

Tips for Making Lager Beers (Don't Fear the Cold)

Keys are the 3 C's (not the Columbus/Centennial/Chinook hops, but they can be used)

Clean—no yeast-derived fruity esters, no diacetyl

Crisp—fully attenuated (i.e., FG < 1.012 for most styles)

Clear—cold storage to settle out yeast and hop phenols

It's easier than you think!

Clean

Big-Ass Yeast Starter (1.75 Million Cells/ml-Plato for OG < 1.060, otherwise 2 Million/ml-Plato)

Aerate/Oxygenate the wort before pitching

Pitch cold (43-45 if possible) and allow to free rise to 50 degF

Maintain T < 54 deg for 10-14 days; sulfur aroma will eventually disappear

Diacetyl Rest @62-65 for 2-3 days (can go to upper 60's); can rack before or after

Crisp

Use highly attenuating lager yeast strain (e.g., WLP940 Mexican Lager, 78%, bullet-proof)

Target minimum 75% attenuation for OG < 1.060

Target 72-75% for Bock or Imperial Lager, OG > 1.064

Final gravity 1.008 – 1.012 for standard lager (1.004-6 for Lite Lager)

For Imperial or Bock, FG 1.016 – 1.020.

Czech lagers are less attenuated, finishing 1.016

Clear

Lager yeasts do not flocculate well, so that needs to be accommodated

Proteins/phenols that cause chill haze should be removed (see below)

Traditionally, clarity is achieved by cold storage (lagering)

Rack to secondary fermenter/keg after completion of diacetyl rest

Crash to 34-38 degF, hold for 3 weeks minimum, longer for a more refined taste

Chill haze may take 4-6 weeks to remove (see below)

Use your kegerator as a lager chest, or bottle and lager in your fridge

Fining (e.g., gelatin) will help speed the process, but has other negative effects

Wort Processing Suggestions

Use a protein rest (132 degF, 20 minutes) to reduce high molecular weight proteins

Vorlauf well to provide clear wort transfer to boil kettle

Minimize or eliminate trub transfer to the fermenter

Low-protein adjuncts such as corn or rice help with clarity

Yeast nutrient in the starter (and wort) to promote vigorous fermentation

Hopping and Spicing

Cold storage will reduce apparent bitterness significantly

Plan at least 50% higher IBU than desired in the finished beer (60-65 IBU for target 40)

Dry hop during diacetyl rest—can extend to 5 days without problems

Herb/Spice addition similar to dry hopping

Fast/Faux Lager

Use a highly attenuating ale yeast strain that flocculates well (e.g., WLP007)
Make a big-ass starter (1.25 Million cells/ml-P)
Ferment 3-5 degrees below normal range to suppress ester formation
Crash chill and hold (use finings when kegging, with the regular caveats)

Suggestions

Traditional Lager: Brew within 2 weeks of January meeting to be ready for March
American Lager: Use corn or rice at 20-25%; avoid flaked barley, wheat and oats
Pilsner: Use Bohemian Pilsner malt; definitely incorporate protein rest for clarity
IPL: Your favorite IPA recipe but fermented like lager (remember to add extra hops)
Baltic Porter: Your favorite European Porter recipe, fermented with lager yeast
Baltimore Porter: Your favorite American Porter recipe, fermented with lager yeast
Biere de Garde: Attenuative Belgian ale yeast; could do Saison the same way to finish dry
Rauchbier: Any light body beer with smoked malt will be fine—doesn't have to be German
Kellerbier: Any very young lager—slightly cloudy, hoppy; keg/serve within 10 days of crashing
Altbier and Kolsch: ferment @59-64 degF, cold store for 3-6 weeks.

American-Style Lager (including IPL)

Target 1.045-47 OG, 20 IBU (traditional) or 65 IBU (hoppy); 2-row plus Vienna or Munich Malt
Protein rest 132 degF, 20 minutes; sacch rest 148 deg, 50 minutes; mash out 167 deg
Pitch at 43-45 deg, ferment at 48-50 deg for 2 wks
Diacetyl rest 62-65 deg, 3 days (1 day for warm up, 2 days rest or 4-5 days if dry hopped)
Transfer to keg for lagering (shortened dip tube, 3-5 psi); hold at 33 deg for 6 weeks minimum
Keg-to-keg transfer for serving; force carbonate to 2.7 Volumes CO₂
Use corn 20% if making American Pre-prohibition Pils; rice 20% if making Bud-like

German-Style Lager

Use German Pilsner Malt, Munich (for Helles); Dark Munich and Aromatic (for Dunkel)
Protein rest 132 degF, 20 minutes (1 qt/lb)
Hot water infusion to 151-3 deg F (total 1.5 qt/lb)
Pull a thick decoction (1 qt for every 1.5 lbs malt); heat to 158 deg for 10-20 minutes
Heat decoction to boiling, hold for 5 minutes (Helles) or 35-40 minutes (Dunkel)
Return to main mash, stabilize at 158 deg, hold for 20 minutes
Pull thin liquid at 1 qt/lb of grain; heat directly to boil and hold 5 minutes
Return to main mash for mash out at 167 deg
Continue as per American Style Lager, above.
The decoction process leaves much more protein in the mash tun, less in the kettle