

BREWSHEET v2.5 (2011-11-13)

Batch			
Kölsch It			
Brew Name:		Calories per Pint:	154
Bottle Top Code:		1.047 Actual OG:	1.046
Estimated OG:	1.012	Actual FG:	1.013
Estimated IBU:	27	Actual IBU:	27
Estimated SRM:		Actual SRM:	4
Brew Date:	12/03/11	Collected (gal):	5.50
Rack Date:	12/17/11	Racked (gal):	5.00
Bottle Date:	01/13/12	Bottled (gal):	5.00

BJCP Style Guidelines	
Style:	Kölsch
Code:	6C
OG:	1.044-1.050
FG:	1.007-1.011
IBU:	20.0-30.0
SRM:	4.0-5.0
ABV:	4.4-5.2%
CO2:	2.4-2.7

Inventory	
Bottles:	
Gallons:	
Date Checked:	

Efficiency	
Brewhouse:	70%
Batch Size:	69%
Into Boiler:	79%
Into Fermenter:	69%

Yeast Strain	
Yeast Strain:	White Labs WLP029 (German Ale/Kölsch)
Type:	German Ale/Kölsch
Attenuation (%):	72-78%
Actual Attenuation (%):	72%
Fermentation Temp (F):	65-69F
Flocculation:	medium

Yeast Amounts	
Cell Count (billions):	181
Vials (White Labs/Wyeast):	1.5
Dry Yeast (g):	9
Starter Volume (mL):	2250
DME Required (oz):	7.88
Vials Required (w/ Starter):	1.0

ON BREW DAY	
Heat 3.94 gallons of strike water to 168F	
Add grain and mash at 150F for 60 minutes	
Mash-out with 2.23 gallons at 210F, mix and hold for 10 minutes	
Vorlauf and collect first runnings (approx. 4.61 gallons)	
Add 4.46 gallons at 182F to lautur tun and sparge	
Vorlauf and collect second runnings (approx. 4.46 gallons)	
Boil for a total of 100 minutes with the following hop schedule:	
1.5 oz. Spalt (GR) @80 minute(s)	
0.5 oz. Spalt (GR) @36.5 minute(s)	

Summary	
Kölsch It	

Batch Size: 5.50 gal (9.07 gal preboil)	
Estimated OG: 1.047 SG (actual: 1.046 SG)	
Estimated FG: 1.012 SG (actual: 1.013 SG)	
Estimated IBUs: 27 (Finesth; actual: 27)	
Estimated Color: 4 SRM (actual: 4 SRM)	
Brewhouse Efficiency: 70% (actual: 69%)	
Boil Time: 100 minutes	
Grains:	
9.50# Pilsner (2-Row) Germany (2.0L) (90.48%)	
0.50# Munich Malt 10L (10.0L) (4.76%)	
0.50# Rice hulls (0.0L) (4.76%)	

Grain	Pounds	Potential	SG Share	Color	% Bill
Pilsner (2-Row) Germany	9.50	1.037	0.045	2.0	90.48%
Munich Malt 10L	0.50	1.035	0.002	10.0	4.76%
Rice hulls	0.50	1.000	0.000	0.0	4.76%

Brewing			
Batch Size (gal):	5.50	Estimated First Runnings (gal):	4.61
Total Grain Weight (lbs):	10.50	Desired Sparge Temperature (F):	170
Grain Temperature (F):	64	Sparge Water (gal):	4.46
Mash Ratio (qts/lb):	1.50	Sparge Water Temperature (F):	182
Mash/Lauter Deadspace (gal):	0.25	Estimated Preboil Volume (gal):	9.07
Total Water Needed (gal):	10.63	Boil Time (min):	100
Desired Mash Temperature (F):	150	Evaporation Rate (gal/hr):	1.69
Strike Water (gal):	3.94	Estimated Evaporation Loss (gal):	2.82
Strike Temperature (F):	168	Trub Loss (gal):	0.75
Grain Absorption (gal):	1.31	Volume Left in Kettle (gal):	0.00
Mash-out Temperature (F):	150	Actual Evaporation Rate (gal/hr):	1.530
Mash-out Water (gal):	2.23	Actual Evaporation Loss (gal):	2.55

Hop	Alpha %	Ounces	Boil Time	IBU	% Bill
Spalt (GR)	4.1%	1.50	80	21.0	75.00%
Spalt (GR)	4.1%	0.50	37	5.6	25.00%

Gravity		Collections	
Potential OG:	1.067	First Runnings (gal):	4.80
OG:	1.046	SG of First Runnings:	1.045
OG Temperature (F):	60	SG Temperature (F):	60
Corrected OG:	1.046	Corrected SG:	1.045
SG at Racking:	1.013	Second Runnings (gal):	4.00
SG Temperature (F):	58	SG of Second Runnings:	1.014
Corrected SG:	1.013	SG Temperature (F):	60
FG:	1.014	Corrected SG:	1.014
FG Temperature (F):	38	Estimated Preboil SG:	1.031
Corrected FG:	1.013	Preboil Volume (gal):	8.80
Estimated ABV (%):	4.6%	SG of Preboil Volume:	1.033
Actual ABV (%):	4.3%	SG Temperature (F):	60
IBU to Gravity Ratio:	0.58	Corrected SG:	1.033

Diacetyl Rest		Carbonation	
Target Fermentation Completion:		CO2 Volume:	2.55
Target SG for Diacetyl Rest:		Bottling Temperature (F):	
		Priming Sugar (oz):	
		DME (oz):	
		Forced Carbonation (lbs):	

Notes	
Strike: 6.35 gal (~2.42 mash ratio); sparge: 5.03 gal.	
Ferment for 2 weeks at 60F; lager for 4 weeks at 32F.	
12/3: removed the 0.5# wheat because it's packed with carapils (!)	
Intended to do a 90 min mash but did a 65 min mash.	
1.036 SG at T-75.	
1.039 SG at T-45.	
1.040 SG at T-20.	
1.043 SG at T-9	
Extended boil by 20 mins to increase OG and better hit batch size volume (IBU is +3).	
1.044 SG at T+7.	
1.045 SG at T+10.	
1.045 OG on hot side; 1.046 OG on cold side.	
12/17: crisp, bitter bite with grainy notes; very nice and light.	
1/13: nice and dry, clean, and crisp with grainy notes; slight hop pepper notes.	

User Variables	
12 oz. Bottles Required:	51
Primary Fermentation Temp. (F):	60
Secondary Fermentation Temp (F):	32
FW/H IBU Factor (%):	10%
Strike Temperature Factor (F):	7
Sparge Temperature Factor (F):	4
Mash Time (min):	65
Specific Gravity (Brix):	11.8
Specific Gravity (SG):	1.046

Yeast:	
White Labs WLP029 (German Ale/Kölsch)	
2250 mL starter; ferment, crash cool and decant	
Mash/Sparge Schedule:	
Single Infusion, 150F, 65 min; Batch Sparge	
Fermentation Schedule:	
Primary Fermentation: 14 days @60F	
Secondary Fermentation: 27 days @32F	