



Sensory Science in Every Brewery

By Cindy-Lou Lakenburgs and Rebecca Newman



Cindy-Lou Lakenburgs

We've tapped two veterans of ASBC and brewing science to provide an interview-style conversation on brewing sensory. Each contributor has over 20 years in the brewing industry, from protecting flavor to advancing new products and technology within the breweries they have worked with.

Cindy-Lou Lakenburgs has been with Anheuser-Busch InBev for twenty-six years. She is currently sensory and consumer science manager for ABI North America.



Rebecca Newman

Rebecca Newman has over 32 years' experience in the brewing industry and has worked with brewers at Anheuser Busch, Sierra Nevada, Boston Beer, Dogfish Head, and Summit Brewing. Rebecca now works independently with breweries across the country in areas of sensory, quality, and innovation.

What's important about sensory?

A sensory program is essential for the long-term success of any brewery. In nascent breweries, the brewmaster and team may rely solely on taste for recipe development and to determine if subsequent batches of a brew match the original. As the brewery matures, the brewing staff should be able to identify key aroma and flavor attributes that make a brand unique. It's equally important to be able to identify defects, hopefully during the brewing process rather than after packaging. The kind of defect identified can often give a clue about where in the brewing process an issue has occurred. The bottom line is that no matter what instrumentation a brewery may have, the sensory profile of a beer is the connection to the consumer.

What is an essential component of every sensory program?

For any sensory panel to be successful, it must have a champion: in effect a "Beer Guardian." This person is responsible for managing the sensory program, which starts with building a dedicated beer panel. This requires persistence, resilience, organization, and, of course, an almost maniacal desire to identify the aroma and flavor attributes of any beer that crosses their palates.

How do you assemble a taste panel?

Coordinating panel training requires time and consistency. Surely, the most successful panels are those who are trained regularly with ongoing sessions to maintain the panel's skill set. To build a new panel, at least one training session per week is mandatory.

Starting with basic tastes (sweet, sour, salty, bitter) is a great way for trainees to gain confidence that they can develop skills as a panelist because most people understand these attributes as part of the foods and beverages they encounter in their everyday life. In subsequent sessions, common beer attributes and defects should be introduced and reintroduced with regularity.

When assembling a panel, look beyond brewing and quality. Look for members who have a love of fine dining or “foodies.” Often these tasters will bring in descriptors that help define attributes. Using culinary terms, a brewery may begin to establish descriptors for flavor based on hops, malt, or yeast. Pantry items may be useful to anchor the intensity of a descriptor.

Are there different panels in the brewery?

As the brewery panel builds its skill set, some panelists may participate in different types of panels. The package release panel may convene each day to review the tanks set for release to package. This may be as simple as three tasters providing a consensus “go or no go” for each beer. A descriptive analysis panel may meet weekly to define new beers or process change attributes of the beer. As the brewery grows and moves from keg- or tap-only beer, a shelf-life panel may be considered. This panel can help define how a beer ages.

Each panel provides a different purpose. Panelists should be selected based on their ability to validate each brand and attributes and identify off flavor. At a small brewery, it may be as direct as one taster, one opinion. At a brewery with a sensory program, it is the “Beer Guardian’s” responsibility to validate each panelist as well as maintain training and validation of the various types of panels. Some breweries include ingredient panels, in-process panels (pre-release), and innovation panels. No matter the brewery size or resource, any effort made for sensory testing should be routine and robust. A sensory panel that can flag and create action around nonconforming beer prior to release will save a brewery time and money by disallowance of shipping noncompliant beer.

What is the benefit of a validated taste panel?

Sensory validation of panelists is critical for maintaining panel performance and to understand individual panelists’ strengths and weaknesses. A validated panel is one for which the panel as a whole is able to recognize and rate key attributes and defects consistently and where individual panelists’ scores are statistically similar to those of other panelists. This is imperative for ensuring sensory data generated by the panel are reliable for decision-making by the brewing department.

What are typical resources for creating, maintaining, and innovating a sensory program?

ASBC offers a unique cache of information specific for brewing sensory. Besides methodologies found in the *Methods of Analysis*, a comprehensive flavor database, the beer flavor wheel, and the beer and malt flavor maps (a hops flavor map coming soon!), there is a host of webinars providing instruction on selecting and training panelists, maintaining panel proficiency, validating a panel, flavor standards, hop flavors, and sensory statistics. And, generally, there is a sensory-related workshop at each annual

ASBC meeting. These workshops are always packed and led by ASBC members. The ASBC Technical Committee has an active Sensory Subcommittee comprised of brewing sensory scientists who participate in various sensory-related projects over the course of the year. Of late, the Sensory Subcommittee has evaluated the Tetrad Test as an alternative to the Triangle Test for difference testing and published a malt steep method for sensory evaluation, including a Pale Malt Lexicon.

The community of ASBC is a diverse group of scientists from many facets of the brewing industry. The focus of the Sensory Subcommittee is to advance sensory science among those from breweries, malt production, hop production, and various supports to the industry. Using robust and repeatable *Methods of Analysis*, as well as the flavor database, allows everyone from diverse backgrounds to speak a common language, describing beer and the vast array of associated aromas and flavors.

Can panels be crafted for new product development and innovation?

All breweries want to bring new products to their consumers. Sensory plays a key role in innovation by providing context to unique flavor combinations and intensities. Sensory programs may engage consumers, asking for their input on new beers. When breweries look for ways to improve on the current portfolio, the sensory function can help determine if process changes result in discernable differences in the aroma and flavor of a beer. As brewers create new beers or products, the sensory panelists can help provide descriptors for defining attributes from new or novel ingredients or process.

In summary, sensory science continues to advance consistency of flavors and styles for beer all over the globe. Using the resource of ASBC and the support of tools in the *MOA*, webinars, and the flavor compendium, brewers will continue to develop and drive a common lexicon for breweries of all sizes. Sensory science within the brewery brings flavor forward and provides expression of beer using attributes that can be gauged and reproduced. Using descriptors that resonate with brewers, consumers, and suppliers alike, breweries will gain insight for new products. Creating consistent flagship brands with continuous improvement and developing new products are the benefits of having a robust and well-executed sensory program.