

LIVIN' THE BREWS

The Newsletter of the North Texas Home Brewers Association

Volume XXXIV

Issue VIII - August 2019



Quick Sips for August:

8/1 - Limbo Challenge Registration & Drop Off Deadline

8/4 - Limbo Challenge Check-in - The Beyer's - Carrollton

8/6 - Officer's Meeting - Abbey Road Eatery & Ales

8/10 - Limbo Judging - The Beyer's - Carrollton

8/11 - Limbo Judging - The Beyer's - Carrollton (if needed)

8/13 - Club Meeting - Heritage Pizza - The Colony

8/24 - Limbo Awards - The Beyer's - Carrollton

Prez Sez by Matt Parulis

LIMBO CHALLENGE

August is here which means it's time for the 2019 edition of the Limbo Challenge! The majority of the weekends this month will focus on Limbo activities! Registration closes 8/1 or whenever the 300 paid entry limit is met. Check in will take place this Sunday 8/4 at Brian and Melinda Beyer's house in Carrollton. Last year, we were just shy of 300 entries so we will need help with check-in and judging. All dates for the Limbo are listed below. Keep an eye on the club Facebook page and your email for more info on start times for check-in and judging. We are also in need of case boxes for Limbo. If you have extras or a connection who has lots of boxes, please email me and let me know.

- Registration – 7/7 – 8/1
- Entry Check-in – 8/4 - 1pm
- Judging – 8/10 - 9a & 8/11 - 11a (if necessary)
- Awards Ceremony – 8/24 - 3p

PARTY BOY

As mentioned last month at the club meeting, John & Adele Wherry have announced that he and his wife, Adele will be moving to Florida in early September. As of August 15th, John will

be giving up his seat as socials coordinator (aka Party Boy) to prepare for his move to the Sunshine State! A big thank you to John for his contributions to the club this year! He has been a valuable asset to the club coordinating events and bringing a fresh perspective to the direction of the club!

Mike Grover has agreed to take over the Party Boy position for the rest of 2019. Mike will be working on organizing the rest of the brew days for the year along with the fall and winter parties. Thank you to Mike for stepping in to help out the club!

2020 OFFICERS

The year is going by quickly so it is time to think about officers for next year! Elections for 2020 officers will be held at the club meeting in November. If you are interested in becoming an officer next year, please let me know at a club event or email me.

Cheers,

Matt



I generally avoid presenting erotica in a cheap effort to boost readership but one does what one must. Here, I present unabashed beefcake which hopefully the female members of our club will appreciate. This is the so called "Big Rig Crew" brewing their Labor or Love winner over at Deep Ellum Funkytown Fermatorium in Ft. Worth. The beer is a Czech Dark Lager which they are naming "Long Haul" which I am told is a not so subtle tribute to their reputed prowess....well, ok whatever. Note the "come hither" look Wayne is flashing in the back row, subtle but effective (or so I am told).

The First Sip by John Wherry

We had a busy July which was highlighted by our quarterly club party – our Summer Swim Party hosted by Julie Dyer and James “Smitty” Smith.

July Recap

The July Officer’s Meeting was held on Tuesday, 7/2 at [Malarkey's Irish Tavern](#) in North Dallas. There were brief discussions regarding the upcoming Limbo competition as well as the Summer Party and August club activities.

The Monthly Club Meeting for July was held on Tuesday, 7/9 at [The Londoner - Addison](#). Aside from chatting about the Limbo and other upcoming events, as is tradition, a number of raffle prizes were awarded by Matt.

On Saturday, July 13th we had our July Brewday at Chris Van Allen’s in Wylie. Our host brewed a Russian Imperial Stout and club members shared a variety of home brew and snacks provided by club members.

Many Thanks to Chris for hosting the club for the brewday!



On Saturday, June 20th Smitty and Julie graciously hosted our Summer Swim Party at their home in Plano. Around 30+ NTHBA club members attended enjoying the pool; plenty of eats; a variety of club member brewed beer; and, a late evening cigar. Smitty made room on his kegerator with us having six club brewed beers on tap plus a number of shared growlers and of bottles. We had pork and chicken carnitas along with a variety of sides, apps and desserts.



Two cigar smoking Buddha's silhouette four attentive club members.

