

BREWSHEET v2.1 (2011-01-04)

Batch			
Brew Name:	Hop Machine Double IPA		
Bottle Top Code:	HD	Calories per Pint:	279
Estimated OG:	1.085	Actual OG:	1.084
Estimated FG:	1.020	Actual FG:	1.019
Estimated IBU:	131	Actual IBU:	128
Estimated SRM:		Actual SRM:	16
Brew Date:	02/25/11	Collected (gal):	5.20
Rack Date:	04/04/11	Racked (gal):	4.50
Bottle Date:	04/15/11	Bottled (gal):	4.25

BJCP Style Guidelines	
Style:	Imperial IPA
Code:	14C
OG:	1.070-1.090
FG:	1.010-1.020
IBU:	60.0-120.0
SRM:	8.0-15.0
ABV:	7.5-10.0%
CO2:	1.5-2.3

Inventory	
Bottles:	23
Gallons:	2.16
Date Checked:	08/17/11

Efficiency	
Brewhouse:	70%
Batch Size:	69%
Into Boiler:	76%
Into Fermenter:	60%

Yeast Strain	
Yeast Strain:	White Labs WLP001 (California Ale)
Type:	California Ale
Attenuation (%):	73-80%
Actual Attenuation (%):	77%
Fermentation Temp (F):	68-73F
Flocculation:	medium

Yeast Amounts	
Cell Count (billions):	345
Vials (White Labs/Wyeast):	2.9
Dry Yeast (g):	17
Starter Volume (mL):	4000
DME Required (oz):	14.00
Vials Required (w/ Starter):	1.0

ON BREW DAY	
Heat 6.29 gallons of strike water to 167F	
Add grain and mash at 150F for 60 minutes	
Mash-out with 3.65 gallons at 210F, mix and hold for 10 minutes	
Vorlauf and collect first runnings (approx. 7.17 gallons)	
Add 3 gallons at 196F to lautur tun and sparge	
Vorlauf and collect second runnings (approx. 3 gallons)	
Boil for a total of 120 minutes with the following hop schedule:	

Summary

Hop Machine Double IPA	
Batch Size: 6.00 gal (10.18 gal preboil)	
Estimated OG: 1.085 SG (actual: 1.084 SG)	
Estimated FG: 1.020 SG (actual: 1.019 SG)	
Estimated IBUs: 131 (Finesth; actual: 128)	
Estimated Color: 9 SRM (actual: 10 SRM)	
Brewhouse Efficiency: 70% (actual: 69%)	
Boil Time: 120 minutes	

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	14.00	1.036	0.059	2.0	69.57%
Munich Malt 10L	2.13	1.035	0.009	10.0	10.56%
Maris Otter Malt	1.75	1.038	0.008	4.0	8.70%
Corn sugar (dextrose)	1.00	1.040	0.005	0.0	4.97%
British carastan	0.75	1.035	0.003	34.0	3.73%
Carapils/Dextrine	0.50	1.033	0.002	2.0	2.48%

Brewing	
Batch Size (gal):	6.00
Estimated First Runnings (gal):	7.17
Total Grain Weight (lbs):	20.13
Desired Sparge Temperature (F):	170
Grain Temperature (F):	69
Sparge Water (gal):	3.00
Mash Ratio (qts/lb):	1.25
Sparge Water Temperature (F):	196
Mash/Lauter Deadspace (gal):	0.25
Estimated Preboil Volume (gal):	10.18
Total Water Needed (gal):	12.94
Boil Time (min):	120
Desired Mash Temperature (F):	150
Evaporation Rate (gal/hr):	1.71
Strike Water (gal):	6.29
Estimated Evaporation Loss (gal):	3.43
Strike Temperature (F):	167
Trub Loss (gal):	0.75
Grain Absorption (gal):	2.52
Volume Left in Kettle (gal):	0.00
Mash-out Temperature (F):	150
Actual Evaporation Rate (gal/hr):	1.57
Mash-out Water (gal):	3.65
Actual Evaporation Loss (gal):	3.14

Hop	Alpha %	Ounces	Boil Time	IBU	% Bill
Simcoe	11.8%	1.50	fwh	44.7	9.38%
Simcoe	11.8%	2.13	90	56.5	13.28%
Centennial	8.8%	0.63	15	5.8	3.91%
Cascade	5.3%	0.63	15	3.5	3.91%
Amarillo	6.9%	0.63	15	4.5	3.91%
Centennial	8.8%	0.63	10	4.2	3.91%
Cascade	5.3%	0.63	10	2.5	3.91%
Amarillo	6.9%	0.63	10	3.3	3.91%
Centennial	8.8%	0.63	5	2.3	3.91%
Cascade	5.3%	0.63	5	1.4	3.91%
Amarillo	6.9%	0.63	5	1.8	3.91%
Centennial	8.8%	0.63	0	0.0	3.91%
Cascade	5.3%	0.63	0	0.0	3.91%
Amarillo	6.9%	0.63	0	0.0	3.91%
Centennial	8.8%	1.13	dry#1	0.0	7.03%
Cascade	5.3%	1.13	dry#1	0.0	7.03%
Amarillo	6.9%	1.13	dry#1	0.0	7.03%
Centennial	8.8%	0.50	dry#2	0.0	3.13%
Cascade	5.3%	0.50	dry#2	0.0	3.13%
Amarillo	6.9%	0.50	dry#2	0.0	3.13%

