Beer Education Series: Pilot Brewing

About Pilot Brewing:

Trained under award winning breweries such as: Hardywood Park, Left Hand, and NoDa Brewing Company, Rachael decided it was time to showcase everything she has learned on a nano scale. So together with her husband Jeff, a professional pilot and avid homebrewer, they started Pilot Brewing. A slight play on words, Pilot Brewing references aviation, but more importantly focuses on small batch experimental beer. Combined with a 3-barrel Pilot system, and half-barrel "Co-Pilot" system, with minimal focus on core brands, Pilot endeavors to expand the boundaries of craft beer by brewing original recipes that represent traditional and experimental styles. Pilot Brewing opens its doors to all, takes pride in being woman-owned, and seeks to lift others up and take up for others.

The Beers We Are Sampling:

1. **Amelia's Citrus Amber** [Amber Ale, 5.3%]: Our very own Amanda and Laura brewed this traditional Amber Ale with a citrus twist in honor of Pilot Amelia Earhart. Brewed by women, for women, in honor of badass women everywhere.

   BJCP Analysis of Amber Ale:

   Aroma: Low to moderate hop aroma from dry hopping or late kettle additions of American hop varieties. A citrusy hop character is common, but not required. Moderately low to moderately high maltiness balances and sometimes masks the hop presentation, and usually shows a moderate caramel character.

   Appearance: Amber to coppery brown in color. Moderately large off-white head with good retention. Generally quite clear, although dry-hopped versions may be slightly hazy.

   Mouthfeel: Medium to medium-full body. Carbonation moderate to high. Overall smooth finish without astringency often associated with high hopping rates.

   Taste: Moderate to high hop flavor from American hop varieties, which often but not always has a citrusy quality. Malt flavors are moderate to strong, and usually show an initial malty sweetness followed by a moderate caramel flavor (and sometimes other character malts in lesser amounts). Malt and hop bitterness are usually balanced and mutually supportive. Fruity esters can be moderate to none. Caramel sweetness and hop flavor/bitterness can linger somewhat into the medium to full finish. No diacetyl.

2. **Method Hibiscus Saison** [Saison, 6.0%]: Our brewer Rachel teamed up with Kelly at Percent Brewing to create this pale, French Saison with notes of coriander and black pepper finished on hibiscus leaves.

   BJCP Analysis of Saison:

   Aroma: Quite aromatic, with fruity, spicy, and hoppy characteristics evident. The esters can be fairly high, of citrus fruits such as oranges or lemons. The hops are low to moderate and are spicy, floral, earthy, or fruity. Spicy notes are typically peppery rather than clove-like, and can be up to moderately strong. Subtle, complementary herb or spice additions are allowable. Malt character is typically slightly grainy in character and low in intensity.

   Appearance: Pale versions are often a distinctive pale orange but may be pale golden to amber in color. Long-lasting, dense, rocky white to ivory head resulting in characteristic Belgian lace on the glass as it fades.

   Mouthfeel: Light to medium body. Alcohol sensation varies with strength, none in table to light in standard versions. Any warming character should be fairly low. Very high carbonation with an effervescent quality. Enough prickly acidity on the tongue to balance the very dry finish. A low to moderate tart character can add a refreshing bite, but not be puckering.

   Taste: Medium-low to medium-high fruity and spicy flavors, supported by a low to medium soft malt character, often with some grainy flavors. Bitterness is typically moderate to high. Attenuation is extremely high, which gives a characteristic dry finish essential to the style; a Saison should never finish sweet. The fruity character is frequently citrusy (orange or lemon), and the spices are typically peppery. Hop flavor is low to moderate, and generally spicy or earthy in character. The balance is towards the fruity, spicy, hoppy character, with any bitterness or sourness not overwhelming these flavors.

3. **Brave Noise IPA** [Hazy/East Coast/New England IPA, 4.7%]: An India Pale Ale showcasing tropical hops Nectaron, El Dorado CGX and Strata CGX in combination with Voss Kveik yeast, a Norwegian farmhouse strain with subtle orange citrus notes that match fruity hops well. This IPA features flavors of white peach and grapefruit with an aroma of nectarine. $2/4pack will be donated to Infinite Ingredient , a non-profit whose mission is to actively support the mental and physical well-being of individuals working in the craft beverage industry.

   BJCP Analysis of Hazy IPA:

   Aroma: A prominent to intense hop aroma that typically showcases American or New World hop characteristics (citrus, floral, pine, resinous, spicy, tropical fruit, stone fruit, berry, melon, etc.). Most versions are dry hopped and can have an additional resinous or grassy aroma, although this is not absolutely required. Some clean malty sweetness may be found in the background. Fruitiness, either from esters or hops, may also be detected in some versions, although a neutral fermentation character is typical.

   Appearance: Color ranges from golden to light orange-copper; most modern versions are fairly pale. Good clarity, although unfiltered dry-hopped versions may be a bit hazy. Moderate-sized, persistent, white to off-white head.

   Mouthfeel: Medium-light to medium body, with a smooth texture. Medium to medium-high carbonation. No harsh hop=derived astringency. Restrained, smooth alcohol warming acceptable.

   Taste: Hop flavor is strong and complex, and can reflect the characteristics of modern American or New World hop varieties (citrus, floral, pine, resinous, spicy, tropical fruit, stone fruit, berry, melon, etc.). High to absurdly high hop bitterness. Low to medium malt flavor, generally clean and grainy-malty although low levels of caramel or toasty flavors are acceptable. Low to medium fruitiness is acceptable but not required. A long, lingering bitterness is usually present in the aftertaste but should not be harsh. Dry to medium-dry finish; should not finish sweet or heavy. A light, clean, smooth alcohol flavor is not a fault. Oak is inappropriate in this style. May be slightly sulfury, but most examples do not exhibit this character.

