

CHANGING YEAST BEHAVIOR

by Hank Bienert (July 2007)

I've collected some info over the past few months on the effects on yeast of certain variables selection which are summarized below - BTW, a conversion table of Wyeast vs. White labs is available at a site previously mentioned <http://www.mrmalty.com/>

Studies #1 and #2 which used human sniffers as well as chromatography showed a very close correlation between the two which means to me that there is no reason for the club to buy a gas chromatograph machine.

#1 Wyeast study on wheat beer - presented at a few craftbrewer conferences

Dave Logsdon (head of research) evaluated 13 wheat beers with a single variable of Wyeast yeast type. The OG was 1.058 which makes the inclusion of 3787 (Trappist high gravity) somewhat inappropriate. Fermentation was down to 1.011-12 in about 5 days at a temp of 68 to 70.

The yeasts with the highest clove/spicy (4-vinyl guaiacol) flavor were 1214, 3787, and 3522 in decreasing order; lowest were 1010, 3944, and 3068 in increasing order.

The yeasts with the highest resinous/harsh plastic/characteristic wheat beer flavor (styrene) were 3333, 3944, & 3538 tied with 1214; lowest were 1762, 1010, and 3942.

The yeasts with the highest banana (isoamyl acetate) were 1214, 3068, and 3638; lowest are 3333 and 3864. The yeasts with the highest rose flavor averaged over 2 runs were 3944, 3638, and 3068 - I also have this in detail (grain bill, graphs, etc.) in Powerpoint which I'll be glad to send to those who contact me (hbienert@.cox.net)

This study surprised me because I had thought that the big determinant of clove vs banana flavor was fermentation temp and it still might be for some yeasts. Please don't think that you can just choose the highest and get equal amounts of a flavor either; for example, 1214 is the strongest clove and banana flavor BUT the clove is 4X stronger - life is never black or white! !

#2 White Labs Study of Ca Ale 001, Trappist Ale 500 and German lager 830 by Neva Parker, research head. I heard this on Basic brewing radio (<http://odeo.com/channel/21833/view>) and it is also in a recent issue of Zymurgy which I have NOT read. If anyone has this article please share it with me. I don't know what the grain bill, mash schedule was. The flavors evaluated were fusels (harsh astringent), esters (banana) and diacetyl (buttery).

Test A - One week fermentation was performed at 68 and contrasted with one at 72. At low temp, the Trappist produced lots of banana ester and the others had slight flavors; at high temps, the diacetyl dropped in the Ca and especially in the lager and the banana went very high in the Trappist. Her comment was to encourage a high temp "rest" in a quick fermentation lager or a slower fermentation time - nothing earth shaking there.

Test B - The same 3 yeasts were used on wort with OG of 1.030, 1.044 and 1.070. As the OG was raised the amount of yeast pitched was proportionally increased. As OG went up so did flavors - slightly with the Ca and lager but especially the Trappist. In fact the Trappist was much more affected by high OG than by high temp as in test A.

#3 was run by Dan Listerman who owns a large homebrew shop in Cincinnati (Phil's mill, Phil's counterpressure filler) and an avid homebrewer. He made an oatmeal stout and divided it into 6 portions which he inoculated with different dry yeasts.

He reports:

"S-04 - Roasty aroma, Fruity, tight head, full bodied

Windsor - Little aroma, Sweet caramelly, full bodied, low fruit

S-33 - Low head, low roast aroma, low fruit, medium body

Munton's Ale - Low aroma, Neutral flavor, medium body, fruit in finish

Munton's Gold - Low aroma, Sweet, slightly sour maybe infected

Cooper's - Roast aroma, fruit finish, medium body.

The closest to Sam Smith was the Coopers, but it needed more body - a recipe thing more than yeast."

A personal experience noted a couple of times with Nottingham Ale yeast has been that when pitched from a starter (I never throw dry yeast into the fermenter) and kept at 65 X 24 hours until it takes hold and then taken to low 50s for 5 days followed by 2 weeks in a secondary at 45, it is a much smoother drier beer – almost lager-like than when it is kept at 65 until krausen drops and then put at 45 X 2 weeks.

Well there you have it - when you decide to move away from Fleischmann's bread yeast, this info may be of value.

Hank