Hank Speaks… So Listen By Hank Bienert

Here is an older but still informative article from someone who I heard speak about hops a few years ago **Hop to Style!** Author: Mark Garetz Issue: Mar/Apr 2003

Cascade works well with a West Coast Pale Ale. Fuggle should finish an English bitter. Galena or Cluster go great with porter. Here's a straightforward guide to picking the right hops for your favorite style of beer, plus a handy chart that gives homebrewers the straight dope on 63 hop varieties. Hop to Style! When you're trying to brew a beer in a particular style, you obviously need a recipe. The recipe will primarily consist of grains or malt extract, hops and yeast. Proper selection of these ingredients will determine how close you come to hitting the style on the mark. While grains and yeast are just as important, this article will focus on picking the right hops for your chosen beer style. We can't possibly cover each and every style, so we'll focus on a collection of broad — and popular — categories. Note: In this article I'll be mentioning some hop amounts. These are all in relation to a five-gallon (19-liter) batch of beer. Adjust accordingly if your batch size is different!

Bittering Hops Versus Flavor and Aroma Hops: There are basically two times I recommend that you add hops to beer (others may disagree, but it's my article!). The first time to add hops is near the beginning of the boil. This allows the alpha acids in the hops to be converted into iso-alpha acids, which give beer its balancing bitterness. Alpha acids are not soluble in beer, so they cannot contribute any bitterness. Boiling converts these alpha acids into iso-alpha acids, which are soluble in beer and therefore lend bitterness to your batch. The other time you should add hops is near the end of the boil (or sometimes after the boil). This allows the oils in the hops to impart flavor and aroma to the beer. The hop oils contain the aroma and taste components of the hops. The oils aren't bitter, but they're very volatile. That means they evaporate easily. When hops are added for bittering near the beginning of the boil, almost all of their oils (and therefore the aroma and flavor effect of the oils) get boiled away. Adding hops at the end of the boil allows a lot of the oils to remain in the beer, but the boil time is too short for any significant amount of the alpha acids to be isomerized. So the late additions contribute to aroma and flavor without adding any bitterness to the beer. We'll call the first addition the "bittering hops" and the later addition we'll refer to as the "finishing hops." Some beers have no finishing hops, but almost all beers have bittering hops. Within each style section, I'll give you the recommendations for both types of additions: bittering and finishing.

American Pale Ale: The commercial prototype for this style is Sierra Nevada Pale Ale. This beer has an aggressive bitterness and a distinct hoppy character. The hoppy character comes from the choice of hops and the method in which they are used. Bitterness of the American pale ale ranges from 25 to 35 IBUs. You can use whatever sort of hops you like for bittering, though American hops are the most common choice. I tend to use Galena, as I think it provides a clean bitterness that's pretty neutral in character. You could also use something that works well with the finishing hops, such as the finishing hop itself or Centennial or Columbus.

Sierra Nevada, for example, is finished with Cascade … lots of Cascade. Many West Coast pale ales use Cascade for the finishing hop. It has a pronounced citrusy aroma. Some brewers apply it in two steps. First they add some hops before the end of the boil (about 5 minutes), and then they filter the hot wort through a hopback that is loaded with more Cascade. (A hopback is merely a fancy strainer. It originally was used to catch boiled hops when the kettle was being drained. Then brewers discovered that if they added fresh hops to the hopback, it gave the beer a distinct hop aroma.) You can do the same at home (if you use whole hops; strainers don't work with pellets) or simulate the effect by adding some hops after turning off the boil and letting the hops steep in the wort for 20 minutes or so (this technique, on the other hand, works with whole, pellet or plug hops). Some American pale ales are finished with hops other than or in addition to Cascade. Centennial is quite popular, as is Columbus. Columbus is quite strong and some people don't like it. Try mixing these with Cascade or use them on their own. Columbus and Centennial are popular in West Coast IPAs. Pale ales brewed on the East Coast tend to be more mellow

