League Resurgence (AG)

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: 08 Apr 2021
Efficiency: 75.00 %
Est Mash Efficiency: 81.5 %



Brewing 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 Ca - 75, Mg - 10, Na - 10, SO4 - 100, Cl - 50.

Add the dry hops once fermentation slows but while there is still active fermentation to ensure the yeast cleans up any oxygen that is introduced.

1. If flavour minerals are available, add to boil only as mash pH is taken care of with acid malt. The target mash pH is 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. At flameout, cool the wort to 85C, add the whirlpool hops and maintain for 20 min. When complete, cool to pitching temperature.
5. It is recommended that the yeast be rehydrated per the manufacturer's instructions. Pitch at 18C, maintain for 48 hours then allow to rise to 20C.
6. Once fermentation starts to slow (~5 - 7 days), add the dry hops and raise the temperature to 22C for a diacetyl rest. Maintain until fermentation is complete.
7. If possible, cold crash to 2C and let settle for at least 48 hours before packaging.
8. Carbonate to 2.6 - 2.7 volumes of CO2.

Mash or Steep Grains

Mash Ingredients

Amt	Name	Type	#	%/IBU	Volume
4.200 kg	Gladfield American Ale Malt (4.7 EBC)	Grain	1	82.4 %	2.74 L
0.400 kg	Pale Malt, Golden Promise (Thomas Fawcett) (5.9 EBC)	Grain	2	7.8 %	0.26 L
0.300 kg	Gladfield Medium Crystal Malt (123.0 EBC)	Grain	3	5.9 %	0.20 L
0.200 kg	Gladfield Sour Grapes Malt (acid malt) (4.0 EBC)	Grain	4	3.9 %	0.13 L

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 17.27 L of water at 69.8 C	65.0 C	75 min
Mash Out	Heat to 76.0 C over 10 min	76.0 C	10 min

◯ Fly sparge with 16.34 L water at 77.0 C
◯ Add water to achieve boil volume of 28.50 L
◯ Estimated pre-boil gravity is 1.044 SG

Boil Ingredients

Amt	Name	Type	#	%/IBU	Volume
30.00 g	Riwaka [5.40 %] - Boil 60.0 min	Hop	5	17.7 IBUs	-
20.00 g	Cascade [6.00 %] - Boil 60.0 min	Hop	6	11.9 IBUs	-
5.70 g	Gypsum (Calcium Sulfate) (Boil)	Water Agent	7	-	-
3.00 g	Calcium Chloride (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
50.00 g	Cascade [6.00 %] - Steep/Whirlpool 20.0 min, 85.0 C	Hop	11	6.5 IBUs	-
40.00 g	Riwaka [5.40 %] - Steep/Whirlpool 20.0 min, 85.0 C	Hop	12	4.7 IBUs	-

◯ Estimated Post Boil Vol: 26.00 L and Est Post Boil Gravity: 1.050 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	Safale American (DCL/Fermentis #US-05) [0.05 L]	Yeast	13	-	-

◯ Measure Actual Original Gravity _____ (Target: 1.050 SG)
◯ Measure Actual Batch Volume _____ (Target: 23.00 L)

Fermentation

◯ 08 Apr 2021 - Primary Fermentation (2.00 days at 18.0 C ending at 18.0 C)
◯ 10 Apr 2021 - Secondary Fermentation (5.00 days at 20.0 C ending at 20.0 C)
◯ 15 Apr 2021 - 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
30.00 g	Cascade [6.00 %] - 5.0 Days Before Bottling for 5.0 Days	Hop	14	0.0 IBUs	-
30.00 g	Riwaka [5.40 %] - 5.0 Days Before Bottling for 5.0 Days	Hop	15	0.0 IBUs	-

◯ Measure Final Gravity: _____ (Estimate: 1.008 SG)
◯ Date Bottled/Kegged: - Carbonation: Bottle with 155.90 g Corn Sugar