Many thanks to Julie and Smitty for hosting!

August Activities

The **August Officer's Meeting** is being held on Tuesday, 8/6 at [Abbey Road Eatery and Ales](#) in North Dallas. It's located in the shopping area on the southwest corner of the intersection of Preston Road and Park at [1941 Preston Rd #1040, Plano, TX 75093 \(map\)](#). As always, club members are welcome to join. We'll arrive at 6:30pm and get going around 7pm.

The **Monthly Club Meeting for August** is being held on Tuesday, 8/13 starting at 6:30pm at [Heritage Pizza & Taproom](#). It's located at [3750 Plano Pkwy Suite 600, The Colony, TX 75056 \(map\)](#) and is couple intersections south of 121. Heritage has around 40 craft beers on tap as well as a menu with sandwiches, salads, pasta and pizza (go figure).

Due to Limbo Challenge activities, monthly brewdays are suspended until September.

Future Activities

Thanks to members contacting me and volunteering for Brewdays and we have general plans set through September. It's time to establish hosts for the end of year brewdays. Additionally, a host for the Fall (October/November) party has yet to be finalized, if you have an interest, please contact me. We're also considering a club tailgate to an FC Dallas match in late September or early October.

Thanks for your support during my tenure with the club, please extend your support to Mike as he takes coordination of social activities forward. If you are interested, or have thoughts for monthly club meeting locations or other social events, please discuss with Mike or send an email to socials@nthba.com.

Cheers,

John

Competition Corner

The competition calendar is as hot as the Texas weather in August! We have July club competition results, judging / awards for 4 Lone Star Circuit competitions (club results to be announced in the Sept newsletter), and early info for DEBC's Labor of Love homebrew competition.

July Club Competition Results

The next round of the 2019 club competition took place in July! The competition focused on **Euro beers** from **categories 2 - 8** in the 2015 BJCP Beer Style Guide. We had 9 total entries which were predominantly lagers. Thank you to Jimmy Orkin, Walter Hodges, James Smith, and Bill Lawrence for coming out to judge the entries. With that, the results from the July COC are...

1st Place - Fred David - Alt Who Goes There - Altbier (7B)

2nd Place - Fred David - Frtiz's Schwartz - Schwarzbier (8B)

3rd Place - Mike Grover - Carrollton Alt - Altbier (7B)

With a 1st and 2nd place finish, Fred David picks up 5 points and takes over first place in the Brewer Royale Standings! Congrats to Fred and Mike for some outstanding beers and thank you to those who entered the competition. I will have ribbons and gift certificates at the August club meeting. The next club competition will take place in Sept with Sour & Wild beers from categories 23 & 28.

Brewer Royale Standings (after May COC)

Fred David – 7 pts
Andrew Kotas – 6 pts
John Sutton – 3 pts
Stephen Tyner – 2 pts
Doug Nett – 1 pt
Matt Parulis – 1 pt
Mike Grover - 1 pt

A quick reminder...if your COC entry places, you win a gift certificate to Homebrew Headquarters! First place receives a \$20 gift certificate, 2nd place receives \$15 and 3rd place receives \$10. Another great reason to keep an eye on the COC schedule and plan your brew days!

Labor of Love

Deep Ellum Brewing Company's annual homebrew competition is also coming up in August! The competition will consist of 2 parts. The first part will be similar to Lone Star Circuit competitions where 3 entries will be submitted and judged. The 2nd part will take place on the Sunday of Labor Day weekend (9/1) and be a people's choice competition. Details for both parts of the competition are still being ironed out. Once we have more info, we will pass it along to the club.

Lone Star Circuit Happenings

August is another busy month for the Lone Star Circuit! Judging and / or awards for the Limbo Challenge, Operation Fermentation, Homebrew Inquisition and Alamo City Cerveza Fest are all taking place this month! I will have more info on awards for each competition in the September newsletter.

Current Brewer of the Year standings are listed below. The Brewer of the Year trophy is given to the club member who scores the most points in Lone Star Circuit competitions.

Brewer of the Year Standings

Fred David - 12 pts
Layne McBeath - 7 pts

Walter Hodges - 3 pts

John Sutton - 3 pts

Don Trotter - 3 pts

Dean Weaver - 2 pts

Matt Parulis - 2 pts

For more info on Lone Star Circuit competitions, please visit the [Lone Star Circuit](#) website.