than their West Coast counterparts. The hops may lean more towards the English varieties; some East Coast pale ales even use lager hops. You might try using Willamette for finishing instead of Cascade. Willamette is a clone of Fuggle and will have an English character. Another option is Mt. Hood. Mt. Hood is a clone of Hallertauer Mittelfrüh, the classic lager hop. A West Coast India Pale Ale is a stronger version of the American pale ale. Bitterness clocks in at 35 to 45 IBUs and the beer has a definite hop aroma. This is achieved through a technique known as "dry hopping." Dry hopping is the process of adding hops to the beer during fermentation and it gives a beer a fresh hop aroma. Hop choices are the same as the American pale ale, but you simply use more of them! Depending on the recipe and your personal tastes, you might use 50 to 100 percent more dry hops than bittering. Red ale is yet another version of pale ale. Reds have a different grain bill (to get the red color and the caramel notes that go with it) but are hopped pretty much the same as pale ale. Depending on the brewery, these beers can lean a little towards the India Pale Ale side when it comes to hopping and they often are dry hopped, as well. For finishing hops in a red ale, you can go with anywhere from 0.5 to 1.5 ounces (14 to 42 g), added 5 minutes before the end of the boil. I think one ounce (28 g) is the minimum, but I really like hoppy beers. If you also want to steep some hops, I usually try to match the finish hops. So if I use one ounce (28 g) of finishing hops five minutes before the end of the boil, I'll use another ounce (28 g) of the same kind of hops right after turning off the heat and then let them steep for 20 minutes with the lid on the brew kettle. This can be done while you're cooling the hot wort, if you are using an immersion chiller. The same one-for-one rule applies to dry hopping as well. Barleywines are like a super-duper IPA. Bitterness can run as high as 60 IBUs. Finish hopping can follow the same recommendations as for IPAs, or you can turn up the volume even more, going to 2 ounces (56 g) at the end of the boil and another 2 ounces (56 g) dry hopped in the fermenter. (This rule holds true for barleywines like the classic Sierra Nevada Bigfoot. Other famous barleywines, like Old Foghorn and Thomas Hardy, are less bitter and require less hops. As always, let your palate be your guide.)

English Pale Ale: English pale ales fall into the same bitterness range as their American counterparts — about 25 to 35 IBUs, but occasionally you'll see them go a bit lower, down to 20. The bittering hop is not too important, as long as it's clean and neutral. I like Galena, but other excellent choices would be Northern Brewer or Cluster. Cluster is an American hop, but it is also a traditional British hop. How can this be? In the early part of the 20th century, many of the Cluster hops grown in the United States were exported to the breweries of England. Finish hopping is where English differs from American pale ale. Obviously you'll want to use an English aroma hop for this style. The two most popular are Fuggle and Goldings. It would be ideal if you could get the real deal — hops imported from England. Many homebrew suppliers carry imported Fuggle and East Kent Goldings. You might be lucky enough to live close to one that does, or you could order them online. If you can't find imported versions, try using domestically grown Fuggle or perhaps Willamette. Willamette is a seedless clone of Fuggle, which means it has most of the same characteristics as Fuggle, but is modified to grow without seeds. (For a variety of reasons, many brewers like seedless hops.)

One thing to be aware of is that imported East Kent Goldings and Fuggle hops tend to be a lot lower in oil content than typical domestic hops. This is partly due to the way they are dried, but also due to the long transatlantic voyage they must take to get here. What this means is that you'll have to use a lot more of them than you would think. For example, if you've been brewing a nice English Ale using 0.5 ounce (14 g) of Willamette in the finish and you get some imported Fuggle to try instead, you'd be tempted to use the same amount. But you are likely to be disappointed. The imported Fuggle likely has half the oil as the Willamette or even less. I'd start by using twice as much Fuggle and see where that gets you. Some suppliers will give you the oil content when you buy the hops, but you can also use your nose as a great guide. Sniff both (after they've come to room temperature) and see if you think they are the same or not. Then take your best guess. This is probably a good place to mention that finish hopping can have a pronounced effect on the mouthfeel of the beer. It can give it a perceived body that isn't there from the malt. This is really important in a beer like an ordinary bitter. This is often called a "session beer" because it is light enough in alcohol that you can drink many of them during a session. But it has to have

