sub>2</sub> produced as yeast metabolizes carbohydrates
  - » Solubility increases as temperature decreases
  - » Solubility increases as pressure increases
- Bacterial fermentations generate CO<sub>2</sub>

- **Prevention:**

- Flat beer undesirable in most styles; to avoid:
  - » Properly prime with sugar, speise, krausen
  - » Pressure carbonate in bulk containers
  - » Assure beer/ containers are bacteria free
  - » Assure containers (kegs or bottle caps) are gas tight

# Clarity

- **Perception:**

- Brilliantly clear
- Cloudy from particulates in suspension
- Chill haze occurs only when very cold
- Permanent haze

- **Causes:**

- Cloudiness from poor yeast sedimentation
- Cloudiness from bacterial infection
- Carry over of native starches
- Chill haze from medium molecular weight proteins combined with polyphenols
- Permanent haze from high molecular weight proteins combined with polyphenols

# Clarity (cont.)

- **Prevention:**

- Proper selection of yeast
- Allow for thorough sedimentation
- Proper conditioning (lagering) time and environment
- Do not over-grind grist
- Proper protein rest
- Proper boil length and vigor
- Good Hot and cold break
- Proper use of finings (in kettle & fermenter)

# Color

- **Perception:**
  - Proper shade or intensity of color
  - Proper hue
- **Causes:**
  - Color of malts & quantity used and use of adjuncts
  - Mash regime
  - Gravity of wort and length and vigor of boil
  - Hot side aeration
  - Filtration
- **Prevention:**
  - Carefully calculate color (particularly darker types)
  - Account for contribution of mash regime
  - Use care in sparging (over or under dilution)
  - Use proper boil technique
  - Avoid hot side aeration

# Cooked Vegetable

- **Perception:**
  - Cooked cabbage, Brussels sprouts
- **Causes:**
  - Long lag times
  - Early bacterial infection usually killed by alcohol
  - Low oxygen levels in wort before pitching yeast
  - Under pitching yeast
- **Prevention:**
  - Good maintenance of respiration phase
  - Sanitation of cooled wort



# 6C. Kölsch

- **Aroma:** Very low to no Pils malt aroma. A pleasant, subtle fruit aroma from fermentation (apple, cherry or pear) is acceptable, but not always present. A low noble hop aroma is optional but not out of place (it is present only in a small minority of authentic versions). Some yeasts may give a slight winy or sulfury character (this characteristic is also optional, but not a fault).
- **Appearance:** Very pale gold to light gold. Authentic versions are filtered to a brilliant clarity. Has a delicate white head that may not persist.
- **Flavor:** Soft, rounded palate comprising of a delicate flavor balance between soft yet attenuated malt, an almost imperceptible fruity sweetness from fermentation, and a medium-low to medium bitterness with a delicate dryness and slight pucker in the finish (but no harsh aftertaste). The noble hop flavor is variable, and can range from low to moderately high; most are medium-low to medium. One or two examples (Dom being the most prominent) are noticeably malty-sweet up front. Some versions can have a slightly minerally or sulfury water or yeast character that accentuates the dryness and flavor balance. Some versions may have a slight wheat taste, although this is quite rare. Otherwise very clean with no diacetyl or fusels.
- **Mouthfeel:** Smooth and crisp. Medium-light body, although a few versions may be medium. Medium to medium-high carbonation. Generally well-attenuated.
- **Overall Impression:** A clean, crisp, delicately balanced beer usually with very subtle fruit flavors and aromas. Subdued maltiness throughout leads to a pleasantly refreshing tang in the finish. To the untrained taster easily mistaken for a light lager, a somewhat subtle Pilsner, or perhaps a blonde ale.
- **Comments:** Served in a tall, narrow 200ml glass called a “Stange.” Each Köln brewery produces a beer of different character, and each interprets the Konvention slightly differently. Allow for a range of variation within the style when judging. Note that drier versions may seem hoppier or more bitter than the IBU specifications might suggest. Due to its delicate flavor profile, Kölsch tends to have a relatively short shelf-life; older examples can show some oxidation defects. Some Köln breweries (e.g., Dom, Hellers) are now producing young, unfiltered versions known as Wiess (which should not be entered in this category).

## 6C. Kölsch (continued)

- **History:** Kölsch is an appellation protected by the Kölsch Konvention, and is restricted to the 20 or so breweries in and around Cologne (Köln). The Konvention simply defines the beer as a “light, highly attenuated, hop-accentuated, clear top-fermenting Vollbier.”
- **Ingredients:** German noble hops (Hallertau, Tettnang, Spalt or Hersbrucker). German Pils or pale malt. Attenuative, clean ale yeast. Up to 20% wheat may be used, but this is quite rare in authentic versions. Water can vary from extremely soft to moderately hard. Traditionally uses a step mash program, although good results can be obtained using a single rest at 149°F. Fermented at cool ale temperatures (59-65°F) and lagered for at least a month, although many Cologne brewers ferment at 70°F and lager for no more than two weeks.
- **Vital Statistics:** OG: 1.044 – 1.050 IBUs: 20 – 30 FG: 1.007 – 1.011 SRM: 3.5 – 5 ABV: 4.4 – 5.2%  
**Commercial Examples:** Available in Cologne only: PJ Früh, Hellers, Malzmühle, Paeffgen, Sion, Peters, Dom; import versions available in parts of North America: Reissdorf, Gaffel; Non-German versions: Eisenbahn Dourada, Goose Island Summertime, Alaska Summer Ale, Harpoon Summer Beer, New Holland Lucid, Saint Arnold Fancy Lawnmower, Capitol City Capitol Kölsch, Shiner Kölsch

