

The Grain Mill

Publication of the Scioto, Olentangy, & Darby Zymurgists, Inc



President's Corner

February 2011

By Vic Gonzales



I would like to start out this Presidents Corner with a big thank you to all the volunteers that helped out at Alefest this year. The club fulfilled its obligation to Alefest and will receive a donation of \$500 for our work at the event. I would also like to give a special thank you to Don Croucher for organizing the volunteers again this year. A lot of work goes into recruiting and keeping track of all the people willing to help out at these events and Don has done it year after year. Don does this to benefit the club with out expecting anything in return. Next time you see Don thank him personally for what he has done for the club because it is a lot more work than you would expect. And while I'm giving out thank yous, I would also like to thank Mike Byrne for his work on the new SODZ hand-outs for Alefest and all future

events. Mike has updated the old hand out we have and gave it a fresh professional feel.

Our next meeting is Monday the 21st at Old Bag of Nails in Westerville. As always this is a homebrew friendly place but keep the home brew somewhat discrete. Rockmill Brewing Company will be our guest at the event and will be doing a tasting of a few of their beers. The club is using its funds to pay for the event with some of the beer donated by Rockmill Brewery. If you ever wonder what your dues are used for this is just one example so if you need to pay your dues make sure you take care of it at the next meeting.

With the British Beer Fest right around the corner there will be a lot of help needed in many different ways. Contact Ben Siefker who is the event coordinator this year to find out how you can help. This is an event the club benefits from in many ways so we encourage everyone to enter as many beers as possible into the competition. Food will be pro-

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vided for the volunteers at the event so please register to help out with judging, stewarding or setting up.

Nominations will be held at this month's meeting so please consider being a part of SODZ leadership. We will be nominating all positions and I would like to see a minimum of two people running for each post. If I don't get too involved tonight with playing Angry Birds I will post the by laws to the file section of the yahoo group. There are a few items I would like to add to the by laws and we will discuss them at the meeting in detail. The first item would be to assign the duty of filing the tax forms every year for the club. Currently nobody is assigned to do this task in our by laws but our treasurer Steve has taken care of it the last few years. Second, I would like to include another officer on the club's bank account so more than one officer has access to club funds. I also want to fix the bylaws section 3.01 — Our meeting date from the second Thursday of the month to the third Monday of the month. All issues need to be voted on and we will have the wording prepared in the next newsletter.

Brew Pub Update

<u>Gordon Beirsch</u>	<u>Weasel Boy</u>	<u>CBC</u>	<u>Barleys #1</u>	<u>Barleys #2</u>	<u>Elevator</u>
Gold Export	Ornery Otter Blonde	Ohio Honey Wheat	Glenlenny's Scotch Ale	The Highland Hammer IPA	Horny Goat
Hefeweizen	White Weasel Wheat	Apricot Ale	Rye IPA	Bitter Dan eX-treme IPA (IIPA)	Barrel-Aged Blackberry Wit
Czech Lager		Pale Ale	Frambwaha?	Robert Burns Scottish Export	Heiferweizen
Märzen	River Mink Mild Brown	90 Shilling	Ivan Porter		Flying Hydrant Light
Schwarzbier	Plaid Ferret Scottish	1859 Porter	Pilsner	Alexander's Russian Imperial Stout	Elevator Xtra
Seasonal	Brown Stoat Stout	Columbus IPA	MacLenny's Scottish Ale	MacLenny's Scottish Ale	Mogabi
Double Hopped Pilsner	Dancing Ferret IPA	Creeper IIPA	Pale Ale		Bear Ass Pale Ale
	Bitter Sable Black IPA				Three Frogs IPA
	Wiley Wolverine RyePA				Bleeding Buckeye Red Ale
	Barrel Aged Cherry Stoat				Dirty Dick's Nut Brown Ale
					Dark Horse Lager
					Procrastinator Doppelbock

