

Beer Name: Happoshu Pale Lager Version 1  
Release Date: 6/1/2021

### Homebrew Recipe for 5 gallon batch

#### Target Water Profile (ppm)

Calcium	64	Sodium	2
Magnesium	10	Bicarbonate	18
Sulfate	71	Chloride	75

#### Grain Bill

	<u>lbs</u>	<u>oz</u>
Light Biscuit Rice Malt	4	6
Cara Millet Malt	1	12
Pale Millet Malt	1	12

Total Grain Weight            7            14

#### Enzymes

	<u>mL</u>
Ceremix Flex	7.9
Ondea Pro	10.6
Termamyl	7.9

#### Mash Step

	Temp (Fahrenheit)	Time Length (Minutes)
1	125	15
2	145	20
3	175	50

#### Boil Addition

	<u>Quantity</u>	<u>Time Added</u>
Sorachi Ace Hops	0.1 oz	60 min
Yeastex 61 Nutrient	1.5 grams	10 min
Irish Moss	1/4 tsp	10 min
Motueka Hops	0.6 oz	5 min

#### Fermentation

Yeast: Fermentis W-34/70  
Temperature: 62 deg F for 3 days, 54 deg F for 5 days  
67 deg F for 3 days, 45 degrees F for 16 days  
Total Time: 4 weeks including cold crash/conditioning

#### Targets

Mash pH	5.4
Preboil Gravity	1.042
End of Boil Gravity (OG)	1.046
Final Gravity	1.01
ABV	4.7%
IBU	9.5
Carbonation	2.5 vol CO2

#### Recipe Notes

Boil length is 60 minutes total  
All enzymes added at start of mash  
HERMS, RIMS, or BIAB required for rising step mash  
All malts should be milled with a mill gap of 0.65 mm  
Ingredients available through [glutenfreehomebrewing.com](http://glutenfreehomebrewing.com)  
Contact [jason@mutantis.beer](mailto:jason@mutantis.beer) with questions!