BREWSHEET v3.3 (2012-03-18)

user input
calculated

Brew			
Name:	Dubbel Trouble		
Brew Date:	2014 March 9	Collected (gal):	9.65
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2014 July 5	Kegged/Bottled (gal):	9.50
Estimated		**Actual**	
ABV (%):	7.1%	ABV (%):	8.1%
OG (SG):	1.070	OG (SG):	1.068
FG (SG):	1.016	FG (SG):	1.006
IBU:	21.1	IBU:	22.3
SRM:	19.1	SRM:	19.6
IBU/Gravity Ratio:	0.30	IBU/Gravity Ratio:	0.33

Grain	Pounds	Potential	SG Share	Color	% Bill
Pilsner (2-Row) Germany	19.50	1.037	0.051	2.0	72.90%
Pale Malt (2-Row) US	3.75	1.036	0.009	2.0	14.02%
Belgian aromatic malt	0.75	1.036	0.002	26.0	2.80%
Belgian Special “B”	0.75	1.030	0.002	220.0	2.80%
Belgian candi syrup d-90	2.00	1.032	**0.006**	90.0	7.48%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Spalt (GR)	P	1.23	90	4.1%	7.8	26.57%
Saaz (CZ)	P	0.28	90	3.0%	1.3	6.05%
Spalt (GR)	P	1.50	90	3.2%	7.4	32.40%
Spalt (GR)	P	1.62	20	3.2%	4.5	34.99%

Design Notes

Mash at 146F for 60 min then at 156F for 30 min; mash-out at 168F for 10 min.
Add candi syrup at 10 min left in boil.
Ferment at 64 for 24 to 48 hours; then let the yeast rise the temp to 78F until fermentation is done.
Rack to secondary for a month after fermentation is done.

Batch Variables and Calculations	
Batch Size (gal):	10.00
Grain Temperature (F):	65
Total Grain Weight (lbs):	26.75
Mash	
Mash Time (min):	90
Desired Mash Temperature (F):	146
Strike Water (gal):	9.77
Strike Temperature (F):	164
Mash Ratio (qts/lb):	1.46
Grain Absorption (gal):	3.34
Mash Volume (gal):	11.91
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	6.29
First Runnings (gal):	7.25
First Runnings Gravity (Brix):	16.30
First Runnings Gravity (SG):	1.063
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	5.82
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	6.29
Second Runnings (gal):	5.75
Second Runnings Gravity (Brix):	8.60
Second Runnings Gravity (SG):	1.033
Estimated Preboil Volume (gal):	12.58
Estimated Preboil Gravity (Brix):	12.89
Preboil Volume (gal):	13.00
Preboil Gravity (Brix):	13.00
Preboil Gravity (SG):	1.050
Extraction Efficiency (%):	68%
Boil	
Boil Time (min):	90
Estimated Evaporation Loss (gal):	1.46
Hop Absorption (gal):	0.12
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.50
Actual Evaporation Loss (gal):	2.25
Original Gravity (Brix):	17.43
Batch Size Efficiency (%):	70%
Actual Efficiency (%):	67%
Fermentation	
Primary Fermentation (days):	14
Primary Fermentation Temperature (F):	64-78
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	28
Secondary Fermentation Temperature (F):	65
Gravity After Secondary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Tertiary Fermentation (days):	3
Tertiary Fermentation Temperature (F):	32
Final Gravity (SG):	1.008
Temperature of Reading (F):	41
Corrected SG:	1.006
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	218
12 oz. Bottles Required:	97
Carbonation	
Bottling Temperature (F):	
Volumes of CO2:	2.15
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):	0.98
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:	Belgian Dubbel
Code:	18B
OG:	1.062-1.075
FG:	1.008-1.018
IBU:	15.0-25.0
SRM:	10.0-17.0
ABV:	6.0-7.5%
CO2:	1.9-2.4

Yeast Strain	
Yeast Strain:	White Labs WLP500 (Trappist Ale)
Type:	Trappist Ale
Attenuation (%):	75-80%
Actual Attenuation (%):	91%
Fermentation Temp (F):	65-72F
Flocculation:	medium-low

Required Amounts	
Cell Count (billions):	480
Vials (White Labs/Wyeast):	6.8
Dry Yeast (g):	24.0
Yeast Starter/Slurry	
Vials (White Labs/Wyeast):	2
Date Yeast Produced:	2014 January 23
Yeast Viability (%):	70%
Yeast Growth Rate:	3.4
Yeast Innoculation Rate (million/ml):	38.64
Starter Volume Required (ml);	3649
DME Required (oz):	11.86
Yeast slurry concentration (billion/ml):	2.5
Non-yeast Percentage (%):	20%
Yeast Slurry Required (ml):	307

User Variables	

Batch Scaling			
Desired OG:	1.070	Total Weight (lbs):	27.55
Batch Size (gal):	10.00	Total Bill:	100.00%
Brewhouse Efficiency (%):	70%		
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Pilsner (2-Row) Germany	20.11	1.037	2.0	73.00%
Pale Malt (2-Row) US	4.13	1.036	2.0	15.00%
Belgian aromatic malt	0.69	1.036	26.0	2.50%
Belgian Special “B”	0.69	1.030	220.0	2.50%
Belgian candi syrup d-90	1.93	1.032	90.0	7.00%

Poundage		
Goal (lbs):	3.75	
Amount (lbs | oz.f_oz):	2	8.71
Amount (lbs | oz.f_oz):		
Amount (lbs | oz.f_oz):		
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Amount (lbs | oz.f_oz):		
Needed (lbs | oz.f_oz):	1	3.29

Hydrometer Correction	
SG:	1.068
Temperature (F):	65
Corrected SG:	1.068

Gravity Calculator		
Brix:	17.30	17.43
Specific Gravity:	1.067	1.068
Degrees Plato:	16.29	16.41

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

3/7: made a 3500mL starter.
7/3: first batch: 1.008@41=1.006 FG (8.1% ABV).
Aroma and flavor are wonderful with beautiful notes of dark fruit and the Belgian yeast “funk.”
Very dry and perfect bitterness.
Second batch is similar to the first.