

An Indulgence in Your Cup: Troubleshooting and Innovating Coffee Flavors



Coffee flavor leader Flavor & Fragrance Specialties offers a look inside its labs, creative philosophy and the dynamic flavored coffee segment

“Specialty coffee is off the charts,” says Flavor & Fragrance Specialties (FFS) flavorist and lab manager Dianne Sansone. “Flavored coffee consumers are not [traditional] coffee consumers, so there is no cannibalization.” As the flavored coffee segment evolves, new profiles and technical challenges (masking off flavors from vitamins and other fortifications) proliferate.

Dunkin’ Donuts recently launched a skim version of its Coffee Coolatta beverage as part of its new campaign to provide consumers with healthy choices. Meanwhile, JavaFit has launched a new line of no-sugar functional RTD coffee beverages. Aimed at active consumers, those looking to be healthier or manage their weight, JavaFit’s offerings include *Extreme Latte* (fortified with green tea extract), *Diet Latte* (fortified with bitter orange extract

Advantra Z), *Focus Latte* (fortified with α -GPC and multi-vitamins) and *Immune Latte* (fortified with Echinacea and multivitamins). Despite the ample fortification, the company claims its beverages have the flavor profile of “melted coffee ice cream.” Finally, Starbucks’ *Cafe Mocha Truffles*, noted for their indulgent qualities, were listed among the winners of Mintel’s 2008 Global New Products Database taste test. The technical hurdles and opportunities for innovation never cease.

“When coffee flavors first arrived on the scene,” Sansone explains, “they were mostly [referencing] alcoholic flavors because they were based on someone adding a cordial to their coffee after dinner—for example, sambuca, Irish cream, anisette, hazelnut/frangelica.” While standbys such as French vanilla and hazelnut remain top favorites, the flavor profiles have continuously evolved even as new flavors emerge. On this day, for example, the FFS team is

FFS’ Roadmap for the Next 25 Years

Twenty-five years ago, Flavor & Fragrance Specialties (FFS) began life in the basement (pictured) of founder Robert Maleeny. Partnered with Mike Bloom, Willy Palmer and Steve Vanata, Maleeny oversaw the growth and evolution of the modest operation, which now has facilities in Mahwah, NJ, and Baltimore, MD. Bloom, who is now president, notes that today FFS does all the business in one day that it once logged in an entire year.

The path has not always been easy. In 2002, the company was dealt a severe blow when Maleeny

passed away unexpectedly. Bloom explains that some 70% of businesses fail when their founder retires or dies. Yet the company has flourished, splitting into two separate flavor and fragrance business units. Following the retirement of Vanata, Bloom and Palmer purchased the company, which today boasts specialties in the coffee and hot beverage segments (including tea) and pharmaceuticals (such as lozenges) in addition to activities in flavor enhancement for oral care (cooling technology), confectionery, dressings and beverage segments. On the fragrance side, FFS focuses on air care, health and beauty, and household products.

Bloom now considers FFS a boutique flavor and fragrance house that serves large and small customers in its areas of expertise. Bloom believes strongly in mentorship. At FFS it is common for staff to move from technician positions to perfumery, while flavorists are typically trained internally. This next generation of FFS will execute the company’s strategy of growing its functional food segment, in addition to enhancing its position in the air care and health and beauty markets.



at work on a line of comfort food flavors including devil's food cake, oatmeal cookie, coconut crème pie and pecan pie. Sansone points out, "They're dessert flavors ... an indulgence in your cup without adding calories."

A Flavor Philosophy

FFS president Mike Bloom was deeply involved in the latest revision of the Society of Flavor Chemists' bylaws, particularly in the area of educational/career requirements (flavorchemist.org/docs/bylaws.asp). And his dedication to preserving the quality of the title "flavorist" is evident in his mentoring activities. With a strong belief in handing the business to the third generation, Bloom personally mentored both Sansone and flavorist Alpa Roman, both of whom came from the evaluation side.

