

SOME THOUGHTS ON YEAST 2

By Mike Retzlaff

As beginning brewers, we're more than eager to learn the basics so we can start brewing beer. The natural progression is to learn more so we can do a better job on the next batch and alleviate our anxieties in the process. We continue to learn and, hopefully, our beer gets better and better. As we brew different styles, we learn more about the different aspects of the brewing process. Broad, general concepts are absorbed and we continue by learning smaller and smaller details; it never seems to end. (hint – don't lose that eagerness to learn; it is the key to better beer.)

During the 25+ year learning process in my brewing, I've wondered what the difference between ale yeast and lager yeast actually is. I came to realize that I really didn't know. All I could do is cite some of the general traits of each type of yeast, such as:

- Ale yeast is top fermenting while lager yeast is bottom fermenting.
- Ale yeast is warm fermenting while lager yeast is cold fermenting.
- Ale yeasts produce an estery beer while lager yeasts produce a "crisper" tasting beer.

I found that the true answer is either glossed over or simply missing from almost all brewing books. To properly answer the question, let's start with the festive board of wort. Wort contains quite a few different sugars plus many other components. Cooled wort is inoculated with yeast and the feast begins. Maltose and sucrose are disaccharides and are a large part of the mix. All brewing yeasts contain the enzymes needed to break the bond of these double sugars and then ferment the resulting simple sugars.

A less abundant disaccharide in wort is Melibiose and is composed of galactose and glucose. Lager yeasts have the enzyme needed to break apart this double sugar while ale yeasts don't. That's why lagers are usually a crisper, drier beer while ales are a bit sweeter. This enzyme, *Alpha-galactosidase*, in lager yeast is the principal difference between the two species.

Yeast gets a lot done for being such a simple organism. Given the right conditions, yeast is a tireless worker and does some rather amazing things. Without the magic that yeast performs, there would be no beer and we might belong to the Crescent City Yogurt Makers. Take a moment and think about that!