BREWSHEET v3.4 (2014-12-14)

user input
calculated

Brew			
Name:	**Munich Versuch**		
Brew Date:	2020 April 26	Collected (gal):	11.00
Rack Date:		Racked (gal):	
Keg/Bottle Date:	2020 June 14	Kegged/Bottled (gal):	10.00
Estimated		**Actual**	
ABV (%):	5.2%	ABV (%):	5.7%
OG (SG):	1.050	OG (SG):	1.055
FG (SG):	1.010	FG (SG):	1.011
IBU:	26.0	IBU:	24.8
SRM:	8.8	SRM:	8.9
IBU/Gravity Ratio:	0.52	IBU/Gravity Ratio:	0.45

Grain	Pounds	Potential	SG Share	Color	% Bill
Munich Malt 10L	21.25	1.035	0.047	**6.1**	95.51%
Melanoidin	1.00	1.037	0.002	20.0	4.49%

Hop	Type	Ounces	Boil Time	Alpha %	IBU	% Bill
Magnum (GR)	P	1.00	60	12.5%	19.7	12.50%
Hallertauer (GR)	P	2.00	15	2.5%	3.9	25.00%
Hallertauer (GR)	P	3.00	5	2.5%	2.4	37.50%
Hallertauer (GR)	P	2.00	dry	2.5%	0.0	25.00%

Design Notes

Using RO water; so at dough-in, add:
2.0 ml lactic acid (88%)
0 g CaSO4 (calcium sulfate/gypsum)
5.3 g CaCl2 (calcium chloride)
5.1 g MgSO4 (magnesium sulfate/epsom salt)
2.0 g Ca(OH)2 (calcium hydroxide/slaked lime)
2.0 g NaHCO3 (baking soda)
At boil, add:
0 g CaSO4 (calcium sulfate/gypsum)
3.4 g CaCl2 (calcium chloride)
3.3 g MgSO4 (magnesium sulfate/epsom salt)
1.3 g Ca(OH)2 (calcium hydroxide/slaked lime)
1.3 g NaHCO3 (baking soda)
Target is 5.4 mash pH, 70 ppm calcium, 15 ppm magnesium, 15 ppm sodium, 70 ppm chloride, 55 ppm sulfate

Batch Variables and Calculations	
Batch Size (gal):	11.00
Grain Temperature (F):	71
Total Grain Weight (lbs):	22.25
Mash	
Mash Time (min):	60
Desired Mash Temperature (F):	154
Strike Water (gal):	9.62
Strike Temperature (F):	171
Mash Ratio (qts/lb):	1.73
Grain Absorption (gal):	2.78
Mash Volume (gal):	11.40
Mash-out Temperature (F):	168
Estimated First Runnings (gal):	6.70
First Runnings (gal):	6.95
First Runnings Gravity (Brix):	17.70
First Runnings Gravity (SG):	1.069
Sparge	
Desired Sparge Temperature (F):	168
Sparge Water (gal):	6.23
Sparge Water Temperature (F):	172
Estimated Second Runnings (gal):	6.70
Second Runnings (gal):	6.55
Second Runnings Gravity (Brix):	7.60
Second Runnings Gravity (SG):	1.029
Estimated Preboil Volume (gal):	13.39
Estimated Preboil Gravity (Brix):	12.80
Preboil Volume (gal):	13.50
Preboil Gravity (Brix):	12.30
Preboil Gravity (SG):	1.048
Extraction Efficiency (%):	83%
Boil	
Boil Time (min):	60
Estimated Evaporation Loss (gal):	1.20
Hop Absorption (gal):	0.15
Volume Left in Kettle (gal):	0.00
Actual Evaporation Rate (gal/hr):	1.31
Actual Evaporation Loss (gal):	1.31
Original Gravity (Brix):	14.17
Batch Size Efficiency (%):	77%
Actual Efficiency (%):	77%
Fermentation	
Primary Fermentation (days):	10
Primary Fermentation Temperature (F):	55
Gravity After Primary Fermentation (SG):	
Temperature of Reading (F):	
Corrected SG:	
Secondary Fermentation (days):	10
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):	1.011
Temperature of Reading (F):	44
Corrected SG:	1.011
Target Fermentation for Diacetyl Rest (%):	
Target Gravity for Diacetyl Rest (SG):	
Calories per Pint:	181
12 oz. Bottles Required:	102
Carbonation	
Bottling Temperature (F):	
Volumes of CO2:	2.65
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):	1.20
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:	Oktoberfest/Märzen
Code:	3B
OG:	1.050-1.057
FG:	1.012-1.016
IBU:	20.0-28.0
SRM:	7.0-14.0
ABV:	4.8-5.7%
CO2:	2.6-2.7

Yeast Strain	
Yeast Strain:	Danstar Nottingham (Dry Ale)
Type:	Dry Ale
Attenuation (%):	75-85%
Actual Attenuation (%):	80%
Fermentation Temp (F):	57-70F
Flocculation:	high

Required Amounts	
Cell Count (billions):	383
Vials (White Labs/Wyeast):	
Dry Yeast (g):	19.2
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

Brewing Notes

This is not an Oktoberfest, but I'll use the style for some targets.
Half the beer will ferment as an ale with Nottingham; half as a lager with S-23.
I only have Munich as a "base" malt, so my experiment is an all-Munich grain bill with noble hops (including for flavor and aroma – for kicks).
Plan is to ferment both at 55F for 10 days, increase temp to 70F for 10 days, crash for 3 days, then keg.
I'll tap the ale first to give the lager time to "lager" for a while.
4/26: when the beer temp was 55F, pitched yeast (1 Nottingham, 2 S-23).
5/7: moved to ambient (~74F)
5/18: dry hopped.
6/14: kegged; nice malty aroma; malty flavor with slight pepper; ale has more complexity and slightly better exhale profile; lager is cleaner; both have a good malty backbone.
Lager is 1.010 FG (5.9% ABV); ale is 1.012 FG (5.6% ABV).

Batch Scaling				
Desired OG:	1.050	Total Weight (lbs):	22.39	
Batch Size (gal):	11.00	Total Bill:	100.00%	
Brewhouse Efficiency (%):	70%			
Grain	**Pounds**	**Potential**	**Color**	**% Bill**
Munich Malt 10L	21.27	1.035	10.0	95.00%
Melanoidin	1.12	1.037	20.0	5.00%

Poundage		
Goal (lbs):		
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):		
Needed (lbs | oz.f_oz):		

Hydrometer Correction	
SG:	1.053
Temperature (F):	68
Corrected SG:	1.055

Gravity Calculator		
Brix:		14.17
Specific Gravity:		1.055
Degrees Plato:		13.50

Brix Ethanol Correction	
Original Brix:	
Current Brix:	
SG:	