The education of the team is ongoing. "We taste raw materials every morning," says Roman. "Everybody keeps a notebook of their own with their interpretation of the ingredients." Sansone adds that there are always revelations, even when one has tasted a material many times before. "You'd be surprised at how you can taste something that you didn't see before. It's good to have a little bit of interaction. People will perceive materials in different ways and you definitely get a good sense of what somebody sees that you don't." Bloom points out that gender can play a role. "Men and women smell and taste differently," he says. Sansone adds, "We find sometimes when evaluating a flavor it splits along gender lines."

On this morning, Sansone and Roman present a walk-through of a simple banana cordial flavor. The demonstration provides an insight into Bloom's—and by extension FFS'—flavor creation philosophy. Focusing on the fundamentals, the system begins with the flavorists finding desirable levels and dilutions of each material in turn so that they impart the desired effects (to achieve a greener or less green effect, for example). Only then are the materials combined and, if necessary, tweaked. "It's very basic," says Bloom. "You can get people in here and very quickly teach them how to make a simple flavor."

Evaluating Flavors: Drilling Down to Customer Intent

In the middle of the demonstration, Sansone and Roman are pulled away to evaluate a range of three seasonal Irish cream flavors for a client. They gather in a small conference room along with coffee application specialist Alissa Leegwater and flavorist Glenn Mangarelli.

"The base coffee in this case is very sour," says Sansone. "We're trying to overcome the sourness of the roast. We find that when we flavor coffee that the roast profile, the origin of the coffee, the type of brew (how many beans to how much water), and the kind of brewing equipment you use all play a huge role in flavor evaluation. People don't even think about that—'coffee is coffee.'"

The team passes around three demos in small sample cups. Leegwater notes that, among so many possible profiles, the flavorists are looking for the best attributes. In the case of Irish cream, the variations can be tricky.



From left: Alpa Roman (flavorist), Paige Crist (Perfumer & Flavorist magazine) and Dianne Sansone (lab manager and flavor chemist) sample a banana cordial flavor demo.

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"There are some people that think of a real Irish whiskey when they say 'Irish cream'—like dropping Irish whiskey into your coffee. For that you'd want that real whiskey, barrel note. There are some people that think of Bailey's [Irish cream liqueur], which is really milky, creamy, chocolatey—not anything like whiskey. Then there are some people who think of something that's more rummy-alcoholic."

Much of the team's job involves drilling down to a client's intent. The trick is to pick a handful of variations to send to the customers so that their expectations can be met. In this case, the client did not clarify exactly what sort of Irish cream they desired. Sansone notes that simply picking the panel's favorites is not always enough. "You have to meet the customer's expectations. We can all say 'yes, this is the best,' but somebody else might pick it up and hate it." Bloom adds that the key is to please consumers, not just hit "formulators' hot buttons."

Sansone judges the third sample as "very alcoholic," while the second sample is notably chocolatey. "So what does everybody like here?" she says. Nothing, Sansone sees potential in the chocolate character of the second sample, but it "needs to come down and have some sort of alcohol note added to it. We need to rebalance it a little bit. It needs to have more Irish cream than it does now." Because of this, the process of honing flavor profiles requires a certain amount of humility on the part of the flavor team. "Sometimes we get surprised," says Sansone. "Sometimes we say, yes, we like this one, and we take it to a larger panel and bring in some of the non-technical [FFS] people and we'll be very surprised that they don't like it at all. We [the flavor team] can all agree on something and still be wrong."

"Sometimes," Roman adds, "you're working too close to the project."

While any good flavorist will at times wonder "are we over-thinking it, are we under-thinking it, have we paneled it enough," the FFS team has developed a number of techniques to combat the occasional unpredictability.

*Bloom refers to Sansone as the "queen of raspberry" because of her penchant for that flavor profile, while Roman is known for her affinity for mint.



