

PLINY THE YOUNGER

Targets

Volume into fermenter: 10.5 g

OG: 1.089

FG: 1.008

Mash Efficiency 70%

ABV: 10.5

IBU: ~280

Color: 6.4

Mash

32 lbs 2-Row

1.5 lbs Carapils

12 oz Acidulated Malt

12 oz Crystal 40L

Mash @ 147 for 90 m

Boil

70 ml Hop Extract @ 90 m

10 ml Hop Extract @ 45 m

.7 oz Columbus @ 45 m

3 oz Simcoe @ 30 m

1.5 lbs Dextrose 15 m

1 tab of Whirlfloc @ 15 m

2 tbs Yeast Nutrient @ 15 m

3 oz Centennial @ 0 m

2 oz Amarillo @ 0 m

5 oz Simcoe @ 0 m

Fermentation

2 x WLP090 4.5L Starter

Fermentation temperatures: 64 – 2 days, 66 – 3 days 67 -2 days, 70 – 4 days

2 minutes O2 + 1 minute O2 @ 12-18 hours (per carboy)

1.5 lbs Dextrose as sanitized (boiled) syrup near end of fermentation

Dry Hop 1 – 2 oz Simcoe, 2 oz Amarillo (4 days @ 70 deg.)

Dry Hop 2 – 2 oz Centennial, 2 Columbus (4 days @ 70 deg.)

Dry Hop 3 – 1 oz Simcoe, 1 oz Chinook, 1/2 oz Warrior (4 days @ 70 deg.)

Dry Hop 4 – 1 oz Simcoe, 1 oz Amarillo, 1 oz Warror (4 days @ 70 deg.)

Water Treatment

8 g Calcium Sulfate

5 m Magnesium Sulfate

3 g Calcium Chloride

12 oz Acidulated Malt

Process

The trick for Pliny the Younger is to get the final gravity below 1.010, preferably in the 1.008 range. Consequently, a good long mash at 147 for 90 minutes is used. Additionally, a large yeast starter of 4.5 liters is made. To aid a strong fermentation, the starter is completed the evening before the brewing and put in the refrigerator to put the yeast to sleep. The morning of the brewing, the starter is decanted and an additional 500-750 milliliters of fresh wort is added to awaken the yeast. The starter is then put on a stir-plate and allowed to warm to ambient temperature for pitching.

Oxygen is also used liberally at the beginning of fermentation. Two minutes of oxygen are added at 1.5 LPM into the carboy with another minute after 12 to 18 hours. About 8.2 percent dextrose is used to create the dry PTY mouth feel. To prevent the dextrose from inhibiting the fermentation of maltose, half of the total dextrose is added as sanitized (boiled) syrup near the completion of fermentation which is about five days after yeast dosing.

Dry Hopping

Dry hopping is done in four stages. The specified process is to cold crash the completed beer to 50 degrees and transfer it off the yeast to a keg where four dry hop additions are added serially at room temperature, with each stage lasting four days. Upon adding each new dry hop stage, the previous hops from the earlier stage are removed. The dry hops are put into a sanitized hop bag that is anchored with a few sanitized marbles and hung with dental floss from the top of the keg. After each entry into the keg, the keg is flushed of air with CO₂.

Alternative Dry Hopping

Serial dry hopping process is time consuming and an alternative is proposed. Serial dry hopping is used by Vinnie Cilurzo and Matt Brynildson at their respective breweries. After searching the web far and wide and reading many blogs, I could not find a reasonable scientific explanation as to why four dry hop doses of two ounces each, sequentially added every four days is different from one eight ounce dose for four days. I did come across one theory from Jamil in which he theorizes that after a day or so, the hops break up and settle on the bottom. And after that, only a small percentage of the hops are exposed to the beer. Additionally, I heard on a podcast interview with Jeremy Marshall of Lagunitas, that they rouse the settled hops with a shot of CO₂ to counter this effect. Therefore, my proposal is to add the first dry hop stage into the carboy after fermentation ends for a period of four days. Then the remaining dry hop stages are added into the keg all at once and the keg is gentle agitated two or three times a day for a total of five days, or as sampling dictates.

Water Treatment

I spoke with city water department to get an idea of Morebeer's water. The water is surprisingly soft. Apparently, this time of the year, the water comes from Hetch Hetchy Aqueduct. The numbers are below. Using filtered water, the additions suggested provide a Sulfate to Chloride ratio of a little over 3:1.

Untreated

Calcium (Ca ppm)	Magnesium (Mg ppm)	Sodium (Na ppm)	Chloride (Cl ppm)	Sulfate (SO ₄ ppm)	Alkalinity (CaCO ₃ ppm)
15	6	16	20	12	61

Treated

Calcium (Ca ppm)	Magnesium (Mg ppm)	Sodium (Na ppm)	Chloride (Cl ppm)	Sulfate (SO ₄ ppm)	Projected PH
55	13	16	42	109	5.45

References

Most of the information was obtain from a homebrewtalk.com post at: <http://www.homebrewtalk.com/f12/pliny-younger-clone-332084/>.

Member scotland from homebrewtalk, how made the post has an extensive website discussing his adventures into Plinyland at:

<http://www.bertusbrewery.com/2012/07/jpa-clone-series-pliny-younger.html> and

<http://www.bertusbrewery.com/2013/03/pliny-younger-clone-20.html>

Stories about the popularity of PTY:

<http://www.sfgate.com/wine/article/A-two-week-party-for-Pliny-the-Younger-4301366.php>

http://www.slate.com/articles/life/drink/2012/05/pliny_the_younger_can_there_really_be_a_best_beer.html

<http://articles.latimes.com/2013/feb/15/news/la-dd-whats-the-secret-of-americas-most-soughtafter-beer-pliny-arrives-20130215>

Interview of Vinnie about Plinys in Home Brewers Association magazine

<https://www.homebrewersassociation.org/attachments/0000/6351/doubleIPA.pdf>

Information about hop-extract use:

http://www.hopunion.com/1018_CO8322Extract.cfm?p4=open

Notes:

I've modified the recipe in a few small ways to accommodate the brewing system. For example, my mash temperature is 147 rather than Scott's (HBT scotland) step-mash. Additionally, I use WLP090 rather than WLP001 because of a slight improvement in attenuation. Before my second attempt, I had an email exchanged with Scott and decided on a slight increase in dextrose with half added after fermentation might further drive down the final gravity.