League Cry Wolf (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: Cal Common - Ale

Date: 24 Mar 2020
Efficiency: 75.00 %
Est Mash Efficiency: 81.5 %



Brewing Notes:
This beer has a fairly large dry hop addition which can cause what is known as 'dry hop creep'. This is where enzymes in the hops convert some normally non-fermentable sugars into fermentable ones. This can lower the final gravity raising the ABV as well as reintroduce diacetyl precursors (the target ABV is ~5%). One way to address this is to add the dry hops while the yeast is still quite active, bump the temp up, and let ferment completely which is the approach used in the instructions below. Another option is to let ferment fully, drop the temp to 5C and then dry hop for a shorter period (cold and short dry hop). The second option will prevent the ABV increase but, to ensure no additional fermentation in packaging (e.g., bottles), only do this if kegging.

1. If available, acidify the sparge water with the indicated lactic acid prior to heating to sparge temperature.
2. If flavour minerals are available, add to boil only as mash pH is taken care of with acid malt.
3. If available, add yeast nutrient and kettle finings 10 - 15 min prior to the end of boil.
4. Add the zero min hop addition at the end of the boil.
5. Cool the wort to 80C, add the whirlpool hops and maintain 80C for 15 min. Once complete, cool the wort quickly to transfer temperature.
6. It is recommended that the yeast be rehydrated per the manufacturer's instructions. Pitch at 18C and maintain 18-20C until fermentaton slows.
7. Once the fermentation slows (~5-7 days), add the dry hops and raise the temp to 22C for a diacetyl rest. Maintain temp for another 5 days.
8. If possible, cold crash for a few days before packaging.
9. Carbonate to 2.6 - 2.7 volumes of CO2. Lager for 2 weeks before drinking.

Mash or Steep Grains

Mash Ingredients

Amt	Name	Type	#	%/IBU	Volume
1.700 kg	BEST Heidelberg (BESTMALZ) (2.9 EBC)	Grain	1	37.0 %	1.11 L
1.700 kg	BEST Pilsen Malt (BESTMALZ) (3.5 EBC)	Grain	2	37.0 %	1.11 L
0.400 kg	Gladfield Gladiator Malt (10.0 EBC)	Grain	3	8.7 %	0.26 L
0.400 kg	Gladfield Wheat Malt (4.2 EBC)	Grain	4	8.7 %	0.26 L
0.300 kg	Gladfield Sour Grapes Malt (4.0 EBC)	Grain	5	6.5 %	0.20 L
0.100 kg	Gladfield Toffee Malt (10.5 EBC)	Grain	6	2.2 %	0.07 L
1.70 ml	Lactic Acid (Sparge)	Water Agent	7	-	-

Mash Steps

Name	Description	Step Temperature	Step Time
Saccharification	Add 15.92 L of water at 69.7 C	65.0 C	75 min
Mash Out	Heat to 76.0 C over 10 min	76.0 C	10 min

Fly sparge with 17.19 L water at 77.0 C
Add water to achieve boil volume of 28.50 L
Estimated pre-boil gravity is 1.040 SG

Boil Ingredients

Amt	Name	Type	#	%/IBU	Volume
6.10 g	Gypsum (Calcium Sulfate) (Boil)	Water Agent	8	-	-
3.10 g	Calcium Chloride (Boil)	Water Agent	9	-	-
10.00 g	Columbus (Tomahawk) [15.30 %] - Boil 30.0 min	Hop	10	14.7 IBUs	-
0.50 Items	Whirlfloc Tablet (Boil 15.0 mins)	Fining	11	-	-
1.50 g	Yeast Nutrient (Boil 15.0 mins)	Other	12	-	-
30.00 g	Amarillo [7.90 %] - Boil 0.0 min	Hop	13	11.5 IBUs	-

Steeped Hops

Amt	Name	Type	#	%/IBU	Volume
30.00 g	Amarillo [7.90 %] - Steep/Whirlpool 15.0 min, 80.0 C	Hop	14	3.0 IBUs	-
20.00 g	Columbus (Tomahawk) [15.30 %] - Steep/Whirlpool 15.0 min, 80.0 C	Hop	15	3.8 IBUs	-
20.00 g	Simcoe [12.90 %] - Steep/Whirlpool 15.0 min, 80.0 C	Hop	16	3.2 IBUs	-

Estimated Post Boil Vol: 26.00 L and Est Post Boil Gravity: 1.046 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	17	-	-

Measure Actual Original Gravity _____ (Target: 1.046 SG)
Measure Actual Batch Volume _____ (Target: 23.00 L)

Fermentation

24 Mar 2020 - Primary Fermentation (7.00 days at 19.0 C ending at 19.0 C)
31 Mar 2020 - Secondary 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
40.00 g	Amarillo [7.90 %] - Dry Hop 5.0 Days	Hop	18	0.0 IBUs	-
30.00 g	Simcoe [12.90 %] - Dry Hop 5.0 Days	Hop	19	0.0 IBUs	-
20.00 g	Columbus (Tomahawk) [15.30 %] - Dry Hop 5.0 Days	Hop	20	0.0 IBUs	-

Measure Final Gravity: _____ (Estimate: 1.008 SG)
Date Bottled/Kegged: - Carbonation: Bottle with 160.31 g Corn Sugar