Meeting agenda

7pm, Start Meeting

British Beerfest

Rockmill Brewing Tasting

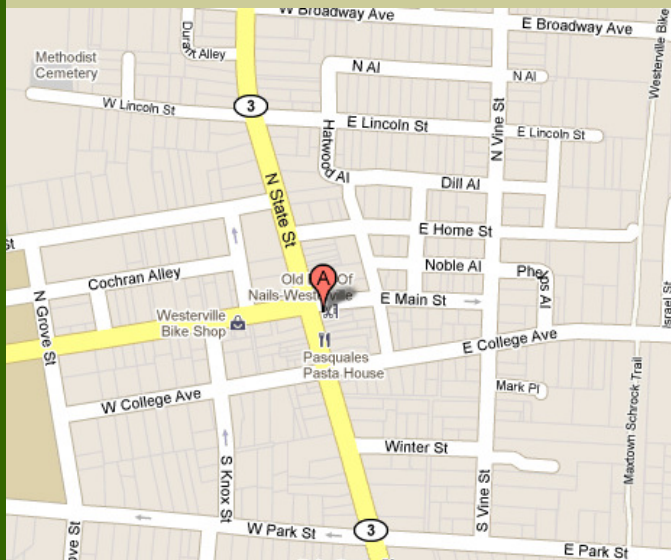
Officer Nominations

Adjourn

Prost

Meeting Location

Old Bag of Nails Pub
24 North State St # 26
Westerville, OH 43081



Feb 2011 - Mar 2011

Schedule of Events

- 2/21 SODZ Meeting at Old Bag of Nails in Westerville
- 2/26 SODZ British Beerfest Homebrew Competition

Sun	Mon	Tue	Wed	Thu	Fri	Sat
13	14	15	16	17	18	19
20	21 SODZ	22	23	24	25	26 BBF
27	28	1	2	3	4	5
6	7	8	9	10	11	13
13	14	15 Ides	16	17 St. Pat's	18	19

Beer and Math

By Ben Siefker

Brewing! Drinking! Math! What a hobby...

First, a complete history of my homebrewing experience (abridged):

Four years ago, my brother gave me a copy of “The Complete Joy of Homebrewing” and a 5 gallon carboy. I started reading blah blah blah.... first batch ... blah blah blah... carbonated horrors... blah blah blah... more research, and I found John Palmer’s “How To Brew” online. Reading through blah blah blah.... lots of formulas to help with....

Enough with that. So anyway, I use a spreadsheet to do all of my brewing calculations. It’s changed a lot over the years – sometimes for accuracy, sometimes for aesthetics – but it’s still the way I like to work.

In some ways, it seems like a lot of trouble. There are great software packages out there already (and spreadsheets too), and there are thousands of recipes already written. Shouldn’t I have spent that time trying to brew better beer? Well, yes, there are a lot of software packages, phone apps, and spreadsheets out there, but I’m cheap. Also, working through the formulas myself helped me to understand the brewing process better. Yes, there are a lot of recipes out there, but you should have some way of adjusting them to your system. I would argue that creating and using this worksheet has helped me to make better beer, but it could have just been the act of brewing dozens of batches and not the tinkering and calculating that improved my practices.

So! What is it, how do you use it, and why would you use it for your own calculations? I use a two-worksheet Excel workbook. One worksheet/tab is the worksheet with all the data entry fields and calculations, and the other is the reference data to help fill in some of the fields. I could have put it all on one, but I wanted to keep the first worksheet down to one printable page. I used to just save separate Excel files for each brew, but they started to pile up. Now, I use the same file to do the calculations and then I print off the sheet and save it in a binder.

The spreadsheet will work for both extract and all-grain brewing. I batch sparge, and it is the only calculator you need if you brew that way too. If you continuously sparge your mash, well, maybe you’re screwed. I don’t know; I’ve actually never brewed that way. You can calculate the volume and temperature of your strike

water; I don't know if you need any more info, or how one figures out how much sparge water if they don't do it by the batch. As far as batch sparging, there's a ton of information on the internets if you're interested. It works for me, and it's easy to do. Look it up or you can talk to Dan George about sticking with extract brewing. On with the spreadsheet...