# Diacetyl

- **Perception:**

- Smooth and creamy at very low levels
- Buttery, butterscotch at medium levels
- Cheesey, rancid butter at high levels

- **Causes:**

- Slow cooling of wort
- Excessive diacetyl produced during initial fermentation
- Poor re-absorption during secondary fermentation
- Mutated yeast strains cause excess diacetyl
- Lack of diacetyl rest in lager beers
- Bacterial infection (*Pediococcus Damnosus*)

- Samples 5 and 4

# Diacetyl (cont.)

- **Prevention:**

- Quick cooling of wort
- Proper yeast pitch rate and low lag time
- Selection of proper yeast strain
- Use diacetyl rest (~50°F for 5-7 days at secondary stage)
- Avoid premature sedimentation
- Assure clean, bacteria free fermentation



# Dimethyl Sulfide (DMS)

- **Perception:**

- Cooked corn, cooked celery, cabbage, Brussels sprouts
- Related compounds are dimethyl, diethyl and di-isopropyl sulfide

- **Causes:**

- Low levels naturally contained in Continental Malt
- High levels of moisture in malt
- Bacterial infection (*Obesum* or *Hafnia*)
- Over sparging with water below 160°F
- Low oxygen levels in wort before pitching yeast
- Under pitching yeast
- Under boiling of wort
- Characteristic of yeast

- Sample 6



# Dimethyl Sulfide (cont.)

- **Prevention:**
  - Careful selection and storage of malt
  - Use of proper sparging techniques
  - Boil vigorously for at least 60 minutes
  - Good maintenance of respiration phase
  - Proper selection of yeast

# Fruity/Floral Esters

- **Perception:**
    - Various aroma/flavors like strawberries, raspberries, bananas, apples, plums, grapefruit
  - **Causes:**
    - Primarily a by-product of yeast metabolism
    - Usually enhanced at higher temperature fermentations
  - **Prevention:**
    - Desirable in many styles
    - To completely avoid in others:
      - » Select proper yeast strain
      - » Careful maintenance of fermentation temperature & vigor
- Samples 10 and 15

# Grassy

- **Perception:**
  - Aroma/flavor of dried grass or new cut hay
- **Causes:**
  - Primarily caused by poor quality malt
  - Oxidation of malt before mashing
  - Some grassy aromas from English hops
- **Prevention:**
  - Careful selection of malt
  - Grind grain just prior to brewing
  - Proper selection of hops for style

# Head Formation/Retention

- **Perception:**

- Very fine bubbles form when beer poured
- Rocky, firm head forms
- Color of head represents style
- Lace forms on sides of glass
- Head retained for extended period

- **Causes:**

- Under modified malt produces better head
- Use of caramel, crystal, cara-pils malts
- Use of starchy adjuncts such as wheat, oats, etc.
- Proper protein rest to enhance albuminous proteins
- Limit sparge to higher gravity wort
- Good, rolling boil and good hot break]
- Racking from sediment right after primary
- Clean glassware

# Head Formation/Retention (cont.)

- **Prevention:**

- Usually desirable in most beers. To reduce:
- Use over-modified malt (milds, bitters)
- High alcohol tends to reduce head
- No or limited protein rest
- Use of finings (excessive)
- Filtration of finished beer



# Hoppy

- **Perception:**

- Bitter
- Pleasant Aroma and/or Flavor
  - » Floral, Herbal, Spicy, Citrus, Piney, etc.
- Unpleasant Aroma and/or Flavor
  - » Grassy, Cheesy
- Course, Harsh, Astringent

- **Causes**

- Hop Variety
  - » High alpha acid varieties
  - » High cohumulone variety
  - » High myrcene variety
  - » Excessively long boil
- Hop Condition
  - » Old and/or poorly processed
  - » Oxidized

# Hoppy (continued)

- **Prevention:**

- Select high quality, well packaged hops
- If stored, seal in oxygen barrier bags, purge with CO<sub>2</sub> or N<sub>2</sub> then vacuum pack
- Select proper varieties and quantities for style
- Carefully time hop additions
- Avoid oxidation of finished beer; particularly in high hop flavor/aroma styles

# Husky/Grainy

- **Perception:**

- Raw grain aroma/flavors like cracked wheat
- Husky, astringent aroma/flavor

- **Causes:**

- Pleasant graininess from residual starch
- Unpleasant husky astringency from tannins of husk

- **Prevention:**

- Desirable flavors from under-modified malt
  - » Reduce crush of malt (larger particle size)
- Undesirable from over crushing malt
- Excessive sparge temperature
- High pH during sparge
- Uneven heating during mash
- Boiling of grains

