

IPA

Here are the notes to get you started brewing an IPA. They were originally presented and discussed at the November 2008 club meeting. Giving credit where it's due, most of the info from the following sources:

- <http://www.bjcp.org/2008styles/style14.php>
- <http://zythophile.wordpress.com/2008/11/19/ipa-much-later-than-you-think/>
- <http://zythophile.wordpress.com/false-ale-quotes/myth-4-george-hodgson-invented-ipa-to-survive-the-long-trip-to-india/>
- <http://www.india-pale-ale.com/>
- http://www.northamericanbrewers.org/india_pale_ale.htm
- http://en.wikipedia.org/wiki/India_Pale_Ale

BJCP Style Guideline

14A. English IPA

Aroma: A moderate to moderately high hop aroma of floral, earthy or fruity nature is typical, although the intensity of hop character is usually lower than American versions. A slightly grassy dry-hop aroma is acceptable, but not required. A moderate caramel-like or toasty malt presence is common. Low to moderate fruitiness, either from esters or hops, can be present. Some versions may have a sulfury note, although this character is not mandatory.

Appearance: Color ranges from golden amber to light copper, but most are pale to medium amber with an orange-ish tint. Should be clear, although unfiltered dry-hopped versions may be a bit hazy. Good head stand with off-white color should persist.

Flavor: Hop flavor is medium to high, with a moderate to assertive hop bitterness. The hop flavor should be similar to the aroma (floral, earthy, fruity, and/or slightly grassy). Malt flavor should be medium-low to medium-high, but should be noticeable, pleasant, and support the hop aspect. The malt should show an English character and be somewhat bready, biscuit-like, toasty, toffee-like and/or caramelly. Despite the substantial hop character typical of these beers, sufficient malt flavor, body and complexity to support the hops will provide the best balance. Very low levels of diacetyl are acceptable, and fruitiness from the fermentation or hops adds to the overall complexity. Finish is medium to dry, and bitterness may linger into the aftertaste but should not be harsh. If high sulfate water is used, a distinctively mineral, dry finish, some sulfur flavor, and a lingering bitterness are usually present. Some clean alcohol flavor can be noted in stronger versions. Oak is inappropriate in this style.

Mouthfeel: Smooth, medium-light to medium-bodied mouthfeel without hop-derived astringency, although moderate to medium-high carbonation can combine to render an overall dry sensation in the presence of malt sweetness. Some smooth alcohol warming can and should be sensed in stronger (but not all) versions.

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Overall Impression: A hoppy, moderately strong pale ale that features characteristics consistent with the use of English malt, hops and yeast. Has less hop character and a more pronounced malt flavor than American versions.

Comments: A pale ale brewed to an increased gravity and hop rate. Modern versions of English IPAs generally pale in comparison (pun intended) to their ancestors. The term “IPA” is loosely applied in commercial English beers today, and has been (incorrectly) used in beers below 4% ABV. Generally will have more finish hops and less fruitiness and/or caramel than English pale ales and bitters. Fresher versions will obviously have a more significant finishing hop character.

History: Brewed to survive the voyage from England to India. The temperature extremes and rolling of the seas resulted in a highly attenuated beer upon arrival. English pale ales were derived from India Pale Ales.

Ingredients: Pale ale malt (well-modified and suitable for single-temperature infusion mashing); English hops; English yeast that can give a fruity or sulfury/minerally profile. Refined sugar may be used in some versions. High sulfate and low carbonate water is essential to achieving a pleasant hop bitterness in authentic Burton versions, although not all examples will exhibit the strong sulfate character.

Vital Statistics:	OG: 1.050 – 1.075
IBUs: 40 – 60	FG: 1.010 – 1.018
SRM: 8 – 14	ABV: 5 – 7.5%

Commercial Examples: Meantime India Pale Ale, Freeminer Trafalgar IPA, Fuller's IPA, Ridgeway Bad Elf, Summit India Pale Ale, Samuel Smith's India Ale, Hampshire Pride of Romsey IPA, Burton Bridge Empire IPA, Middle Ages ImPaile Ale, Goose Island IPA, Brooklyn East India Pale Ale

14B. American IPA

Aroma: A prominent to intense hop aroma with a citrusy, floral, perfume-like, resinous, piney, and/or fruity character derived from American hops. Many versions are dry hopped and can have an additional grassy aroma, although this is not required. Some clean malty sweetness may be found in the background, but should be at a lower level than in English examples. Fruitiness, either from esters or hops, may also be detected in some versions, although a neutral fermentation character is also acceptable. Some alcohol may be noted.