A113																							
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	AD	
1	Brew Name																	Brewer	Ben Siefker				
2	Style																	Date					
3	OG		FG		IBU		ABV																
4																							
5																							
6	Batch Size		Boil Time		OG		FG		ABV		IBU												
7	(Gal)		(min)																				
8																							
9	Fermentables																						
10	Weight		Ingredient				Origin		Potential		SRM												
11	pounds ounces								Extract														
12																							
13																							
14																							
15																							
16																							
17																							
18																							
19																							
20	Hops Formula: Tinseth																						
21	Weight		Alpha		Variety		Time		Whole/Pellet		IBU												
22	(oz)		Acid %				(minutes)																
23																							
24																							
25																							
26																							
27																							
28																							
29																							
30																							
31																							
32																							
33	Yeast																						
34	Yeast Mfr.		Strain				Attenuation		Flocculation		Temp		Alc										
35							Range				Range		Tol										
36																							
37	Mash																						
38	Mash Ratio		Grain		Target Mash		Strike Water		Strike Water		Top-up		Sparge		Pre-boil Vol								
39	(qts/lb)		Temp (F)		Temp (F)		Temp (F)		qts oz		qts oz		qts oz		(Gal)								
40																							
41	Notes																						
42																							
43																							
44																							
45																							

Worksheet / ref data /

Overview of the Worksheet page

You should download a copy and play along (Beer and Math.xls in the Yahoo Group files), but you can also zoom in to the screenshots to see what's going on. They're crummy jpegs, but I didn't want this file to get too big.

So let's brew a beer. In the spirit of the season, let's brew an Irish Red (which also happens to be a style that could be entered in the BBF, which also happens to be the Lucci Cup style this year – although it's too late to actually brew it for this year's competition). You'll notice a lot of the worksheet is a light yellow color. These are the fields where you enter data. I chose that color because it doesn't print as gray when you print in black and white. It might not print in color, but I don't know – again, I'm cheap. The exceptions to this are the Brew Name, Brewer, and Date fields. Just fill them in. I'll call this beer The Frank Hammer. I'm the brewer. Today

is Feb 16. The next thing to do is enter the style. When you click on the style field, you see I set it up as a pull-down menu with the current BJCP styles. Scroll down and select 9D. Irish Red. This populates the style parameters below, giving you the range for OG, FG, IBUs, and ABV. I didn't list the color, because I can't calculate that. Next I enter the batch size and the boil time (the boil time is used to calculate how much wort you're going to need to collect; it's also good for record keeping).

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S			
1	Brew Name The Frank Hammer																		Brewer Ben Siefker		
2	Style 9D. Irish Red Ale																		Date 2/16/2011		
3	OG	8B. Special/Best/Premium Bitter																			
4		8C. ESB/English Pale Ale																			
5		9A. Scottish 60/-																			
6		9B. Scottish 70/-																			
7		9C. Scottish 80/-																			
8	Batch	9D. Irish Red Ale																			
9	(Gal)	9E. Strong Scotch Ale																			
10		10A. American Pale Ale																			
9	Fermentables																		Syst		
10	Weight	Ingredient																Origin	Potential	SRM	Syst
11	pounds ounces																		Extract		Efficien
12																					80%

Now we can start filling in the recipe. For base malt, I used 4 lbs of Golden Promise and 3 lbs of Maris Otter. To enter the weight, you just click in the appropriate field and enter the number. You can enter it as a combination of lbs & oz or as a decimal number of lbs (1.5 lbs = 1 lb, 8 oz = 24 oz) and it all comes out the same. When

you click on the ingredient field, you see you get another pull down menu. I have it arranged with base malts first, then specialty grains, then sugars (including extracts). Selecting one populates the list with the associated characteristics (potential extract, etc.). Some malts have the same basic parameters – 2 row is about the same as Maris Otter – but I want to list the actual grain for record keeping. I have all the malts I've used in the past year or two. If

8	Batch Size	Boil Time	OG	FG	ABV	IBU		
7	(Gal)	(min)	1.051					
8	4.5	90						
9	Fermentables							
10	Weight	Ingredient				Origin	Potential	SRM
11	pounds ounces						Extract	
12	4	T. Fawcett Golden Promise				UK	1.036	3
13	3	T. Fawcett Maris Otter				UK	1.036	3
14	6	Crystal 40				US	1.034	40
15	6	Crystal 120				US	1.033	120
16	6	Roasted Barley				US	1.025	300
17					Rauchmalt			
18					Rice Hulls			
19					Rice, Flaked			
20					Roasted Barley			
20	Hops				Rye Malt			
21	Weight	Alpha			Rye, Flaked			
22	(oz)	Acid %			Special B Malt			
23					Special Roast			

you need something that's not in there, you'll have to add it to the reference data. More on that later. So I fill in the rest of the grains as shown, and it tells me that I should end up with an OG of 1.051. This is based on the System Efficiency listed off to the right, which is something unique to your system.