# 6D. American Wheat or Rye Beer

## #8

- **Aroma:** Low to moderate grainy wheat or rye character. Some malty sweetness is acceptable. Esters can be moderate to none, although should reflect American yeast strains. The clove and banana aromas common to German hefeweizens are inappropriate. Hop aroma may be low to moderate, and can have either a citrusy American or a spicy or floral noble hop character. Slight crisp sharpness is optional. No diacetyl.
- **Appearance:** Usually pale yellow to gold. Clarity may range from brilliant to hazy with yeast approximating the German hefeweizen style of beer. Big, long-lasting white head.
- **Flavor:** Light to moderately strong grainy wheat or rye flavor, which can linger into the finish. Rye versions are richer and spicier than wheat. May have a moderate malty sweetness or finish quite dry. Low to moderate hop bitterness, which sometimes lasts into the finish. Low to moderate hop flavor (citrusy American or spicy/floral noble). Esters can be moderate to none, but should not take on a German Weizen character (banana). No clove phenols, although a light spiciness from wheat or rye is acceptable. May have a slightly crisp or sharp finish. No diacetyl.
- **Mouthfeel:** Medium-light to medium body. Medium-high to high carbonation. May have a light alcohol warmth in stronger examples.
- **Overall Impression:** Refreshing wheat or rye beers that can display more hop character and less yeast character than their German cousins.
- **Comments:** Different variations exist, from an easy-drinking fairly sweet beer to a dry, aggressively hopped beer with a strong wheat or rye flavor. Dark versions approximating dunkelweizens (with darker, richer malt flavors in addition to the color) should be entered in the Specialty Beer category. **THE BREWER SHOULD SPECIFY IF RYE IS USED; IF NO DOMINANT GRAIN IS SPECIFIED, WHEAT WILL BE ASSUMED.**
- **Ingredients:** Clean American ale yeast, but also can be made as a lager. Large proportion of wheat malt (often 50% or more, but this isn't a legal requirement as in Germany). American or noble hops. American Rye Beers can follow the same general guidelines, substituting rye for some or all of the wheat. Other base styles (e.g., IPA, stout) with a noticeable rye character should be entered in the Specialty Beer category (23).
- **Vital Statistics:** OG: 1.040 – 1.055 IBUs: 15 – 30 FG: 1.008 – 1.013 SRM: 3 – 6 ABV: 4 – 5.5% Commercial Examples: Bell's Oberon, Harpoon UFO Hefeweizen, Three Floyds Gumballhead, Pyramid Hefe-Weizen, Widmer Hefeweizen, Sierra Nevada Unfiltered Wheat Beer, Anchor Summer Beer, Redhook Sunrye, Real Ale Full Moon Pale Rye

# Light Struck

- **Perception:**

- Unmistakable skunky aroma
- May be desirable in very low levels

- **Causes:**

- Exposure of beer to light (400-520nm)
- Degrades iso-alpha acids and combines with sulfur compounds to form prenyl mercaptan

- **Prevention:**

- Shield fermenters from any light
- Use brown bottles
- Store beer in cool, dark environment

- Sample 8



# Metallic

- **Perception:**
    - Perceived as brassy, tinny or blood-like
  - **Causes:**
    - Iron (ferrous) or mild steel contacting beer
    - Un-passivated stainless steel contacting beer
    - High lipid content in grain
    - Sometimes character of hops, particularly Noble hops
  - **Prevention:**
    - Eliminate iron, mild steel and un-passivated stainless steel
    - Eliminate all traces (<1ppm) of iron from brewing water
- Sample 12

# Moldy/Musty

- **Perception:**
    - Earthy, cellar-like (desirable in some styles)
    - Stale or moldy bread
  - **Causes:**
    - Various bacteria and fungi common in cellars
    - Long conditioning and/or aging
    - Far more prevalent in corked bottles
  - **Prevention**
    - Desirable in some Belgian, Bier de Garde styles
    - Avoid exposure of beer to cellar conditions
    - Good air circulation in storage
    - Store in sterile, closed containers
- Samples 7 and 14

# Nutty

- **Perception:**
    - Flavors of Brazil nuts, hazelnuts, almonds
    - Can have slight sherry-like flavor
  - **Causes:**
    - Oxidation due to warm conditioning
  - **Prevention:**
    - Sometimes desirable in certain styles (Nut Brown Ales)
    - Cool or cold storage/conditioning
- Sample 3

# Oxidation

- **Perception:**
  - Cardboard, wet paper, soapy, rotten fruit, sherry-like
- **Causes:**
  - Oxidation of partially or totally fermented beer
  - Oxidation of alcohols to trans-2-nonenal & other aldehydes
- **Prevention:**
  - Avoid any aeration after pitching yeast
  - Properly fitted fermentation lock
  - Limited head space in fermenter
  - Do not splash when racking
  - Avoid long storage in fermenter
  - Purge fermenter, kegs and/or bottles when racking
  - Maintain cool storage temperatures
  - Use oxygen absorbing caps

# Phenolic

- **Perception:**

- Undesirable aroma/flavors like:
  - » Medicinal (mouth wash), plastic, band-aides, bubblegum
- Desirable aroma/flavors like:
  - » Cloves, banana, vanilla

- **Causes:**

- Primarily a product of yeast strain
- Many wild yeast strains particularly bad
- Phenolic products increase with warmer fermentation
- Sparging where run off is above pH 6.0
- Chlorine in water or sanitizer residue

- **Prevention:**

- Selection of pure yeast strain
- Eliminate chlorine from water, equipment
- Careful control of sparge
- To increase desirable phenols, increase fermentation temperature



# Salty

- **Perception:**
  - Salt sensation (one of 4 main tastes) on front sides of tongue
  - Pleasant, round flavor in moderation
  - Excessive saltiness very distracting in beer
- **Causes:**
  - Normally high salt content in some water
  - Excessive mineral additions ( $\text{NaCl}$ ,  $\text{MgSO}_4$ )
- **Prevention:**
  - Use low mineral water
  - Limit mineral additions to recommended levels

# Solvent-like

- **Perception:**
    - Aroma/flavor of volatile solvents like acetone, MEK, toluene, ethyl acetate
  - **Causes:**
    - By-product of fermentation, particularly spurious stains of yeast
    - Higher fermentation temperature increases solvent-like aroma
    - Contamination of packaging materials
  - **Prevention:**
    - Proper selection of yeast strain
    - Avoid wild yeasts
    - Clean and sterile bottles, kegs, etc.
- Sample 9

