



Daniel Shewmaker of Caffé Vita assessing green coffee



Cupping sample at Caffé Vita

Faded Notes: Aging Beans and Roasting Profiles

Roasters must develop roasting profiles in order to decide how best to deal with aging beans

By Jenny Neill

Roasting beans seems like it ought to be simple: warm up a drum, add beans, monitor temperature until it starts rising again, and listen for the first and possibly second cracks.

But most experienced roasters understand that much of what happened to that bean before it arrived in the roasting facility has an influence on how its product tastes. Where it was grown, how it was processed, its moisture level before being bagged, even the temperature and humidity of storage before and after being shipped to the country in which it will be consumed — all can have an effect on how a coffee professional chooses to roast a bean.

Many operations with a few years of buying, roasting and selling behind them do not struggle with inventory issues. However, a new roaster or startup coffeehouse may not know how long it will take to run through a lot. Even those with plenty of experience buying and roasting beans may sometimes find themselves with bags in danger of being past their prime.

Scott Richardson, partner and green coffee buyer at Herkimer Coffee in Seattle, offered this explanation.

“Overbuying would be the main culprit, followed by buying something you can’t sell because it’s either not appealing or simply too expensive for your market to sustain.”

Specialty coffee is a luxury that consumers often cut back on in economic downturns. Sometimes, because of seasonal variations in weather at harvest time or with conditions during processing, green coffee ages faster than is typical. Whatever the reason, commercial roasters of all sizes must understand how to develop roasting profiles in order to decide how best to deal with beans as they age.

Roast profiling: collecting then controlling the details

Profiling is a term that gets used a lot in the coffee trade. When used by roasters, it encompasses a process of recording data before, during and after the roasting process. Taking careful note of the moisture content of the bean, usually by measuring the weight of a batch and noting the batch size, is where most begin. Once complete, the batch gets weighed again to figure out how much moisture was lost.

More choices can be made and recorded, depending on the available equipment. For example, how big is the drum and how fast or slow is it being rotated? How is airflow being managed and how much can it be manipulated during the roast? What is the soak time and temperature?

How the bean progresses during the roast is also part of establishing a profile. For instance, once beans were added to the drum, how long before the drum temperature bottomed out and started climbing again? How long does it take for the beans to progress from yellowing through first crack to the desired color, be that before or after second crack? How many samples were pulled to check on this as the roast progressed?

Patrick Barnes, owner and roaster at Gracenote Coffee in Berlin, Massachusetts, US takes an experimental approach to roast profiling. His firm was nearing its first anniversary when he was reached for his thoughts on this topic. Gracenote is his first coffee business and he started as many American roasters do: he bought green from Sweet Maria's and roasted it up at home.

Richardson described his early lessons in profiling.

"I learned on an air popper," said Richardson. "Its limitations were quickly exposed, which caused me to modify it by adding a rheostat so I could control the heat being applied," he recalled. "That change is what really allowed me to explore and understand time and temperature profiles and their effect on coffee."

Barnes stayed committed to using small batches for developing roast profiles when he and his partner decided to turn from hobbyists to professionals. They invested in a three-kilo roaster.

Sensory evaluation in combination with "exhaustive data logging"—which captures data on bean temperature, gas pressure, exhaust motor speed and temperature and damper settings—enables faster development of roasting profiles.

"Discreet control of gas and airflow are important because without exact numbers, repeatability becomes difficult at best," Barnes told *STiR Tea & Coffee*, explaining his approach. "Without having constants, we wouldn't be able to understand how smaller and more precise changes were affecting the end result. After we've roasted a coffee a few times and gotten the profile close enough to sell, the changes we're making are really subtle."

Though it takes 25 batches to fill a medium-sized wholesale order, Barnes pulls and cups a sample from each.

"Each bean, old or young, deserves its own profile and the same degree of attention to detail," he told us.

Indeed, different lots of green require a different approach to roasting.

