

# Gluten Free Home Brewing

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# Outline

- Why Gluten Free?
- Gluten Free Ingredients
- Gluten Free Extract
- Gluten Free All-grain
- Example Recipes
- Commercial Examples
- Resources

# Why Gluten Free?

- 3 million Americans (1 in 100) have celiac disease
  - many more gluten intolerant (6%, 18 million)
- Celiac disease: immune reaction to consuming gluten
  - Immune response in small intestine
    - Painful inflammation
    - Poor nutrient absorption
    - Can cause: weight loss, diarrhea, osteoporosis

# Ingredients

## Grains

- Barley
- Wheat
- Oats
- Rye
- Corn
- Rice
- Buckwheat
- Sorghum
- Millet
- Quinoa
- Teff

## GF Adjuncts + Fruit

- Belgian candy sugar
- Corn sugar/syrup
- Rice syrup
- Molasses
- Honey (mead)
- Grapes (wine)
- Fruit & berries (cider)

Hops are GF

Yeast – Not all are GF

Fermentis is GF e.g. Safale-05

# Extract Approaches

- Lots of sugar = thin body, cider flavor
  - Add oats, roasted grains, or lactose
- Sorghum aftertaste is bitter
  - Add LOTS of hops – IPAs are common
  - Heavily roast grains
  - Use strongly flavored adjuncts

# Example Extract Recipe

## Description:

Pale ale made with cascade hops and finished with honey

## Ingredients:

- 2 lbs Brewers Choice Liquid Sorghum Extract (prior to boil)
- 0.5 oz Cascade Hops (60 min)
- 0.5 oz Cascade Hops (15 min)
- 1 Whirfloc Tablet (15 min)
- 0.5 oz Cascade Hops (flameout)
- 4 lbs Brewers Choice Liquid Sorghum Extract (flameout)
- 1 lbs Honey (flameout)
- 1 pkg Safeale US05 Dried Ale Yeast
- 0.25 oz Yeast Nutrient pitched with yeast and very gently stir
- Brewing notes: Converted from metric - measurements rounded/estimated

