

Long Live Lagers



2014 American Homebrewers Association Conference
Grand Rapids, Michigan



2013 Great American Beer Festival Small Brewing Company of the Year

“Intensity of flavor is not equal to quality of flavor.”

Jason Oliver

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The Final Frontier of Homebrewing...



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Why Lager?



- ◆ Subtlety
- ◆ Challenge
- ◆ Tradition
- ◆ Drinkability
- ◆ Precision



Why not Lager?

- ❖ If enjoyment of beer requires teeth stripping bitterness, mouth puckering sourness, or throat burning alcohol.
- ❖ No good reason...



Vienna Lager

Gravity: 12.5 Degrees Plato

Alcohol by Volume: 4.9-5.1%

Hop Bitterness: 18 IBUs

Color: Chestnut

Malt: Pilsner, Vienna, Dark Munich, Cara-Amber

Hops: Northern Brewer, Saaz

2009 GABF Silver Medal: Vienna-Style Lager

2012 GABF Gold Medal: Vienna-Style Lager

2012 World Beer Cup Gold Medal: Vienna-Style Lager

2014 World Beer Cup Silver Medal: Vienna-Style Lager



Vienna Lager Homebrew Recipe

12.5 Plato SG

2.8 Plato FG

4.9-5.1% ABV

18-22 IBUs

Grist:

38% Pilsner Malt

38% Vienna Malt

12% Dark Munich Malt

12% Weyermann Cara-Amber Malt

Mash: 3.2:1 mash hydration (liquor to grist)

Mash-in 125F

Heat to 147F – Hold 30 minutes

Heat to 162F – Hold 30 minutes

Heat to 170F – Mash-out temp



Vienna Lager Homebrew Recipe

Boil: 90 minutes

16-19 IBU's from German Northern Brewer at boil begin

1-3 IBU's from Czech Saaz at 20 minutes before boil end

Cooling, Fermentation, and Maturation:

Cool between 51-53F

Pitch with Augustiner Lager yeast, minimum 1.25 million cells / ml / plato

Let rise to 54 – 54.5F for main fermentation

2/3 way through fermentation raise to 56F

At end of fermentation let rise to 57F for Diacetyl rest

7-10 days after pitching start cooling 2F a day until 42-44F

Rack off yeast & trub / dump and transfer to secondary

Crash cool to lagering temp 28-34F

Lager minimum 2 weeks, aim for four weeks or more.



Hot Side Thoughts, Tips, and Theories



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Control of Mash

- ◆ If you can heat your mash, you can control it.
 - ◆ Precision, repeatability, stability
- ◆ Step mash
 - ◆ 3 Steps:
 - ◆ 122-126° F Protein rest/Mash-in temp.
 - ◆ 144-155° F Beta rest
 - ◆ 159-162° F Alpha rest
 - ◆ 168-172° F Mash-out



Take Her Easy

- ◇ Slow and steady heating of mash, no more than 2° F/minute.
- ◇ Avoid hot side aeration (HSA)
- ◇ Subtlety of lagers needs more care
 - ◇ Be gentle, avoid splashing, use good technique
 - ◇ Lagers will show more staling and coarse flavors from HSA
- ◇ GET A HOSE
 - ◇ Fill kettle from bottom



Boil

- ◆ Vigorous Boil
 - ◆ Important for flavor stability
 - ◆ Drive off DMS
 - ◆ Removal of other volatiles
 - ◆ Precipitation of protein
- ◆ Old Rule Of Thumb:
 - ◆ 90 minute boil for pale beers
 - ◆ 120 minute boil for dark beers



Cooling

- ◇ Cool wort quickly
 - ◇ 45 minutes or less
 - ◇ Minimizes DMS reformation
 - ◇ Quick cooling reduces contamination potential



Schwartz Bier

Gravity: 12° Plato

Alcohol by Volume: 5.1%

Hop Bitterness: 22

Color: Garnet black

Malt: Pilsner, Dark Munich, Melanoidin, Cara-Red, Cara-fa 2 Special

Hops: Northern Brewer, Saaz

2010 Bronze World Beer Cup: German-Style Schwarzbier

2012 Virginia Craft Brewer's Fest: Best in Show

2012 Virginia Craft Brewer's Fest: Gold Lager Category

2013 Australian International Beer Awards: Silver

2014 Australian International Beer Awards: Bronze



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Schwartz Bier Homebrew Recipe

