Green Card (AG) 23 L

Created: Thursday September 26th 2024

League of Brewers

Method: **All Grain** Style: **No Profile Selected** Boil Time: **60 min** Batch Size: **21 liters** (fermentor volume) Pre Boil Size: **26.3 liters**

Post Boil Size: **23.4 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: **257 calories** (Per 500ml) Carbs: **21.6 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.056	**1.009**	**6.1%**	**27.0**	**4.0**	**5.3**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
4.50 kg	Gladfield - NZ - Gladfield - Pilsner Malt		36.8	2	86.5%
0.50 kg	Gladfield - NZ - Gladfield - Wheat Malt		37.26	2.05	9.6%
0.20 kg	Gladfield - NZ - Gladfield - Sour Grapes Acid Malt		12	2	3.8%

5.20 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
20 g	Cascade (US)		Pellet	7.2	Boil	60 min	17.48	13.3%
30 g	Cascade (US)		Pellet	7.2	Boil	10 min	9.51	20%
50 g	Alora		Pellet	8.9	Whirlpool at 76 °C	20 min		33.3%
50 g	Alora		Pellet	8.9	Dry Hop	5 days		33.3%

150 g / $ 0.00

Other Ingredients

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

Yeast

Lallemand - LalBrew NovaLager™

Amount: 2 Each **Cost:** **Attenuation (avg):** 81% **Flocculation:** Medium **Optimum Temp:** 10 - 20 °C **Starter:** No

Fermentation Temp: - **Pitch Rate:** 0.75 *(M cells / ml / ° P)* 217 B cells required

Priming

Method: co2 Amount: 0.89 bar Temp: 4 °C CO_2 Level: 2.6 Volumes

Target Water Profile Balanced Profile

Ca^{+2} 60 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 74 **SO_4^{-2}** 32 **HCO_3^{-}** 0

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
14 L	Starch conversion	Infusion	65 °C	65 °C	60 min
	Mash out	Temperature	--	76 °C	15 min
17.5 L		Sparge	76 °C	76 °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	14
Mash volume with grains	17.5
Grain absorption losses	-5.2
Remaining sparge water volume	17.5
Pre boil volume	26.3
Boil off losses	-2.5
Hops absorption losses (first wort, boil, aroma)	-0.4
Post boil Volume	23.4
Kettle losses	-2
Hops absorption losses (whirlpool, hop stand)	-0.4
Going into fermentor	21
Total:	**31.5**
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 16 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 16 deg C and allow to rise to 18 deg C. You may think that this is too warm for lager yeast and normally you might be correct. One of the great advantages of the Nova Lager yeast is it's ability to ferment at warmer temperature while retaining true lager yeast fermentation characteristics. Read more about this hybrid yeast here https://www.lallemandbrewing.com/en/australia-new-zealand/products/lalbrew-novalager/
7. When the primary ferment is complete (~5 days), hold the fermentation temperature at 18 deg C for another 5 days, before raising the temperature to 20 deg for 3-5 days of dry hopping.
8. When ready, rack the beer to a CO2 purged keg, chill (add finings if you wish) and force carbonate to around 2.7 vols CO2.