2019 COC SCHEDULE

March 2019	IPAs	12C, 21A, 21B
May 2019	Weissbier, Witbier and Saison	10A, 24A, 25B
July 2019	European Beers	2 - 8
September 2019	Sour and Wild	23, 28
November 2019	Historical	27
January 2020	American Strong	22

2020 COC Schedule

March 2020	Irish & Scottish	14 & 15
May 2020	British Beers	11 - 13
July 2020	Lagers	1 - 3
September 2020	Extract - American Beers (at least 50% extract)	18 & 19
November 2020	Spiced Beers	30
January 2021	Trappist Beers	26

Cheers!

Matt



Ok guys, this is what you get for not giving me pictures, especially for the beer porn section of our newsletter. Yeah, this is the blow-off bucket on a heffeweizen fermentation I did recently. My fermentation chamber along with my mashtun are the secrets of my unique “house flavor” revealed to the public for the first time.

The Secretary’s Missive by Bill Lawrence

Ah gentle readers, by the time you read this all your entries should have been turned in for the Limbo Challenge. With any kind of luck, our club will make a decent showing because after all, it is our contest. I will be diligently bottling up the vile swill I’ve made in the hopes of passing

some low grade offerings past the judges and maybe even winning something myself. Should my efforts go for naught (as has happened more than I would like of late), at least I will have roughly 25 gallons of beer with which I can drown my sorrows. Even if said swill is not of the highest quality (and it has been pointed out lately that my palate is not all that refined anyhow so what does it matter), it has been my happy experience to observe that it is generally efficacious and so should do the job credibly.

The summer party is now a thing of the past and is also our current social guy's "swan song". Naturally he will be missed however as providence has smiled upon us, John will be replaced by the honorable Mike Grover. Please offer up your thanks as he takes on the mantle of responsibility and do not hold against him the fact that he is an OSU graduate; he did the best he could. While speaking of service, it is not too early to start the process of recruiting the next slate of club officers for the election coming up later in the year. At least a couple of officers are getting long in the tooth and frankly, the word "curmudgeon" sometimes gets used to describe at least a couple of us. Hell, one of the lads rarely wears regular clothing anymore and seems to think sweat pants are haute couture and in vogue (thankfully he still bathes regularly which is a good thing). All this is of course to say that the club would benefit from a bit of so called "new blood". None of the positions is particularly difficult or time consuming and it's a pretty good way to meet all of the members. Should you crave the power and public recognition which accrues to board membership (plus the generous remuneration), please speak to our current head potentate and he will fill you in on the particulars.

As I pen this article it is the middle of July, it's time to start worrying about that most holy of celebrations, the Oktoberfest. Assuming there will be a party, it might be fun to brew some of the traditional beer on offer for that most august of occasions. To that end, my next two brews are going to be a modern fest bier and then a martzen. Both are big favorites of mine and also go really well with pizza which I have been known to make from time to time. Should there be a gathering, my plan is to bring some of each for your consideration contingent on me getting it done in time. Hopefully some of my readership will also put together a couple of German biers as well least you be forced to quaff my humble creations.

Well upon review, it seems I have gotten verbose this month and it's probably best to shut this puppy down. As always, may God bless America and as Mr. Orkin would say "Brew Strong" (whatever the hell that actually means).

*Prost,
Willy*

Beer Porn



Um...yeah, this is a travesty. First of all, it is my understanding that one of our members actually drank this (their name will be withheld to protect the guilty). Consider this penance for failure to provide homebrew photos for this most important portion of the newsletter. **Do not make me do this again!** This is akin to featuring a nun in a centerfold.

The Treasurers Report by Jimmy Orkin

Summary:

Equity May end \$9,314.87.

Equity June end \$9,607.14.

New members in June: 11.

Members at June end: 45.

Current members at the time of this article: 65 members for year 2020.

I want to remind you that the financials trail the newsletter because I write this article before the end of the month.

The final monthly reports are available on the club website at the following link:

<http://nthba.org/?q=groups/financials-corner/financial-statement-archive>

Please let me know if you would like to discuss any of the club's financial information. Also, please let me know if you would like additional or different information in this article.

