BREWSHEET v3.3 (2012-03-18)

user input
calculated

Brew			
Name:	Quadrupel Threat		
Brew Date:	2012 March 4	Collected (gal):	5.50
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2012 April 9	Kegged/Bottled (gal):	5.00
Estimated		**Actual**	
ABV (%):	9.5%	ABV (%):	10.1%
OG (SG):	1.095	OG (SG):	1.092
FG (SG):	1.022	FG (SG):	1.015
IBU:	26.3	IBU:	27.0
SRM:	31.1	SRM:	31.1
IBU/Gravity Ratio:	0.28	IBU/Gravity Ratio:	0.29

Grain	Pounds	Potential	SG Share	Color	% Bill
Pilsner (2-Row) Germany	15.00	1.037	0.071	2.0	74.07%
Munich Malt 10L	1.00	1.035	0.004	10.0	4.94%
Belgian aromatic malt	0.25	1.036	0.001	26.0	1.23%
Belgian Special "B"	0.25	1.030	0.001	220.0	1.23%
Belgian candi syrup d-180	1.00	1.032	**0.006**	180.0	4.94%
Belgian candi syrup d-90	2.00	1.032	**0.012**	90.0	9.88%
Rice hulls	0.75	1.000	0.000	0.0	3.70%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Tettnanger (GR)	P	1.75	75	3.9%	15.0	53.85%
Tettnanger (GR)	P	1.50	45	3.9%	11.3	46.15%

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):	5.50
Grain Temperature (F):	65
Total Grain Weight (lbs):	20.25
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	**146**
Strike Water (gal):	7.34
Strike Temperature (F):	164
Mash Ratio (qts/lb):	1.45
Grain Absorption (gal):	2.53
Mash Volume (gal):	8.96
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	4.67
First Runnings (gal):	5.00
First Runnings Gravity (Brix):	20.00
First Runnings Gravity (SG):	1.078
Sparge	
Desired Sparge Temperature (F):	170
Sparge Water (gal):	4.19
Sparge Water Temperature (F):	176
Estimated Second Runnings (gal):	4.66
Second Runnings (gal):	3.70
Second Runnings Gravity (Brix):	8.70
Second Runnings Gravity (SG):	1.034
Estimated Preboil Volume (gal):	9.33
Estimated Preboil Gravity (Brix):	15.19
Preboil Volume (gal):	8.70
Preboil Gravity (Brix):	15.00
Preboil Gravity (SG):	1.058
Extraction Efficiency (%):	72%
Boil	
Boil Time (min):	120
Estimated Evaporation Loss (gal):	2.93
Hop Absorption (gal):	0.08
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.15
Actual Evaporation Loss (gal):	2.31
Original Gravity (Brix):	23.71
Batch Size Efficiency (%):	72%
Actual Efficiency (%):	72%
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):	40
Final Gravity (SG):	1.014
Temperature of Reading (F):	71
Corrected SG:	1.015
Target Fermentation for Diacetyl Rest (%):	80%
Target Gravity for Diacetyl Rest (SG):	1.035
Calories per Pint:	301
12 oz. Bottles Required:	51
Carbonation	
Bottling Temperature (F):	78
Volumes of CO2:	2.60
Priming Sugar (oz):	4.96
DME (oz):	6.95
Forced Carbonation (lbs):	35.3

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):	1.47
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:	Belgian Dark Strong Ale
Code:	18E
OG:	1.075-1.110
FG:	1.010-1.024
IBU:	20.0-30.0
SRM:	12.0-22.0
ABV:	8.0-12.0+%
CO2:	1.9-2.4

Yeast Strain	
Yeast Strain:	White Labs WLP575 (Belgian Style Ale Yea
Type:	Belgian Style Ale Yeast Blend
Attenuation (%):	74-80%
Actual Attenuation (%):	84%
Fermentation Temp (F):	68-75F
Flocculation:	medium-high

Required Amounts	
Cell Count (billions):	350
Vials (White Labs/Wyeast):	4.2
Dry Yeast (g):	17.5

Yeast Starter/Slurry	
Vials (White Labs/Wyeast):	1
Date Yeast Produced:	2012 February 8
Yeast Viability (%):	84%
Yeast Growth Rate:	4.18
Yeast Innoculation Rate (million/ml):	24.65
Starter Volume Required (ml);	**3250**
DME Required (oz):	10.56
Yeast slurry concentration (billion/ml):	2.5
Non-yeast Percentage (%):	20%
Yeast Slurry Required (ml):	185

User Variables	

Batch Scaling				
Desired OG:		Total Weight (lbs):		
Batch Size (gal):		Total Bill:		
Brewhouse Efficiency (%):				
Grain	**Pounds**	**Potential**	**Color**	**% Bill**

Poundage		
Goal (lbs):		
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):		
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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):		

Hydrometer Correction		
SG:	1.018	
Temperature (F):	68	
Corrected SG:	1.018	

Gravity Calculator			
Brix:			
Specific Gravity:			
Degrees Plato:			

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	

Brewing Notes

3/4: Increased boil by 15 mins to get estimated evaporation volume and hit OG.
Increased boil by another 10 mins; that shifted the hop additions but did not alter candi additions.
Increased boil by another 5 mins after adding candi additions.
Original hop additions were 60 mins and 30 mins.
Should hit close to estimated OG; IBUs are still fine; color is actually lighter in the kettle than estimated.
Left outside since it's 67F there and 70F inside; let cool this evening until about 62F; then bring inside.
Airlock is on, but will switch to blowoff once back inside.
~4 hrs later, 64.5F.
~2.5 hours later, 64F; ambient temp is 55F; noticeable airlock activity.
Brought back in the house overnight (lows to reach 42F; don't want to risk getting too cool).
3/5: temp now at 61.4F; left outside all night (lowest ambient temp was ~50F).
Brought inside and will let self rise.
~7.5 hrs later, 70.1F and going nuts; had to replace lid with one that is tighter with blowoff as krausen was bubbling out of the circumference of the lid.
And the new lid is bowed about as much as it can be.
~2 hours later, 72F.
3/6: 71.9F; still a lot of pressure, but blowoff activity is greatly reduced.
3/8: 1.045 SG; 70.8F; still a lot (~3") of krausen left on top.
3/13: 1.031 SG; 71.9; ~0.5" krausen on top; still active airlock activity.
I'd like to see this get down to ~1.015 SG.
3/18: 1.019 SG; 9.6% ABV; no krausen.
3/23: 1.018 SG; 9.7% ABV; 80% attenuation; no krausen; stirred a bit to rouse the yeast.
4/9: kegged; added 4.96 oz dextrose to the keg for priming and conditioning.
Should get me to 2.6 vols CO2; rest will be forced.
Didn't cold crash, but it's crystal clear!
Did not add gelatin.
Great aroma and flavor; slight alcohol warmness.
Reminiscent of the dubbel with more "aroma" and "flavor."
5/14: Decided to move back to room temp to dry out a bit.
Roused the yeast by shaking the keg several times over a month.
6/12: most of the residual sweetness from the dextrose is gone! Slight alcohol warming, but what a great flavor and aroma!
This one is ready to go!