

A Well-Rounded Palate

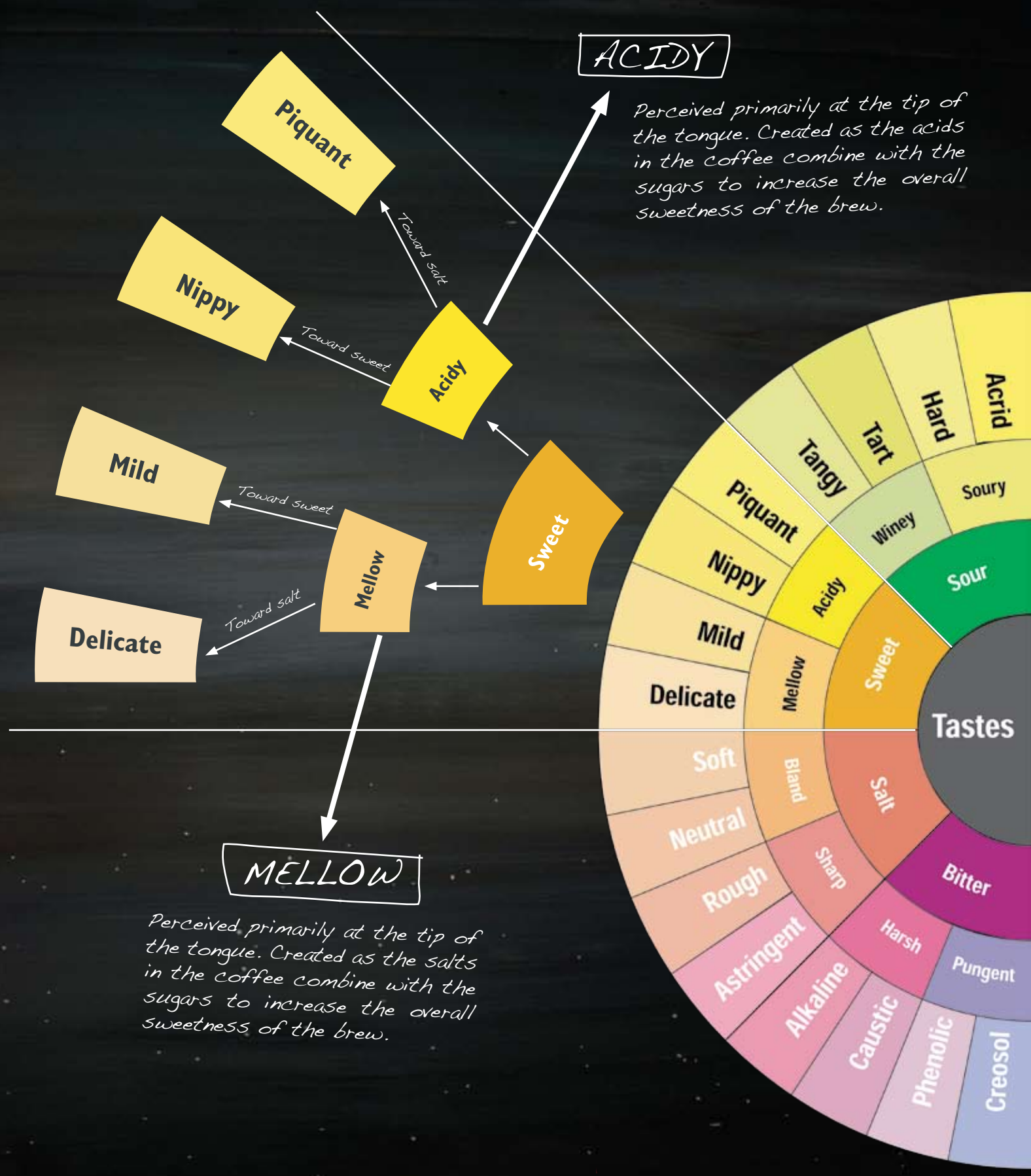
A GUIDE TO THE COFFEE TASTER'S FLAVOR WHEEL

