BREWSHEET v3.4 (2014-12-14)

user input
calculated

Brew			
Name:	Hakuna Matata Pale Ale		
Brew Date:	2015 December 12	Collected (gal):	5.50
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2016 January 14	Kegged/Bottled (gal):	5.00

Estimated		Actual	
ABV (%):	5.4%	ABV (%):	5.3%
OG (SG):	1.056	OG (SG):	1.051
FG (SG):	1.015	FG (SG):	1.010
IBU:	35.8	IBU:	37.4
SRM:	12.3	SRM:	12.3
IBU/Gravity Ratio:	0.64	IBU/Gravity Ratio:	0.74

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	8.50	1.036	0.039	2.0	69.39%
Vienna Malt	2.50	1.036	0.011	3.5	20.41%
Caramel/Crystal 75L	1.25	1.034	0.005	75.0	10.20%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Perle (GR)	P	1.13	60	6.7%	22.5	20.14%
Cascade	P	0.71	15	8.2%	8.6	12.71%
Cascade	P	0.50	15	6.3%	4.7	8.95%
Cascade	P	1.25	0	6.3%	0.0	22.38%
Cascade	P	2.00	dry	6.3%	0.0	35.81%

Design Notes

Batch Variables and Calculations	
Batch Size (gal):	5.50
Grain Temperature (F):	76
Total Grain Weight (lbs):	12.25
Mash	
Mash Time (min):	50
Desired Mash Temperature (F):	153
Strike Water (gal):	5.51
Strike Temperature (F):	169
Mash Ratio (qts/lb):	1.80
Grain Absorption (gal):	1.53
Mash Volume (gal):	6.49
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	3.84
First Runnings (gal):	3.95
First Runnings Gravity (Brix):	15.30
First Runnings Gravity (SG):	1.059
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	3.37
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	3.84
Second Runnings (gal):	3.73
Second Runnings Gravity (Brix):	6.90
Second Runnings Gravity (SG):	1.027
Estimated Preboil Volume (gal):	7.68
Estimated Preboil Gravity (Brix):	11.22
Preboil Volume (gal):	7.68
Preboil Gravity (Brix):	10.90
Preboil Gravity (SG):	1.042
Extraction Efficiency (%):	74%
Boil	
Boil Time (min):	60
Estimated Evaporation Loss (gal):	1.28
Hop Absorption (gal):	0.09
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.28
Actual Evaporation Loss (gal):	1.28
Original Gravity (Brix):	13.11
Batch Size Efficiency (%):	64%
Actual Efficiency (%):	64%
Fermentation	
Primary Fermentation (days):	14
Primary Fermentation Temperature (F):	64
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	7
Secondary Fermentation Temperature (F):	66
Gravity After Secondary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Tertiary Fermentation (days):	3
Tertiary Fermentation Temperature (F):	32
Final Gravity (SG):	1.010
Temperature of Reading (F):	39
Corrected SG:	1.010
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	167
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):	1.28
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 Pale Ale
Code:	10A
OG:	1.045-1.060
FG:	1.010-1.015
IBU:	30.0-45.0
SRM:	5.0-14.0
ABV:	4.5-6.0%
CO2:	2.2-2.7

Yeast Strain	
Yeast Strain:	Danstar American West Coast (Dry Ale)
Type:	Dry Ale
Attenuation (%):	70-78%
Actual Attenuation (%):	80%
Fermentation Temp (F):	60-70F
Flocculation:	high

Required Amounts	
Cell Count (billions):	214
Vials (White Labs/Wyeast):	
Dry Yeast (g):	10.7
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):		24.28
Batch Size (gal):	11.00	Total Bill:		100.00%
Brewhouse Efficiency (%):	70%			
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Pale Malt (2-Row) US	16.99	1.036	2.0	70.00%
Munich Malt 10L	4.86	1.035	10.0	20.00%
Caramel/Crystal 60L	2.43	1.034	60.0	10.00%

Poundage		
Goal (lbs):	8.50	
Amount (lbs | oz.f_oz):	2	0.42
Amount (lbs | oz.f_oz):	2	3.84
Amount (lbs | oz.f_oz):	2	6.13
Amount (lbs | oz.f_oz):	1	8.20
Amount (lbs | oz.f_oz):		
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Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):	0	5.41

Hydrometer Correction		
SG:	1.049	
Temperature (F):	67	
Corrected SG:	1.051	

Gravity Calculator			
Brix:	11.60	13.11	
Specific Gravity:	1.045	1.051	
Degrees Plato:	11.16	12.54	

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

12/12: mashed for 50 min and 10 min mashout (for 60 min total).
10 min enough to get from 153F to 168F.
1/3: dry hopped
1/14: 1.010 FG (5.3% ABV); aroma is light citrus hop; flavor is citrus that lingers with a slight bitterness that finishes with a toasty maltiness; delicious!
1/30: On tap for about a week or two. Delicious! Great head retention, hop aroma and flavor, and smooth finish.