12.0 Plato SG

2.3 Plato FG

5.1% ABV

22-24 IBU's

Grist:

76.0% Pilsner Malt

8.0% Weyermann Cara-fa2 Special

5.7% Weyermann Melanoidin Malt

5.7% Dark Munich Malt

4.6% Weyermann Cara-red Malt

Mash: 3.2:1 mash hydration (liquor to grist)

Mash-in 124F

Heat to 145F – Hold 30 minutes

Heat to 160F – Hold 30 minutes

Heat to 169F – Mash-out temp



Schwartz Bier Homebrew Recipe

Boil: 120 minutes

19-22 IBU's from German Northern Brewer at boil begin
1-3 IBU's from Czech Saaz at 20 minutes before boil end

Cooling, Fermentation, and Maturation:

Cool between 51-53F

Pitch with Augustiner Lager yeast, minimum 1.25
million cells / ml / Plato

Let rise to 54 – 54.5F for main fermentation

2/3 way through fermentation raise to 56F

At end of fermentation let rise to 57F for Diacetyl rest
7-10 days after pitching start cooling 2F a day until 42-
44F

Rack off yeast & trub / dump and transfer to secondary
Crash cool to lagering temp 28-34F

Lager minimum 2 weeks, aim for four weeks or more.



Cold Side Thoughts, Tips, and Theories



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Low and Slow, the Lager Tempo

- ◇ Cool 2°-4° F below fermentation temperature
 - ◇ Let yeast acclimatize to fermentation temperature-VERY IMPORTANT!
 - ◇ Promotes cleaner ester formation
 - ◇ Promotes Lager character



Yeast, just pitch it.

- ◇ Pitch lots of yeast- better to have too much than not enough
 - ◇ Minimum 1 million cells per milliliter per degree Plato
 - ◇ 20 million cells per milliliter is good
- ◇ Active, healthy, vibrant yeast
 - ◇ Recommendations use starter
 - ◇ Or pitch multiple packs
 - ◇ 3 times general amount