**Primary Ferment:** 14 days at 68 degrees

**IBU:** 22.0

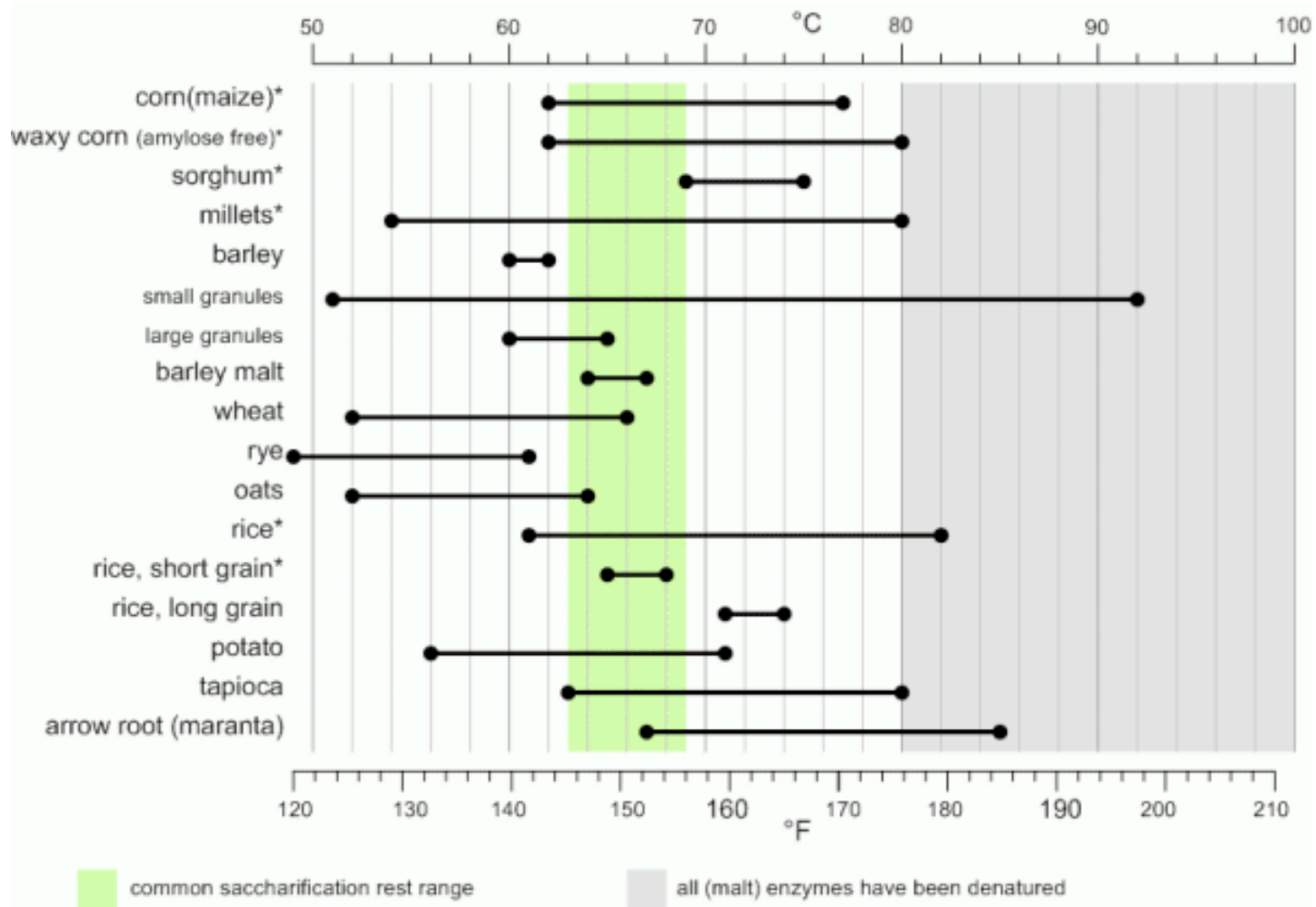
**Boil Minutes:** 60

Reference: [www.glutenfreehomebrewing.org](http://www.glutenfreehomebrewing.org)

# All-grain Approaches

- Base malt considerations
  - Flavors: sorghum & buckwheat bad
  - Needs to be malted or add enzymes
  - Enzyme potential
  - Consider lautering
    - buckwheat is gummy, rice hulls, high temps, thin mashes
    - Randy Mosher – Radical Brewing has techniques
- Flaked grains are easier
  - Already gelatinized – doesn't require boiling to release starches
  - still needs enzymes