# 7A. Northern German Altbier

- **Aroma:** Subtle malty, sometimes grainy aroma. Low to no noble hop aroma. Clean, lager character with very restrained ester profile. No diacetyl.
- **Appearance:** Light copper to light brown color; very clear from extended cold conditioning. Low to moderate off-white to white head with good retention.
- **Flavor:** Fairly bitter yet balanced by a smooth and sometimes sweet malt character that may have a rich, biscuity and/or lightly caramelly flavor. Dry finish often with lingering bitterness. Clean, lager character sometimes with slight sulfury notes and very low to no esters. Very low to medium noble hop flavor. No diacetyl.
- **Mouthfeel:** Medium-light to medium body. Moderate to moderately high carbonation. Smooth mouthfeel.
- **Overall Impression:** A very clean and relatively bitter beer, balanced by some malt character. Generally darker, sometimes more caramelly, and usually sweeter and less bitter than Düsseldorf Altbier.
- **Comments:** Most Altbiers produced outside of Düsseldorf are of the Northern German style. Most are simply moderately bitter brown lagers. Ironically “alt” refers to the old style of brewing (i.e., making ales), which makes the term “Altbier” somewhat inaccurate and inappropriate. Those that are made as ales are fermented at cool ale temperatures and lagered at cold temperatures (as with Düsseldorf Alt).
- **Ingredients:** Typically made with a Pils base and colored with roasted malt or dark crystal. May include small amounts of Munich or Vienna malt. Noble hops. Usually made with an attenuative lager yeast.
- **Vital Statistics:** OG: 1.046 – 1.054 IBUs: 25 – 40 FG: 1.010 – 1.015 SRM: 13 – 19 ABV: 4.5 – 5.2%  
**Commercial Examples:** DAB Traditional, Hannen Alt, Schwelmer Alt, Grolsch Amber, Alaskan Amber, Long Trail Ale, Otter Creek Copper Ale, Schmaltz’ Alt

# Sour

- **Perception:**

- Sensation (1 of 4 main tastes) on back sides of tongue
- Citric sour like lemons (citric acid)
- Acetic sour like vinegar (acetic acid)
- Tart sourness (lactic acid)
- Sharp, spoiled food, putrid taste (bacterial infection)

- **Causes:**

- Generally caused by bacterial infection
  - » Lactobacillus, pediococcus, acetobacter
- Excessive acid rest
- Some yeast strains, particularly at high temperatures

- Samples 2, 8 and 23

# Sour (cont.)

- **Prevention:**

- Limit acid rest to desired pH
- Absolute cleanliness in brewing equipment
  - » Lactobacillus & pediococcus bacteria VERY persistent
- Avoid scratched plastic, glass vessels
- Avoid excessively long mash cycles
- Limit additions of ascorbic, citric acid for acidification
- Maintain proper temperature control in fermentation
- Store at cool or cold temperature



# Sulfur/Yeasty

- **Perception:**

- Strong sulfur aroma/flavor similar to:
  - » Rotten eggs, burnt matches, dead yeast, shrimp

- **Causes:**

- Formed by amino acids in malt (methionine, cysteine) combined with certain yeast strains or bacteria
- Flavors absorbed from autolyzed yeast
- Use of sulfur based sterilants

- **Prevention:**

- Careful selection of yeast strain
- Sanitation in fermentation stage
- Avoid rapid temperature changes in fermentation
- Avoid changes in pressure in fermenter
- Oxygenate wort properly before pitching
- Do not leave beer on sediment long
- Avoid sodium metabisulfate as sterilant

# Sweet

- **Perception:**
  - Sweet sensation (one of 4 main tastes) on tip of tongue
- **Causes:**
  - Addition of sweet malts (caramel, crystal, Munich, malto-dextrin)
  - Higher mash temperatures producing more dextrins
  - Use of decoction mash
  - Addition of lactose
  - Higher gravity worts
  - Use of alcohol intolerant yeast
  - Use of highly flocculent yeast
  - Halted fermentation (pasteurization)

# Sweet (cont.)

- **Prevention:**

- Desired in many styles of beer
- To reduce sweetness:
  - » Use limited “sweet malts”
  - » Mash at low temperatures (145-150°F)
  - » Avoid high gravity wort
  - » Use yeast with high attenuation

# Winey/Sherry-like

- **Perception:**
  - Sherry wine flavor
- **Causes:**
  - Oxidation along with high temperatures
  - Generally takes place over long periods
- **Prevention:**
  - Avoid oxygen in finished beer
  - Avoid high temperature storage
  - Do not store for long period