Next, we'll add the hops. Next to Formula, you can click and pull down to toggle between the Tinseth & Rager formulas. I added 1.4 oz of whole cone, 4.5% alpha acid Willamette hops at 60 minutes. All of these values are entered manually (the % field is formatted as a percent) except for the whole/pellet field, which is a pull-down. If nothing is entered, it assumes whole hops. You'll notice that it won't calculate the IBUs until you've entered the weight, % a.a., and the time. If one is missing, there's no IBUs calculated for that addition. This is good, because this is also

where I enter Irish moss, spice additions, etc. You can enter the amount and time (including other measurement units – tsp, g, etc.) and the ingredient without getting an error for your IBU values.

20	Hops	Formula: Tinseth				
21	Weight	Alpha	Variety	Time	Whole/	
22	(oz)	Acid %		(minutes)	Pellet	IBU
23	1.4	4.5%	Willamette	60	whole	25.4
24						
25	1 tsp		Irish Moss	15		
26						
27						
28						
29						
30						
31						
32						

The yeast is an easy addition. First, click the Yeast Mfr. Field. You'll get a pull down menu listing all the brands I know of. We'll select White Labs. Next, click under strain and select WLP004 and the sheet will fill in all the associated parameters. The strains available change depending on which brand you've selected, and the FG range of your recipe is calculated using the manufacturer's provided attenuation range.

33	Yeast						
34	Yeast Mfr.	Strain		Attenuation	Flocculation	Temp	Alc
35				Range		Range	Tol
36	White Labs	WLP004 Irish Ale Yeast		69-74%	medium-high	65-68	8-12%
37	Mash	WLP001 California Ale Yeast					
38	Mash Ratio	WLP002 English Ale Yeast					
39	(qts/lb)	WLP004 Irish Ale Yeast		Top-up	Sparge	Pre-boil Vol	
40		WLP005 British Ale Yeast		qts	oz	qts	oz
41	Notes	WLP006 Bedford British		15	12	12	0
42		WLP007 Dry English Ale Yeast				6	
43		WLP008 East Coast Ale Yeast					
44		WLP009 Australian Ale Yeast					

If you're brewing an extract batch, you're recipe is done. If you're brewing an all-grain batch, you need to figure out your mash parameters. All you need to fill out is your mash ratio (strike water in quarts per pound of grain in the mash), the temperature of your grist, and the target mash temperature. The volume and temperature of the strike water and the amounts of top-up and sparge water (both for batch sparging) are calculated for you. In practice, I heat my strike water up about 5-10 degrees higher than calculated and let it sit in my mash tun until it cools to the strike temperature (this preheats the mash tun).

33	Yeast									
34	Yeast Mfr.	Strain				Attenuation Range	Flocculation	Temp Range (F)	Alc Tol	
35										
36	White Labs	WLP004 Irish Ale Yeast				69-74%	medium-high	65-68	8-12%	
37	Mash									
38	Mash Ratio	Grain	Target Mash	Strike Water	Strike Water	Top-up		Sparge		Pre-boil Vol
39	(qts/lb)	Temp (F)	Temp (F)	Temp (F)	qts	oz	qts	oz	qts	(Gal)
40	1.5	59.2	153	165.5	12	6	3	6	12	0
41	Notes									
42										

Three parameters are listed in the middle of the sheet on the right: system efficiency, boil-off rate, and mash tun dead space. I have listed these separately because they probably don't change from batch to batch. I find that my efficiency does change a little depending on the thickness of my mash (mash ratio) and the total amount of grain in my mash tun (basically

System Parameters	
System Efficiency	Boil-off Rate (gal/hr)
80%	1
Mash Tun Dead Space (qts)	
0.125	

the target OG & batch size together). You will have to figure out how that works for you.

So now you have a filled-out sheet, and you can print it off to put it in your binder or stick it up on the fridge. If you want to clear the sheet, press control R (control + shift + r) to “reset” the sheet. This clears everything but your name and the system parameters, which, again, don’t usually change from batch to batch.