Ok, now I have to say it, "PAY YOUR DAMN DUES".

Our membership year runs June until May. If your membership is not current, please renew at Homebrew Headquarters or any club event. I'll be at most events and you can pay with a credit card. The membership fee is \$30 and will expire at the end of May 2020.

I or the officers always have membership forms and cards at all the club events. I'll send some email reminders. We will also keep you on the email list for a few months into the new year even if your membership lapses. My plan is to send a couple of renewal email reminders then I'll trim the email membership at the end of August.

Let me write a bit on our financial state. We have a strong balance sheet at the moment. Even after paying for the Limbo medals this year we are in the mid-\$8K range. If Limbo has a surplus again this year, we will be approaching \$10K which is my soft limit. One reason that has helped the club this year is at the demise of Dallas Homebrew, I was able to pick up many items for the club raffle. Those items are almost gone.

So what would the membership like to spend some of our money on? We could pay food at more club events. We could reduce the membership dues. Items like a club brew system are sometimes suggested but storing and managing assets like that would be problematic.

So give the Club Officers some ideas on how to maximize the value to the membership in using some of the money the club has accumulated.

*Brew Strong,
Jimmy*

The Minister of Education Report by Stephen Tyner

Water Chemistry 201 – Making Adjustments

[Last month](#) we went over the basics of water chemistry including what it is, why you would do it, and what exactly you are adding to the water. In this second installment we will cover over how you alter water to achieve a target profile. If you recall from last month, there are a couple of ways to get started: Use 100% distilled/RO water, use a mix of tap and distilled/RO water, or just using 100% tap water. Let's start with the easiest method – using 100% distilled/RO water and adding salts. This is preferable for a few reasons: You don't have to add campden tablets or boil to remove chlorine/chloramines, you start with a blank water profile (all ions at ~0 ppm), it makes using the calculator easier since you are not diluting, and you can more easily hit your target profile with fewer salt additions. The downside is you actually have to go buy the water but you can find RO water for ~\$0.30/gallon and you can get distilled in jugs for ~\$1.00/gallon or less.

A quick note about RO versus distilled water. Of the two distilled is technically a "purer" water as distillation is a more effective means of removing contaminants *however* RO water is more than sufficient for brewing as it makes all of the key brewing ion concentrations down to <10ppm. Given the price difference RO water is more economical.

We will need the following get started:

- RO/distilled water equal to the total volume of water you will use for the batch
 - There are some arguments that you only need to treat the mash and others that say you should treat all of the water. For this article we will treat 100% of the water as it ensures a consistent water profile
- Grain bill for your recipe (hops are not relevant for water chemistry as we are focused on the mash)

- Target water profile you are trying to achieve
 - You can find these in many recipes or you can make your own to accentuate the flavors in the beer style. To begin, I recommend finding a common profile per the style you are brewing.
- Brewing salts and acid to make the adjustments (we reviewed these last month)
- Water adjustment calculator found online
 - I personally prefer [EZ Water Calculator](#) as I feel is the easiest to use but there are alternatives like [Bru'n Water](#) that work great however require a little more knowledge and inputs
- pH meter
 - These can be found [inexpensively online](#)

Now that we are set, let's get started. Let's say you've found an awesome IPA recipe that calls for 10lb of two row and 0.5lb of Crystal 40 for a 5.5 gallon batch. For your system you calculate that you will need 12 total gallons of water for the mash, sparge, and tun dead space to get your preboil volume. You are reading down the hop list and at the bottom of the recipe you see something like figure 1 below. This is the target water profile that the brewer used for that recipe and this is what you are trying to replicate with water chemistry.

Ca^{+2}	Mg^{+2}	Na^+	Cl^-	SO_4^{-2}	HCO_3^-
75	5	10	50	150	0

Figure 1. Target water profile for typical IPA

This water profile is designed to accentuate the hoppy flavors this IPA as it has higher sulfate (SO_4^{2-}) than chloride (Cl^-) ion concentrations. To get this water profile, we simply need to take our RO water and add some salts to match what you see in Figure 1. To do that we use our EZ Water Calculator. When you open the water calculator you will see something similar to Figure 2.

