ALL GRAIN

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SAN DIEGO BEER NEWS
HOMEBREW SUMMER
HOME BREW MART
INGRAINED SINCE 1992

HARLAND BREWING CO

HOPPY

SISO – Extra Pale Ale

BREW DAY

Stage/Time	Type	Qty	Name	%AA	%/IBU
Mash Target pH: 5.3	Grain	8 lb	Pilsner Malt	-	86.5%
		1 lb	Weyer. Pale Wheat	-	10.8%
		0.25 lb	Acidulated Malt	-	2.7%
Boil/30min	Hop	1 oz	Simcoe	11%	29.3
Boil/15min	Fining	1 tablet	Whirlfloc	-	-
	Nutrient	½ tsp	Yeast nutrient	-	-
Whirlpool	Hop	4 oz	Mosaic	12%	16.2

FERMENTATION AND BEYOND

Stage	Type	Qty	Name	Notes
Pitch	Yeast	11 g	Murphy & Sons Plzen or WLP800 Pilsner	64 - 68˚F
Dry Hop Final pH: 4.55	Hop	2 oz	Cryo Mosaic	1 days ⇨ bottle
		2 oz	Strata	
		2 oz	Superdelic	



American Pale (18B)

Original Gravity: 1.045 – 1.060 SG

Final Gravity: 1.010 – 1.015 SG

Bitterness: 30 – 50 IBUs

ABV: 4.5 – 6.2%

SRM: 5 - 10

Overall Impression: A pale, refreshing and hoppy ale, yet with sufficient supporting malt to make the beer balanced and drinkable. The clean hop presence can reflect classic or modern American or New World hop varieties with a wide range of characteristics. An average-strength, hop-forward pale American craft beer.

TARGET STATS

Batch Size	5 gal
OG	1.048
FG	1.008
~%ABV	5.2
%Efficiency	72
IBU	44
SRM	3

BREW NOTES

Mash Temp	150˚F
Mash Duration	60 min
Boil Volume	6.5 gal
Boil Duration	60 min
Whirlpool Temp	168˚F
Whirlpool Time	20 min

Notes

Whirlpool duration and temperature can make a difference with the final bitterness of a beer. With this recipe, allow the wort to cool down to below 180˚F before adding the whirlpool hop addition.

Pitch yeast at 64F and maintain during fermentation. Once gravity dips below 1.020, bring temperature up to 68F again for a diacetyl rest. Dry hop for 24 hours at terminal gravity.

Quick Brewing Instructions

MASH

Mashing is the process of soaking milled, malted barley in hot water to convert starch into fermentable sugars. The success of this process is measured as percent efficiency and is reliant on maintaining the appropriate temperature and water to grain ratio of 1.25 quarts per pound of grain.

1. Measure out your water for mash and heat to your strike temperature.
2. Slowly add your grain, constantly stirring to break up dough balls and consistent mixture.
3. Check that your temperature is on target and seal your mash tun.
4. If your equipment has a recirculation pump, now is the time to run it.
5. While you wait for the mash to finish, begin heating your water for the sparge.

Mash Targets

Mash Water	2.9 gal
Strike Temp	161˚F
Mash Temp	150˚F
Duration	60 min

Sparge Targets

Volume	5 gal
Temp	168˚F

Boil Targets

Volume	6.5 gal
Duration	60 min
Pre-Boil SG	1.043

Note: The mash water calculated above assumes no deadspace below the grain. If you are using an all-in-one system and your mash seems especially thick, you may need to add more water to compensate.

LAUTER & SPARGE

Once the starch conversion is complete, the liquid ("sweet wort") needs to be separated ("lautered") from the grain which then needs to be rinsed ("sparged") to extract as much sugar as possible.

1. Measure out your sparge water and heat to 168˚F.
2. Position your kettle below your mash tun and your sparge tank above.
3. If your brewing equipment did not include a recirculation pump for the mash, you'll need to do this manually.
    a. Partially open the valve on the mash tun and use 2 pitchers or large measuring cups to catch the stream that begins to flow; you'll notice a lot of small particles floating in the wort. As each pitcher fills, replace it with an empty one and pour the full pitcher gently back into the mash tun. Continue doing this until your wort is relatively free of particles.
4. With sparge tank and kettle in place, mash complete, and grain bed set, it's time to start lautering into the kettle. As wort drains from the mash, sparge water should replace it at the same rate from above, ideally maintaining an inch or so of water above the surface of the grain. Adjust your flow rates at the sparge tank or mash tun accordingly.
5. Once the target boil volume is reached in the kettle you can turn off valves and stop the flow into the kettle. Start heating up to a boil.

BOIL & COOLDOWN

The purpose of your boil is 1) to sanitize, 2) to extract bitterness (alpha acids) from hops, and 3) to break down particulates for a clearer finished product.

1. As your wort nears the boil, be prepared to turn down the heat or add foam control to prevent boil-overs.
2. Once you reach a steady rolling boil, add your first boil addition and start your timer counting down to the next addition (i.e. if it's a 60 min boil and your next addition is at the 15 min mark, start your timer for 45 minutes). Add all other additions at their appropriate times.
3. Sanitize all other equipment that will contact your wort after the boil.
4. If you're using an immersion chiller, attach tubes and submerge in pot at the 15 min mark to sanitize.
5. Once your full boil time has elapsed, it's time to start the cooldown. Start running water through your immersion chiller. The outgoing water will be steaming hot, so be sure the outflow is directed somewhere safe.
6. If the spigot on your kettle draws from the side, you can benefit from a whirlpool step:
    a. Remove your wort chiller and use a sanitized metal spoon to rapidly stir your cooled wort to create a whirlpool. The hop sediment and other hot break material will be sucked to the center of the pot. If you then allow it to settle undisturbed for 10-15 minutes, that sediment will sink to the bottom in a more easily avoidable area. You can then rack (transfer) the clear wort from the spigot or using a racking cane, leaving that sediment behind.
7. Once cooled to fermentation temperature, whirlpooled, and allowed to settle, it's time to rack into your sanitized fermentor.

30MIN	• 1 oz Simcoe
15 MIN	• Wort Chiller • Clarifier & Nutrient
WHIRLPOOL	*Add at 170˚F and steep for 20 min* • 4 oz Mosaic

PITCH

Adding your yeast is what changes the liquid in your fermentor from "wort" to "beer."

1. Sanitize the exterior of the yeast package as well as any tools used to open it.
2. Add your yeast to the fermentor and seal with an airlock and stopper—being sure to fill the airlock to the appropriate mark with sanitizing solution.
3. Store in a cool dark place for the duration of fermentation.

WLP800 – Pilsner Yeast

Ferment at 64 - 68˚F

DRY HOP

The dry hop stage comes after fermentation is complete. Unlike hops adding during the boil, dry hop additions contribute only hoppy aroma—not bitterness—to the finished beer. To maximize flavor retention, wait until fermentation activity (i.e. bubbling in the airlock) has ceased.

1. Remove your airlock and pour your dry hop additions directly into the beer. Replace airlock..

- 2 oz Cryo Mosaic
- 2 oz Strata
- 2 oz Superdelic

Package after 24 hours