I have a ton of data on the “ref data” tab. For one, you might think it’s ridiculous to type all that info when you can just look it up on the manufacturers’ websites. You are right! But you are also wrong! If you are copying a recipe, sure, you just go to the White Labs website, look up the strain, and there you have all the info you need. But if you’re making your own recipe, or making substitutions, or trying to compare strains... It got to be too much of a hassle. Now I have all the data in one place and I can change a field and see right away the new fermentation temperature range or easily compare two strains’ effects on the final gravity.

That brings up another point. This doesn’t tell you exactly what your final gravity will be. It gives you a good guess based on the ingredients you’ve selected. You still have to keep notes to see how various combinations of mash temp, yeast strain, fermentation temp, etc. affect your final product. But keeping records with tools like these is the way you figure that stuff out.

You may want to add certain specific malts or new yeast strains as they come out. Here’s how you would do that. Click on the “ref data” tab. Let’s say we want to add aromatic SBS Malt from down under, and let’s say we want to put it in with the specialty grains in alphabetical order. The fermentables (grains & sugars) are listed in column N through column T, rows 2 through 96. Scroll over to column N and down the list until you get to where you want to put it. We want it to be between Rye, Flaked and Special B Malt. Highlight everything from Special B Malt over to the cell marked “grain” and all the rows below it down to the last entry (molasses). You should have highlighted N56: T96. Drag the whole highlighted area down one row so you now have some blank cells in row 56. *inserting a row will mess up the neighboring lists, so just do it this way* Now you enter your malt: SBS Malt, Australia, (srm varies – just go with whatever data you have for this one), etc. The last entry is either “grain” or “sugar.” I use it to let the formula know if it should apply the system efficiency to its extract value. The only columns you really need to fill in are name (for your sake), potential SG, and grain or sugar. The rest is for record keeping.

Now that you have the data entered, make sure you didn’t screw anything up. Go back to the worksheet and check to see if you can select it to see if you entered it

where you think you did. If you add to the data like I said, all the formulas & pull-downs should still point to the right areas. If you want to add something a different way, you're going to need to edit the Excel Names of these groups. If you don't know how to do that, just follow the above directions.

Alright, I think that's it. If you don't want to add or edit the sheet, you could have stopped reading a couple paragraphs ago.

I uploaded the file to the Yahoo group page. It's "Beer and Math.xls". You can, and probably should, rename it. I would suggest something like "The Widowmaker" or "Human Centipede 2: Electric Boogaloo" – something catchy. Download it and play around with it. If you don't have any software, go ahead and use it. If you do have software, see what's different – put the same recipe in both and see what happens. I got my grain data from Beer Smith. So yeah, that's a licensed software right there... I didn't copy any code or anything, and I could have conceivably collected all that data myself, but anyway, I didn't. It was all in one tidy page. I bring it up for

full disclosure, but also to let you know that there is varying information out there on potential extract for certain grains/sugars. Do your own experiments and see what works for you. Your mileage may vary.

Anyway, again, use it, enjoy, let me know what you think about it. I like playing around in Excel, and I liked learning how to do the brewing calculations myself. I've played around with both for years, and maybe you'll want to do the same. Maybe you hate math or spreadsheets or dependant pull-down menus and just want to brew beer. Either way, you should keep records about what you're doing so you can brew better beer. Hopefully this worksheet can help you do just that.

Brew Name The Frank Hammer				Brewer Ben Siefker			
Style 9 D. Irish Red Ale				Date 2/16/2011			
OG	FG	IBU	ABV				
1.044-1.060	1.010-1.014	17-28	4-6 %				
Batch Size (Gal)	Boil Time (min)	OG	FG	ABV	IBU		
4.5	90	1.051	1.013	4.9 %	25		
			1.016	4.6 %			
Fermentables				System Parameters			
Weight pounds	ounces	Ingredient	Origin	Potential Extract	SRM	System Efficiency	Boil-off Rate (gal/hr)
4		T. Fawcett Golden Promise	UK	1.036	3	80 %	1
3		T. Fawcett Maris Otter	UK	1.036	3	Mash Tun Dead Space (qts)	
6		Crystal 40	US	1.034	40	0.125	
6		Crystal 120	US	1.033	120		
6		Roasted Barley	US	1.025	300		
Hops				Formula: Tinseth			
Weight (oz)	Alpha Acid %	Variety	Time (minutes)	Whole/ Pellet	IBU		
1.4	4.5 %	Willamette	60	whole	25.4		
1 tsp		Irish Moss	15				
Yeast							
Yeast Mfr.	Strain			Attenuation Range	Flocculation	Temp Range (F)	Alc Tol
White Labs	WLP004 Irish Ale Yeast			69-74 %	medium-high	65-68	8-12 %
Mash							
Mash Ratio (qts/lb)	Grain Temp (F)	Target Mash Temp (F)	Strike Water Temp (F)	Strike Water qts	oz	Top-up qts	oz
1.5	59.2	153	165.5	12	6	3	6
						Sparge qts	oz
						12	0
						Pre-boil Vol (Gal)	6
Notes							