Gravity		Collections	
Potential OG:	1.121	First Runnings (gal):	7.19
OG:	1.084	SG of First Runnings:	1.065
OG Temperature (F):	60	SG Temperature (F):	60
Corrected OG:	1.084	Corrected SG:	1.065
SG at Racking:	1.018	Second Runnings (gal):	1.09
SG Temperature (F):	74	SG of Second Runnings:	1.339
Corrected SG:	1.020	SG Temperature (F):	60
FG:	1.020	Corrected SG:	1.039
FG Temperature (F):	48	Estimated Preboil SG:	1.060
Corrected FG:	1.019	Preboil Volume (gal):	9.09
Potential ABV (%):	11.1%	SG of Preboil Volume:	1.061
Actual ABV (%):	8.5%	SG Temperature (F):	60
IBU to Gravity Ratio:	1.53	Corrected SG:	1.061

Diacetyl Rest		Carbonation	
Target Fermentation Completion:		CO2 Volume:	1.90
Target SG for Diacetyl Rest:		Bottling Temperature (F):	
		Priming Sugar (oz):	
		DME (oz):	
		Forced Carbonation (lbs):	

Notes

Looking for about 125 IBUs, 10 SRM, 1.085 OG.
 Mash at 150 for 90 mins.
 Mix 2.5 oz (each) of centennial, cascade and amarillo; divide into 4 additions
 Add flameout hops when wort is ~185F and steep for 10 mins; then cool.
 Dry hop #1 in primary (after fermentation is complete) for 12 days.
 Dry hop #2 in secondary for the last 5 days of dry hop #1.
 2/25: threw in about 0.125 oz Simcoe left over at flameout.
 Increased boil time to hit gravity.
 Actual IBUs closer to 120 and SRM closer to 9 due to hop absorption.
 Efficiency closer to 66%.
 Forgot fwh right away but added them after first runnings were already all collected.

3/24: dry hop #1 in primary before leaving for a 10-day conference.
 4/4: dry hop #2 in secondary; nice and strong!
 This tastes more like an IPA than my last attempt (Pliny clone).
 Noticeable maltiness, slight sweetness, very bitter and hoppy, aroma is wonderful!
 Will crash cool for 3 days in about a week; then keg.
 If it gets to 1.019, this will be an 8.5% brew!
 4/9: crash cooled; will keg in about 3 days to a week
 4/15: Wow! Great aroma and flavor! Reminds me of Moylan's Moylander!
 8/17: bottled

User Variables

12 oz. Bottles Required:	44
Primary Fermentation Temp. (F):	66
Secondary Fermentation Temp (F):	71
FNW/IBU Factor (%):	10%
Strike Temperature Factor (F):	4
Sparge Temperature Factor (F):	3
Specific Gravity (Brix):	21.7
Specific Gravity (SG):	1.084

Yeast:

White Labs WLP001 (California Ale)
Mash/Sparge Schedule:
 Single Infusion, 150F; Batch Sparge
 Mash for 60 min at 150F w/ 6.29 gal of water at 167F
 Mashout w/ 3.65 gal of water at 210F; hold for 10 min
 Batch sparge w/ 3.00 gal of water at 196F; hold for 10 min
Fermentation Schedule:
 Primary Fermentation: 38 days @66F
 Secondary Fermentation: 11 days @71F

Grains:
 14.00# Pale Malt (2-Row) US (2.0L) (69.57%)
 2.13# Munich Malt 10L (10.0L) (10.56%)
 1.75# Maris Otter Malt (4.0L) (8.70%)
 1.00# Corn sugar (dextrose) (0.0L) (4.97%)
 0.75# British carastan (34.0L) (3.73%)
 0.50# Carapils/Dextrine (2.0L) (2.48%)

Hops:
 1.50 oz Simcoe (11.8%) @fwh
 2.13 oz Simcoe (11.8%) @90 min
 0.63 oz Centennial (8.8%) @15 min
 0.63 oz Cascade (5.3%) @15 min
 0.63 oz Amarillo (6.9%) @15 min
 0.63 oz Centennial (8.8%) @10 min
 0.63 oz Cascade (5.3%) @10 min
 0.63 oz Amarillo (6.9%) @10 min
 0.63 oz Centennial (8.8%) @5 min
 0.63 oz Cascade (5.3%) @5 min
 0.63 oz Amarillo (6.9%) @5 min
 0.63 oz Centennial (8.8%) @0 min
 0.63 oz Cascade (5.3%) @0 min
 0.63 oz Amarillo (6.9%) @0 min
 1.13 oz Centennial (8.8%) @dry#1
 1.13 oz Cascade (5.3%) @dry#1
 1.13 oz Amarillo (6.9%) @dry#1
 0.50 oz Centennial (8.8%) @dry#2
 0.50 oz Cascade (5.3%) @dry#2
 0.50 oz Amarillo (6.9%) @dry#2