good body. One of the secrets of getting there is with finish hopping. About 0.5 ounce (14 g) of finish hops, added to the kettle 5 minutes before the end of the boil, does the trick. English Porters, Stouts and Brown Ales. Porters run about 25-30 IBUs and stouts are a little stronger at 30 to 40 IBUs. (Imperial stouts can get as high as 60 IBUs.) It matters little what you use for bittering. Galena (there I go again) or Cluster will do. No need to waste expensive aroma hops for bittering here, as the roasted malt flavors should overpower the subtleties of the bittering hops. Brown ales are lighter and more malty, so be sure to use a clean bittering hop. Galena or Cluster will work, but you could also consider using an aroma hop for bittering here. Choose one of the traditional English varieties or their clones (East Kent Goldings, Fuggle or Willamette). For some insight as to why, see the next section on American lagers (trust me!). These beers are not traditionally finish hopped, but I like to use 0.5 ounce (14 g) of an English or English-style aroma hop (East Kent Goldings, Fuggle or Willamette) 5 minutes before the end of the boil to increase the mouthfeel of the beer. You can apply this hopping advice to the range of Scottish ales as well. You can start out at 25 IBUs for the "lighter" Scottish ales and go all the way up to 40 IBUs for the really heavy duty ones.

American Lagers: American lagers are really hard to brew at home, assuming your goal is to produce a beer along the lines of the Bud and Miller "megabrews." Bitterness on these beers is very light — 10 to 12 IBUs, which hovers at or just above the threshold for sensing any bitterness in beer. Bittering hops need to be super-clean and neutral. This beer style will also have zero finishing hops. You can use a high-alpha bittering hop like Galena, but a better strategy is to use a low-alpha finishing hop as your bittering hop. For this style of American lager I would choose Liberty or Mt. Hood. Why would we use a low-alpha hop in this beer? Even though hops are almost non-existent in this beer style, we want them there for the subtle flavor the oils provide. Almost all of the oils will be boiled off, but very tiny amounts will make it into the finished beer. By using a low-alpha hop for bittering we'll have to use more and that will mean more oils. Secondly, they'll be the right kind of oils. Here's another tip if you are making this beer super-light: Use more hops. Try a mid-boil addition of 0.5 ounce (14 g) of Mt. Hood. So if your boil time is 60 minutes, add these at 30 minutes. Cut back on the bittering hops a little to compensate for the mid-boil addition. This will help to increase the apparent body of the beer without adding much hop aroma and flavor.

German Lagers and Ales: In this category we'll be discussing German lagers and ales. We'll not include Pilsners (a lager) or wheat beers (an ale), because we'll discuss those styles later. That leaves Vienna, Märzen-Oktoberfest, Dortmunder, export, dunkel and Bock in the lager category and Kölsch and altbier in the ale category. You might find this hard to believe, but you can hop most German ales and lagers (with the exception of Pilsners and wheat beers) pretty much the same. At least I've always gotten away with it! Most German ales and lagers tend to emphasize malt over hops. Therefore they aren't too bitter (in the 20 to 25 IBU range), and they aren't too heavy on the finish hops either. You can use a clean bittering hop such as Galena, but my choice for these beers is Perle. This is a very mellow bittering hop and it also happens to be traditionally German. You also can't go wrong using a traditional German aroma hop for bittering. (See the next paragraph for suggestions.) You'll want to finish these beers with a very light addition of a traditional German lager hop. I use about 0.5 ounce (14 g) of Hallertauer Mittelfrüh (if you can get it) or Hallertau Tradition. Spalt or Spalter Select are also good choices, but are somewhat hard to find. If none of these are available to you, then go with either Liberty, Mt. Hood or Tettnanger. Add these about 10 minutes before the end of the boil.

