# American Gladiator (AG) 23 L

Created: Thursday February 29th 2024

League of Brewers

Method: **All Grain** Style: **American Strong Ale** Boil Time: **60 min** Batch Size: **23 liters** (fermentor volume) Pre Boil Size: **28.62 liters**

Post Boil Size: **25 liters** Pre Boil Gravity: **1.068** (recipe based estimate) Post Boil Gravity: **1.078** (recipe based estimate) Efficiency: **75%** (brew house)

Source: **LoB kits** Calories: **363 calories** (Per 500ml) Carbs: **32.7 g** (Per 500ml)

| Original Gravity: | Final Gravity: | ABV (standard): | IBU (tinseth): | SRM (morey): | Mash pH | Cost $ |
|---|---|---|---|---|---|---|
| **1.078** | **1.015** | **8.3%** | **72.0** | **12.9** | **5.4** | **n/a** |

## Fermentables

| Amount | Fermentable | Cost | PPG | °L | Bill % |
|---|---|---|---|---|---|
| 7 kg | Gladfield - NZ - Gladfield - Ale Malt | | 35.42 | 2.85 | 86.4% |
| 0.40 kg | Gladfield - NZ - Gladfield - Gladiator Malt | | 37.72 | 4 | 4.9% |
| 0.30 kg | Gladfield - NZ - Gladfield - Medium Crystal Malt | | 35.88 | 52.5 | 3.7% |
| 0.20 kg | Gladfield - NZ - Gladfield - Red Back Malt | | 35.88 | 32.5 | 2.5% |
| 0.20 kg | Gladfield - NZ - Gladfield - Dark Crystal Malt | | 35.88 | 100 | 2.5% |

**8.10 kg / $ 0.00**

## Hops

| Amount | Variety | Cost | Type | AA | Use | Time | IBU | Bill % |
|---|---|---|---|---|---|---|---|---|
| 30 g | Simcoe | | Pellet | 11.7 | Boil | 60 min | 32.8 | 15% |
| 20 g | Simcoe | | Pellet | 11.7 | Boil | 30 min | 16.8 | 10% |
| 25 g | Amarillo | | Pellet | 6.9 | Boil | 10 min | 5.84 | 12.5% |
| 25 g | Centennial | | Pellet | 10.2 | Boil | 10 min | 8.64 | 12.5% |
| 25 g | Amarillo | | Pellet | 6.9 | Boil | 5 min | 3.21 | 12.5% |
| 25 g | Centennial | | Pellet | 10.2 | Boil | 5 min | 4.75 | 12.5% |
| 50 g | Centennial | | Pellet | 10.2 | Dry Hop | 3 days | | 25% |

**200 g / $ 0.00**

## Other Ingredients

| Amount | Name | Cost | Type | Use | Time |
|---|---|---|---|---|---|
| 8 g | Calcium Chloride (dihydrate) | | Water Agt | Mash | 1 hr. |
| 8 g | Gypsum | | Water Agt | Mash | 1 hr. |

## Yeast

**Lallemand - LALBREW® BRY-97 WEST COAST ALE YEAST**

**Amount:** 3 Each **Cost:** **Attenuation (custom):** 78% **Flocculation:** High **Optimum Temp:** 15 - 22 °C **Starter:** No

**Fermentation Temp:** - **Pitch Rate:** 0.75 *(M cells / ml / ° P)* 326 B cells required

## Priming

$CO_2$ Level: 2.5 Volumes

## Target Water Profile Balanced Profile II

**$Ca^{+2}$** 122 **$Mg^{+2}$** 3 **$Na^{+}$** 10 **$Cl^{-}$** 114 **$SO_4^{-2}$** 128 **$HCO_3^{-}$** 40

## Mash Guidelines

| Amount | Description | Type | Start Temp | Target Temp | Time |
|---|---|---|---|---|---|
| 21.9 L | Starch conversion | Infusion | 65 °C | 65 °C | 60 min |
| | Mash out | Temperature | 65 °C | 77 °C | 15 min |
| 14.9 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 | 21.9 |
| Mash volume with grains | 27.2 |
| Grain absorption losses | -8.1 |
| Remaining sparge water volume (equipment estimates 14.9 L) | 14.9 |
| Pre boil volume (equipment estimates 28.7 L) | 28.6 |
| Boil off losses | -2.5 |
| Hops absorption losses (first wort, boil, aroma) | -1.2 |
| Post boil Volume | 25 |
| Kettle losses | -2 |
| Going into fermentor | 23 |
| **Total:** | **36.7** |

| Water | Liters |
| --- | --- |
| 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 ~5.4. 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 5 min).
4. We recommend you add kettle finings (whirlflock, Irish Moss) and yeast nutrient 15 min before the end of the boil.
5. Cool the wort to 18 deg C and promptly transfer 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 (~5-7 days), hold the fermentation temperature at 20 deg C for another 3- 5 days, before raising the temperature to 22 deg for 3 days of dry hopping. The use of a hop bag is recommended.
8. When ready, rack the beer to a CO2 purged keg and force carbonate to around 2.5 vols CO2.