• Sample 26



# 7B. California Common Beer

- **Aroma:** Typically showcases the signature Northern Brewer hops (with woody, rustic or minty qualities) in moderate to high strength. Light fruitiness acceptable. Low to moderate caramel and/or toasty malt aromatics support the hops. No diacetyl.
- **Appearance:** Medium amber to light copper color. Generally clear. Moderate off-white head with good retention.
- **Flavor:** Moderately malty with a pronounced hop bitterness. The malt character is usually toasty (not roasted) and caramelly. Low to moderately high hop flavor, usually showing Northern Brewer qualities (woody, rustic, minty). Finish fairly dry and crisp, with a lingering hop bitterness and a firm, grainy malt flavor. Light fruity esters are acceptable, but otherwise clean. No diacetyl.
- **Mouthfeel:** Medium-bodied. Medium to medium-high carbonation.
- **Overall Impression:** A lightly fruity beer with firm, grainy maltiness, interesting toasty and caramel flavors, and showcasing the signature Northern Brewer varietal hop character.
- **Comments:** This style is narrowly defined around the prototypical Anchor Steam example. Superficially similar to an American pale or amber ale, yet differs in that the hop flavor/aroma is woody/minty rather than citrusy, malt flavors are toasty and caramelly, the hopping is always assertive, and a warm-fermented lager yeast is used.
- **History:** American West Coast original. Large shallow open fermenters (coolships) were traditionally used to compensate for the absence of refrigeration and to take advantage of the cool ambient temperatures in the San Francisco Bay area. Fermented with a lager yeast, but one that was selected to thrive at the cool end of normal ale fermentation temperatures.
- **Ingredients:** Pale ale malt, American hops (usually Northern Brewer, rather than citrusy varieties), small amounts of toasted malt and/or crystal malts. Lager yeast, however some strains (often with the mention of “California” in the name) work better than others at the warmer fermentation temperatures (55 to 60°F) used. Note that some German yeast strains produce inappropriate sulfury character. Water should have relatively low sulfate and low to moderate carbonate levels.
- **Vital Statistics:** OG: 1.048 – 1.054 IBUs: 30 – 45 FG: 1.011 – 1.014 SRM: 10 – 14 ABV: 4.5 – 5.5%  
**Commercial Examples:** Anchor Steam, Southampton Steem Beer, Flying Dog Old Scratch Amber Lager



# Judging Techniques

- **Everything you need to know to:**
  - Prepare to judge
  - Set up for the judging
  - Perform the deed
  - Record your results
  - Improve your techniques

# The Day Before

- Avoid “over indulging”, particularly beer
- Read over style guidelines
- If you know styles to be judged, sample commercial examples
- Get plenty of rest
- Prepare your “tools”
  - Mechanical pencil & plenty of lead
  - Separate eraser
  - Grease pencil or “Sharpie”
  - Small thermometer
  - Small flashlight
  - color guide
  - Good bottle opener

# Before the Competition

- Avoid hot, spicy foods
- Eat lightly
- Do not use perfume, cologne, lipstick, lip balm, etc.
- Brush teeth, tongue, etc. one hour before judging
- Identify categories you do well and those to avoid
- Fill out the Release of Responsibility form
- Check categories and read over guidelines
- Relax, don't worry, you will have homebrew

# Setting the Table

- Have ample new plastic (no odor) cups
  - Beer clean glasses are second preference
- White table cloth is preferred
- Sufficient room for “tools” and several beers
- Pitcher of water
- Matza or French style bread
- Dump bucket
- Towels for spills or gushers
- Plenty of score sheets
- Cover sheets and Flight Summary sheet

# The Room

- **Tables should be well spaced**
  - Need plenty of room for stewards to work
  - Don't want one table to interfere with another
- **Room should be quiet and comfortable**
- **No music or other distractions**
- **No distracting aromas (flowers, kitchen, etc.)**
- **Good lighting**
- **NO SMOKING**



# Getting Started

- Two to three judges preferred
- Try to balance the level of judges
- Take some time to discuss the style to be judged
- Agree - No discussion until all have scored
- Review the flight to be judged
  - Order the entries - light to full flavors
- Notify your steward of the order
  - Get to know your steward and invite them to taste and comment
- Fill out all score sheets before you start
  - round, entry number, category, your name and judge level
- Judge the calibration round (techniques to follow)
- Discuss the calibration and get to know other judges

# 7C. Düsseldorf Altbier

- **Aroma:** Clean yet robust and complex aroma of rich malt, noble hops and restrained fruity esters. The malt character reflects German base malt varieties. The hop aroma may vary from moderate to very low, and can have a peppery, floral or perfumy character associated with noble hops. No diacetyl.
- **Appearance:** Light amber to orange-bronze to deep copper color, yet stopping short of brown. Brilliant clarity (may be filtered). Thick, creamy, long-lasting off-white head.
- **Flavor:** Assertive hop bitterness well balanced by a sturdy yet clean and crisp malt character. The malt presence is moderated by moderately-high to high attenuation, but considerable rich and complex malt flavors remain. Some fruity esters may survive the lagering period. A long-lasting, medium-dry to dry, bittersweet or nutty finish reflects both the hop bitterness and malt complexity. Noble hop flavor can be moderate to low. No roasted malt flavors or harshness. No diacetyl. Some yeast strains may impart a slight sulfury character. A light mineral character is also sometimes present in the finish, but is not required.
- **Mouthfeel:** Medium-bodied. Smooth. Medium to medium-high carbonation. Astringency low to none. Despite being very full of flavor, is light bodied enough to be consumed as a session beer in its home brewpubs in Düsseldorf.
- **Overall Impression:** A well balanced, bitter yet malty, clean, smooth, well-attenuated amber-colored German ale.
- **Comments:** A bitter beer balanced by a pronounced malt richness. Fermented at cool ale temperature (60-65°F), and lagered at cold temperatures to produce a cleaner, smoother palate than is typical for most ales. Common variants include Sticke (“secret”) alt, which is slightly stronger, darker, richer and more complex than typical alts. Bitterness rises up to 60 IBUs and is usually dry hopped and lagered for a longer time. Münster alt is typically lower in gravity and alcohol, sour, lighter in color (golden), and can contain a significant portion of wheat. Both Sticke alt and Münster alt should be entered in the specialty category.
- **History:** The traditional style of beer from Düsseldorf. “Alt” refers to the “old” style of brewing (i.e., making top-fermented ales) that was common before lager brewing became popular. Predates the isolation of bottom-fermenting yeast strains, though it approximates many characteristics of lager beers. The best examples can be found in brewpubs in the Altstadt (“old town”) section of Düsseldorf.
- **Ingredients:** Grists vary, but usually consist of German base malts (usually Pils, sometimes Munich) with small amounts of crystal, chocolate, and/or black malts used to adjust color. Occasionally will include some wheat. Spalt hops are traditional, but other noble hops can also be used. Moderately carbonate water. Clean, highly attenuative ale yeast. A step mash or decoction mash program is traditional.
- **Vital Statistics:** OG: 1.046 – 1.054 IBUs: 35 – 50 FG: 1.010 – 1.015 SRM: 11 – 17 ABV: 4.5 – 5.2% Commercial Examples: Altstadt brewpubs: Zum Uerige, Im Füchschen, Schumacher, Zum Schlüssel; other examples: Diebels Alt, Schlösser Alt, Frankenheim Alt

