

My sense of taste lacks distinction. I get the broad tastes alright—sweet, bitter, savory, sour—but after that, it's all greek. As a result, I tend to doubt that the differences in flavor the informal sommeliers of my acquaintance swoon over are as strong in the mouth as they are in their minds. So, when my friend told me he could taste the difference between cups of coffee so distinctly that he could match a series of cups to their respective beans, I said, “prove it.” That weekend, we brewed eight cups of coffee from eight different roasters. I kept a bean from each bag for him to match the cup with. After a short sip from each cup down the line, he puzzled for a minute, tried a few cups a second time, then matched the cups to the beans. He got them all right. “How did you do that?” I asked him after I settled the cash side of our wager. He was, of course, only too happy to tell me—at length.



The color of coffee gives clues to its flavor profile. Image credit: Flickr user [Olle Svensson](#) (CC BY 2.0)

The Color of Coffee Can Display its' Flavor Profile

The color of a coffee bean can say a lot. Different colors come from different roast durations. Minute differences in roast can have outside effects on coffee's flavor, acidity, body, and aftertaste¹ So, determining the exact color of a coffee bean after a roast can tell a manufacturer a great deal about what the coffee will taste like.

For the average coffee drinker, telling a coffee's attributes from the color of its roast is a neat party trick. It's a way to show off to their friends that they've read about the eight strictly defined SCA color grades, Very Light to Very Dark—a way to build up self-esteem. In short, the stakes are low. For a manufacturer, however, the SCA color grades are their brand. It's why people buy their coffee. Keeping color consistent is essential to retaining customers. In short, the stakes are high.



Coffee beans are green, and without much flavor, before being roasted. Image Credit: Flickr User [Jessica Spengler](#) (CC BY 2.0)

SCAA Scale Is Used to Classify the Colors of Coffee

That's why coffee roasters rely on the SCAA scale to rate the color of their beans during the production process. By matching the color of a bean to a printed sample, they can determine within a reasonable margin of error whether each batch has been properly roasted.

This method has its drawbacks, however. To start, exact color matches are difficult between textured materials. The differences in surface texture of coffee beans and vinyl printouts affect human color perception. Also, human beings are inherently subjective at assessing color. Color

perception differs between different observers, or even between the same observer at different times of day. Sample preparation and measurement can cost manufacturers valuable time if they are not done properly. Saving data from tests takes up even more time, as it must be initially recorded and then entered into one or more data storage systems.

Spectrophotometers Can Measure Coffee on the Agtron Scale

To correct this, many coffee roasters have turned to using the HunterLab ColorFlexEZ Coffee spectrophotometers to determine the color of their roasted beans. These instruments measure color with extreme precision and can be delivered programmed to display their results according to the SCAA scale. HunterLab even invented the HCCI (Hunter Color Coffee Index), with input from roasters worldwide, to improve upon the SCAA scale. By using instrumental measurement, they eliminate the subjectivity inherent in human observers. The data can be transferred easily from these machines to a central location, such as a hard drive or the cloud. The machines take fast, reliable measurements, and samples can be quickly prepared, and a single measurement can report the SCAA number, Roast Classification, and HCCI number.

HunterLab has over 65 years experience developing spectrophotometers for industry use. Working extensively with coffee roasters, we've developed the ideal [instrumental solution](#) for coffee color analysis, the ColorFlex EZ Coffee Spectrophotometer. To learn more about how the ColorFlex can help keep your roasts consistent, contact the experts at HunterLab today.

1. "Coffee Roasting," 2006, <http://www.coffeeresearch.org/coffee/roasting.htm>