INTRODUCTION TO GTbrew2

GTbrew2 is a freeware brewer's recipe formulator. It can help you develop recipes for brews, scale and adapt brew recipes from other brewers (all-grain recipes, that is), adapt to varying hops, alpha acid percentages in hops, and so on. GTbrew2 also does a great deal of the math for you. It will, for example:

- Calculate the predicted original gravity and color (SRM) of your beer, based on your typical mash efficiency (percent yield) and the grain bill that you enter;
- Calculate the hop bitterness (using either Rager or Tinseth methods) given your hop schedule and alpha acid values for the hops you are using.
- Calculate the strike temperature and volume for a single-infusion mash, based on a number of variables, including the desired thickness of the mash as a ratio of the number of quarts of water to the number of pounds of grain (e.g., 1.5 qts/lb), the desired mash temperature, the ambient temperature at mash-in, and a few others.
- Using an option under the "Utils and Conversions" menu, it will also calculate the data for multi-step infusion mashing; at the present time, GTbrew2 does not handle other mashing methods, such as decoction mashing.
- Provide BJCP style data for the beer style you are working on (unless you've chosen a non-BJCP style, in which case you're on your own!); GTbrew2 also lets you know if you're outside of the ranges for original gravity, color, and/or hop bitterness.
- Provide helpful data (all of which is constantly being updated) on hops, grains, and yeast, as well as the BJCP style guidelines themselves.
- Using another option under the "Utils and Conversions" menu, GTbrew will do "reverse" calculations from a given brew to adapt it to your batch size and mash efficiency, as well as providing similar "reverse" calculations which, given the percent alpha acids of your desired hops, boil time, and desired number of IBUs for each addition, will calculate the amount of the specified hops (in US ounces) for that addition. Select this method of calculation with the IBUs/AMT selection to the left of the hop schedule. For normal operation, leave it on IBUs; for the "reverse" calculations, set it to AMT.
- Assuming you fill in the brew-day data for the kettle volume and specific gravity after sparging/lautering, GTbrew2 will calculate, based on these numbers and your desired batch size, both the specific gravity you should hit at your

target volume, and the volume you need to boil down to in order to hit your target gravity (and if your mash efficiency is both very consistent and entered correctly, those should match up).

- Assuming you fill in the data for the actual brew day original gravity and post-boil volume (in gallons), GTbrew2 will calculate your mash efficiency both as a percentage and in gravity points per pound of grain per gallon (pts/lb/gal).
- Assuming you fill in the actual final gravity (along with the above actual original gravity and post-boil volume), GTbrew2 will also provide you with an estimated alcohol percentage (%v/v).
- At this time, GTbrew2 provides two methods of getting brew reports: plain text format, and a much nicer typeset output (using the TEX typesetting system. TEX (pronounced like "tech" and correctly spelled TEX, or when using an environment that does not support the lowering of the E, it is replaced with a lowercase 'e' instead, and thus spelled TeX; TEX's author, Professor Donald E. Knuth, is very specific about these points). See http://www.ctan.org for more information.
- GTbrew2 has a number of other various utilities in the "Utils and Conversions" menu, such as unit conversions (e.g., metric to US, US to metric, SG to Plato, Plato to SG, and so on).

USING GTbrew2

Configuration

Using GTbrew2 is, for the most part, just a matter of filling in the blanks. But before you get to that point, there are a couple of files you need to know about. They are in a directory called "*init*" which is under the main GTbrew2 directory, and are called *config.tcl* and *userdata.tcl*. There are other files there, as well, but those are GTbrew2's, not yours. Before we proceed with the details, you should know that I often forget to rename these two files when making a new distribution, so you should always back them up (e.g., make a directory under *init* called *tmp* and copy them there. After you do your upgrade, copy them (or move them) back.

The first file, *config.tcl*, is where you store your default configuration data. All of this data can be changed for a specific brew from the Configuration menu, and will be saved with the recipe for that brew (note that it will **NOT** be saved in the

overall configuration file). Each item in *config.tcl* has commented text describing what it is and the format of the command that sets it. This is where you set your default values for things like batch size, boil volume, typical mash efficiency (as a decimal number, e.g., 70% would be entered as 0.70), variables related to determining strike temperature and volume for your mash, and so on. Note that while you **CAN** change font values from this file, you should not do so without having a good backup of the original values handy, as changing the font values is not likely to go over very well.

