BREWSHEET v3.4 (2014-12-14)

user input
calculated

Brew			
Name:	Back in Black IPA		
Brew Date:	2017 October 7	Collected (gal):	5.20
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2017 November 19	Kegged/Bottled (gal):	4.70
Estimated		**Actual**	
ABV (%):	6.8%	ABV (%):	6.7%
OG (SG):	1.068	OG (SG):	1.065
FG (SG):	1.016	FG (SG):	1.014
IBU:	63.4	IBU:	68.9
SRM:	36.0	SRM:	37.4
IBU/Gravity Ratio:	0.93	IBU/Gravity Ratio:	1.05

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	11.50	1.036	0.053	2.0	75.41%
Caramel/Crystal 20L	1.00	1.035	0.004	20.0	6.56%
Caramel/Crystal 150L	1.00	1.033	0.004	150.0	6.56%
Chocolate Malt	0.50	1.028	0.002	350.0	3.28%
German carafa	0.50	1.030	0.002	400.0	3.28%
Flaked oats	0.75	1.033	0.003	2.2	4.92%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Centennial	L	1.00	60	10.8%	25.1	8.70%
Cascade	P	1.00	30	6.6%	13.5	8.70%
Centennial	L	0.75	30	10.8%	14.5	6.52%
Cascade	P	0.50	5	6.6%	1.8	4.35%
Columbus	P	1.25	5	12.9%	8.6	10.87%
Cascade	P	2.00	0	6.6%	0.0	17.39%
Columbus	P	1.00	0	12.9%	0.0	8.70%
Cascade	P	2.00	dry	6.6%	0.0	17.39%
Columbus	P	1.00	dry	12.9%	0.0	8.70%
Amarillo	P	1.00	dry		0.0	8.70%

Design Notes

Batch Variables and Calculations	
Batch Size (gal):	5.50
Grain Temperature (F):	83
Total Grain Weight (lbs):	15.25
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	155
Strike Water (gal):	6.31
Strike Temperature (F):	171
Mash Ratio (qts/lb):	1.66
Grain Absorption (gal):	1.91
Mash Volume (gal):	7.53
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	4.26
First Runnings (gal):	4.10
First Runnings Gravity (Brix):	17.60
First Runnings Gravity (SG):	1.068
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	3.80
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	4.27
Second Runnings (gal):	4.05
Second Runnings Gravity (Brix):	8.00
Second Runnings Gravity (SG):	1.031
Estimated Preboil Volume (gal):	8.53
Estimated Preboil Gravity (Brix):	12.83
Preboil Volume (gal):	8.15
Preboil Gravity (Brix):	12.30
Preboil Gravity (SG):	1.048
Extraction Efficiency (%):	73%
Boil	
Boil Time (min):	75
Estimated Evaporation Loss (gal):	1.90
Hop Absorption (gal):	0.32
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.47
Actual Evaporation Loss (gal):	1.83
Original Gravity (Brix):	16.83
Batch Size Efficiency (%):	67%
Actual Efficiency (%):	63%
Fermentation	
Primary Fermentation (days):	14
Primary Fermentation Temperature (F):	62
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	4
Secondary Fermentation Temperature (F):	70
Gravity After Secondary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Tertiary Fermentation (days):	3
Tertiary Fermentation Temperature (F):	32
Final Gravity (SG):	1.014
Temperature of Reading (F):	38
Corrected SG:	1.014
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	216
12 oz. Bottles Required:	48
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):	1.52
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:	Cascadian Dark Ale
Code:	
OG:	1.060-1.075
FG:	1.008-1.016
IBU:	60.0-90.0
SRM:	30.0-40.0
ABV:	
CO2:	1.5-2.3

Yeast Strain	
Yeast Strain:	White Labs WLP001 (California Ale)
Type:	California Ale
Attenuation (%):	73-80%
Actual Attenuation (%):	78%
Fermentation Temp (F):	68-73F
Flocculation:	medium

Required Amounts	
Cell Count (billions):	258
Vials (White Labs/Wyeast):	
Dry Yeast (g):	13.0
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:	1.068	Total Weight (lbs):		15.21
Batch Size (gal):	5.50	Total Bill:		100.00%
Brewhouse Efficiency (%):	70%			
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Pale Malt (2-Row) US	11.41	1.036	2.0	75.00%
Caramel/Crystal 60L	1.67	1.034	60.0	11.00%
Caramel/Crystal 150L	0.61	1.033	150.0	4.00%
Chocolate Malt	0.46	1.028	350.0	3.00%
German carafa	0.46	1.030	400.0	3.00%
Flaked oats	0.61	1.033	2.2	4.00%

Poundage		
Goal (lbs):	11.50	
Amount (lbs | oz.f_oz):	2	2.64
Amount (lbs | oz.f_oz):	2	3.52
Amount (lbs | oz.f_oz):	2	11.00
Amount (lbs | oz.f_oz):	2	10.82
Amount (lbs | oz.f_oz):	1	12.02
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):		
Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):	0	0.00

Hydrometer Correction	
SG:	1.063
Temperature (F):	71
Corrected SG:	1.065

Gravity Calculator		
Brix:	14.70	16.83
Specific Gravity:	1.057	1.065
Degrees Plato:	13.97	15.88

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

10/7: mash-in at 160F; reduced to 155F in 5 min.
Increased boil to 75min for gravity and volume; 60 min hops became 75min; 30 became 45.
IBUs increased to ~75-ish.
10/22: dry hopped.
11/19: kegged; aroma is wonderful pine with a little citrus; flavor is initially roasty with pine; quite bitter (lingering a bit); with stout characteristics lingering into a long finish.