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4. Café Latte Stout [Milk Stout, 5.5%]: A Sweet stout brewed with lactose sugar, Dominican Republic cocoa nibs and locally roasted coffee beans from Charleston Coffee Roasters. Charleston Organic is a delightful blend of three different organic coffees from North, Central and South America. This medium roast is full on flavor! Through artful roasting, you'll be sure to taste the bright citrus notes along with a nutty, caramel sweetness and smooth smokiness in each sip.

BJCP Analysis of Milk/Sweet Stout:

Aroma: Mild roasted grain aroma, sometimes with coffee and/or chocolate notes. An impression of cream-like sweetness often exists. Fruitiness can be low to moderately high. Diacetyl low to none. Hop aroma low to none, with floral or earthy notes.
Appearance: Very dark brown to black in color. Can be opaque (if not, it should be clear). Creamy tan to brown head.
Mouthfeel: Medium-full to full-bodied and creamy. Low to moderate carbonation. High residual sweetness from unfermented sugars enhances the full-tasting mouthfeel.
Taste: Dark roasted grain/malt impression with coffee and/or chocolate flavors dominate the palate. Hop bitterness is moderate. Medium to high sweetness provides a counterpoint to the roasted character and hop bitterness, and lasts into the finish. Low to moderate fruity esters. Diacetyl low to none. The balance between dark grains/malts and sweetness can vary, from quite sweet to moderately dry and somewhat roasty.

Dropping Some Beer Knowledge:

Malts: Base vs Specialty:

- Base Malt: The larger percentage of a grain bill used to make a beer. These malts provide enzymes to convert malt starches into sugars. Provides extra enzymes to convert specialty malts/adjuncts without enough enzymes of their own to convert into sugars. Includes: Pale Malt, Pilsner Malt, Vienna Malt, Munich Malt, Rye Malt, & Wheat Malt. 2-Row vs 6-Row: Differentiates based on the formation of corns on the barley stalk rows.
- Specialty Malt: Smaller percentage of a grain bill used to make a beer. These malts are cracked & steeped to release the sugars and flavor compounds. The color of a beer typically comes more from the Specialty Malts. Includes: Roasted Malts, Chocolate Malt, Crystal/Caramel
  Malts, Smoked/Peated Malts, Acidulated Hops

Hop Oils, Acids, and Regions:

- Hop Oils: Main source of flavor and aroma from hops; provide non-bitter tastes/aromas for hops. ○ Myrcene: natural organic compound that is classified as a hydrocarbon. In thyme, bay, parsley, lemongrass, cannabis. Used in the perfume industry.
  - ○ Humulene: named after the scientific name for hops, Humulus lupulus, it's an isomer of Caryophyllene. Key part of hops that gives the "hoppy" aroma. It's been found to possess anti-inflammatory properties, and is being studied.
  - ○ Caryophyllene: one of the oils that help to give black pepper its spiciness. Gives a strong dry wood, pepper, earthy flavor, and an herbal character. This compound has been seen to reduce inflammation & been in anti-cancer studies. Used in the perfume industry.
- Bittering: During longer boil times hop oils evaporate, so they're added at beginning of boil to impart bitterness.
- Aroma: During shorter boil times and dry hopping, hop oils don't evaporate as much, so get the non-bitter aspects of the hops during shorter boil times and/or flameout/dry-hopping additions.
- Alpha Acid: Basis of bittering; quick breakdown: Humolone, Cohumulaone, Adhumulone, Posthumulone, Prehumulone.
- Beta Acid: Slow breakdown: Lupulone, Colupulone, Adlupulone.
- Noble Hops [original Hops, Central Europe]: Terrnanger, Spalt, Hallertauer, Saaz; *Spalt, Styrian Goldings, Perle, Hersbrucker*

Example of Malt & Hop Profiles:

- **Pecan Smoked Wheat Malts:** This malt is produced using our Appalachian Wheat and locally-sourced Pecan wood. The pecan imparts a delicious, fruity that blends perfectly the bread notes of the malted wheat. This malt was developed using a bakery quality wheat variety. Germination and kilning were designed to create a rich, fresh-baked bread flavor and aroma.

Extract FG: 83.0% **Protein: 10.7%** **Color: 3.0 SRM**
S/T Ratio: 56 **Alpha Amylase: 12.1** **DP: 86**

- **Citra Hops:** released to the brewing world in 2008. Now one of the most coveted high-impact aroma hops in the US, particularly among craft brewers, it boasts a complex lineage that includes the likes of Hallertau Mittelfrüh (father), Tettnanger (US), Brewer's Gold and East Kent Golding. Gene Probasco is credited with having first bred Citra in 1990. Citra, as the name implies, has a strong citrusy profile. This is largely credited to its very high myrcene content. It has an extraordinary flavor profile of grapefruit, lime and tropical fruits but despite its high alphas, brewers often warn against its use for bittering, which is considered by some to be harsh and undesirable. Aroma: Citrus, grapefruit, lime, tropical fruits, harsh bitterness.

Alpha Acid Composition	10%-15%	Humulene Oil Composition	7%-12%
Beta Acid Composition	3%-4.5%	Caryophyllene Oil	5%-8%
Co-Humulone Composition	20%-35%	Farnesene Oil	1%
Myrcene Oil Composition	60%-70%	Substitute Hops	Simcoe®, Cascade (US), Centennial, Mosaic®