Understanding Attenuation and Flocculation.

Yeast suppliers provide apparent attenuation ranges for their beer in their data sheets, so you can look up apparent attenuation ranges for your favorite yeast. Generally yeasts with higher attenuation will produce a drier, cleaner, less malty finish.

However you may also notice that high attenuation yeasts almost always have lower flocculation (flocculation refers to how quickly the yeast falls out of the beer). There is a reason for this – high flocculation yeasts will start to drop to the bottom of the fermenter before they have had a chance to consume all of the fermentable sugars, leaving a sweeter and more full -bodied beer. So looking at both attenuation and flocculation is important depending on the style you are brewing and how much time you have to age it.

High attenuation yeasts (with low flocculation) will give you that dry, clean, fully fermented finish, but they may take a long time to clear completely unless you use fining agents. Low attenuation yeasts (high flocculation) will result in a fuller bodied, more complex beer as they may not fully ferment complex sugars, but they will clear more quickly.

If you survey yeast data sheets, you will also notice that lagers almost always have a higher average attenuation than ales. This is a fundamental difference between the ale and lager yeasts – ale yeasts cannot fully ferment some forms of maltose sugar (specifically maltotriose), while lager yeasts can. This is why many lager yeasts product a higher attenuation beer with few esters and a cleaner finish.

Selecting the right yeast with appropriate attenuation to match you beer style is important. Don't use a high attenuation yeast if you are brewing a complex English ale. Similarly a low attenuation yeast would be a poor choice for a clean style like a Bavarian Pilsner.

Troubleshooting

I find that occasionally I have low attenuation for a batch – even lower than I would expect from a given yeast – indicating incomplete fermentation. The causes for this can be varied. Low attenuation is a common problem with many extract beers. Often it is an indication of using old or partially oxidized malts or poor quality yeast – try to get the freshest malt extract you can buy.

For all grain brewers, low attenuation can sometimes be caused by incomplete conversion during the mash. Other common causes include not pitching sufficient yeast (i.e. not using a starter), not maintaining proper temperature during fermentation, and poor aeration of the wort before fermentation. When I find a finished batch with low attenuation, I like to go back and look at my brewing process to try to determine where I went wrong.

Extracted from BeerSmith Home Brewing Log.