# Judging the Flight

- Identify the first beer to judge
- Be absolutely sure you are judging the right beer
  - Check off on the flight sheet
  - Check off on the bottle
  - Check off on your score sheet
- Inspect the bottle
  - Right size, no labels or marks, etc.
  - Check for bacteria ring or “halo” at surface of beer
  - Check fill level
  - Check for sediment if bottle conditioning required

# Opening & Pouring

- Open carefully so it can be recapped
- Listen for hiss and observe
  - Be careful of gushers
- Begin pouring directly into center of glass
- Move to the side of the glass if too wild
- Allow beer to form a good head (1/2" to 1 1/2")
- Pass to other judges as soon as poured

# First Aroma

- As soon as possible savor the aroma
  - Highly volatile aromatics come off quickly
- Place your nose in the glass
- Take 3 to 4 strong sniffs
- Think about what you've detected
- Allow the nose to rest for 30 to 60 seconds
- Sniff again to reinforce your impressions
- Rest and judge the appearance



# Judging Appearance

- **Check the color**
  - Use a flashlight if available
  - Use a color guide if available
- **Check the clarity**
  - Very dependent of style
  - Be sure it was properly poured (no sediment)
- **Observe head formation**
  - Again, style dependent
  - Very fine grain foam desirable
  - Note color and texture of head
- **Observe the head retention**
  - Is it rich and rocky?
  - Does it form a nice lace on the glass?
  - Is it retained well or fall rapidly?
- **Record your results**

# Recheck Aroma

- Sniff beer again, several more if needed
  - Don't rush, aromas are often subtle
- Record impressions in order, malt, hops, esters, etc.
- Note any off smells
- Be positive wherever possible
- **BE SURE IT IS THERE!**
  - Always evaluate with respect to the style
  - There is a strong tendency to try to impress the brewer

# Taste the Beer

- Take a small sip
- Allow it to flow from the front to back of your mouth
- Hold it initially in the front of the mouth (sweet)
- Allow it to reach the front sides of the tongue (salty)
- Flow to the back sides of the tongue (sour)
- Finally to the back of the mouth (bitter)
- Swish about the mouth, chew for general impression
- Swallow and note aftertastes (such as astringency)

# Evaluate Tastes

- **Evaluate the malt character**
  - Sweet, caramel, toffee, chocolate, roast, fruitiness
- **Evaluate the hop character**
  - Proper bitterness, clean or harsh,
  - Proper levels of aroma/flavor and appropriate type of hops
- **Evaluate other desirables characteristics**
  - Fruity/floral esters, diacetyl, phenols, lactic sourness, vinous, earthy, horsey
- **Evaluate undesirables**
  - Acetyldehyde, DMS, solvent, stale, skunky, sulfur, etc.
- **Evaluate carbonation, body, mouth feel**
- **Do it all again**
  - Impressions are enhanced with multiple tastes

# Record the Results

- Record impressions in order (malt, hops, etc.)
- Be positive wherever possible
- Note where flavor levels or balance are inappropriate
- Note and explain any off flavors
- Explain the origin of any problem if you know
- Help the brewer politely



# 8A. Standard/Ordinary Bitter

- **Aroma:** The best examples have some malt aroma, often (but not always) with a caramel quality. Mild to moderate fruitiness is common. Hop aroma can range from moderate to none (UK varieties typically, although US varieties may be used). Generally no diacetyl, although very low levels are allowed.
- **Appearance:** Light yellow to light copper. Good to brilliant clarity. Low to moderate white to off-white head. May have very little head due to low carbonation.
- **Flavor:** Medium to high bitterness. Most have moderately low to moderately high fruity esters. Moderate to low hop flavor (earthy, resinous, and/or floral UK varieties typically, although US varieties may be used). Low to medium maltiness with a dry finish. Caramel flavors are common but not required. Balance is often decidedly bitter, although the bitterness should not completely overpower the malt flavor, esters and hop flavor. Generally no diacetyl, although very low levels are allowed.
- **Mouthfeel:** Light to medium-light body. Carbonation low, although bottled and canned examples can have moderate carbonation.
- **Overall Impression:** Low gravity, low alcohol levels and low carbonation make this an easy-drinking beer. Some examples can be more malt balanced, but this should not override the overall bitter impression. Drinkability is a critical component of the style; emphasis is still on the bittering hop addition as opposed to the aggressive middle and late hopping seen in American ales.
- **Comments:** The lightest of the bitters. Also known as just “bitter.” Some modern variants are brewed exclusively with pale malt and are known as golden or summer bitters. Most bottled or kegged versions of UK-produced bitters are higher-alcohol versions of their cask (draught) products produced specifically for export. The IBU levels are often not adjusted, so the versions available in the US often do not directly correspond to their style subcategories in Britain. This style guideline reflects the “real ale” version of the style, not the export formulations of commercial products.
- **History:** Originally a draught ale served very fresh under no pressure (gravity or hand pump only) at cellar temperatures (i.e., “real ale”). Bitter was created as a draught alternative (i.e., running beer) to country-brewed pale ale around the start of the 20th century and became widespread once brewers understood how to “Burtonize” their water to successfully brew pale beers and to use crystal malts to add a fullness and roundness of palate.
- **Ingredients:** Pale ale, amber, and/or crystal malts, may use a touch of black malt for color adjustment. May use sugar adjuncts, corn or wheat. English hops most typical, although American and European varieties are becoming more common (particularly in the paler examples). Characterful English yeast. Often medium sulfate water is used.
- **Vital Statistics:** OG: 1.032 – 1.040 IBUs: 25 – 35 FG: 1.007 – 1.011 SRM: 4 – 14 ABV: 3.2 – 3.8% **Commercial Examples:** Fuller's Chiswick Bitter, Adnams Bitter, Young's Bitter, Greene King IPA, Oakham Jeffrey Hudson Bitter (JHB), Brains Bitter, Tetley's Original Bitter, Brakspear Bitter, Boddington's Pub Draught

