BREWSHEET v3.3 (2012-03-18)

user input
calculated

Brew			
Name:	She's Got Balls Double ESB		
Brew Date:	2012 September 23	Collected (gal):	4.70
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2012 October 22	Kegged/Bottled (gal):	4.95

Estimated		Actual	
ABV (%):	7.2%	ABV (%):	7.2%
OG (SG):	1.073	OG (SG):	1.077
FG (SG):	1.018	FG (SG):	1.022
IBU:	52.2	IBU:	64.8
SRM:	16.9	SRM:	20.1
IBU/Gravity Ratio:	0.71	IBU/Gravity Ratio:	0.84

Grain	Pounds	Potential	SG Share	Color	% Bill
Maris Otter Malt	10.50	1.038	0.051	4.0	65.46%
Northwestern Pale Ale malt	3.54	1.036	0.016	2.8	22.07%
British carastan	0.75	1.035	0.003	34.0	4.68%
Caramel/Crystal 150L	0.75	1.033	0.003	150.0	4.68%
Rice hulls	0.50	1.000	0.000	0.0	3.12%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Challenger (UK)	P	2.25	120	7.0%	43.8	47.37%
Kent Golding	L	1.50	15	5.1%	8.4	31.58%
Northdown (UK)	P	1.00	0	5.0%	0.0	21.05%

Design Notes

Substituted Northdown for Phoenix.
Add 20 minute hops at 15; add 0 minute hops after recirculation.

Batch Variables and Calculations	
Batch Size (gal):	5.50
Grain Temperature (F):	77
Total Grain Weight (lbs):	16.04
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	153
Strike Water (gal):	6.83
Strike Temperature (F):	169
Mash Ratio (qts/lb):	1.70
Grain Absorption (gal):	2.01
Mash Volume (gal):	8.11
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	4.68
First Runnings (gal):	3.85
First Runnings Gravity (Brix):	17.60
First Runnings Gravity (SG):	1.068
Sparge	
Desired Sparge Temperature (F):	170
Sparge Water (gal):	4.21
Sparge Water Temperature (F):	175
Estimated Second Runnings (gal):	4.68
Second Runnings (gal):	4.06
Second Runnings Gravity (Brix):	8.60
Second Runnings Gravity (SG):	1.033
Estimated Preboil Volume (gal):	9.36
Estimated Preboil Gravity (Brix):	12.98
Preboil Volume (gal):	7.91
Preboil Gravity (Brix):	13.60
Preboil Gravity (SG):	1.053
Extraction Efficiency (%):	72%
Boil	
Boil Time (min):	120
Estimated Evaporation Loss (gal):	2.89
Hop Absorption (gal):	0.16
Volume Left in Kettle (gal):	-0.41
Actual Evaporation Rate (gal/hr):	1.34
Actual Evaporation Loss (gal):	2.68
Original Gravity (Brix):	19.83
Batch Size Efficiency (%):	73%
Actual Efficiency (%):	57%
Fermentation	
Primary Fermentation (days):	14
Primary Fermentation Temperature (F):	66
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):	1.024
Temperature of Reading (F):	41
Corrected SG:	1.022
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	258
12 oz. Bottles Required:	51
Carbonation	
Bottling Temperature (F):	
Volumes of CO2:	1.00
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):	1.45
Leaf Hop Absorption Ratio (qts/oz):	0.20
Pellet Hop Absorption Ratio (qts/ oz):	0.10
Cooling Losses (%):	4%
Hydrometer Correction (SG):	-0.001

BJCP Style Guidelines	
Style:	Extra Special/Strong Bitter (English Pale Al
Code:	8C
OG:	1.048-1.060
FG:	1.010-1.016
IBU:	30.0-50.0
SRM:	6.0-18.0
ABV:	4.6-6.2%
CO2:	0.7-1.3

Yeast Strain	
Yeast Strain:	White Labs WLP007 (English Ale)
Type:	English Ale
Attenuation (%):	70-80%
Actual Attenuation (%):	71%
Fermentation Temp (F):	65-70F
Flocculation:	medium-high

Required Amounts	
Cell Count (billions):	277
Vials (White Labs/Wyeast):	25.6
Dry Yeast (g):	13.9

Yeast Starter/Slurry	
Vials (White Labs/Wyeast):	2
Date Yeast Produced:	2012 May 10
Yeast Viability (%):	11%
Yeast Growth Rate:	12.79
Yeast Innoculation Rate (million/ml):	2.15
Starter Volume Required (ml);	10088
DME Required (oz):	32.79
Yeast slurry concentration (billion/ml):	2.5
Non-yeast Percentage (%):	20%
Yeast Slurry Required (ml):	3928

User Variables

Brewing Notes

9/17: made a 5000mL (16.25 oz DME) starter.
9/19: a lot of clumpy yeast in the starter; looks good.
9/20: cold crashed starter.
9/23: dumped all grain in mash tun and stirred; most likely caused lower extraction efficiency.
Increased boil to 120 min (best to hit OG than volume).
Decreased 20 min hops to 15 min.
Pretty big SG difference from T-10 to OG.
Should probably have gone with 105 min or so boil.
10/7: 1.024 SG (6.9% ABV, 69% attenuation).
Nice and malty with slight residual sweetness that is quickly overtaken by a smooth bitterness.
Aroma is caramel, malt, biscuit, slight raisin.
Cold crashed.
10/22: nice and malty in both aroma and flavor with a strong malt backbone. Nice and bitter too.

Batch Scaling			
Desired OG:	1.073	Total Weight (lbs):	30.97
Batch Size (gal):	11.00	Total Bill:	100.00%
Brewhouse Efficiency (%):	70%		

Grain	Pounds	Potential	Color	% Bill
Maris Otter Malt	19.20	1.038	4.0	62.00%
Northwestern Pale Ale malt	8.67	1.036	2.8	28.00%
British carastan	1.55	1.035	34.0	5.00%
Caramel/Crystal 150L	1.55	1.033	150.0	5.00%

Poundage		
Goal (lbs):	10.50	
Amount (lbs | oz.f_oz):	1	12.54
Amount (lbs | oz.f_oz):	1	13.45
Amount (lbs | oz.f_oz):	2	4.37
Amount (lbs | oz.f_oz):	2	4.30
Amount (lbs | oz.f_oz):	2	4.37
Amount (lbs | oz.f_oz):		0.97
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):	0	0.00

Hydrometer Correction		
SG:	1.076	
Temperature (F):	76	
Corrected SG:	1.077	

Gravity Calculator			
Brix:	18.50	19.83	
Specific Gravity:	1.072	1.077	
Degrees Plato:	17.34	18.51	

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	