League DLH (AG) 2024

New Zealand Pilsner (X5)

Type: All Grain
Batch Size: 23.00 L
Boil Size: 28.50 L
Boil Time: 60 min
Final Bottling Vol: 22.00 L
Fermentation: Lager, Three Stage

Date: 28 Mar 2024
Efficiency: 75.00 %
Est Mash Efficiency: 81.5 %



Brewing Notes:
This recipe uses a lager yeast that is tolerant of warmer fermentation temperatures while maintaining a clean fermentation profile. If possible, ferment at the cool end of the range (12C - 15C). The beer will benefit from lagering for at least 2 weeks if kegged or after bottle conditioning is complete. It will continue to improve if stored cool.

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.

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 - 70, Mg - 10, Na - 10, SO4 - 100, Cl - 50.

1. 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).
2. If flavour minerals are available, add to boil only as mash pH is taken care of with acid malt. The target mash pH is ~5.3 (5.2 - 5.4).
3. If available, add kettle finings and yeast nutrient 15 min before the end of boil.
4. At the end of the boil, cool the wort to 80C, add the whirlpool hops and maintain the temp at 80C for 15 min before continuing to chill to pitching temp.
5. It is recommended that the yeast be rehydrated per the manufacturer's instructions. Pitch at 12C - 15C and maintain until fermentation is nearing completion.
6. Once fermentation slows, add the dry hops and raise the temp to 18C for a diacetyl rest.
7. Ferment for another 5 days to ensure full attenuation and diacetyl removal by the yeast.
8. Once fermentation is complete, lower the temperature to 2C and hold for a week prior to packaging.
9. Carbonate to 2.5 - 2.6 volumes of CO2.

Mash or Steep Grains

Mash Ingredients

Amt	Name	Type	#	%/IBU	Volume
4.700 kg	Gladfield Pilsner Malt (3.8 EBC)	Grain	1	94.0 %	3.06 L
0.300 kg	Sour Grapes Malt (4.0 EBC)	Grain	2	6.0 %	0.20 L

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 17.00 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 16.51 L water at 77.0 C

◯ Add water to achieve boil volume of 28.50 L
◯ Estimated pre-boil gravity is 1.043 SG

Boil Ingredients

Amt	Name	Type	#	%/IBU	Volume
50.00 g	Hallertauer Mittelfrueh [4.00 %] - Boil 60.0 min	Hop	3	22.2 IBUs	-
0.50 Items	Whirlfloc Tablet (Boil 15.0 mins)	Fining	4	-	-
1.25 g	Yeast Nutrient (Boil 15.0 mins)	Other	5	-	-
5.50 g	Gypsum (CaSO4) (Boil)	Water Agent	6	-	-
3.00 g	Calcium Chloride (CaCl2) (Boil)	Water Agent	7	-	-

Steeped Hops

Amt	Name	Type	#	%/IBU	Volume
50.00 g	Riwaka [3.90 %] - Steep/Whirlpool 15.0 min, 80.0 C	Hop	8	2.4 IBUs	-
40.00 g	Wakatu (Hallertau Aroma) [5.30 %] - Steep/Whirlpool 1…	Hop	9	2.6 IBUs	-

◯ Estimated Post Boil Vol: 26.00 L and Est Post Boil Gravity: 1.049 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	California Lager (Mangrove Jack's #M54)	Yeast	10	-	-

◯ Measure Actual Original Gravity _____ (Target: 1.049 SG)
◯ Measure Actual Batch Volume _____ (Target: 23.00 L)

Fermentation

◯ 28 Mar 2024 - Primary Fermentation (10.00 days at 14.0 C ending at 14.0 C)
◯ 07 Apr 2024 - Secondary Fermentation (5.00 days at 18.0 C ending at 18.0 C)
◯ 12 Apr 2024 - Tertiary Fermentation (1.00 days at 18.0 C ending at 2.0 C)

Dry Hop and Bottle/Keg

Dry Hop/Bottling Ingredients

Amt	Name	Type	#	%/IBU	Volume
60.00 g	Wakatu (Hallertau Aroma) [5.30 %] - 0.0 Days Into Sec…	Hop	11	0.0 IBUs	-

◯ Measure Final Gravity: _____ (Estimate: 1.011 SG)
◯ Date Bottled/Kegged: - Carbonation: Keg with 14.89 PSI