The second file, *userdata.tcl*, is where you add custom information for hops and grain.

Selecting the Style of Beer That You Plan to Brew

If you are brewing a beer that you want to conform to the BJCP style guidelines (which you can view from the "Style/Product Info" menu), you use the "Select style" menu and select your style from there. This will set all of the relevant range data, and so on. Once you have selected the style, and GTbrew2 has entered it into the "Style" box, you may view the BJCP style guidelines for that specific style by clicking your mouse on the '?' to the right of the style name.

If you are brewing a beer which you don't intend to conform to a specific BJCP style, look to the right of the style name field, and you will see a box where you select either "BJCP" or "N/A"; select "N/A" and no ranges will be set, and you can enter whatever you wish to name your beer's style.

Entering Data for Grains and Hops

Enter the grain bill using pounds and ounces for each grain, and select the grain from the drop-down menu by pressing the little down-arrow to the right of the grain's name field. If the grain you are using is not listed, you will need to add it in *init/userdata.tcl* (see instructions within the file) and restart GTbrew2. When you have finished entering your grain bill, press the [Calc] button to the left of the grain data. Your predicted values for the original gravity and color (SRM) will be calculated and displayed to the right (under "TARGET SPECIFICATIONS").

Entering your hop schedule is exactly the same, except for one added feature, the ability to calculate backwards, given the number of IBUs per addition, the boil time, and the hop's alpha acid percentage, you can calculate the amount (in ounces) for each hop addition by changing the option box to the left from "IBUs" to "AMT", entering your data, and then hitting the hop's [Calc] button. This is

useful when the specified hops' alpha acid percentages change, or when you wish to change hops completely. Just fill in everything except for the amount (and the percentage of total IBUs field, which is calculated no matter how you do the reet).

Re-sizing Brews, Adjusting for New Mash Efficiencies, etc.

The first step here is to enter the (all-grain) brew's recipe you've been given, setting everything you have for it (including, if you have it, the mash efficiency). You will definitely need to know the original batch size (in gallons), and the original values for the target gravity and hop bitterness (in IBUs). If the hop calculation method is not specified, you can **probably** assume Rager. Enter these numbers in the Configuration menu. Knowing the original brewer's mash efficiency will help, but if you don't have it, just enter the grain data and keep adjusting the efficiency until the predicted target gravity matches the data they gave you. For the hops, enter the amounts they gave you. Be sure to set the boil volume in the Configuration menu to their boil volume (if you know it, otherwise, just enter an approximate number (also known as a wild-*ss guess, or WAG).

Once you've entered all of the data that you know, go to the "Utils and Conversions" menu and select "Recipe Reformulation". Enter **YOUR** desired batch size and typical mash efficiency (again, as a decimal number, e.g., 0.70 for 70%). Then click on OK. GTbrew2 will then show you the numbers it has calculated, and ask you if you want to apply the changes it has just calculated. If you don't see any glaring errors, click on "YES". You will then be taken to the instructions (as given above, except no doubt worded differently) for doing the reverse calculations on the hops. It sounds like a lot of steps, but it really is a lot easier than it sounds.

Entering Comments

This is by far the most complicated part...just kidding, it's really the easiest. Click on the [Comments] button and type away. When you're done, hit "Save Changes" and when it tells you it's saved your changes, click on OK. Then either enter more comments or click on "Dismiss" to close the comments window.

Entering Brew Day (and Finished Beer) Information

This really **IS** the simplest part. As you brew, during the various rests, take a moment to enter the brew-day data as you go along. Most of it is just info-only, but if something happens to your paper logsheets, GTbrew2's data can help you rebuild most of the information if you fill it in. As mentioned above, filling in the

actual numbers for the pre-boil volume and specific gravity will give you numbers about the amount to boil down for your target gravity and the gravity you should hit (if all of your other pre-boil measurements are correct) at your target volume. Likewise, if you fill in your actual post-boil numbers original gravity and volume, GTbrew2 will calculate your mash efficiency as both a percentage and pts/lb/gal, and after you enter the final gravity, it will tell you the calculated alcohol percentage (%v/v).

CONCLUSION

That's about it, really. Feel free to e-mail me any comments, suggestions, new grain, hop, and/or yeast data, bug reports, etc., to spooky130 AT gmail DOT com.

Comments on the usefullness, or lack thereof, of this documentation are also both welcome and invited.

With that, Hoppy Brewing, everyone!