League Troparama (AG) 23L

American Pale Ale (18 B)

Type: All Grain
Batch Size: 23.00 L
Boil Size: 28.50 L
Boil Time: 60 min
Final Bottling Vol: 22.00 L
Fermentation: Ale with Diacetyl Rest

Date: 24 Apr 2023
Efficiency: 75.00 %
Est Mash Efficiency: 81.5 %



Brewing Notes:
This recipe has a single boil hop addition with half of the calculated IBUs coming from the steep/whirlpool addition. The average temperature of the hop stand should be around 85C. Once fermentation is complete, any exposure to oxygen will impact the beer flavour and aroma.
This recipe also uses a large amount of steep/whirlpool and dry hops. Suggest using a hop spider for the steep/whirlpool addition and hop bags for the dry hop additions.

The large dry hop additions should cause some 'dry hop creep' which will result in additional fermentation of previously unfermentable sugars. A lower FG and higher ABV than is predicted can be expected.

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 Ca - 110, Mg - 10, Na - 10, SO4 - 75, Cl - 150.

1. If flavour minerals are available, add to boil only as mash pH is taken care of with the acid malt.
2. If available, add sufficient lactic acid to the sparge water to lower the pH to 5.6 prior to heating (~ 0.5 - 1.0 ml/10L depending on water source).
3. If available, add kettle finings and yeast nutrient 15 min before the end of boil.
4. Cool the wort to 85C, add the whirlpool hops and maintain 85C for 20 min. Once complete, cool the wort quickly to transfer temperature.
5. It is recommended that the yeast be rehydrated per the manufacturer's instructions. Pitch at 18C and let rise to 20C over 72 hours.
6. After 3 days, add the first dry hop addition.
7. Add second dry hop addition near end of fermentation and raise the temp to 22C for a diacetyl rest.
8. Ferment for another 5 days to ensure full attenuation and diacetyl removal by the yeast.
9. Once fermentation is complete, lower the temperature to 2C and hold for 2 - 3 days prior to packaging.
10. Use care to minimize or eliminate exposure to oxygen during dry hopping, cold crashing and packaging.
11. Carbonate to 2.5 - 2.7 volumes of CO2.
12. For peak flavour and aroma, this beer is best consumed fresh.

Mash or Steep Grains

Mash Ingredients

Amt	Name	Type	#	%/IBU	Volume
4.200 kg	Gladfield American Ale Malt (4.7 EBC)	Grain	1	73.4 %	2.74 L
0.800 kg	Gladfield Golden Oats (22.0 EBC)	Grain	2	14.0 %	0.52 L
0.400 kg	Gladfield Gladiator Malt (10.0 EBC)	Grain	3	7.0 %	0.26 L
0.325 kg	Gladfield Sour Grapes Malt (4.0 EBC)	Grain	4	5.7 %	0.21 L

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 18.96 L of water at 72.4 C	67.0 C	60 min
Mash Out	Heat to 76.0 C over 10 min	76.0 C	10 min

◯ Fly sparge with 15.28 L water at 76.0 C
◯ Add water to achieve boil volume of 28.50 L
◯ Estimated pre-boil gravity is 1.048 SG

Boil Ingredients

Amt	Name	Type	#	%/IBU	Volume
10.00 g	Calcium Chloride (Boil)	Water Agent	5	-	-
4.40 g	Gypsum (Calcium Sulfate) (Boil)	Water Agent	6	-	-
50.00 g	Pacifica [4.50 %] - Boil 40.0 min	Hop	7	21.8 IBUs	-
0.50 Items	Whirlfloc Tablet (Boil 15.0 mins)	Fining	8	-	-
1.50 g	Yeast Nutrient (Boil 15.0 mins)	Other	9	-	-

Steeped Hops

Amt	Name	Type	#	%/IBU	Volume
75.00 g	Meridian [6.30 %] - Steep/Whirlpool 20.0 min, 85.0 C	Hop	10	9.9 IBUs	-
45.00 g	Nectaron (HORT 4337) [9.80 %] - Steep/Whirlpool 2…	Hop	11	9.3 IBUs	-

◯ Estimated Post Boil Vol: 26.00 L and Est Post Boil Gravity: 1.055 SG

Cool and Transfer Wort

◯ Cool wort to fermentation temperature
◯ Transfer wort to fermenter
◯ Add water if needed to achieve final volume of 23.00 L

Pitch Yeast and Measure Gravity and Volume

Fermentation Ingredients

Amt	Name	Type	#	%/IBU	Volume
2.0 pkg	Liberty Bell Ale (Mangrove Jack's #M36)	Yeast	12	-	-

◯ Measure Actual Original Gravity _____ (Target: 1.055 SG)
◯ Measure Actual Batch Volume _____ (Target: 23.00 L)

Fermentation

◯ 24 Apr 2023 - Primary Fermentation (3.00 days at 18.0 C ending at 18.0 C)
◯ 27 Apr 2023 - Secondary Fermentation (6.00 days at 20.0 C ending at 20.0 C)
◯ 03 May 2023 - Tertiary Fermentation (5.00 days at 22.0 C ending at 22.0 C)

Dry Hop and Bottle/Keg

Dry Hop/Bottling Ingredients

Amt	Name	Type	#	%/IBU	Volume
75.00 g	Meridian [6.30 %] - 3.0 Days Into Primary for 6.0 Days	Hop	13	0.0 IBUs	-
55.00 g	Nectaron (HORT 4337) [9.80 %] - 3.0 Days Into Pri…	Hop	14	0.0 IBUs	-
50.00 g	Citra [13.50 %] - 5.0 Days Before Bottling for 5.0 Days	Hop	15	0.0 IBUs	-
50.00 g	Pacifica [4.50 %] - 5.0 Days Before Bottling for 5.0…	Hop	16	0.0 IBUs	-

◯ Measure Final Gravity: _____ (Estimate: 1.013 SG)
◯ Date Bottled/Kegged: - Carbonation: Keg with 16.06 PSI