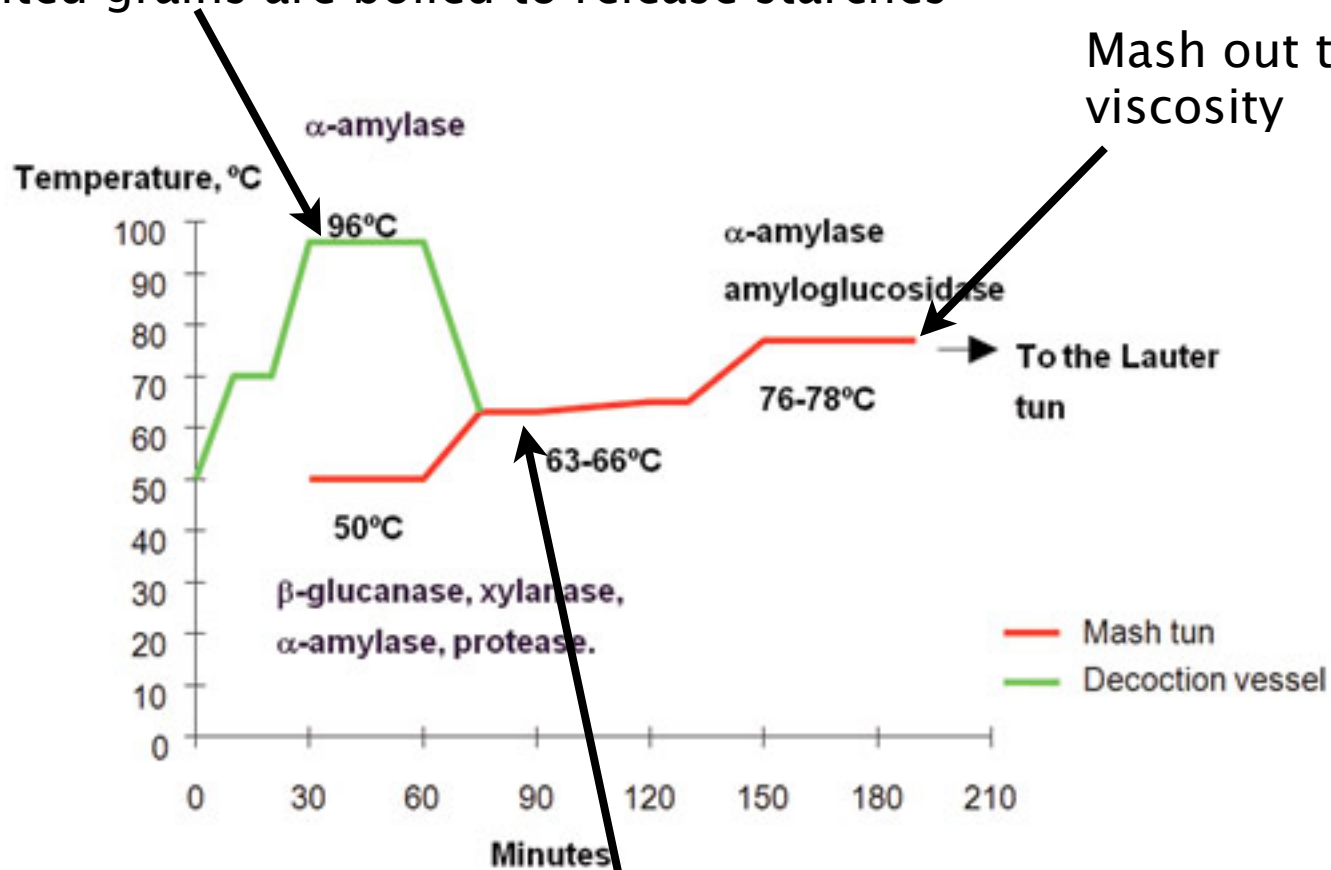
# Gelatinizing Grains





# Mash Temp Profile

unmalted grains are boiled to release starches



Mash out to reduce viscosity

Malted grains provide enzyme activity for conversion

# Example All-grain Recipe

## Belgian Witbier

### Description:

All grain ale made with sorghum and millet, coriander and sweet orange peel

### Ingredients:

- 9 lbs White Sorghum Malt (mash/sparge)
- 2 lbs White Millet (mash/sparge)
- 1 oz Saaz Whole Hops (60 min)
- 1 lb Light Belgian Candi Sugar (15 min)
- 1 oz Coriander (flameout)
- 0.75 - 1 oz Sweet Orange Peel (flameout)
- Wyeast 3944 Belgian Witbier (or appropriate white beer yeast)

**OG:** 1.050 **FG:** 1.012

**Primary Ferment:** 14 days at 62 - 75 degrees

**ABV:** 5.1

**SRM:** 4.0

**IBU:** 16.0

**Boil Minutes:** 75

Resource: Zymurgy Magazine Nov/Dec 2002

# Commercial GF Brewing



- Greens
- Dogfish Head
- New Planet
- Redbridge
- Alchemist
- Sprecher Brewing Co.
- Estrella Damm
- Omission
- Epic Brewing Co.
- New Grist – Lakefront Brewery

# Resources

- Celiac.org
- Mayo Clinic
- Celiac.com
- glutenfreehomebrewing.org
- GF Commercial Beer Sampler: <http://www.bonappetit.com/blogsandforums/blogs/badaily/2013/02/gluten-free-beer-tastes-good.html>
- GF Grain Blog: [www.aurochsbrewing.com](http://www.aurochsbrewing.com)
- Randy Mosher “Radical Brewing”