Final worksheet in print preview. Note the yellow color does not show up when you print in black and white.

Sodz Info

The Scioto, Olentangy and Darby Zymurgists, Inc. (SODZ) meets on the third Monday of the month at various locations in Central Ohio.

Meetings begin at 7:00 p.m. Membership dues are \$15 per year and are renewable during the member's anniversary month of joining SODZ.

Members receive *The Grain Mill*, the club's monthly newsletter. Articles submitted for the newsletter should be received no later than 10 days prior to the next meeting date.

Articles should be submitted by email, preferably in MS Word with graphics in jpg format to ben.siefker@gmail.com

Club Officers

President

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vicgonzales@sbcglobal.net

Vice President

Scott Taylor

estaylor3304@yahoo.com

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ben.siefker@gmail.com

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Steve Huckaby

huckabrew@gmail.com

Membership Director

Kris Huckaby

kristen.huckaby@gmail.com

Treasurer Information

Dues may be mailed to:
Steve Huckaby, Treasurer
3190 St. Bernard Circle
Columbus, Ohio 43232

Membership Director

Membership Application
may be mailed to:
Kris Huckaby,
Membership Director
3190 St. Bernard Circle
Columbus, Ohio 43232

Membership Application

SODZ Membership Application

Name _____

Address _____

Phone _____ Age _____

Email _____

Homebrewer yes/no _____ How Long _____

Make Checks payable to: SODZ

Bring this application to the meeting or send it to:

Kris Huckaby

3190 St. Bernard Circle
Columbus, Ohio 43232

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Beer List 2010 Course Schedule

<input type="checkbox"/> JAN - BBL-Aged Porter III	101
<input type="checkbox"/> FEB - Mocha Plum Stout	110
<input type="checkbox"/> MAR - Imperial Witbier	201
<input type="checkbox"/> APR - BBL-Aged Barleywine	220
<input type="checkbox"/> MAY - Verano Mexicano Cerveza	300
<input type="checkbox"/> JUN - Blackberry Wheat	321
<input type="checkbox"/> JUL - Icebox Eisbock	401
<input type="checkbox"/> AUG - Over & Back Double IPA	420
<input type="checkbox"/> SEP - Oktoberfest	500
<input type="checkbox"/> OCT - Pumpkinweizen	550
<input type="checkbox"/> NOV - Winter Warmer	601
<input type="checkbox"/> DEC - Vic's Barleywine #5	612

PROFESSOR OF HEARTY DRINKING

2010 BEER LIST COURSE SCHEDULE

<input type="checkbox"/> JAN Belgian Strong Dark Ale	675
<input type="checkbox"/> FEB Chocolate Cherry Wheat	700
<input type="checkbox"/> MAR Irish Red	725
<input type="checkbox"/> APR Milk Stout	800
<input type="checkbox"/> MAY Poor Richard II Ale	850
<input type="checkbox"/> JUN Mark's Hard Cranberry	900
<input type="checkbox"/> JUL Homebrew Winner	925
<input type="checkbox"/> AUG Froch w/Honey Ale	975
<input type="checkbox"/> SEP Smoked Porter	1000
<input type="checkbox"/> OCT Abbey Dubbel	1150
<input type="checkbox"/> NOV Oud Bruin Ale	1350
<input type="checkbox"/> DEC Wheat Wine	1500

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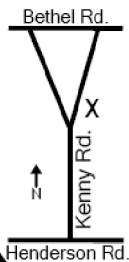
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