From left: Jeb Gleason-*Allured* (Perfumer & Flavorist magazine), Alissa Leegwater (coffee evaluations specialist) and Glenn Mangarelli (flavorist) sit in on a coffee flavor tasting panel.

In evaluating any flavored coffee, for example, the team first samples the coffee black so that it can know what it's working with and is able to distinguish between characteristics imparted by the base drink and those caused by the added flavor. And because most flavored coffee consumers add milk/cream and sugar, the flavorists replicate these conditions. In addition, Sansone and her colleagues compare projects to benchmarks on the market.

Meanwhile, to counteract organoleptic fatigue, the team may use water or crackers to cleanse their palettes, but Sansone notes that there is always a point in the day where serious evaluation cannot continue. "[Late in the day,] if you start doing serious panels you're kidding yourself," says Sansone, adding that if a panel pushes itself too far past its threshold it will inevitably end up with "what were we thinking?" moments. She cites a Monell Institute (monell.org) study that concluded that the late morning on Tuesdays are the optimal time for tasting panels due to a typical lack of distractions/general fatigue. "Tuesday you've pretty much hit your stride," she says. "It's when people's senses are the most acute."

Overall, Sansone notes, the process is most efficient when the customer can come in and evaluate flavor mods on-site. "We really like it when they do that," she says. "But, because of people's schedules, it's very difficult to get customers out of their work environments to come in. We've done it, though, and usually find that the timeline for development is [significantly] shortened." Face-to-face interaction means that the flavor team can get unfiltered, immediate feedback on projects and make real-time revisions. Instead of mailing samples and receiving feedback via phone or e-mail, the team can run back to the lab and make a revision and return within minutes; the process

is condensed. "In a day or two we can close in on something," Sansone adds. "If we can get people in, especially if there's a short timeline, we like that because it really does help us get where we need to be."

Iced Coffee Flavors

As Roman puts it, "The kids all love iced coffee." When formulating flavors for iced coffee applications, Sansone explains, the process is similar to formulating for traditional coffees, though because the beverage will be diluted with ice, it needs to be stronger. "Most of the time they tell you to just make it double strength and then figure you're going to pretty much cut it back to normal strength with whatever you're chilling it down with," she notes. But there are other considerations. "Flavor materials will taste different when they're hot and cold," Sansone adds. "Also, if you taste something freshly brewed versus an hour later, it's different."

Emerging Flavors: Coffee and Beyond

On this morning, FFS is also in the middle of a hot chocolate beverage project. In this case, the customer has provided a benchmark, Lindt's *Excellence Dark Chocolate with Chili* chocolate bar. "This actually has heat in it," says Sansone, adding that Roman has previously developed a chocolate-chili profile for coffee. "It's going to be a dark chocolate sipping chocolate," she continues. "This customer would like to have the heat, so we need to do a powder flavor to give them the same dark chocolate-chili."

She notes, however, that while the client wants to impart heat, they do not want consumers to walk away saying "I've had enough of that" after one sip. They must be able to drink a whole cup in comfort and with pleasure. While it's easy to pass judgment on a flavor based on a small sample cup's worth of a beverage, nothing can replace the "whole cup test." A sample-sized cup may not be sufficient to reveal a flavor fatigue threat or a lack of balance that surfaces once one's mouth has been fully saturated.

This particular hot chocolate beverage is destined for the domestic US market, but highlights the growing importance of ethnic and other emerging flavor profiles across the globe. In coffee alone, the FFS team works with clients as far flung as Iceland and Korea. And in every category there are distinct regional differences in tastes.

"For example," says Sansone, "chocolate-orange is a big flavor in Europe and not a very big one [in the United States]." Toothpaste flavor profiles also vary widely, including herbal (rosemary), floral (lavender and rose) and mint varieties. And it is not only the flavors that change, but the vocabulary itself. Roman recalls one case in which a Mexico-based client requested a peppermint flavor, but in reality was calling for something Alpa identified as spearmint-oriented.

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