BREWSHEET v3.4 (2014-12-14)

user input
calculated

Brew			
Name:	Double Chocolate Stout (batch 1)		
Brew Date:	2016 November 26	Collected (gal):	5.50
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2017 January 7	Kegged/Bottled (gal):	5.00
Estimated		**Actual**	
ABV (%):	8.9%	ABV (%):	9.0%
OG (SG):	1.091	OG (SG):	1.093
FG (SG):	1.023	FG (SG):	1.024
IBU:	51.4	IBU:	55.2
SRM:	63.9	SRM:	67.8
IBU/Gravity Ratio:	0.56	IBU/Gravity Ratio:	0.59

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	15.00	1.036	0.063	2.0	65.93%
Chocolate Malt	2.50	1.028	0.008	350.0	10.99%
Caramel/Crystal 120L	2.50	1.033	0.010	120.0	10.99%
Flaked oats	2.25	1.033	0.009	2.2	9.89%
Roasted barley	0.50	1.028	0.002	450.0	2.20%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Cascade	P	3.75	120	6.3%	51.4	76.92%
Cascade	P	1.13	0	6.3%	0.0	23.08%

Design Notes

Use whirlfloc at 30 min.
Use 1.5 to 2 oz per 5 gal of Nielsen Massey chocolate extract; add when kegging.
Try 1.75 oz?

Batch Variables and Calculations	
Batch Size (gal):	6.00
Grain Temperature (F):	66
Total Grain Weight (lbs):	22.75
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	150
Strike Water (gal):	7.88
Strike Temperature (F):	169
Mash Ratio (qts/lb):	1.38
Grain Absorption (gal):	2.84
Mash Volume (gal):	9.70
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	4.90
First Runnings (gal):	4.80
First Runnings Gravity (Brix):	19.20
First Runnings Gravity (SG):	1.074
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	4.42
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	4.89
Second Runnings (gal):	4.20
Second Runnings Gravity (Brix):	11.40
Second Runnings Gravity (SG):	1.044
Estimated Preboil Volume (gal):	9.78
Estimated Preboil Gravity (Brix):	15.56
Preboil Volume (gal):	9.00
Preboil Gravity (Brix):	14.60
Preboil Gravity (SG):	1.057
Extraction Efficiency (%):	65%
Boil	
Boil Time (min):	120
Estimated Evaporation Loss (gal):	2.83
Hop Absorption (gal):	0.12
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.28
Actual Evaporation Loss (gal):	2.57
Original Gravity (Brix):	23.93
Batch Size Efficiency (%):	71%
Actual Efficiency (%):	65%
Fermentation	
Primary Fermentation (days):	22
Primary Fermentation Temperature (F):	60
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	21
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):	1.024
Temperature of Reading (F):	34
Corrected SG:	1.024
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	310
12 oz. Bottles Required:	51
Carbonation	
Bottling Temperature (F):	
Volumes of CO2:	1.90
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):	1.41
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:	Russian Imperial Stout
Code:	13F
OG:	1.075-1.115
FG:	1.018-1.030
IBU:	50.0-90.0
SRM:	30.0-40.0
ABV:	8.0-12.0+%
CO2:	1.5-2.3

Yeast Strain	
Yeast Strain:	Wyeast 1764 (Rogue Pacman Ale)
Type:	Rogue Pacman Ale
Attenuation (%):	72-78%
Actual Attenuation (%):	74%
Fermentation Temp (F):	60-72F
Flocculation:	medium-high

Required Amounts	
Cell Count (billions):	368
Vials (White Labs/Wyeast):	11.3
Dry Yeast (g):	18.5
Yeast Starter/Slurry	
Vials (White Labs/Wyeast):	1.5
Date Yeast Produced:	2016 August 15
Yeast Viability (%):	32%
Yeast Growth Rate:	7.56
Yeast Innoculation Rate (million/ml):	6.76
Starter Volume Required (ml);	7205
DME Required (oz):	23.42
Yeast slurry concentration (billion/ml):	2.5
Non-yeast Percentage (%):	20%
Yeast Slurry Required (ml):	602

User Variables	

Batch Scaling				
Desired OG:	1.090	Total Weight (lbs):		22.44
Batch Size (gal):	6.00	Total Bill:		100.00%
Brewhouse Efficiency (%):	70%			
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Pale Malt (2-Row) US	15.03	1.036	2.0	67.00%
Chocolate Malt	2.47	1.028	350.0	11.00%
Caramel/Crystal 120L	2.47	1.033	120.0	11.00%
Flaked oats	2.13	1.033	2.2	9.50%
Roasted barley	0.34	1.028	450.0	1.50%

Poundage		
Goal (lbs):	2.25	
Amount (lbs | oz.f_oz):	1	9.78
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
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Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):	0	10.22

Hydrometer Correction		
SG:	1.091	
Temperature (F):	67	
Corrected SG:	1.093	

Gravity Calculator			
Brix:	23.70	23.93	
Specific Gravity:	1.092	1.093	
Degrees Plato:	21.81	22.00	

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

11/13: made 4000mL starter.
11/15: added 1000mL starter/wort.
11/26: stuck mash, very thick; had to add several more additions of rice hulls.
After 90min boil, 1.075 SG with 7.1 gal in BK; extended 30 min until 6.25 gal and 1.092 SG.
Added 1.25# DME to increase gravity to estimated 1.091 SG (with ~15min left in 120min boil).
Adding DME raised gravity from 1.077 SG to 1.087 SG.
Forgot the whirlfloc.
Fermentation started very quickly (just a few hours after pitching).
11/27: airlock almost blew off in the AM; installed a blowoff tube.
12/1: removed blowoff and put a new airlock in place.
12/18: cold crashed
1/8: kegged; added 1.75 oz chocolate extract; this will be the test to perhaps better calculate extract in the second batch (brewed 1/8).