Sensory Summit Returns to the University of California, Davis

Photos courtesy of the Specialty Coffee Association

For this edition of the Flamekeeper column, we asked members of the Roasters Guild Executive Council to share some thoughts about their favorite presentations and takeaways from the Sensory Summit, held Jan. 26–28 at the University of California, Davis.

Malt Matters: A Sensory Exploration

By Steven Lee

Friday evening, the group flooded off the bus and into the Sudwerk Brewery, where Dr. Charlie Bamforth, professor of malting and brewing sciences at UC Davis, has his lab. After a long day of stimulating talks about wine, chocolate and coffee, this session at the brewery was a welcome stop because—beer!

That evening, Bamforth and Christopher Schooley spoke about the beer industry and what we as a coffee community can learn from a more established trade. We learned that malt is the soul of beer, and at the end of the talks we had the opportunity to taste some different styles of malts provided by Schooley from his company, Troubadour Maltings. It was a great presentation—entertaining and thought provoking—and it tied together themes from the beer industry that are relevant to the coffee industry.

Tasting and evaluating malts was a new sensory experience. We became familiar with how malts, traditionally seen as stable ingredients with a long shelf life, are negatively affected by time. This was enlightening, albeit familiar. Learning where one's ingredients come from and making decisions based on quality are relatively new concepts in regard to beer and malt, but very familiar in the world of coffee. Maybe the beer industry can learn a thing or two from us.

Later that evening, as we all filed off the bus—full of more knowledge and beer than when we started out—I left with a sense of camaraderie for those other craftspeople and industries that I had been learning about throughout our sessions. It all came together, and I better understood how terroir matters in wine, how cacao matters in chocolate, and how malt matters in beer. As craftspeople, and as an industry, it's about understanding our processes, understanding our materials, fostering relationships, and crafting a product that we can stand behind. It's all interrelated. These concerns seem universal across craft industries, and with that realization, it's an exciting time to be working in coffee.

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Christopher Schooley of Troubadour Maltings brought malts for participants to taste during a session drawing parallels between craft brewing and coffee roasting.

World Coffee Research Variety Trials: Tasting the Varieties

By Dani Goot

Emma Sage, coffee science manager for the Specialty Coffee Association, and Hanna Neuschwander, director of communications for World Coffee Research, presented findings from research on coffee breeding and the flavors associated with them.

Sage started off the lesson by exploring how we differentiate plants within a species. The differences between a variety, cultivar and hybrid were explained in detail, which segued into a tasting of different types of distinctive flavor profiles.

Neuschwander followed the tasting with a discussion about the history of coffee breeding and how coffee varieties are chosen. From leaf rust resistance to quantity yield, she explained the historical reasoning behind how and why coffees were selected and crossed to benefit the coffee farmer through quantity and quality.

Next up, Neuschwander discussed the present and future of breeding through "good ol' fashioned plant sex" and what we can expect to see over the next few years through F1 crossbreeding. This is an extremely important topic, and it was interesting to see what changes will need to happen in cultivation to continue to produce coffees that will survive climate change.

As our world evolves, there will be new issues such as shrub disease and insects that will threaten the future of coffee. I am particularly interested and excited about this work and also anxious about how this affects our industry. As coffee roasters, we will need to adapt the way we roast and present our coffees as these changes continue to occur in growing regions.

The Microbiology of Fermentation in Coffee and its Potential Flavor Impacts

By Anne Cooper

We started the session with a presentation by Dr. David Mills, who studies the molecular biology and ecology of fermentation. He discussed research into what contributes to flavor, and how researchers found that when they removed yeast from a fermentation tank, the final product lacked flavor—so the conclusion could be made that adding yeast is important to flavor.

Lucia Solis, a UC Davis enologist alum, spoke next about her background in wine and fermentation research in coffee. She noted that coffee is the only industry that does not use additives in its processing/fermentation. Solis discussed the reasoning behind and results of research she conducted with fermentation techniques inspired by brewers and winemakers, looking into potential benefits of using yeast in the coffee fermentation process. In her research, she has found the results to be improved and more consistent cup quality.

We tasted results from one of her yeast experiments in collaboration with Emilio Lopez Diaz from Cuatro M in El Salvador. For the experiment, Diaz used a low-elevation coffee, which by the time it got to us was only seven days old.

Participants explored sensory science in relation to coffee, beer, wine, chocolate and more during the three-day Sensory Summit.

The first sample we tasted was the control with "wild"/normal fermentation tank conditions, and it tasted as a coffee should having come straight off the patio, unrested—quite green and not so complex.

The second sample we tasted had yeast (Oro from Scott Labs) added to the fermentation tank for 24 hours, and was fully submerged and mixed for complete contact and uniformity, then covered to eliminate any additional bugs or other foreign matter that could affect the experiment.

The treated beans, according to Diaz, were more visually appealing, with a deeper, greener color and not swollen or uneven. For us, they tasted rounder, sweeter, and had more complex fruit notes—definitely better cup quality!

Solis discussed areas that need more research, including yeast contact time. Initial conclusions indicate that yeast contact time matters; short contact time means a small difference. Also, wild yeasts can have unpredictable results, while using a "designed yeast" can result in more consistency. Her research also showed that adding a designed yeast to a fermentation tank can lead to an increase in the longevity of coffee by allowing for more stable conditions in the fermentation tank.

Coffee is a complex entity and we are, after all, in the business of flavor. But, with this awesome research on the microbiology of fermentation in coffee and its potential flavor impacts, the possibilities are now endless.

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