BY BETH ANN CASPERSEN

Do you speak coffee? Learning to cup and describe coffee is a lifetime endeavor. Each day I learn something new, and after 15 years in the coffee industry, I am far from bored—in fact, I find that I am more curious and hungry for coffee knowledge than ever before. The coffee industry has evolved over the past few decades—most notably in the last decade in education, public learning and access to information. Like many of my peers, I was an apprentice and learned from someone else about coffee. There wasn't any kind of coffee "school" in the mid-'90s, but now there is a myriad of information available about anything related to coffee, from YouTube videos about coffee preparation to coffee industry events that provide training and insight. The language of coffee encompasses everything from the standards for barista competitions to detailed information about how to use the Specialty Coffee Association of America (SCAA) cupping form. Never mind the inspirational and innovative work happening with coffee production.

Like any other language, learning to speak coffee requires education and practice. One of the most interesting, yet taken-for-granted, tools we all have access to is the Coffee Taster's Flavor Wheel. You may be familiar with it and think you know how it works. So did I. That is, until I started to dig in.

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*Definitions from *The Coffee Cupper's Handbook*

I started researching the origin of this tool over the past year because I will be creating a cross-product sensory training for coffee and chocolate liquor, one that will use the lessons learned in our world of specialty coffee and provide more structure than is currently being used in specialty cocoa. So rather than create a new set of terms, why not borrow from other food products? As I started to take the time to think, read and reflect on the Coffee Taster's Flavor Wheel, I realized I had opened up a can of worms that merited a discussion with the wider specialty coffee community.

The Flavor Wheel: A Historical Perspective

The flavor wheel has enjoyed 15 years in existence. It is used by the most seasoned coffee cuppers and newbies to boot, it employs familiar and professional vocabulary that is technical but approachable, and it adorns the walls of coffee professionals around the world. There have been thousands of copies sold since the first printing, and the wheel is

available in both English and Spanish. The Coffee Taster's Flavor Wheel was created in the late 1990s for the SCAA by Ted Lingle, the former executive director of SCAA and current executive director of the Coffee Quality Institute.

There are two coffee tasting wheels on the poster; the left side refers to taints and faults, and the right side contains distinct aroma and flavor tasting attributes found in coffee. Time and again, the flavor wheel has been an invaluable resource for coffee professionals; it's an easy way to provide terms for flavor, create confidence for the taster and help cuppers jog their memory when a tasting term is quite literally on the tip of the tongue.

I have spent the last 10 years training cuppers and working to create a common vocabulary with our producer partners. When explaining the flavor wheel, I spend the majority of my time looking at the wheel on the right side of the poster and focusing on the more positive attributes of coffee. This right hand wheel is divided into two sections: tastes and aromas. The graphics and terms are easy to refer to in a silent room full of cuppers, no matter what level of experience. I still refer to it to see if the power of suggestion may provide me with an advanced term not found on the colorful poster.

Though the flavor wheel is a great tool, I have always had a few questions about the way it was created, such as why specific descriptors like "tea rose" are used, while taste terms like "umami" are absent. I knew I had to start with Lingle to gain some historical perspective.

Lingle worked with a group of people to refine his thinking and ideas around creating a common vocabulary. This was based on his own work and his creation of multiple glossaries of words that the coffee industry was in need of; thus, *The Coffee Cupper's Handbook* was born in 1985. "We needed a more expansive language [for coffee]," he told me, and *The Coffee Cupper's Handbook* worked to address this need. The first version was introduced to the small group of coffee professionals that had organized the SCAA. As the years passed, the SCAA progressed in its thinking and attracted new members and a deeper understanding of coffee flavor. It was only after a conversation with a colleague, Jeff Babcock of Seattle's Zoka Coffee Roaster & Tea, that Lingle decided to transform *The Coffee Cupper's Handbook* into the Coffee Taster's Flavor Wheel poster.



