Cloud Animals (AG) 23L

Created: Thursday September 28th 2023

League of Brewers

Method: **All Grain** Style: **Specialty IPA: White IPA** Boil Time: **90 min** Batch Size: **23 liters** (fermentor volume)

Pre Boil Size: **29.59 liters** Post Boil Size: **25 liters** Pre Boil Gravity: **1.049** (recipe based estimate)

Post Boil Gravity: **1.058** (recipe based estimate) Efficiency: **75%** (brew house) Source: **LoB Kits**

Calories: **269 calories** (Per 500ml) Carbs: **25.3 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.058	**1.012**	**6.1%**	**45.8**	**4.5**	**5.3**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
3 kg	Gladfield - Raw Wheat		28	2	42%
3 kg	Gladfield - NZ - Gladfield - Pilsner Malt		36.65	2	42%
0.40 kg	Gladfield - NZ - Gladfield Oat Hulls		0	0	5.6%
0.50 kg	Harraways - NZ - Harraways - Rolled Oats		33	2.2	7%
0.25 kg	Gladfield - NZ - Gladfield - Sour Grapes Acid Malt		12	2	3.5%

7.15 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
35 g	Cascade (US)		Pellet	7.2	Boil	60 min	28.03	25%
30 g	Cascade (US)		Pellet	7.2	Boil	10 min	8.71	21.4%
25 g	Willamette (NZ)		Pellet	9	Boil	10 min	9.08	17.9%
25 g	Cascade (US)		Pellet	7.2	Boil	0 min		17.9%
25 g	Willamette (NZ)		Pellet	9	Boil	0 min		17.9%

140 g / $ 0.00

Other Ingredients

Amount	Name	Cost	Type	Use	Time
3 g	Calcium Chloride (dihydrate)		Water Agt	Mash	1 hr.
8 g	Gypsum		Water Agt	Mash	1 hr.
5 g	Coriander Seed		Spice	Boil	5 min.
30 g	Orange Zest		Spice	Boil	5 min.

Yeast

Mangrove Jack - Belgian Wit M21

Amount: 2 Each **Cost:** **Attenuation (custom):** 78% **Flocculation:** Med-Low

Optimum Temp: 18 - 25 °C **Starter:** No

Fermentation Temp: 22 °C **Pitch Rate:** 0.75 *(M cells / ml / ° P)* 246 B cells required

Priming

Method: co2 Amount: 1.91 bar Temp: 20 °C CO_2 Level: 2.5 Volumes

Target Water Profile Light colored and hoppy

Ca^{+2} 86 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 50 **SO_4^{-2}** 128 **HCO_3^{-}** 0.1

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
19 L	Protein rest	Strike	50 °C	50 °C	15 min
	Starch convesrion	Temperature	55 °C	66 °C	60 min
	Mash out	Temperature	66 °C	77 °C	15 min
17.7 L		Sparge	--	78 °C	--

Starting Mash Thickness: 2.7 L/kg

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	19.3
Mash volume with grains	24
Grain absorption losses	-7.2
Remaining sparge water volume (equipment estimates 17.7 L)	17.4
Pre boil volume (equipment estimates 29.9 L)	29.6
Boil off losses	-3.8
Hops absorption losses (first wort, boil, aroma)	-1.1
Post boil Volume	25
Kettle losses	-2
Going into fermentor	23
Total:	**36.7**
Equipment Profile Used:	G30

Notes

This recipe requires the brewer to separately source the coriander seeds. These should be lightly crushed immediately prior to use. Fresh sweet oranges are also required for zesting. 4-6 oranges should be sufficient, but this will vary with size and zesting proficiency. This will add a brighter fresher citrus profile to the beer than dried bitter orange peel. The zest may be prepared either on brew day (but make sure you have plenty of oranges at hand) or ahead of time and stored in the freezer. Be careful to avoid the pith though, as this will add a bitter astringency. These ingredients should be added in a hop bag or similar and ideally are removed after flame out. This may seem a short time, but will release all of the bright fresh flavours required.

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

Special note: This recipe utilises a 90 min boil which is generally recommended for beers brewed with large proportions of light coloured malts. The longer boil time helps drive off the precursor of dimethyl sufide (DMS) = cooked corn flavour/ aroma. No hops are added until 60 minutes in order to keep the IBU levels in check, without reducing the amount of hops used.

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 designed to target an optimal mash pH of ~5.2-5.3. 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, these are available for purchase on The League of Brewers 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. We recommend adding yeast nutrient 15 min before the end of boil.
4. Quickly cool the wort to 18C and promptly transfer to a fermenter. Note that this recipe does not utilise a whirlpool hop addition as it would upset the delicate balance of the style.
5. 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 20C and allow the temperature to rise to 22C.
   6 . When the primary ferment is complete (>1 week), hold the fermentation temperature at 22 deg C, allowing the beer to mature for around 7 days. Wait it out if needed. Two-three weeks from start to finish is a good rule of thumb.
6. When ready, rack the beer to a CO2 purged keg and force carbonate to around 2.5 vols.