EZ Water Calculator Spreadsheet 3.0

Step 1: Enter Starting Water Profile

	Calcium (Ca ppm)	Magnesium (Mg ppm)	Sodium (Na ppm)	Chloride (Cl ppm)	Sulfate (SO_4 ppm)	<input checked="" type="radio"/> Bicarbonate (HCO_3 ppm) <input type="radio"/> Alkalinity (CaCO_3 ppm)
A. Profile Starting Water Profile: (ppm = mg/L)	0	0	0	0	0	0
B. Volume	Mash Water		Sparge Water			
Volume (gallons):	4	8				
% that is Distilled or RO:	0%	0%				

If your water report gives Sulfate as Sulfur ($\text{SO}_4\text{-S}$) such as a Ward Lab's report, multiply by that by 3 to get SO_4

Figure 2. Step 1 of EZ Water Calculator

For step 1a, we need to put in our starting water profile. Since we are using 100% RO/distilled water this is really easy...everything is 0. Step 1b requires you to put in how much water you

need for mashing and sparging. Let's say for this recipe that we will need 4 gallons for the mash and the remainder for sparging and that we are not going to dilute any with RO/distilled since we are using that already. These numbers should add up to the total volume of water you will use.

Now on to the next step which is inputting the grain bill into the calculator (see figure 3 below).

Step 2: Enter Grain Info

	Select Grain Type	Weight (lb)	Color (°L) (Crystal Malts Only)	Distilled water	grain types	dist water pH
				Mash pH (from chart)		
Crystal Malt: Caramel malts, Cara Munich, Cara Aroma, etc.	Base - 2-Row	10		5.70	1 - Select Grain -	
	Crystal Malt	0.5	40	5.02	2 Base - 2-Row	5.70
	- Select Grain -	0		0.00	3 Base - 6-Row	5.79
Roasted/Toasted Malt: Roasted Barley, Black Patent, Carafo, etc.	- Select Grain -	0		0.00	4 Base - Maris Otte	5.77
	- Select Grain -	0		0.00	5 Base - Munich	5.43
	- Select Grain -	0		0.00	6 Base - Pilsner	5.75
Acidulated Malt: Enter in Step 4a.	- Select Grain -	0		0.00	7 Base - Wheat	6.04
	- Select Grain -	0		0.00	8 Base - Vienna	5.56
	- Select Grain -	0		0.00	9 Base - Other	5.70
	- Select Grain -	0		0.00	10 Crystal Malt	calculated
				0.00	11 Roasted/Toasted	4.71

Total Grain Weight (lb): 10.5
Mash Thickness: 1.52 qt/lb

The above values are used to calculate mash pH. They may vary depending on maltster or other factors - for example Rahr 2-Row has been found to be 5.56. Modify if necessary.

Figure 3. Step 2 – entering the grain bill

What you now have is the estimated mash pH just accounting for your grain bill and starting water shown in figure 4. Grains lower pH so making sure your grain bill is put in with the correct amounts is a critical step in establishing your pre-addition pH.

Step 3: View Mash pH

Effective Alkalinity (CaCO ₃ ppm)	Residual Alkalinity	ESTIMATED Room-Temp Mash pH	Desired Room-Temp Mash pH
0	0	5.67	5.4 - 5.6

Note: When measuring actual mash pH with a meter, keep in mind that it can take up to 15 minutes for mash pH to stabilize.

There are varying opinions on the optimum range here. Consider doing your own research and/or experimentation to determine what's best for you.

Figure 4. Estimated mash pH from grain bill and starting water profile

Now comes the work. We need to enter the amount of the specific salts we need to add (in grams) in step 4a to achieve our target water profile. We want the target water profile to match Figure 1. Looking at this target profile, we see that we need to add decent amounts of sulfate, chloride, and calcium with only a little sodium and magnesium. We also see that the target profile has bicarbonate (HCO₃) as 0 however this isn't too important since HCO₃ has no impact on flavor and is only a measure of the buffering ability of the water. Since will be using acid to make our final adjustment this is not a big deal so don't worry about adding baking soda to hit your sodium even though it will increase HCO₃ a little bit.

