League /alt/beer (AG)

Altbier (7 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, Two Stage

Date: 24 Mar 2019
Efficiency: 75.00 %
Est Mash Efficiency: 81.5 %



Brewing Notes:
The commercial version of this beer used the White Labs liquid yeast WLP036 which is a traditional Alt yeast from Dusseldorf, Germany. Either this yeast or the supplied Fermentis K-97 dry yeast should be fermented at the low end of their temperature range.

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 - 60, Mg - 10, Na - 15, SO4 - 70, Cl - 70.

1. If flavour minerals are available, add to boil only as mash pH is taken care of with 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 - 1.5 ml depending on water source).
3. If available, add kettle finings and yeast nutrient 15 min before the end of boil.
4. It is recommended that the dried yeast be rehydrated per the manufacturer's instructions. If using the liquid yeast, a 500 ml vitality starter will improve fermentation (mix the yeast in 500 ml of wort cooled to 18C for 4 hours).
5. Pitch yeast at 16C and keep as close to this temperature as possible until fermentation slows. Then let rise up to 21C for a diacetyl rest and hold until fermentation is complete.
6. If possible, cold crash for a few days before packaging.
7. Carbonate to 2.7 - 2.8 volumes of CO2.
8. This beer will continue to improve if lagered for a few weeks at 2C.

Mash or Steep Grains

Mash Ingredients

Amt	Name	Type	#	%/IBU	Volume
2.500 kg	BEST Pilsen Malt (BESTMALZ) (3.5 EBC)	Grain	1	50.5 %	1.63 L
1.700 kg	BEST Munich (BESTMALZ) (15.0 EBC)	Grain	2	34.3 %	1.11 L
0.250 kg	Gladfield Sour Grapes Malt (acid malt) (4.0 EBC)	Grain	3	5.1 %	0.16 L
0.250 kg	Gladfield Wheat Malt (4.2 EBC)	Grain	4	5.1 %	0.16 L
0.150 kg	Gladfield Medium Crystal Malt (111.0 EBC)	Grain	5	3.0 %	0.10 L
0.100 kg	Gladfield Light Chocolate Malt (900.0 EBC)	Grain	6	2.0 %	0.07 L

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 16.87 L of water at 70.0 C	65.0 C	60 min
Mash Out	Heat to 76.0 C over 10 min	76.0 C	10 min

◯ Fly sparge with 16.59 L water at 76.0 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	7	22.0 IBUs	-
4.00 g	Gypsum (Calcium Sulfate) (Boil)	Water Agent	8	-	-
3.30 g	Calcium Chloride (Boil)	Water Agent	9	-	-
0.70 g	Non-iodized Salt (Boil)	Water Agent	10	-	-
0.50 Items	Whirlfloc Tablet (Boil 15.0 mins)	Fining	11	-	-
1.50 g	Yeast Nutrient (Boil 15.0 mins)	Other	12	-	-
50.00 g	Tettnang [4.50 %] - Boil 10.0 min	Hop	13	14.4 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	SafAle German Ale (DCL/Fermentis #K-97) [0.02 L]	Yeast	14	-	-

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

Fermentation

◯ 24 Mar 2019 - Primary Fermentation (10.00 days at 16.0 C ending at 16.0 C)
◯ 03 Apr 2019 - Secondary Fermentation (4.00 days at 21.0 C ending at 21.0 C)

Dry Hop and Bottle/Keg

◯ Measure Final Gravity: _____ (Estimate: 1.011 SG)
◯ Date Bottled/Kegged: - Carbonation: Bottle with 164.73 g Corn Sugar