BREWSHEET v2.0 (2010-06-17)

Batch			
Brew Name:	Harpooned IPA v2.0		
Bottle Top Code:	H	Calories per Pint:	204
Estimated OG:	1.061	Actual OG:	1.061
Estimated FG:	1.014	Actual FG:	1.016
Estimated IBU:	46	Actual IBU:	45
Estimated SRM:	8	Actual SRM:	8
Brew Date:	06/10/10	Collected (gal):	5.75
Rack Date:	06/25/10	Racked (gal):	5.00
Bottle Date:	07/03/10	Bottled (gal):	4.75

BJCP Style Guidelines	
Style:	American IPA
Code:	14B
OG:	1.056-1.075
FG:	1.010-1.018
IBU:	40.0-70.0
SRM:	6.0-15.0
ABV:	5.5-7.5%
CO2:	1.5-2.3

Inventory	
Bottles:	49
Gallons:	4.59
Date Checked:	07/03/10

Efficiency	
Brewhouse:	72%
Batch Size:	72%
Into Boiler:	86%
Into Fermenter:	74%

Yeast Strain	
Yeast Strain:	White Labs WLP001
Type:	California Ale
Attenuation (%):	73-80%
Actual Attenuation (%):	74%
Fermentation Temp (F):	68-73F
Flocculation:	medium

Yeast Amounts	
Cell Count (billions):	233
Vials (White Labs/Wyeast):	2.0
Dry Yeast (g):	12
Starter Volume (mL):	2500
DME Required (oz)	8.75
Vials Required (w/ Starter):	1.1

Grain	Pounds	Potential	SG Share	Color	% Bill
Pale Malt (2-Row) US	12.00	1.036	0.057	2.0	92.31%
Caramel/Crystal 60L	0.50	1.034	0.002	60.0	3.85%
Victory Malt	0.50	1.034	0.002	25.0	3.85%

Hop	Alpha %	Ounces	Boil Time	IBU	% Bill
Cluster	5.0%	2.50	60	35.6	37.04%
Fuggle (US)	5.1%	0.50	15	3.6	7.41%
Cascade	5.4%	0.50	15	3.8	7.41%
Fuggle (US)	5.1%	1.00	2	1.2	14.81%
Cascade	5.4%	1.00	2	1.3	14.81%
Fuggle (US)	5.1%	0.50	dry	0.0	7.41%
Cascade	5.4%	0.75	dry	0.0	11.11%

Brewing			
Batch Size (gal):	5.50	Estimated First Runnings (gal):	4.21
Total Grain Weight (lbs):	13.00	Desired Sparge Temperature (F):	168
Grain Temperature (F):	81	Sparge Water (gal):	3.57
Mash Ratio (qts/lb):	1.25	Sparge Water Temperature (F):	181
Mash/Lauter Deadspace (gal):	0.25	Estimated Preboil Volume (gal):	7.78
Total Water Needed (gal):	9.65	Boil Time (min):	70
Desired Mash Temperature (F):	151	Evaporation Rate (%):	13%
Strike Water (gal):	4.06	Estimated Evaporation Loss (gal):	1.18
Strike Temperature (F):	165	Trub Loss (gal):	1.10
Grain Absorption (gal):	1.63	Volume Left in Kettle (gal):	-0.15
Mash-out Temperature (F):	150	Actual Evaporation Rate (%):	12%
Mash-out Water (gal):	2.02	Actual Evaporation Loss (gal):	1.10

Gravity		Collections	
Potential OG:	1.085	First Runnings (gal):	4.35
OG:	1.059	SG of First Runnings:	1.050
OG Temperature (F):	79	SG Temperature (F):	148
Corrected OG:	1.061	Corrected SG:	1.068
SG at Racking:	1.016	Second Runnings (gal):	3.45
SG Temperature (F):	70	SG of Second Runnings:	1.016
Corrected SG:	1.017	SG Temperature (F):	150
FG:	1.014	Corrected SG:	1.035
FG Temperature (F):	75	Estimated Preboil SG:	1.053
Corrected FG:	1.016	Preboil Volume (gal):	7.80
Potential ABV (%):	8.0%	SG of Preboil Volume:	1.033
Actual ABV (%):	6.0%	SG Temperature (F):	149
IBU to Gravity Ratio:	0.73	Corrected SG:	1.052

Diacetyl Rest		Carbonation	
Target Fermentation Completion:	75%	CO2 Volume:	2.00
Target SG for Diacetyl Rest:	1.026	Bottling Temperature (F):	72
		Priming Sugar (oz):	3.03
Fermentation		DME (oz):	4.24
CO2 Released During Fermentation (g):	978.93	Forced Carbonation (lbs):	21.8

ON BREW DAY

Heat 4.06 gallons of strike water to 165F
Add grain and mash at 151F for 60 minutes
Mash-out with 2.02 gallons at 210F, mix and hold for 10 minutes
Vorlauf and collect first runnings (approx. 4.21 gallons)
Add 3.57 gallons at 181F to lauter tun and sparge
Vorlauf and collect second runnings (approx. 3.57 gallons)
Boil for a total of 70 minutes with the following hop schedule:
- 2.5 oz. Cluster @60 minute(s)
- 0.5 oz. Fuggle (US) @15 minute(s)
- 0.5 oz. Cascade @15 minute(s)
- 1 oz. Fuggle (US) @2 minute(s)
- 1 oz. Cascade @2 minute(s)

Notes

Used yeast harvested from Hopfully IPA v2.0.
48 hours on stir plate and about 6 days at 31F.
Used tap water; we'll see...
75 minute boil for good 15 minute hot break prior to adding hops.
Actually did a 70 minute boil after collections done.
Next time, collect 5.5 gal no matter what.
Amount racked is using accurate volume measurements in secondary.

7/24: first bottle sample; slight hop aroma and flavor, nice bitterness.
Dry hop had some effect, but not much.
This brew may be like v1.0 after a few months in the bottle, which is fine.
Nice malt aroma and flavor that subsides when the bitterness kicks in.
So it might be better to have 35-40 IBUs next time to provide a little more emphasis on maltiness.
Next time, try dry hopping with 1.5 oz. Cascade only.
Maybe try increasing Victory and crystal malts to 5% and keep bitterness at ~40 IBUs.
I prefer the flavor of Victory malt to crystal malts.

Extra Variables	
12 oz. Bottles Required:	49

Summary

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Harpooned IPA v2.0
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Batch Size: 5.50 gal (7.78 gal preboil)
Estimated OG: 1.061 SG
Estimated FG: 1.014 SG
Estimated IBUs: 46
Estimated Color: 8 SRM
Brewhouse Efficiency: 72%
Boil Time: 70 minutes

Grains:
12.00# Pale Malt (2-Row) US (92.31%)
0.50# Caramel/Crystal 60L (3.85%)
0.50# Victory Malt (3.85%)

Hops:
2.50 oz Cluster (5.0%) @60 min
0.50 oz Fuggle (US) (5.1%) @15 min
0.50 oz Cascade (5.4%) @15 min
1.00 oz Fuggle (US) (5.1%) @2 min
1.00 oz Cascade (5.4%) @2 min
0.50 oz Fuggle (US) (5.1%) (dry hop)
0.75 oz Cascade (5.4%) (dry hop)

Yeast:
White Labs WLP001 (California Ale)

Mash/Sparge Schedule:
Single Infusion, 151F; Batch Sparge
Mash for 60 min at 151F w/ 4.06 gal of water at 165F
Mashout w/ 2.02 gal of water at 210F; hold for 10 min
Batch sparge w/ 3.57 gal of water at 181F; hold for 10 min
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