

Craft brewing case study: Omega Yeast

Omega Yeast was founded in 2013 with the goal of providing reliable, made to order yeast and bacterial pitches for professional and home brewers all over the world. They work with breweries large and small to offer advice for strain selection and troubleshooting.

What is your current procedure regarding quality testing of your yeast?

Quality analysis of our cultures comprises a range of testing including microbiological growth/plating, cell counting with hemocytometer, cell mass by percent solids, PCR for potential spoilage organisms, pH and apparent extract. We also measure pH, apparent extract, FAN and BUs in our batches of propagation medium (i.e., wort!).

The pieces of equipment we use most often in the quality lab are our density meter, pH meter, microscope, centrifuge, PCR thermocycler and of course, the GENESYS UV-Vis Spectrophotometer.

Our R&D department utilizes the GENESYS UV-Vis Spectrophotometer for OD600 measurements corresponding to cell number, FAN, BUs, ferulic acid conversion by POF+ yeast. We have designed a few in house assays. For example, measurements of dextrin metabolism with iodine as a starch indicator and measurements of cell growth/survival by the acidification of medium using bromocresol blue pH indicator. We have also used our GENESYS UV-Vis Spectrophotometer for the analysis of water/minerals that would traditionally use a colorimeter.

What is the value of in-house testing versus outside analytical testing lab testing?

With in-house testing we can employ rigorous monitoring on every brew and every culture we produce. With bulk throughput and continuous sampling we can identify outliers and reject anything that is out of our specifications. Third party analysis is often more expensive and results are not relayed fast enough to integrate into our quality program. We do resort to third party analysis for methods that are more specialized and outside of the scope of our quality lab.

In your experience, what are some of the advantages to having a spectrophotometer for analytical testing in the brewing industry?

Easy, cost-effective, fast, versatile! We have really found more uses for the spec than we initially anticipated.

Why use UV-Vis technology vs. other analytical instrumentation techniques? Or do you see other techniques as complementary?

Other techniques are often complementary. The UV-Vis has been versatile and allowed us to get the most bang for our buck from our quality lab to our R&D projects.

How did you first hear about the Thermo Scientific™ BeerCraft™ Software on the Thermo Scientific™ GENESYS™ Spectrophotometer?

A couple of us are classically trained yeast biologists and had experience using spectrophotometers in University labs. We knew that we needed a UV-Vis spec to be a workhorse in our lab. The GENESYS Spectrophotometer and the BeerCraft Software are both high end. We were also happy that we wouldn't be limited to kits that tied us to specific reagents or protocols.

What has your experience been with using the BeerCraft Software on the GENESYS 50 onboard software and touch screen?

The software and touch screen are very user friendly. It's no different then using an app on your phone. Exporting the data is very user friendly as well.

You have an active R&D program focused on yeast research. How have the findings from this research been implemented in your business?

A big collaboration between our quality and R&D teams has been in the development of better assays to detect diastatic yeast. We have improved upon some of our traditional

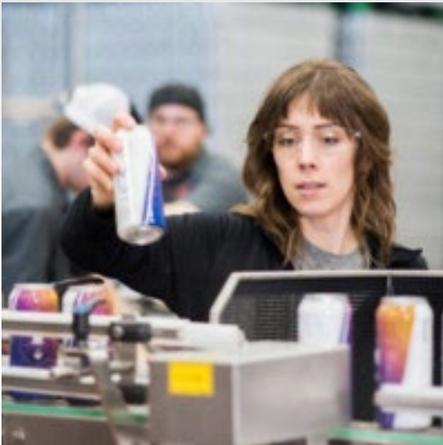
screening methods that we use to QC our yeast cultures, and have also developed novel functional screening tools to measure starch degrading properties of suspect contaminants. The GENESYS UV-Vis was a critical tool for the development of these functional assays. Our diastatic yeast study was recently accepted and will be published by the American Society of Brewing Chemists (ASBC).*

How has the GENESYS Spectrophotometer with BeerCraft Software helped with your yeast research? What methods are you utilizing the spectrophotometer for in your work?

There is a lot of screening involved in the development of new yeast strains. The GENESYS has been integral here. Also, we find that we rely heavily on colorimetric assays as affordable screening tools for research. The spec has helped us study topics such as hop creep, diastatic yeast, wild yeast metabolites, yeast contributions to haze, nutritional requirements of yeast.

We have had great success with Thermo Fisher Scientific. There are several people that have helped us along the way and they have always been there for us! We look forward to growing this relationship.

* Improved Functional Assays and Risk Assessment for STA1+ Strains of *Saccharomyces cerevisiae*.



Omega Yeast Representative

Laura Burns is the Director of Research and Development at Omega Yeast. Laura earned her Ph.D. in Cell and Developmental Biology from Vanderbilt University, where she studied cellular responses to stress in *Saccharomyces cerevisiae*. With this vast knowledge of yeast under her belt, she decided to apply it to her passion in beer and fermentation. She worked in production brewing for 5 years as Head Brewer and Director of Quality Assurance and gained the experience and knowledge of what it means to be a craft brewer. Now back at the bench at Omega Yeast, Laura has the opportunity to develop new yeast, new tools and better solutions for craft brewers, which keeps her continuously inspired. She is incredibly grateful for the support of her colleagues and the great minds at Omega Yeast.

Find out more at thermofisher.com/beercraft

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