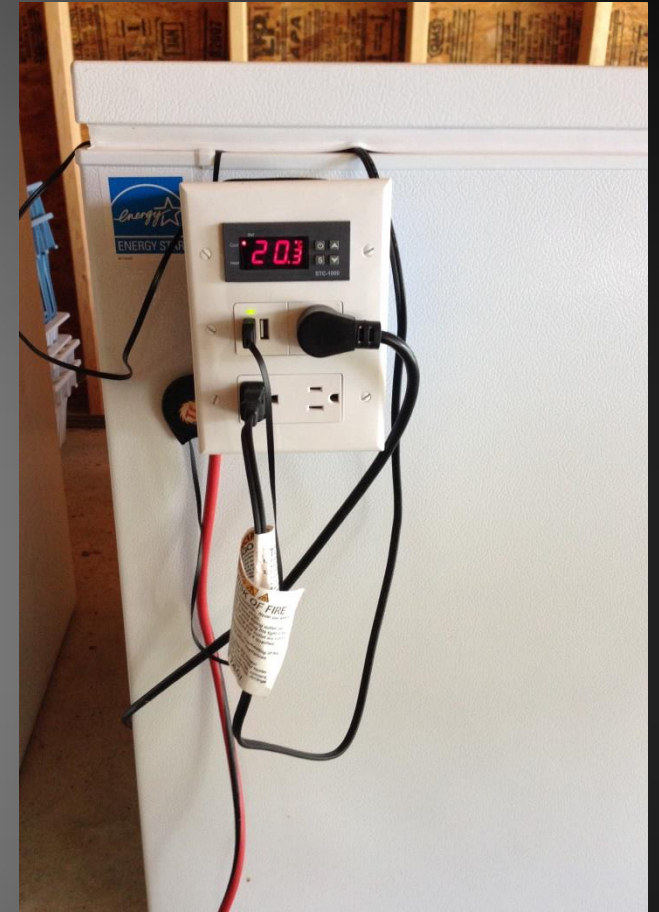
Fermentation

- ◆ Rule Of Thumb: 10 days over 10 C (50°F)!!!
 - ◆ Hard vigorous fermentation 2-4 days
 - ◆ After 2/3 way thru fermentation let rise 2°
 - ◆ Hold until significantly slows and let rise 2° for Diacetyl rest
 - ◆ Minimum 10 total days above 50°
 - ◆ Slowly cool no more than 2° per day to 42°
 - ◆ Transfer (or dump) off of yeast and then crash to 30°-34°



Lager: Keeping it Cold

- ◆ Lager at coldest temperature you can hold (without freezing beer!!)
 - ◆ 28° - 34° if you can manage
 - ◆ Minimum 2 week lagering time but longer is much preferred (4 weeks)
 - ◆ Rule Of Thumb 30 day minimum total time grain to glass – More is preferred



Control Point Theory

- ◇ Have good control of mash temperature. A subtle beer, takes precision.
- ◇ Minimizes HSA. A subtle beer needs to be treated with care.
- ◇ Heat mash slow and steady. No more than 2° F/minute.
- ◇ Vigorous boil- very important
- ◇ Quick cooling 45 minutes or less is ideal.
- ◇ Cool wort 2°-4° F below fermentation temp for quality beer
- ◇ Pitch lots of yeast (use starter or 3X general pitch) more is better than less.
- ◇ 10 days over 10° C (50°F)
- ◇ After fermentation cool gradually, no more than 2° F/day
- ◇ Dump yeast/trub or rack off of yeast/trub for maturation
- ◇ Minimum 30 days grain to glass, minimum 2 weeks lagering- aim for 4 weeks (you have time)



East West India Pale Lager

Gravity: 16° Plato

Alcohol by Volume: 6.7%

Hop Bitterness: 70 IBU

Color: Deep Gold

Malt: Pilsner, Vienna, Special Aromatic, Cara-Red

Hops: Chinook, Sorachi Ace, Mandarina Bavaria, Equinox



East West IPL Homebrew Recipe

16.0 Plato SG

3.4 Plato FG

6.7% abv

70 IBU's

Grist:

5% Weyermann Cara-red

10% Franco-Belge Special Aromatic

25% Franco-Belge Vienna

60% Canadian Malting Superior Pils

Mash: 3:1 liquor to grist ratio

Mash-in at 147F

Heat to 147F, hold for 30 Minutes

Heat to 161F, hold for 30 minutes

Heat to 171F for mash-out



East West IPL Homebrew Recipe

Boil: 90 minutes

At boil begin bitter with 1.0 gram Chinook / gallon, 1.5 gram Sorachi Ace / gallon

At 60 minutes before boil end hop with 2.0 gram / gallon Mandarina Bavaria, and 2.0 gram / gallon Equinox

At 30 minutes before boil end hop with 4.0 g / gallon Mandarina Bavaria, and 2.0 gram / gallon Equinox

At 15 minutes before boil end hop with 4.5 gram / gallon Mandarina Bavaria, and 2.0 gram Equinox

At boil end / whirlpool hop with 4 gram / gallon Mandarina Bavaria and 4 gram / gallon Equinox.

** Can replace Chinook with Equinox & Sorachi with Mandarina for bittering.



East West IPL Homebrew Recipe

Cooling, Fermentation, and Maturation:

Cool to 50 F

Pitch with Augustiner Lager yeast, 25+ million cells / ml (or 1.5 to 1.8 x normal LAGER rate)

Let rise to 52F for main fermentation

2/3 way through fermentation raise to 54F

At end of fermentation let rise to 56F for Diacetyl rest

Dry hop around 50F with .25 oz Equinox & .25 oz Mandarina Bavaria

Cool 2F a day after dry hopping

Hold on hops 5-7 days

Rack off yeast & trub / dump and transfer to secondary

Crash cool to lagering temp 28-34F

Lager minimum 4 weeks, aim for six weeks or more.



Questions?



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Thank you.



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