Caught In A Whirl. NZ Pale Ale AG (23L)

Created: Wednesday November 22nd 2023

League of Brewers

Method: **All Grain** Style: **No Profile Selected** Boil Time: **60 min** Batch Size: **23 liters** (fermentor volume)

Pre Boil Size: **29.02 liters** Post Boil Size: **25 liters** Pre Boil Gravity: **1.049** (recipe based estimate)

Post Boil Gravity: **1.056** (recipe based estimate) Efficiency: **75%** (brew house) Source: **LoB Kits** Calories: **259 calories** (Per 500ml)

Carbs: **23.8 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.056	**1.011**	**5.9%**	**47.7**	**7.7**	**5.3**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
5.20 kg	Gladfield - NZ - Gladfield Ale Malt		35.42	2.5	88.1%
0.30 kg	Gladfield - NZ - Gladfield - Medium Crystal Malt		35.4	52.5	5.1%
0.30 kg	Gladfield - NZ - Gladfield - Gladiator Malt		37.72	3.25	5.1%
0.10 kg	Gladfield - NZ - Gladfield - Sour Grapes Malt		12	2	1.7%

5.90 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
10 g	Nelson Sauvin		Pellet	14.9	Boil	60 min	16.65	3.3%
10 g	Motueka		Pellet	8	Boil	10 min	3.24	3.3%
10 g	Nelson Sauvin		Pellet	14.9	Boil	10 min	6.04	3.3%
10 g	Riwaka		Pellet	6	Boil	10 min	2.43	3.3%
30 g	Motueka		Pellet	8	Boil	5 min	5.35	10%
30 g	Nelson Sauvin		Pellet	14.9	Boil	5 min	9.96	10%
30 g	Riwaka		Pellet	6	Boil	5 min	4.01	10%
20 g	Motueka		Pellet	8	Whirlpool at 76 °C	20 min		6.7%
20 g	Nelson Sauvin		Pellet	14.9	Whirlpool at 76 °C	20 min		6.7%
20 g	Riwaka		Pellet	6	Whirlpool at 76 °C	20 min		6.7%
40 g	Motueka		Pellet	8	Dry Hop	3 days		13.3%
30 g	Nelson Sauvin		Pellet	14.9	Dry Hop	3 days		10%
40 g	Riwaka		Pellet	6	Dry Hop	3 days		13.3%

300 g / $ 0.00

Other Ingredients

Amount	Name	Cost	Type	Use	Time
5 g	Calcium Chloride (dihydrate)		Water Agt	Mash	1 hr.
9 g	Gypsum		Water Agt	Mash	1 hr.

Yeast

Lallemand - LALBREW® BRY-97 WEST COAST ALE YEAST

Amount: 2 Each **Cost:** **Attenuation (custom):** 78% **Flocculation:** High **Optimum Temp:** 15 - 22 °C **Starter:** No

Fermentation Temp: - **Pitch Rate:** 0.75 *(M cells / ml / ° P)* 238 B cells required

Priming

Method: co2 Amount: 0.97 bar Temp: 4 °C CO_2 Level: 2.7 Volumes

Target Water Profile Light colored and hoppy

Ca^{+2} 115 **Mg^{+2}** 5 **Na^{+}** 4 **Cl^{-}** 75 **SO_4^{-2}** 140 **HCO_3^{-}** 4.4

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
16 L	Starch conversion	Strike	68 °C	66 °C	60 min
	Mash out	Temperature	--	77 °C	--
20.5 L		Sparge	--	78 °C	--

Starting Mash Thickness: 2.7 L/kg
Starting Grain Temp: 20 °C

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	15.9
Mash volume with grains (equipment estimates 19.3 L)	19.8
Grain absorption losses	-5.9
Remaining sparge water volume (equipment estimates 18.5 L)	19
Pre boil volume (equipment estimates 28.5 L)	29
Boil off losses	-2.5
Hops absorption losses (first wort, boil, aroma)	-1
Post boil Volume	25
Kettle losses	-2
Hops absorption losses (whirlpool, hop stand)	-0.5
Top off amount	0.5
Going into fermentor	23
Total:	**34.9**
Equipment Profile Used:	G30

Notes

The suggested mineral additions for this recipe assume an average NZ water profile and should be fine for most NZ water sources. The target water profile in ppm is shown above.

1. This recipe is designed to include mineral additions in the mash. If you do not have scales, 1 flat tsp/4g each of gypsum and calcium chloride will be a close approximation. The mineral additions are also designed to help target a mash pH of ~5.3. Calcium is also essential for stabilising mash enzymes and for yeast health. The mineral additions are also very important for the flavour profile of the beer. If you do not have brewing salts in your home brewery, they are available for purchase on the LoB website and will last a great many brews for a small cost.
2. If you wish (particularly if your system requires excessive sparging, below SG 1.012), add sufficient lactic acid to the sparge water to lower the pH to 5.6 prior to heating (~ 0.5 - 1.0 ml/10l lactic acid depending on water source).
3. To avoid blockages and/or large amounts of hop being transferred to your fermenter, it is a good idea to use a hop bag or similar for all late hop additions (i.e. 10 and 0 min).
4. We recommend you add kettle finings (whirlflock, Irish Moss) and yeast nutrient 15 min before the end of the boil.
5. Immediately after the end of the boil, chill the wort to 76 deg C, whirlpool and add the whirlpool hops. Hold the temperature at 76 deg for 20 minutes before finally cooling the the wort to 18 deg C and transferring it to a fermenter.
6. We strongly recommend that the yeast be rehydrated in sterile warm water per the manufacturer's instructions. If not, you may lose up to 50% cell viability. Pitch into well aerated wort at 18 deg C and allow to rise to 20 deg C.
7. When the primary ferment is complete (~5 days), hold the fermentation temperature at 20 deg C for another 5 days, before raising the temperature to 22 deg for 3-5 days of dry hopping.
8. When ready, rack the beer to a CO2 purged keg, chill and force carbonate to around 2.7 vols CO2.