# Overall Impression

- Complement the brewer on any high points
- Be honest: Is it good regardless of style?
- Does it exemplify the style well?
- How can the brewer improve the beer?
- Be constructive, not condescending
- Is this a beer you want more of? Tell the brewer

# General Comments

- Be sure of the style of the beer you are judging
- Be absolutely sure you know the style well
- Be consistent in scoring
- Use subsections of the score sheet
  - i.e. under appearance, color, clarity, head retention
- Be totally objective throughout
  - Don't let one flaw carry over to another section
- Don't talk about the beer until all have scored
  - After discussion and re-tasting adjust score if necessary
- Primary responsibility - Pick the best beer
- Equal responsibility - Give excellent feedback
  - Brewers put forth large effort and expense to enter
  - Only a few percent are winners

# Best of Flight/Category/Show

- Have all entries clearly identified and marked
- Pour all styles simultaneously
- Check aroma then appearance of each
- Check aroma again and jot notes
- check flavors of each and jot notes
  - Use water and/or bread frequently to cleanse
- Recheck flavors
- Eliminate any that are flawed or inappropriate
- Discuss the merits, deficiencies with the panel
- Select the top 4 to 6 then order by consensus



# 8B. Special/Best/Premium Bitter

- **Aroma:** The best examples have some malt aroma, often (but not always) with a caramel quality. Mild to moderate fruitiness. Hop aroma can range from moderate to none (UK varieties typically, although US varieties may be used). Generally no diacetyl, although very low levels are allowed.
- **Appearance:** Medium gold to medium copper. Good to brilliant clarity. Low to moderate white to off-white head. May have very little head due to low carbonation.
- **Flavor:** Medium to high bitterness. Most have moderately low to moderately high fruity esters. Moderate to low hop flavor (earthy, resinous, and/or floral UK varieties typically, although US varieties may be used). Low to medium maltiness with a dry finish. Caramel flavors are common but not required. Balance is often decidedly bitter, although the bitterness should not completely overpower the malt flavor, esters and hop flavor. Generally no diacetyl, although very low levels are allowed.
- **Mouthfeel:** Medium-light to medium body. Carbonation low, although bottled and canned commercial examples can have moderate carbonation.
- **Overall Impression:** A flavorful, yet refreshing, session beer. Some examples can be more malt balanced, but this should not override the overall bitter impression. Drinkability is a critical component of the style; emphasis is still on the bittering hop addition as opposed to the aggressive middle and late hopping seen in American ales.
- **Comments:** More evident malt flavor than in an ordinary bitter, this is a stronger, session-strength ale. Some modern variants are brewed exclusively with pale malt and are known as golden or summer bitters. Most bottled or kegged versions of UK-produced bitters are higher-alcohol versions of their cask (draught) products produced specifically for export. The IBU levels are often not adjusted, so the versions available in the US often do not directly correspond to their style subcategories in Britain. This style guideline reflects the “real ale” version of the style, not the export formulations of commercial products.
- **History:** Originally a draught ale served very fresh under no pressure (gravity or hand pump only) at cellar temperatures (i.e., “real ale”). Bitter was created as a draught alternative (i.e., running beer) to country-brewed pale ale around the start of the 20th century and became widespread once brewers understood how to “Burtonize” their water to successfully brew pale beers and to use crystal malts to add a fullness and roundness of palate.
- **Ingredients:** Pale ale, amber, and/or crystal malts, may use a touch of black malt for color adjustment. May use sugar adjuncts, corn or wheat. English hops most typical, although American and European varieties are becoming more common (particularly in the paler examples). Characterful English yeast. Often medium sulfate water is used.
- **Vital Statistics:** OG: 1.040 – 1.048 IBUs: 25 – 40 FG: 1.008 – 1.012 SRM: 5 – 16 ABV: 3.8 – 4.6% Commercial Examples: Fuller's London Pride, Coniston Bluebird Bitter, Timothy Taylor Landlord, Adnams SSB, Young's Special, Shepherd Neame Masterbrew Bitter, Greene King Ruddles County Bitter, RCH Pitchfork Rebellious Bitter, Brains SA, Black Sheep Best Bitter, Goose Island Honkers Ale, Rogue Younger's Special Bitter



# What is the BJCP?

- Beer Judge Certification Program
- National not-for-profit, volunteer organization
- Organized to improve/standardized beer judging
- Originally formed by the AHA and the HWBTA
- Now completely autonomous
- **Must Know The Purpose of the BJCP**
  - Promote the appreciation of Real Beer
  - Promote Beer Literacy
  - Recognize Beer Tasting and Evaluation Skills

# Levels of Judges

## Must Know This Table

Level of Judge	Mimimum Exam Score	Total Experience Points	Mimimum Judging Points
Novice	--	--	--
Recognized	60	0	0
Certified	70	5	2.5
National	80	20	10
Master	90	40	20
Grand Master*	90	100*	50*

\*This is the requirement for a Grand Master First Degree. In addition to the above requirements, a service project is also required. Additional degrees may be granted with multiples of 100 experience points and additional service projects.