Since we need to add calcium, sulfate, and chloride we will use gypsum (CaSO_4) and calcium chloride (CaCl_2) to modify our profile and we can add a tiny amount of Epsom salt and baking soda to finish it. The key here is to start with 1 gram and work your way up or down depending on the outcome of the resulting water profile. You don't have to be exact so if you are within 5-10ppm of the target it is good enough. Figure 5 below shows where we netted out after adding salts to make the resulting water profile match the target profile in figure 1. You can see that we are almost spot on for everything but calcium where we are only 5 ppm off.

Step 3: View Mash pH			
Effective Alkalinity (CaCO ₃ ppm)	Residual Alkalinity	ESTIMATED Room-Temp Mash pH	Desired Room-Temp Mash pH
20	-40	5.62	5.4 - 5.6

Note: When measuring actual mash pH with a meter, keep in mind that it can take up to 15 minutes for mash pH to stabilize.

There are varying opinions on the optimum range here. Consider doing your own research and/or experimentation to determine what's best for you.

Step 4a: Adjust Mash pH DOWN (if needed)			
	Gypsum CaSO ₄	Calc. Chloride CaCl ₂	Epsom Salt MgSO ₄
add at dough-in or prior.			
Mash Water Additions (grams):	3.5	1.5	0.8
Adjusting Sparge Water? (y/n):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sparge Water Additions (grams):	7.0	3.0	1.6
add to boil, or to sparge water prior to sparging, or combine with mash salts when treating all water combined prior to brewing.			

Acidulated Malt	Lactic Acid
acid content: 2.0%	acid content: 88%
oz: 0	ml: 0
(0% of total wt) Typically 2.0%. Revise if necessary.	
Some recommend keeping this under 3%.	

Step 4b: Adjust Mash pH UP (if needed)			
	Slaked Lime Ca(OH) ₂	Baking Soda NaHCO ₃	Chalk CaCO ₃
add at dough-in or prior.			
Mash Water Additions (grams):	0	0.5	0
Adjusting Sparge Water? (y/n):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sparge Water Additions (grams):	0.0	1.0	0.0
add to boil, or to sparge water prior to sparging, or combine with mash salts when treating all water combined prior to brewing.			

Calculations for chalk's true affect on pH are very complex and may require an acid to fully dissolve. This spreadsheet uses half of chalk's full potential based on experimental data w/o acid addition. Results may vary.

Step 5: View Resulting Water Profile						
	Calcium (Ca ppm)	Magnesium (Mg ppm)	Sodium (Na ppm)	Chloride (Cl ppm)	Sulfate (SO ₄ ppm)	Chloride / Sulfate Ratio
Mash Water Profile:	80	5	9	48	150	0.32
Mash + Sparge Water Profile:	80	5	9	48	150	0.32
Palmer's Recommended Ranges:	50 - 150	10 - 30	0 - 150	0 - 250	50 - 350	Below .77, May enhance bitterness

There are varying opinions on these ranges. Consider doing your own research and/or experimentation to determine what's best for you.

Figure 5. Additions required to get the resulting water profile

You can see that we are adding these to both the mash and sparge (we are treating all of the brewing water so check these boxes) so we are adding a total 10.5 g of gypsum, 4.5g calcium chloride, 2.4g Epsom salt, and 1.5g baking soda. The white cells show the amounts that you should add to the mash only and the lower cells show the remaining amount that you would add to the sparge.

You will also notice that these additions dropped our estimated mash pH from 5.67 to 5.62. Now that we have our water profile dialed in we need to lower our mash pH to the desired 5.2-5.6 range (remember *How to Brew* states that 5.2-5.6 is an acceptable pH range). To do this we add lactic to the mash only since we want the lower mash pH to facilitate starch conversion. This water calculator assumes this so when we put the amount of lactic acid under "Lactic Acid"

in the calculator it is only for the amount (in ml) to add to the mash. For this brew we would want a typical pale ale/IPA mash pH target of 5.4 and we would need to add 2.7ml of lactic acid to our mash to achieve this (see Figure 6 below). It is a good practice to always verify the pH with a calibrated pH meter. You can verify your pH and test to confirm that it matches and that the addition achieved your pH target. Measure mash pH about 15 minutes after mashing in and wait 5-10 minutes after adding acid to measure again. It is important that you cool your sample to room temperature before taking a pH reading as this is the standard procedure. If you measure hot wort you will get a different pH reading and you can over or undershoot your acid adjustment. All pH readings you will see in brewing are taken at a standard temperature of 25°C (77°F).