Appearance: Color ranges from medium gold to medium reddish copper; some versions can have an orange-ish tint. Should be clear, although unfiltered dry-hopped versions may be a bit hazy. Good head stand with white to off-white color should persist.

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Flavor: Hop flavor is medium to high, and should reflect an American hop character with citrusy, floral, resinous, piney or fruity aspects. Medium-high to very high hop bitterness, although the malt backbone will support the strong hop character and provide the best balance. Malt flavor should be low to medium, and is generally clean and malty sweet although some caramel or toasty flavors are acceptable at low levels. No diacetyl. Low fruitiness is acceptable but not required. The bitterness may linger into the aftertaste but should not be harsh. Medium-dry to dry finish. Some clean alcohol flavor can be noted in stronger versions. Oak is inappropriate in this style. May be slightly sulfury, but most examples do not exhibit this character.

Mouthfeel: Smooth, medium-light to medium-bodied mouthfeel without hop-derived astringency, although moderate to medium-high carbonation can combine to render an overall dry sensation in the presence of malt sweetness. Some smooth alcohol warming can and should be sensed in stronger (but not all) versions. Body is generally less than in English counterparts.

Overall Impression: A decidedly hoppy and bitter, moderately strong American pale ale.

History: An American version of the historical English style, brewed using American ingredients and attitude.

Ingredients: Pale ale malt (well-modified and suitable for single-temperature infusion mashing); American hops; American yeast that can give a clean or slightly fruity profile. Generally all-malt, but mashed at lower temperatures for high attenuation. Water character varies from soft to moderately sulfate. Versions with a noticeable Rye character (“RyePA”) should be entered in the Specialty category.

Vital Statistics:	OG: 1.056 – 1.075
IBUs: 40 – 70	FG: 1.010 – 1.018
SRM: 6 – 15	ABV: 5.5 – 7.5%

Commercial Examples: Bell’s Two-Hearted Ale, AleSmith IPA, Russian River Blind Pig IPA, Stone IPA, Three Floyds Alpha King, Great Divide Titan IPA, Bear Republic Racer 5 IPA, Victory Hop Devil, Sierra Nevada Celebration Ale, Anderson Valley Hop Otin’, Dogfish Head 60 Minute IPA, Founder’s Centennial IPA, Anchor Liberty Ale, Harpoon IPA, Avery IPA

14C. Imperial IPA

Aroma: A prominent to intense hop aroma that can be derived from American, English and/or noble varieties (although a citrusy hop character is almost always present). Most versions are dry hopped and can have an additional resinous or grassy aroma, although

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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. Some alcohol can usually be noted, but it should not have a “hot” character.

Appearance: Color ranges from golden amber to medium reddish copper; some versions can have an orange-ish tint. Should be clear, although unfiltered dry-hopped versions may be a bit hazy. Good head stand with off-white color should persist.

Flavor: Hop flavor is strong and complex, and can reflect the use of American, English and/or noble hop varieties. High to absurdly high hop bitterness, although the malt backbone will generally support the strong hop character and provide the best balance. Malt flavor should be low to medium, and is generally clean and malty although some caramel or toasty flavors are acceptable at low levels. No diacetyl. Low fruitiness is acceptable but not required. A long, lingering bitterness is usually present in the aftertaste but should not be harsh. Medium-dry to dry finish. A clean, smooth alcohol flavor is usually present. Oak is inappropriate in this style. May be slightly sulfury, but most examples do not exhibit this character.

Mouthfeel: Smooth, medium-light to medium body. No harsh hop-derived astringency, although moderate to medium-high carbonation can combine to render an overall dry sensation in the presence of malt sweetness. Smooth alcohol warming.

