

Brewing Low Gravity Beers

Brewing beers at home with a starting gravity of say 1.038 or less can be a rewarding project resulting in the production of some very palatable, refreshing and tasty beers. It's often thought that low strength beers are easier to brew than medium or high gravity beers, unfortunately this is a misconception and they require greater attention to recipe formulation and detail. Here are some of the points you'll need to consider which become more critical as the original gravity drops lower than around 1.036, most importantly is the overall balance between malt and hops. When we brew medium and more particularly high gravity beers there is some latitude, this unfortunately just isn't there with low gravity brews where imperfections are emphasised with astringency a common fault in particular. So let's have a look at the four basic brewing ingredients bearing in mind these points.

Malts; It's worth considering substituting a proportion of the basic pale malt with slightly more flavoursome varieties such as Vienna, Munich or Mild Ale malt. Vienna malt at EBC 7-10 can be used with confidence to replace at least 50% of pale malt whereas Munich malt varies far more in the grade and colour which can range from EBC 15 – 50, they typically have a greater influence on colour and flavour than Vienna malts so the proportion used should generally be lower. Typical quantities of Munich malt could be up to 25% for the lightest grade and 5% for the darkest grade. Mild Ale malt at around EBC 7 and only a shade darker than pale malt is also useful imparting palate fullness, if unavailable it can be replaced with Weyermann Vienna @ EBC 7. Note that all these malts are diastatic in varying degrees which reduces in power as the malt colour increases. Crystal and roasted malts can supplement the base malts in the usual quotas as can small amounts of flaked adjuncts, however torrefied wheat and sugars in general are probably best avoided for these particular brews.

Hops; It makes good sense to stick with low alpha acid varieties for brewing these beers. This allows for small errors when calculating IBU's which won't have too much effect on the overall balance of the brew, high alpha hops can cause astringency and upset the delicate balance. Not so long ago it was widely believed that it was the varieties which were high in cohumulone content that caused harshness / astringency but recent studies have shown that the matter is rather more complicated so it would be wise to be cautious when considering high alpha varieties. When formulating recipes brewers should be aware that the extraction of the alpha acids is considerably more efficient when brewing low gravity beers, when using brewing software this adjustment should automatically be compensated for but probably best to do a few calculations just to make sure.

Yeast; The selection of a suitable strain needs greater consideration than when brewing stronger beers. A neutral yeast such as US-05 which works well in most stronger styles will leave a low gravity brew lacking in both body and flavour as minimal esters are produced even at warmer temperatures. It would be better to consider selecting a strain which is capable of at least some modest ester formation which will assist palate fullness in the finished beer. Suitable yeast strains would include the London varieties, White Labs WLP002 and Wyeast 1318 for example, the Ringwood type (Wyeast 1187) is also worth considering and there are several others with descriptions listed on the makers websites. If you prefer to use dried yeast, Safale S04 is probably the best suited and the writer has successfully used a blend of S04 and Lallemand BRY-97 in both a low gravity Porter and a Bitter.

Water; It's relevant when brewing low gravity beers to consider the mineral balance of your brewing liquor and in particular the sulphate to chloride ratio. The usual advice on brewing liquor guidelines is to specify a ratio of 2/1 for Pale Ales, 3/2 for Mild & Scottish Ales with 1/2 to 1/3 for Stouts & Porters. Note that these are just guidelines which not all commercial brewers follow by any means, there are several "chloride forward" Pale Ales including the popular TT Landlord to name just one example. Sulphates tend to favour enhancement of hop flavour / bitterness and a crisp, dry palate whereas Chlorides enhance malt flavours and palate fullness. It's important that low gravity beers don't taste too thin so perhaps we should consider tilting the balance more towards Chlorides for moderately hopped beers at least.

General Notes; Care should be taken to avoid excessive sparging, any shortfall in the collected wort can be made by adding sparge liquor directly to the copper. Ensuring that the sparge liquor is around pH 5.7 – 6.0 will assist in reducing the risk of astringency caused by the unwanted extraction of tannins during sparging. If you normally boil your wort for 75 or 90 minutes you could consider reducing this to 60 minutes as there will be less protein to precipitate. Also the rate you add copper fining's such as Protafloc may need to be reduced for the same reason. Fermentation times will be shorter as will the length of time you need to mature your beer in the keg or bottle. Mashing can be carried out at slightly higher temperatures to enhance palate fullness, however low temperatures and long mashing times should be avoided as they can result in very low final gravities and a thin tasting beer. Sugar priming should be on the low side of normal, as high carbonation is not appropriate for low gravity beers other than some specialist continental styles such as Berliner Weiss etc.

Advantages of Brewing Low Gravity Beers.

- Lower production costs
- Shorter fermentation and maturation times
- Chill haze formation is usually not a problem
- Health benefits (however not when compensated for by increased consumption!)