En Garde (AG) 23L

Created: Saturday November 2nd 2024

League of Brewers

Method: **All Grain** Style: **Bière de Garde** Boil Time: **60 min** Batch Size: **23 liters** (fermentor volume) Pre Boil Size: **27.72 liters**

Post Boil Size: **25 liters** Pre Boil Gravity: **1.061** (recipe based estimate) Post Boil Gravity: **1.072** (recipe based estimate) Efficiency: **75%** (brew house)

Source: **LoB kits** Calories: **331 calories** (Per 500ml) Carbs: **26.1 g** (Per 500ml)

Original Gravity:	Final Gravity:	ABV (standard):	IBU (tinseth):	SRM (morey):	Mash pH	Cost $
1.072	**1.010**	**8.2%**	**24.3**	**9.4**	**5.3**	**n/a**

Fermentables

Amount	Fermentable	Cost	PPG	°L	Bill %
0.30 kg	Cane Sugar - *(late boil kettle addition)*		46	0	4%
3 kg	Gladfield - NZ - Gladfield - Munich Malt		35.8	7.25	40.4%
2.50 kg	Gladfield - NZ - Gladfield - Pilsner Malt		35.65	1.9	33.7%
0.80 kg	Gladfield - NZ - Gladfield - Vienna Malt		35.42	3.4	10.8%
0.30 kg	Gladfield - Biscuit Malt		34.04	32.59	4%
0.30 kg	Gladfield - NZ - Gladfield - Gladiator Malt		37.7	3.25	4%
0.22 kg	Gladfield - NZ - Gladfield - Sour Grapes Acid Malt		12	2	3%

7.42 kg / $ 0.00

Hops

Amount	Variety	Cost	Type	AA	Use	Time	IBU	Bill %
25 g	East Kent Goldings		Pellet	5.8	Boil	90 min	15.49	50%
25 g	East Kent Goldings		Pellet	5.8	Boil	20 min	8.77	50%

50 g / $ 0.00

Other Ingredients

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

Yeast

Fermentis - Saflager - German Lager Yeast W-34/70

Amount: 4 Each **Cost:** **Attenuation (avg):** 83% **Flocculation:** High **Optimum Temp:** 9 - 22 °C **Starter:** No

Fermentation Temp: 15 °C **Pitch Rate:** 1.5 *(M cells / ml / ° P)* 604 B cells required

Priming

CO_2 Level: 2.2 Volumes

Target Water Profile Balanced Profile

Ca^{+2} 70 **Mg^{+2}** 3 **Na^{+}** 10 **Cl^{-}** 64 **SO_4^{-2}** 70 **HCO_3^{-}** 0.1

Mash Guidelines

Amount	Description	Type	Start Temp	Target Temp	Time
19.3 L	Starch conversion	Infusion	65 °C	65 °C	60 min
	Mash out	Temperature	65 °C	76 °C	15 min
15.6 L		Sparge	--	76 °C	--

Starting Mash Thickness: 2.7 L/kg

Quick Water Requirements

Water	Liters
Strike water volume at mash thickness of 2.7 L/kg	19.2
Mash volume with grains	23.9
Grain absorption losses	-7.1
Remaining sparge water volume	15.6
Pre boil volume	27.7
Volume increase from sugar/extract (late additions)	0.2
Boil off losses	-2.5
Hops absorption losses (first wort, boil, aroma)	-0.4
Post boil Volume	25
Kettle losses	-2
Going into fermentor	23
Total:	**34.8**
Equipment Profile Used:	G30

Notes

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.

Note, this recipe requires the addition of table sugar to help dry out the beer. Add this gently to the boil in the last 20-15 minutes. Pre-dissolving the sugar in filtered boiled water is a good way to help prevent scorching. Stir gently and as always, please take care not to splash and scold yourself.

1. This recipe is designed to include mineral additions in the mash. If you do not have scales, 1 flat tsp/4g of calcium chloride will be a close approximation. The mineral additions are designed to target an optimal mash pH of ~5.2. 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. Cool the wort to 12 deg C and promptly transfer to a fermenter (you will likely need to finish cooling in your fermenter fridge).
4. 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. Use all four packs, this may seem like a lot of yeast, but lager yeast growth is slow at cool temperatures and pitch rates need to be higher than for an ale yeast.

   Pitch into well aerated wort at 12 deg C, allow the temperature to free rise to 15 eg C, and ferment at this temperature until complete. Expect this to take around 3 weeks for the beer to finish properly. It is always important not to rush the beer. While it shouldn't be necessary if the pitch rate and fermentation guidelines are followed, some brewers may choose to slowly raise the beer temperature by 2-3 degrees towards the end of the ferment (diacetyl rest), especially if you have had any issues with an unhealthy ferment/have performed a sensory test and picked up diacetly. If you do this, we recommend you give the beer plenty of time (6-7 days rest) at these cooler temperatures.
5. When the primary ferment is complete, rack the beer to a secondary fermentation vessel, purging and blanketing with CO2 to limit oxygen pick up. Mature the beer at cellar temps 10-15 deg C, ideally in a cold space over winter or temperature controlled chamber for several months, ideally prior to consumption in the warmer months.
6. When ready, rack the beer to a CO2 purged keg (finings can be added if needed) and force carbonate to around 2.7 vols CO2. Bottle conditioning is another nice option for this beer, but remember to adhere to the cool fermentation temperatures from above -i.e. ~15 deg C).