About those beans

The seeds of coffee cherries have a lot to go through before roasters begin to work with them. Starting with cultivar and origin, everything plays a role, from general growing conditions at origin for a given harvest period to more specific concerns like whether the trees could be considered healthy in a given year, and whether the coffee was wet or dry processed. Green coffee buyers, like Daniel Shewmaker at Caffé Vita in Seattle, come to expect a certain shelf life based on roasting experience, and their knowledge of processing and shipping conditions.

The amount of moisture remaining in a green bean when it's readied for shipping seems to play a major role in how susceptible bags are to aging prematurely. Both Shewmaker and Richardson say heat and humidity also play roles.

"Coffees from Ethiopia and Guatemala have a reputation for longevity," said Shewmaker, sharing his impressions. "They are typically high grown, dense, well processed and stored in cool, dry conditions until they are ready to ship. Ethiopian coffees seem to benefit from the fact that Addis Ababa, the hub of all coffee trade in Ethiopia, rests at elevations exceeding 7,000 feet. Landlocked East African nations such as Congo, Uganda and Malawi tend to face a daunting voyage and rarely show up cupping as vibrant as one would hope given the pre-shipment samples."

All three agree that hot, muggy ports do no favors to the shelf life for purchases destined for single-origin roasts.

Shewmaker had this to say about one recent issue.

"Last year, our shipment from Honduras was delayed for weeks in Panama and arrived cupping mildly baggy."

The seeds of coffee cherries have a lot to go through before roasters begin to work with them



Roasted coffee cooling at Herkimer Coffee (Photo: Brynn McCoy)



Cupping coffees at Herkimer Coffee (Photo: Brynn McCoy)

Age isn't always all bad

Coffee, an agricultural product that goes through many stages before being brewed, continues to change before being roasted. Many professionals and aficionados debate the nuances of how to adjust roasting profiles to change the cup of a variety of brew methods.

The term Shewmaker used to describe a delayed shipment of Honduran coffee is undeniably a flaw.

However, is age always fatal? The simple answer is: no. Some seem to improve with a little time on the warehouse shelf, given good storage conditions.

“Time can be kind to some coffees,” Shewmaker remarked. “An interesting phenomenon we’ve noticed is that washed Ethiopian coffees can arrive clean, sweet and simple but then truly blossom come winter.”

Understanding whether a bean showing baggy notes can be improved by changing the roasting profile depends largely on the skill of the roaster and the intended use of that coffee. And, of course, what flavor profile the roaster’s customers expect.

Despite trying to stay “light on our feet and not overbuy,” Barnes discovered a 20-pound bag of coffee that he had a lot of experience roasting and that was nearly a year old. He called it the “most dramatic example of aging” he has dealt with so far. Barnes described the first batch from that found coffee this way.

“For fun, I roasted it with the last profile I used on the coffee, and the results were precisely what aged coffee tastes like—papery, thin, flat. It was missing what we loved about the coffee, which in this case, was a starburst-like acidity.” He tried a technique that involved starting with a hotter

roaster and working through the process in increasingly faster roast times.

“Each successive roast of this coffee started more aggressively than the last,” he said. “We finally got something that, while not as wonderful as fresh crop, was very workable in terms of brightness and balance.”

Practice and cup, cup and practice

None of the roasters interviewed for this story were willing to give general advice about dealing with aging coffees. The consensus is that proposing a single approach to adjusting a roast profile to account for aging would be a fool’s errand.

While the reasoning behind the suggestions varied, some techniques worth trying were mentioned more than once. The “hotter, faster, more aggressive” approach was mentioned most often. The thinking behind it varied, though. For some, that tactic resulted in a darker roast, which was the goal because it could be more readily incorporated into espresso or French Roast blends.

Two firm conclusions emerged. First, once a roasted coffee fully acquires the baggy flavor, changing the roasting profile won’t help. Shewmaker described the smell as “like a sweater that hasn’t been worn since last winter—stale, musty, and flat.”

Second, experience is the best teacher. Or in the words of Richardson, “It takes time and patience to develop understanding of how the time and temperature profile affects coffee. Then it takes more time to understand and develop expectation when varietal, origin and elevation differences get factored in. Palate memory combined with process understanding and origin tendency all make for a long but worthwhile journey toward understanding.” ☕

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