photo courtesy of Equal Exchange

What coffee professionals may not know is that the flavor wheel was created as a visual tool to accompany *The Coffee Cupper's Handbook*. Through my own work and years of training with producers, cuppers and clients, I had developed what I thought to be a logical way to explain the flavor wheel. But when I went back and re-read *The Coffee Cupper's Handbook* I was struck by the complexity of it. The flavor wheel is an important resource that needs acknowledgement as a profound piece of work in specialty coffee. Although the scientific appeal found in *The Coffee Cupper's Handbook* may not be the easiest to understand or the most approachable for many people (regarding the aroma and flavor

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terms), nonetheless the foundation is solid. It may require more future work to make it more accessible to everyone.

After learning that the two tools were meant to work together, I was surprised to see that there wasn't any indication on the Coffee Taster's Flavor Wheel that one needed the handbook to interpret the imagery. It seems like the relationship between these two pieces is recommended as opposed to vitally dependent on one another.

Faults and Taints Wheel

The left side of the poster refers to the negative effects on coffee through five groups—harvesting/drying, storage/aging, roasting/caramelization, post-roasting/staling and post-brewing/holding. Basically anything that has gone wrong with a coffee would likely end up on the faults and taints wheel. As you may have guessed, coffee cannot remain in a constant state of equilibrium through each of these stages, and when things go awry, the characteristics are best described through the faults and taints wheel. Essentially, this is the problem side of the Coffee Taster's Flavor Wheel.

According to the *Coffee Cupper's Handbook*, "If the change results in a minor flavor defect, usually limited to the aromatic properties of the flavor, it is referred to as a flavor taint. Whether a flavor taint is pleasing or displeasing depends on its type and degree, as well as the cupper's personal preference. If the chemical change results in a major failing, usually transmitted to the taste properties of the flavor, it is referred to as a flavor fault. Flavor faults are almost always displeasing, regardless of the cupper's personal preference."

Aromas

Aroma (otherwise known as fragrance, nose, aftertaste) is the general term used to encompass all stages of smelling coffee on the flavor wheel. The aromas found in coffee are experienced through the nasal passage, sending a message to the olfactory bulb in the brain. The cupper then translates this message into a word like "fruity." When you look at the aromas on the flavor wheel, you will find a general category called "enzymatic," which is linked to the "fruity" term. From this point, you have the option of two different fruit categories ("citrus" or "berry-like") and more terms to describe different fruit options. You look at the wheel, dig deep into your memory for the aroma you are experiencing, and then work through the possible term to match your beliefs. This is how the vast majority of cuppers likely use the flavor wheel.

However, the aroma side of the wheel lists three primary terms: "enzymatic," "sugar browning" and "dry distillation." This is where I started to create a few conflicting arguments. I wondered if the flavor wheel was created as a way to evaluate coffee in a sample cupping or roasted coffee in a production cupping. When cupping samples from our producer partners, we use a light roast and evaluate the cup characteristics with the SCAA cupping form. All of the roast colors are the same, however we sometimes find distinctive aromas like maple syrup or cloves.

The Value of Production Cupping

The Coffee Taster's Flavor Wheel and *The Coffee Cupper's Handbook* can provide insight into the way you produce coffee for your customers. One of the most effective tools is a very basic and old-school method of analyzing coffee roasts through a process known as production cupping. At Equal Exchange, each day samples from each batch of roasted coffee are brought to the lab and cupped the following morning. Each sample lists the name of the coffee, degree of roast, colorette number (color spectrometer) and the number of the roast for that day. Coffees are



Beth Ann Caspersen at a production cupping.
photo courtesy of Equal Exchange

organized by origin and in order of roast degree. Companies do this to analyze the consistency from roast to roast of the same origin coffee (or blend) and to verify/confirm the characteristics they want to see come out of a particular coffee. Investing in this system requires time, energy and follow-through, but the results can be tremendous.

