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Author	Topic: Bitterness results conflicting (Read 861 times)

☐ babychef

BeerSmith Brewer

🟨🟨🟨

Posts: 31

BeerSmith 2 Rocks!

📎 **Bitterness results conflicting**
« **on:** March 16, 2019, 04:23:34 PM »

I have been using BeerSmith for a while now and was relying on it to do bitterness calculation, among other things. However, I just noticed a significant discrepancy between the IBUs in recipes and that from other calculators, or even BeerSmith's own Hops Bitterness calculator.

As an example, I have a recipe for a DIPA. In the BeerSmith recipe, it shows IBUs of 96.7 (see screenshot). However, using BeerSmith's Hops Bitterness calculator (and others), entering the same boil volume, batch volume, OG, and hops additions, the IBUs are 67.4 (see screenshot). Why is there this difference? Which one is correct?

Thanks.

🖥 Logged

☐ Oginme   **Re: Bitterness results conflicting**

« **Reply #1 on:** March 16, 2019, 05:16:09 PM »

I am going to start with the calculator for bitterness versus the recipe.

The calculator for bitterness works in a sort of vacuum. You set the boil volume and the fermenter volume, but the stand alone calculator does not know where the volume is lost. Boil off losses result in a concentration of the bitterness, post boil losses result in lower bitterness since the calculated isomerized acids are more diluted and assumed to be lost proportionally with the post boil wort loss. Comparing the results of these is futile and a waste of time since they are not equal in the process information to make them match.
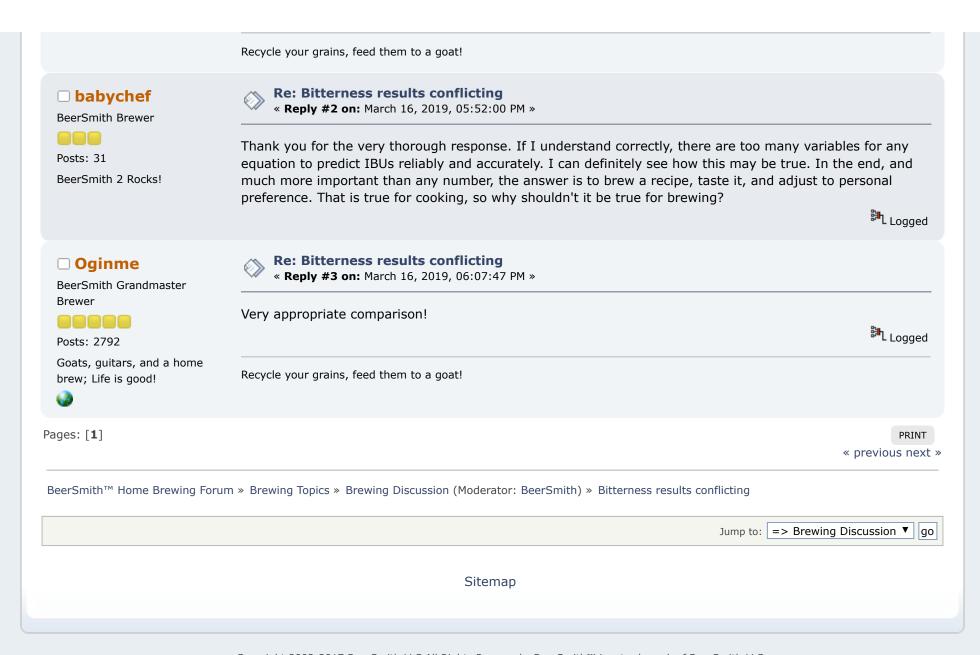
Next, published bitterness versus the same recipe entered into BeerSmith. I will assume that you have the %AA for each of the hops matching that of the recipe when you compare bitterness numbers. Now, does the recipe tell you which IBU model being used to calculate bitterness? There are several and you have the choice in BeerSmith to choose from some of the most popular and widely known: Tinseth, Rager, Garetz. Even if they tell you, without a description of their process losses, you are back to the scenario above with the stand alone calculator.

Now we will get to which one is correct. My contention is that none of the IBU models are correct with the exception of when they are applied to the process from which they were developed. The errors may be small in most cases, but depending upon how much difference there is in boil vigor, innate hop utilization, process losses, yeast strain used, chilling rate and other lesser parameters this difference could be significant. I recommend reading and listening to the discussion from Experimental Brewing on "The IBU is a Lie!" at https://www.experimentalbrew.com/experiments/writeups/ibu-lie-kind with the podcast at https://www.experimentalbrew.com/podcast/episode-32-ibu-lie and http://beersmith.com/blog/2011/02/10/beer-bitterness-and-ibus-with-glenn-tinseth-bshb-podcast-9/

Unfortunately, the models are the closest thing we have to estimate the bitterness of our beers.

The best way to address a 'correction' of the model to your process and expectations is to have several of your brews tested for IBU levels. Since most of us are not so flushed with cash to plunk down that much money for a series of lab tests (and I am not yet ready to invest in a UV/Vis spectrophotometer), the next best thing to do is to calibrate to commercial beers where the bitterness has been tested and is known. If you have a beer which calculates to nearly the same bitterness as a commercial beer of the same style, then compare them side by side. Does yours give you a greater perception of bitterness or less? Make an adjustment in your target to compensate for what your taste buds tell you it should be.

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Recycle your grains, feed them to a goat!

babychef

BeerSmith Brewer

Posts: 31

BeerSmith 2 Rocks!

Re: Bitterness results conflicting
« **Reply #2 on:** March 16, 2019, 05:52:00 PM »

Thank you for the very thorough response. If I understand correctly, there are too many variables for any equation to predict IBUs reliably and accurately. I can definitely see how this may be true. In the end, and much more important than any number, the answer is to brew a recipe, taste it, and adjust to personal preference. That is true for cooking, so why shouldn't it be true for brewing?

Logged

Oginme

BeerSmith Grandmaster Brewer

Posts: 2792

Goats, guitars, and a home brew; Life is good!

Re: Bitterness results conflicting
« **Reply #3 on:** March 16, 2019, 06:07:47 PM »

Very appropriate comparison!

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Recycle your grains, feed them to a goat!

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