League Mother of Invention (AG)

New England IPA (21 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 uses a single cool dry hop addition. The cool dry hop addition approach should prevent dry hop creep and is for advanced brewers with the ability to prevent/minimize oxygen ingress when added (e.g., while purging the fermenter with CO2 during the addition). If unable to control introducing oxygen during the dry hop addition, suggest adding just before increasing the fermentation temperature to 22C for the diacetyl rest to ensure the yeast clean up any introduced oxygen.

There is a small boil hop addition with most bitterness coming from the steep/whirlpool hops. The maximum temperature of the hop stand should be around 90C. When adding the dry hops and 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 the hops split into two hop bags for the dry hop addition.

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. The target mash pH is 5.3 (5.2 - 5.4).
2. If available, add sufficient lactic acid to the sparge water to lower the pH to 5.6 prior to heating (~ 0.5 - 1.5 ml 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 90C, add the whirlpool hops and maintain 90C 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.
6. Near the end of fermentation, raise the temperature to 22C for a diacetyl rest.
7. Ferment for another 3 days to ensure full attenuation and diacetyl removal by the yeast.
8. Once fermentation is complete, lower the temperature to 13C, add the dry hops and maintain for 24 hours.
9. Drop 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
4.800 kg	Gladfield American Ale Malt (4.7 EBC)	Grain	1	72.5 %	3.13 L
0.500 kg	Gladfield Chit Malt (3.0 EBC)	Grain	2	7.5 %	0.33 L
0.500 kg	Gladfield Golden Oats (22.0 EBC)	Grain	3	7.5 %	0.33 L
0.500 kg	Gladfield Wheat Malt (4.2 EBC)	Grain	4	7.5 %	0.33 L
0.325 kg	Gladfield Sour Grapes Malt (4.0 EBC)	Grain	5	4.9 %	0.21 L

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 21.39 L of water at 72.3 C	67.0 C	90 min
Mash Out	Heat to 77.0 C over 10 min	77.0 C	10 min

◯ Fly sparge with 13.75 L water at 77.0 C
◯ Add water to achieve boil volume of 28.50 L
◯ Estimated pre-boil gravity is 1.056 SG

Boil Ingredients

Amt	Name	Type	#	%/IBU	Volume
10.00 g	Mosaic (HBC 369) [12.60 %] - Boil 60.0 min	Hop	6	12.4 IBUs	-
10.20 g	Calcium Chloride (Boil)	Water Agent	7	-	-
4.20 g	Gypsum (Calcium Sulfate) (Boil)	Water Agent	8	-	-
0.50 Items	Whirlfloc Tablet (Boil 15.0 mins)	Fining	9	-	-
1.50 g	Yeast Nutrient (Boil 15.0 mins)	Other	10	-	-

Steeped Hops

Amt	Name	Type	#	%/IBU	Volume
75.00 g	Talus (HBC 692) [8.60 %] - Steep/Whirlpool 20.0 min,…	Hop	11	18.4 IBUs	-
25.00 g	Zappa [7.30 %] - Steep/Whirlpool 20.0 min, 90.0 C	Hop	12	5.2 IBUs	-
20.00 g	Mosaic (HBC 369) [12.60 %] - Steep/Whirlpool 20.0 mi…	Hop	13	7.2 IBUs	-

◯ Estimated Post Boil Vol: 26.00 L and Est Post Boil Gravity: 1.064 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	Lalbrew Verdant IPA Ale Yeast (Lallemand #-) [0.02 L]	Yeast	14	-	-

◯ Measure Actual Original Gravity _____ (Target: 1.064 SG)
◯ Measure Actual Batch Volume _____ (Target: 23.00 L)

Fermentation

◯ 24 Apr 2023 - Primary Fermentation (1.00 days at 18.0 C ending at 20.0 C)
◯ 25 Apr 2023 - Secondary Fermentation (4.00 days at 20.0 C ending at 20.0 C)
◯ 29 Apr 2023 - Tertiary Fermentation (3.00 days at 22.0 C ending at 22.0 C)
◯ 02 May 2023 - Bulk Age (1.00 days at 13.0 C ending at 13.0 C)

Dry Hop and Bottle/Keg

Dry Hop/Bottling Ingredients

Amt	Name	Type	#	%/IBU	Volume
75.00 g	Talus (HBC 692) [8.60 %] - 3.0 Days Before Bottling fo…	Hop	15	0.0 IBUs	-
25.00 g	Zappa [7.30 %] - 3.0 Days Before Bottling for 3.0 Days	Hop	16	0.0 IBUs	-
20.00 g	Mosaic (HBC 369) [12.60 %] - 3.0 Days Before Bottlin…	Hop	17	0.0 IBUs	-

◯ Measure Final Gravity: _____ (Estimate: 1.014 SG)
◯ Date Bottled/Kegged: - Carbonation: Keg with 16.06 PSI