After each cupping is finished, the cuppers (both roasters and quality-control folks) evaluate each of the coffees, talk about what they liked, what needs to change and how to make informed changes. Feedback and production cupping notes may then be sent to the purchasing, quality-control and roasting teams each day with flavor descriptions and recommendations.

Production cupping every roast creates a solid feedback loop that includes everyone in the process and builds excitement and shared responsibility. It's also a great way to encourage various levels of experimentation. If you are not production cupping in your roastery, consider it. It's a solid investment in the quality of your coffee.

—Beth Ann Caspersen

The Colors

I always thought that the colors of the wheel were attractive and seemed to express the terms they surrounded—light yellow for lemon, dark brown for chocolate—but what I learned from Lingle was that the amount of time and energy put into the color scheme was not a whimsical arrangement related to terms, but that each term was very purposefully put in place to represent the weight of the molecules that they were meant to represent. For example, the enzymatic category and the terms associated with it actually contain a lighter molecular weight than those found in the dark purple colors seen in the dry distillation category.

In addition to the significant importance of molecular weight, the aroma categories also have specific definitions that refer to the way the coffee was grown, the development of sugars in the roasting process, and bean fiber. Terms like "coffee blossom" in the enzymatic category refer to the development, maturity and terroir

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found in the coffee, while a term like “maple syrup” in the sugar browning category indicates the development of sugars. And, finally, terms like “clove” from the dry distillation directly reflect bean fiber.

Another tool that coffee professionals have is the set of aroma vials that were developed by Jean Lenoir, the famous creator of wine, champagne and cigar aroma kits. For coffee, Lenoir had specific ideas about the aromatics found in coffee, as did Lingle. Upon meeting in Paris to begin working on the aroma vial kit, they found that their ideas were in alignment. Amazingly enough, with all of the possible aromas you could find in coffee, these two professionals were able to settle on a list of 36 terms. Through their process of exchanging information, they had to change only four terms to come to an agreement. Considering the wide variety of terms that many cuppers find outside of the aroma section of the flavor wheel, this is very interesting.

The Tastes

You may have learned about four basic tastes through an SCAA class, the Q-grader course or your own background and curiosity about fundamental flavor.

At the center-left side of the right flavor wheel you will see the term “tastes.” Skirting this word are the four basic tastes believed to be in coffee: sour, sweet, salt and bitter. Lingle pointed out that not only are there fewer terms on this side of the wheel, but that there is a

“dearth” of words available in the English language to describe flavor. In the taste category, you don’t find the wide-reaching descriptions that one associates with actual flavors. What was interesting to me was the idea that aroma captures many of the sentiments we have as cuppers, but the actual flavor terms of sweet, sour, salt and bitter seem to be a limiting group.

Imagine a scenario where you identify a coffee as being sweet; the flavor wheel provides you with more taste options within the sweet category, and you decide the coffee flavor “mellow” does the best job of capturing your sentiments (see page 38 for a cross-section of this part of the wheel). You now have the option to take “mellow” a step further; you are left with two more options: “mild” and “delicate.” Both tasting terms are familiar; they seem similar in concept and are widely used. How are they different? It seems like tasters could proceed at this point with a judgment call and interpret the words in whatever way they want to. But that is not the intended use for the taste side of the flavor wheel. The vocabulary used refers to specific measurements with adjacent flavors on the wheel contributing to the intensity of a specific flavor. Use the flow chart breakdown for descriptions, which will help cuppers justify why one term is better than another.

The flavors you experience on the cupping table or enjoy in your brew encompass the basic four flavors of sweet, sour, salt and bitter. Though the basic four don’t sound like the sexy terms we like to use to describe the fine attributes in coffee, terms like “apricot” or “maple syrup” are actually aromatics that are described as flavors due to the

open passage between the palate and the nasal passage that allows us to experience these characteristics retro-nasally; thus, they become part of our flavor description.

What About Umami?