Overall Impression: An intensely hoppy, very strong pale ale without the big maltiness and/or deeper malt flavors of an American barleywine. Strongly hopped, but clean, lacking harshness, and a tribute to historical IPAs. Drinkability is an important characteristic; this should not be a heavy, sipping beer. It should also not have much residual sweetness or a heavy character grain profile.

Comments: Bigger than either an English or American IPA in both alcohol strength and overall hop level (bittering and finish). Less malty, lower body, less rich and a greater overall hop intensity than an American Barleywine. Typically not as high in gravity/alcohol as a barleywine, since high alcohol and malt tend to limit drinkability. A showcase for hops.

History: A recent American innovation reflecting the trend of American craft brewers “pushing the envelope” to satisfy the need of hop aficionados for increasingly intense products. The adjective “Imperial” is arbitrary and simply implies a stronger version of an IPA; “double,” “extra,” “extreme,” or any other variety of adjectives would be equally valid.

Ingredients: Pale ale malt (well-modified and suitable for single-temperature infusion mashing); can use a complex variety of hops (English, American, noble). American yeast that can give a clean or slightly fruity profile. Generally all-malt, but mashed at lower temperatures for high attenuation. Water character varies from soft to moderately sulfate.

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Vital Statistics:	OG: 1.070 – 1.090
IBUs: 60 – 120	FG: 1.010 – 1.020
SRM: 8 – 15	ABV: 7.5 – 10%

Commercial Examples: Russian River Pliny the Elder, Three Floyd's Dreadnaught, Avery Majoraja, Bell's Hop Slam, Stone Ruination IPA, Great Divide Hercules Double IPA, Surly Furious, Rogue I2PA, Moylan's Hopsickle Imperial India Pale Ale, Stoudt's Double IPA, Dogfish Head 90-minute IPA, Victory Hop Wallop

History

IPA descends from the earliest pale ales of the 17th century, when the term "pale ale" probably simply distinguished ales which were light in color compared with brown ales of that day. By the mid-18th century, pale ale was mostly manufactured with coke-fired malt, which produced less smoking and roasting of barley in the malting process, and hence produced a paler beer.

In conjunction with beers that were being brewed lighter, in 1845 the tax on glass was abolished and drinking from pewter went into steep decline. The public could see their drink clearly and the growing demand for pale ales received a huge boost. Bow brewery, run by George Hodgson, brewed an October stock beer, which was meant to be cellared for 1-2 years before maturation. His beer was only slightly higher in alcohol than most beer brewed in his day and would not have been considered a strong ale at 6.5-7.5%; however, a greater proportion of the wort was well-fermented, leaving behind few residual sugars, and the beer was strongly hopped.

Bow Brewery beers became popular among East India company traders in the late 18th century. Hodgson's involvement in the India trade seems to be based on a few lucky chances. The first was that the docks for the merchant ships that went to and from India, the East Indiamen, were at Blackwall on the Thames, just a short distance via the River Lea from his brewery. When the captains of the East Indiamen went looking for beer to sell in Bombay, Calcutta and Madras, alongside a host of other goods from England including everything from china, to hams to furniture, they went to their nearest brewer, at Bow, rather than one of the big London concerns. East Indiamen transported a number of Hodgson's beers to India, among them his stock beer, which benefited exceptionally from conditions of the voyage and was apparently highly regarded among consumers in India. The second lucky chance was that on the four-month voyage out to India via the Cape of Good Hope Hodgson's October stock ale underwent the sort of maturity in cask that would have taken two years in a cellar, and arrived in the East in prime condition. There is no evidence Hodgson planned this from the start or knew it would happen: he was just lucky.

There was NO real difficulty exporting beer to the East: contemporary evidence shows everything from small beer to porter surviving the journey. When the First Fleet arrived

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in Sydney Cove, on the east coast of Australia, to set up a pioneering penal colony in 1788, the new arrivals drank toasts to the success of the settlement in glasses of porter brought 11,000 miles from England. There were NO “tremendous efforts” by British brewers to solve this non-existent problem. There is NO evidence India was a “very tempting” market for British brewers before the 1820s: if it had been, a small brewer such as Hodgson would not have been able to build up a substantial slice of the trade. In fact, the Indian market was tiny, at 9,000 barrels a year in 1800, equal to less than half a per cent of the two million barrels brewed in London alone every year. Hodgson probably had around half of the Indian market, but that probably in large part because his brewery was close to where the East Indiamen docked, and because he was willing to allow the East Indiamen ship’s captains extended credit, up to 18 months, on the beer they bought from him.

