

How to use

2022

**DRY**

**WHITE**

**KOJI**

WHITE KOJI | WHITE KOJI BEER | SAMPLE RECIPE



# What is White Koji?

MADE IN JAPAN

## What is Koji?

Koji is made by steamed grains (rice, wheat, beans, and etc.) attaching “koji mold”, and cultivated under conditions of the optimum temperature and humidity. Koji mold converts starch and protein contained in grain to glucose and umami ingredients from amino acid.

Generally, koji contains a lot of humidity, so it is difficult to keep the quality in the long term. However, Tokushima Koji Producing make “dried koji” by losing the humidity to 8%, and made it possible to keep the quality for long term.

There are some kinds of koji, but white Koji has a feature of creating citric acid by the process of making koji, and when it comes to convert, the effect of sour flavor will be high

## Evaluation from the brewer

- Good, light citrusy flavor.
- Very pleasant imparted a clean & balanced sourness/tartness.
- No off-flavors from the white koji and more complex than straight citric/lactic acid additions.

## Features of white koji beer

### White Koji produces citric acid

In case of general kettle souring, adding lactobacillus into the kettle tank and keep couple of days for fermentation, while for koji souring you can get citric acidity in an hour because it's already contained in koji and has good water soluble.

## How to use koji?

By dividing the timing of addition, processing is carried out at a pH that does not inhibit saccharification of malt, while promoting saccharification and adding more flavor at the end.

To achieve a PH level of 3.5, which is a typical kettle sour PH, a minimum of 20% malt replacement is recommended.

Caution: Too early addition of malt will lower the pH and cause poor saccharification.



## ALL-GRAIN

Batch size: 100 liters

Brewhouse efficiency: 72%

OG: 1.044

FG: 1.004

IBUs: 30

ABV: 5.5%

## MALT/GRAIN BILL

12.5 kg Pilsner Malt

5 kg Wheat Malt

1.7 kg White Koji (see below)

## HOPS SCHEDULE

20 g Sorachi Ace at 75 minutes [10 IBUs]

80 g Sorachi Ace at 10 minutes [10 IBUs]

150 g Sorachi Ace at Whirlpool [10 IBUs]

300g Sorachi Ace at Dry hop

## YEAST

Belle Saison or other French Saison strain

## DIRECTIONS

Mill the grains and mash at 65°C for 50 minutes. Aim for a mash pH of 5.2–5.3, adjusting white koji as necessary (remaining koji is used in mash out). Add remaining koji and mash out at 74°C. Vorlauf until your runnings are clear, then run off into the kettle. Sparge at 76°C and top up as necessary. Boil for 75 minutes, adding hops according to the schedule. After the boil, do a whirlpool step: Stir for 5 minutes to create a vortex, add hops, and allow 20 minutes to settle. Chill to about 24°C, add plenty of healthy yeast, and aerate if yeast required, Ferment at 24°C, allowing the temperature to rise to 27°C. When fermentation reaches about 1.010, move the wort to a pressure vessel, dry hop, and spund. Once the beer reaches terminal gravity, crash to 30°F (-1°C), remove the yeast and hops, and condition 1 week before filtering and packaging.

## BREWER'S NOTE

We used 0.4kg of white koji to reach mash pH 5.3. It depends on water and malt. A high amount of Koji sometimes causes stuck lautering, so I recommend raising the temperature to mash out. Final Product: pH 4.00, Titratable Acidity 2.7. The result shows it's not so tart, but you can get a bit of refreshing tartness. If you want more acid, try up the amount of koji, co-use with acidulated malt or kettle souring.

# Sample Recipe

reference Choryo Shuzo

