BREWSHEET v3.4 (2014-12-14)

user input
calculated

Brew			
Name:	Amber Ale		
Brew Date:	2018 September 16	Collected (gal):	5.50
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2018 October 10	Kegged/Bottled (gal):	5.00

Estimated		Actual	
ABV (%):	5.8%	ABV (%):	5.4%
OG (SG):	1.055	OG (SG):	1.055
FG (SG):	1.011	FG (SG):	1.014
IBU:	32.9	IBU:	32.8
SRM:	12.4	SRM:	12.4
IBU/Gravity Ratio:	0.60	IBU/Gravity Ratio:	0.59

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	11.00	1.036	0.050	2.0	90.72%
British crystal 50-60L	1.00	1.034	0.004	55.0	8.25%
Chocolate Malt	0.13	1.028	0.000	350.0	1.03%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Centennial	P	0.75	75	9.9%	23.3	42.86%
Cascade	P	0.50	60	4.7%	7.1	28.57%
Cascade	P	0.50	10	4.7%	2.6	28.57%

Design Notes

Using RO water; so at dough-in, add:
4 ml lactic acid (88%)
2.2 g CaSO4 (calcium sulfate/gypsum)
3.2 g CaCl2 (calcium chloride)
1.2 g MgSO4 (magnesium sulfate/epsom salt)
0.5 g Ca(OH)2 (calcium hydroxide/slaked lime)
1.9 g NaHCO3 (baking soda)
At boil, add:
1.4 g CaSO4 (calcium sulfate/gypsum)
2 g CaCl2 (calcium chloride)
0.7 g MgSO4 (magnesium sulfate/epsom salt)
0.3 g Ca(OH)2 (calcium hydroxide/slaked lime)
1.2 g NaHCO3 (baking soda)
Target is 5.4 mash pH, 80 ppm calcium, 5 ppm magnesium, 25 ppm sodium, 75 ppm chloride, 80 ppm sulfate

Batch Variables and Calculations	
Batch Size (gal):	5.50
Grain Temperature (F):	85
Total Grain Weight (lbs):	12.13
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	154
Strike Water (gal):	5.52
Strike Temperature (F):	169
Mash Ratio (qts/lb):	1.82
Grain Absorption (gal):	1.52
Mash Volume (gal):	6.49
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	3.86
First Runnings (gal):	3.86
First Runnings Gravity (Brix):	15.50
First Runnings Gravity (SG):	1.060
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	3.39
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	3.86
Second Runnings (gal):	3.99
Second Runnings Gravity (Brix):	7.00
Second Runnings Gravity (SG):	1.027
Estimated Preboil Volume (gal):	7.72
Estimated Preboil Gravity (Brix):	11.18
Preboil Volume (gal):	7.85
Preboil Gravity (Brix):	11.00
Preboil Gravity (SG):	1.043
Extraction Efficiency (%):	77%
Boil	
Boil Time (min):	60
Estimated Evaporation Loss (gal):	1.37
Hop Absorption (gal):	0.04
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.49
Actual Evaporation Loss (gal):	1.49
Original Gravity (Brix):	14.29
Batch Size Efficiency (%):	70%
Actual Efficiency (%):	70%
Fermentation	
Primary Fermentation (days):	14
Primary Fermentation Temperature (F):	64
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	3
Secondary Fermentation Temperature (F):	32
Gravity After Secondary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Tertiary Fermentation (days):	
Tertiary Fermentation Temperature (F):	
Final Gravity (SG):	1.014
Temperature of Reading (F):	43
Corrected SG:	1.014
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	184
12 oz. Bottles Required:	51
Carbonation	
Bottling Temperature (F):	
Volumes of CO2:	2.45
Priming Sugar (oz):	
DME (oz):	
Forced Carbonation (lbs):	

System Variables	
Brewhouse Efficiency (%):	70%
Volume in Hoses (gal):	0.22
Volume in Wort Chiller (gal):	0.19
Volume in HERMS Coil (gal):	0.25
Mash/Lauter Tun Deadspace (gal):	0.14
Strike to Sparge Volume Ratio (%):	50%
Trub Loss (gal):	0.16
FWH IBU Factor (%):	10%
Strike Temperature Factor (F):	7
Sparge Temperature Factor (F):	4
Estimated Evaporation Rate (gal/hr):	1.37
Leaf Hop Absorption Ratio (qts/oz):	0.40
Pellet Hop Absorption Ratio (qts/ oz):	0.10
Cooling Losses (%):	4%
Hydrometer Correction (SG):	0.001

BJCP Style Guidelines	
Style:	American Amber Ale
Code:	10B
OG:	1.045-1.060
FG:	1.010-1.015
IBU:	25.0-40.0+
SRM:	10.0-17.0
ABV:	4.5-6.0%
CO2:	2.2-2.7

Yeast Strain	
Yeast Strain:	Danstar Nottingham (Dry Ale)
Type:	Dry Ale
Attenuation (%):	75-85%
Actual Attenuation (%):	75%
Fermentation Temp (F):	57-70F
Flocculation:	high

Required Amounts	
Cell Count (billions):	211
Vials (White Labs/Wyeast):	
Dry Yeast (g):	10.6

Yeast Starter/Slurry	
Vials (White Labs/Wyeast):	
Date Yeast Produced:	
Yeast Viability (%):	
Yeast Growth Rate:	
Yeast Innoculation Rate (million/ml):	
Starter Volume Required (ml);	
DME Required (oz):	
Yeast slurry concentration (billion/ml):	2.5
Non-yeast Percentage (%):	20%
Yeast Slurry Required (ml):	

User Variables	

Batch Scaling				
Desired OG:	1.055	Total Weight (lbs):	12.08	
Batch Size (gal):	5.50	Total Bill:	100.00%	
Brewhouse Efficiency (%):	70%			
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Pale Malt (2-Row) US	11.05	1.036	2.0	91.50%
British crystal 50-60L	0.91	1.034	55.0	7.50%
Chocolate Malt	0.12	1.028	350.0	1.00%

Poundage		
Goal (lbs):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
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Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):		

Hydrometer Correction	
SG:	1.053
Temperature (F):	76
Corrected SG:	1.055

Gravity Calculator		
Brix:	13.40	14.29
Specific Gravity:	1.052	1.055
Degrees Plato:	12.80	13.61

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

9/16: mash-in at 154F; pH perhaps a tad high (~5.9)
Mash went down to 151F for a brief while.
Increased boil by 15 min to hit volume and gravity

10/20: kegged; aroma and flavor are malty with some hop flavor and bitterness present.