Bow Brewery came into control of Hodgson's sons in the early 19th century, but their business practices alienated their customers. During the same period, several Burton breweries lost their European export market in Russia because of new tariffs on beer, and were seeking a new export market for their beer. At the behest of the East India Company, Allsop brewery developed a strongly hopped pale ale in the style Hodgson's for export to India. Other Burton brewers, including Bass and Salt, were anxious to replace their lost Russian export market and quickly followed Allsop's lead. Likely as a result of the advantages of Burton water in brewing, Burton India Pale Ale was preferred by merchants and their customers in India.

Burton trebled in size every decade from 1850 to 1880, such that Bass, which gradually surged ahead of Allsopp was producing 900,000 barrels in 1874 . In 1883 Bass was using 250,000 quarters of malt and 31,000 hundredweight of hops. Some 40,000 casks per year were required for export alone.

Hodgson's October beer style clearly influenced the Burton Brewers's India Pale Ale. Even in the 1890s J Harris Browne of the Hadley brewery near Barnet was calling its IPA “Stock Ale”, and in 1898 Waltham Brothers’ brewery in Stockwell, South London said of its India Pale Ale: “This Ale is heavily hopped with the very best Kent hops, and nearly resembles the fine Farmhouse *Stock-Beer* (their emphasis) of olden times.” Overseas imitators of IPAs also emphasised that this was a beer which needed to be matured: an advertisement from the end of the 19th century for CH Evans’s brewery in Hudson, New York for its IPA said the beer was “Allowed two years to ripen in the Wood before bottling”.

It was popular taste rather than science alone that led to further changes in brewing techniques for by the 1880s demand for strong, durable IPA’s was tailing off. In particular the export trade was declining. The brewers were complacent – as has often been the case – and failed to take seriously the opening of lager breweries in India and Australia, which shifted demand towards beers that were lighter still and colder.

At home the temperance movement was trying to destroy the trade by rationing and reducing the number of pubs, so that the brewers were forced to invest their capital, not in

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coppers and casks but the bricks and mortar of public houses. Tying capital up in Porter in tuns or IPA gradually maturing in casks was now a luxury. They wanted to sell their beer as soon as they could, and in this the public was ready to assist them. The middle classes in particular, tiring of the 'heavy' nature of beers that were designed either to support manual labour they didn't do, or to survive sea journeys that weren't undertaken, were happy to switch to the new running ales and bitters the brewers were anxious to offer.

This shift in tastes was assisted by the growing popularity of bottled beers in the 1880s. The added sparkle that bottle conditioning produced, plus the premium nature of bottled beer, and the growing size of the middle classes, who were its core market, gave non-Burton brewers the opportunity to replicate the style of mass distributed Burton beers with which they could not directly compete in the draught market.

In the USA, IPA has gradually evolved into a distinct variant sometimes called American India Pale Ale (A few examples are Anchor Brewing's Liberty Ale, Lagunitas Brewing's IPA, [Victory Brewing Company's HopDevil Ale](#), Hop Ottin IPA by Anderson Valley Brewing Co., Hoptical Illusion by Blue Point Brewing Co., Two Hearted Ale by [Bells Brewery](#), and [Stone Brewing Company's Stone IPA](#)). Although some are made to traditional recipes, many American IPAs are brewed with citric American hop varieties such as Cascade, Chinook, Centennial, and Columbus. For example, Lost Coast's INDICA IPA which uses Columbus, Cascade, Willamette and Chinook hops. A few American brewers have also altered the style to increase the bitterness of the beer to well over 100 [IBUs](#) and the alcohol levels up to 10 or even more than 20% [alcohol by volume](#). It should be noted that examples this "extreme" are generally referred to as Double or Imperial IPAs, though some argue that they are not IPAs at all but rather an entirely separate style.

English brewers typically use hop varieties of Goldings and Fuggles, while American renditions of IPA employ Northern Brewer, Cascade, and Chinook, which project notes of citric or grapefruit-like flavors.