There you have it. Figure 6 below shows the final report with all of the salt and acid additions with the estimated mash pH. Hopefully these articles have helped demystify water chemistry a little and you can use this to enhance your next brew.

Step 3: View Mash pH			
Effective Alkalinity (CaCO ₃ ppm)	Residual Alkalinity	ESTIMATED Room-Temp Mash pH	Desired Room-Temp Mash pH
-190	-249	5.40	5.4 - 5.6

Note: When measuring actual mash pH with a meter, keep in mind that it can take up to 15 minutes for mash pH to stabilize.

There are varying opinions on the optimum range here. Consider doing your own research and/or experimentation to determine what's best for you.

Step 4a: Adjust Mash pH DOWN (if needed)			
	Gypsum CaSO ₄	Calc. Chloride CaCl ₂	Epsom Salt MgSO ₄
add at dough-in or prior.	Mash Water Additions (grams): 3.5	1.5	0.8
	Adjusting Sparge Water? (y/n): <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Sparge Water Additions (grams): 7.0	3.0	1.6
add to boil, or to sparge water prior to sparging, or combine with mash salts when treating all water combined prior to brewing.			

Acidulated Malt	Lactic Acid
acid content: 2.0%	acid content: 88%
oz: 0	ml: 2.7
(0% of total wt) Typically 2.0%. Revise if necessary.	
Some recommend keeping this under 3%.	

Step 4b: Adjust Mash pH UP (if needed)			
	Slaked Lime Ca(OH) ₂	Baking Soda NaHCO ₃	Chalk CaCO ₃
add at dough-in or prior.	Mash Water Additions (grams): 0	0.5	0
	Adjusting Sparge Water? (y/n): <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Sparge Water Additions (grams): 0.0	1.0	0.0
add to boil, or to sparge water prior to sparging, or combine with mash salts when treating all water combined prior to brewing.			

Calculations for chalk's true affect on pH are very complex and may require an acid to fully dissolve. This spreadsheet uses half of chalk's full potential based on experimental data w/o acid addition. Results may vary.

Step 5: View Resulting Water Profile						
	Calcium (Ca ppm)	Magnesium (Mg ppm)	Sodium (Na ppm)	Chloride (Cl ppm)	Sulfate (SO ₄ ppm)	Chloride / Sulfate Ratio
Mash Water Profile:	80	5	9	48	150	0.32
Mash + Sparge Water Profile:	80	5	9	48	150	0.32
Palmer's Recommended Ranges:	50 - 150	10 - 30	0 - 150	0 - 250	50 - 350	Below .77, May enhance bitterness

There are varying opinions on these ranges. Consider doing your own research and/or experimentation to determine what's best for you.

Figure 6. Summary of all additions

*Brew Smart,
Stephen*

NTHBA Officers

President

Matt Parulis

president@nthba.org

1st Vice President

Open

firstvp@nthba.org

2nd Vice President

John Wherry

socials@nthba.org

Treasurer

Jimmy Orkin

treasurer@nthba.org

Minister of Education

Stephen Tyner

education@nthba.org

Secretary

Bill Lawrence

secretary@nthba.org

Past President

James Smith

pastpres@nthba.org

Our Supporting Home Brew Stores



300 N. Coit Road, Suite 134
Richardson, TX 75080
972-234-4411
www.homebrewhq.com

North Texas Home Brewers Association

The North Texas Home Brewers Assoc. is a group with an interest in beer and homebrewing. We meet the second Tuesday of the month at various locations around the DFW area. Visitors are welcome!

"Livin' the Brews" is our monthly newsletter. We do accept advertising, although the NTHBA, its officers, assignees, and editors are not liable for losses or damages resulting from mistakes or misprints, or any other consequences of advertising in this or any other publication. Ads are \$30 for a 1/3 page and \$50 for a full page, subject to change without notice.

Readers are encouraged to submit articles. The deadline for ads and articles each month is 14 days prior to the club meeting.



www.NTHBA.org