After attending the Applied Sensory and Consumer Science Certificate Program at the University of California, Davis, I was certain that the basics of flavors were not fairly represented on the flavor wheel. For one, an important discovery made about the way food products can taste, dubbed “umami,” was not being represented. I wondered if there were plans to include this fifth taste in a future version of the flavor wheel. However, Lingle has an opposing opinion about umami. He asserts that the flavor of umami is a modulated version of salt introducing fat—basically a merger of salt with water-soluble oil, much like the flavor of seaweed and widely known as monosodium glutamate (MSG). Therefore, he says, it is a subset of salt on the Coffee Taster's Flavor Wheel.

The Limits

Let’s assume that the flavor wheel is open to interpretation and that it can be used in many different ways. What happens when there is a descriptor that is not listed on the flavor wheel? (I am certain that umami



photo courtesy of Equal Exchange

plums are not on it.) The flavor wheel has always provided my mind with freedom and creative license, but upon reading *The Coffee Cupper's Handbook*, I began to look at the wheel through a more restrictive and less creative lens.

I had never thought of the flavor wheel as a limiting tool, but rather a way to encourage tasters to dig into their aroma and flavor memories and pull out a term that would be interpreted through the coffee they are tasting. What I learned is that the right-hand wheel, the one containing tastes and aromas, is believed to represent the limits in coffee. Knowing that green coffee contains more than 200 chemical compounds before it is roasted and hundreds more after roasting, shouldn't there be more than 36 aromas and four basic tastes? It makes sense that cuppers would venture outside the lines of the flavor wheel when encountering a particular aroma memory, which is based on experience and access to the vocabulary presented. However, the flavor wheel is meant to create a common vocabulary. I believe it

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does that, plus it encourages cupper calibration. But does it stop there?
 At this point, there are no plans to change or update *The Coffee Cupper's Handbook* or the Coffee Taster's Flavor Wheel. I can appreciate the wheel as it has been described and the value I find in using it for my own business and training. However, there are many interesting discoveries in the food industry, and I don't think it could hurt to review the contents, descriptions and work to get more out of it. If at the end of the investigation we find that the wheel will remain the same, so be it. But it doesn't hurt to review and make changes as they come about (the third edition of *The Coffee Cupper's Handbook* dates back to 2001).

Other Flavor Wheels

There are many different kinds of flavor and aroma wheels in the marketplace, including wheels for perfume, beer, cheese and wine. I had always used the Coffee Taster's Flavor Wheel for pure vocabulary and relied on the rating system of the cupping formats and standards created by the SCAA by which to grade coffee. But now I am re-learning this vocabulary to further identify precise measurements. In doing so and in exploring the wide world of flavor, I ventured into some other delicious food categories to explore ways that their educational and training in sensory would bring clarity or more experience into the coffee industry. I also wanted to see what terms may be universal. The coffee industry borrows so much from other specialty foods. Though we have carved out our own thinking and stand tall with our creative descriptions, it never hurts to learn more.

Some say it's cliché to compare specialty coffee to the wine industry, but I have found that this is a simple way to engage the consumer. We should be looking to other specialty foods and learning about ways to further our own thinking and sharing information for other foods industries. In talking about the Coffee Taster's Flavor Wheel with Lingle, I referenced the beer industry and the wide vocabulary around basic mouthfeel terms (which by the way, is not represented through the Coffee Taster's Flavor Wheel, but is available through *The Coffee Cupper's Handbook*) and the importance of keeping an open mind. We may have three decades under our belt as a specialty coffee industry, but people have been making cheese, beer and wine way longer than that. In the coffee industry, we may have created some formal structures to talk about what we taste, but, in my mind, we are nowhere close to finished, so let's keep on talking and learning.

BETH ANN CASPERSEN is quality control manager for Equal Exchange, an importing and coffee-roasting cooperative in West Bridgewater, Mass. She is responsible for managing green grading, cupping of all green coffee shipments, training cuppers and overseeing quality-control procedures for roasted coffee production and all Equal Exchange products. Beth Ann is a Q grader and will complete her apprenticeship to become a Q instructor this spring. E-mail her at bacaspersen@equalexchange.coop.



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