# What is the BJCP Exam?

- A 3 hour comprehensive exam of beer & brewing
- The written exam is in three sections
  - Section 1 has two parts
    - » BJCP basics
    - » 15 True/False questions
  - Section 2 has 9 questions
    - » Classic beer styles
    - » Brewing knowledge
    - » Faults or flaws
- Four beers to formally judge
- 70% of your score is from the written exam
- 30% from the judging

# How to Prepare

- Read every day from now to the exam
  - Read study guide
  - Read over slide series
  - Read the recommended books, particularly on styles
- Get together in study groups and review
- Taste as many styles as you can in groups
- Discuss the styles & understand their origin
- Judge each other's homebrew using score sheets
- Develop consistent scoring techniques
- Brew in groups if possible and discuss techniques
- Go through the sample questions several times

# 8C. Extra Special/Strong Bitter (English Pale Ale)

- **Aroma:** Hop aroma moderately-high to moderately-low, and can use any variety of hops although UK hops are most traditional. Medium to medium-high malt aroma, often with a low to moderately strong caramel component (although this character will be more subtle in paler versions). Medium-low to medium-high fruity esters. Generally no diacetyl, although very low levels are allowed. May have light, secondary notes of sulfur and/or alcohol in some examples (optional).
- **Appearance:** Golden to deep copper. Good to brilliant clarity. Low to moderate white to off-white head. A low head is acceptable when carbonation is also low
- **Flavor:** Medium-high to medium bitterness with supporting malt flavors evident. Normally has a moderately low to somewhat strong caramelly malt sweetness. Hop flavor moderate to moderately high (any variety, although earthy, resiny, and/or floral UK hops are most traditional). Hop bitterness and flavor should be noticeable, but should not totally dominate malt flavors. May have low levels of secondary malt flavors (e.g., nutty, biscuity) adding complexity. Moderately-low to high fruity esters. Optionally may have low amounts of alcohol, and up to a moderate minerally/sulfury flavor. Medium-dry to dry finish (particularly if sulfate water is used). Generally no diacetyl, although very low levels are allowed.
- **Mouthfeel:** Medium-light to medium-full body. Low to moderate carbonation, although bottled commercial versions will be higher. Stronger versions may have a slight alcohol warmth but this character should not be too high.
- **Overall Impression:** An average-strength to moderately-strong English ale. The balance may be fairly even between malt and hops to somewhat bitter. Drinkability is a critical component of the style; emphasis is still on the bittering hop addition as opposed to the aggressive middle and late hopping seen in American ales. A rather broad style that allows for considerable interpretation by the brewer.
- **Comments:** More evident malt and hop flavors than in a special or best bitter. Stronger versions may overlap somewhat with old ales, although strong bitters will tend to be paler and more bitter. Fuller's ESB is a unique beer with a very large, complex malt profile not found in other examples; most strong bitters are fruitier and hoppier. Judges should not judge all beers in this style as if they were Fuller's ESB clones. Some modern English variants are brewed exclusively with pale malt and are known as golden or summer bitters. Most bottled or kegged versions of UK-produced bitters are higher-alcohol versions of their cask (draught) products produced specifically for export. The IBU levels are often not adjusted, so the versions available in the US often do not directly correspond to their style subcategories in Britain. English pale ales are generally considered a premium, export-strength pale, bitter beer that roughly approximates a strong bitter, although reformulated for bottling (including containing higher carbonation).



## 8C. Extra Special/Strong Bitter (English Pale Ale) (continued)

- **History:** Strong bitters can be seen as a higher-gravity version of best bitters (although not necessarily “more premium” since best bitters are traditionally the brewer’s finest product). Since beer is sold by strength in the UK, these beers often have some alcohol flavor (perhaps to let the consumer know they are getting their due). In England today, “ESB” is a brand unique to Fullers; in America, the name has been co-opted to describe a malty, bitter, reddish, standard-strength (for the US) English-type ale. Hopping can be English or a combination of English and American.
- **Ingredients:** Pale ale, amber, and/or crystal malts, may use a touch of black malt for color adjustment. May use sugar adjuncts, corn or wheat. English hops most typical, although American and European varieties are becoming more common (particularly in the paler examples). Characterful English yeast. “Burton” versions use medium to high sulfate water.
- **Vital Statistics:** OG: 1.048 – 1.060 IBUs: 30 – 50 FG: 1.010 – 1.016 SRM: 6 – 18 ABV: 4.6 – 6.2%  
**Commercial Examples:** Fullers ESB, Adnams Broadside, Shepherd Neame Bishop's Finger, Young's Ram Rod, Samuel Smith's Old Brewery Pale Ale, Bass Ale, Whitbread Pale Ale, Shepherd Neame Spitfire, Marston's Pedigree, Black Sheep Ale, Vintage Henley, Mordue Workie Ticket, Morland Old Speckled Hen, Greene King Abbot Ale, Bateman's XXXB, Gale's Hordean Special Bitter (HSB), Ushers 1824 Particular Ale, Hopback Summer Lightning, Great Lakes Moondog Ale, Shipyard Old Thumper, Alaskan ESB, Geary's Pale Ale, Cooperstown Old Slugger, Anderson Valley Boont ESB, Avery 14'er ESB, Redhook ESB