European Pilsners: This category consists of two types of Pilsners — Czech and German. These Pilsners can run the gamut from very low bitterness at 15 IBUs to quite bitter at 30-35 IBUs. The average seems to be around 25 IBUs. You can use any clean bittering hop or you can use aroma hops (see suggestions below) for bittering. You might be surprised to learn that Pilsner Urquell — the original Pilsner — is bittered with Cluster! And my favorite German Pils (Jever) uses a hop extract. Perle is always a good choice, too. What separates German from Czech Pils is the way these beers are finish hopped. Czech Pilsners almost always use the traditional Czech hop Saaz. Czech Saaz is sometimes hard

to obtain. If you can't get it, you can substitute Polish Lublin, if you can find that! I've tried domestic Saaz and it's just not the same. To get a real good hop aroma in your Czech Pils, you'll want to use lots of Saaz. I use about 1 ounce (28 g) five minutes before the end of the boil and then will steep another ounce (28 g) for 20 minutes after turning off the heat with the lid on. Some will say you should dry hop a Czech Pilsner. I disagree. You can do it if you like, but this article is about hopping to style and Pilsners aren't dry hopped. Now I'm going to tell you the secret of how to get that elusive German Pils flavor: Tettnanger. Lots and lots of Tettnanger. I like to use Tettnanger for bittering as well as finish hopping when I'm making a German Pils. I'll typically use 1 ounce (28 g) of Tettnanger 5 minutes before the end of the boil, and sometimes steep another 0.5 ounce (14 g) as described above. Once in a while I'll put in 0.75 ounce (21 g) at 10 minutes before the end of the boil and another three-quarters of an ounce (21 g) at five minutes and not steep anything.

Wheat Beer: Wheat beer is pretty simple to hop. Shoot for 12 to 15 IBUs of bitterness. Almost any clean hop will do — Perle is a good choice but I tend to use Mt. Hood. When shooting for low bitterness in any style I like to use a low-alpha hop, since errors in weighing or measurement will have less impact. This beer style has no finish hops.

Steam Beer: Steam Beer is a trademark of the Anchor Brewing Company. It has a signature hop flavor and character, and that hop is Northern Brewer. So when making a steam beer I use Northern Brewer throughout. It's a fairly bitter brew, weighing in at 40 IBUs or so. It's pretty hoppy, too. I finish it with 1 ounce (28 g) of Northern Brewer five minutes before the end of the boil. And I don't care what other recipes you'll find for this beer, it should not use any Cascade!

Creating New Styles: This article touched on a lot of styles. But where do beer styles come from? Someone has to invent them. Try inventing your own style. Don't be afraid to experiment. The styles I've presented here are mostly "mono-hopped." By that I mean you only use one kind of hop for bittering, and one kind of hop for aroma. I've advocated few hop blends. This is a great way to learn about hops, because you can really get a taste for the contribution of an individual hop variety. Once you've learned that, you can start to mix hops. I prefer to bitter with just one hop (and nine times out of ten I'll use Galena), but now and then I'll use two or three hops in the finish or for dry hopping. A favorite blend is Cascade, Centennial and Columbus in a 50-25-25 ratio. I like this for IPAs. Another personal favorite is a 50-50 blend of Cascade and Tettnanger. We once finished our "IPA-on-steroids" XSPA with this blend. It was big hit. In this article I hope you've learned some of my philosophies of hopping. One thing should be clear — I like to keep it simple. You have my recommendations on what hops belong with what style and you've gotten an indication of what hop amounts to use. I've even given away some of my precious hopping secrets. Now go brew some beer, OK?

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Hank's note--for those who feel that only certain hops will work, one is referred to the link below which has a selector based on the beer style chosen. One could print out the acceptable varieties for each beer style and create a reference, I chose not to do this preferring the overview described above just as in a past epistle on mineral additions I gave the average ionic breakdown of East Bank Jefferson water for each style rather than the slight seasonal variation feeling that is close enough for me.

http://byo.com/resources/hops