

LIGHTEN UP



CREATE THE PERFECT LIGHT ROAST

BY WILLEM J. BOOT

PHOTOS BY KENT HANSON

IMAGINE THAT consumers and specialty coffee aficionados around North America suddenly refused to purchase dark, over-roasted coffee beans and began to demand that their local coffee house offer them a lightly-roasted, vibrant tasting, easy-to-digest coffee. Would you be able to handle the challenge of creating the perfect light roast?

Of course, this is a hypothetical question. Dark roasted beans enjoy such massive popularity among coffee consumers that it is hard to imagine coffee drinkers spontaneously protesting against the trend. For some reason, roasting dark seems to keep coffee houses everywhere, from the boardwalk beach cafés in San Diego to the rainy streets of Maine, in its tight grip.

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El Salvador Peaberry Bean

Just ask the average, small- to medium-sized roasters about the “why’s” of their dark roasting style and they will simply answer “because my customers want it,” usually followed by an explanation that lighter roasted beans offer a more pronounced acidity, which is not preferred by the majority of today’s coffee consumers.

With that being said, let’s pretend just for a moment that consumers suddenly started calling for a lighter roast. Would roasters be ready to handle the challenge? Frankly, I don’t know. With the grand popularity of dark roasted coffees, the roasting community seems to have lost some of its finesse. Because too many roasting companies simply copy the roasting styles of some of the big players, there seems to be only a handful of companies that dare to roast any of their beans lighter than Agtron 55 (M-Basic), considered in some European countries as a very normal roasting color for drip filter products. In Northern Italy, many roasting companies apply the same degree to roasting espresso beans, just up to the very first start of the second crack.

So, what’s the big deal about roasting dark? Why should we even have to consider a light roast, when the average consumer generally prefers the sweetness and potentially creamy finish of a well-crafted dark roast? Why not stick to the play-it safe scenario and try to do what the average customer wants?

The answer is not a simple one. First of all, I believe that most dark roasted coffees lack brightness, sweetness and often have cardboard, paper-like flavors, especially after the brewed

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coffee has been kept for more than only 10 minutes. Secondly, I believe that lighter roast colors, such as those shown in the pictures of the El Salvador peaberry bean and the Colombia Armenia bean (both Agrtron 58 to 60), generally offer a much more complex cup profile than the same coffees roasted to a darker degree, like Agrtron 40 or lower. Additionally, there are some other advantages of roasting light, like a longer shelf life, less emissions during roasting, and a lower risk of roaster fires.

However, roasting coffee as light as the pictures indicate is not an easy process; the roaster needs to follow certain steps to ensure that the flavor profile of the coffee is sufficiently developed, without creating sour, astringent or malty notes, which can potentially be predominant with under-roasted coffee beans. The solution to developing proper profiles for lighter roasted coffee beans is to investigate with each coffee bean type the appropriate time-temperature pattern. In the case of the Nicaragua coffee beans shown on the following pages, we applied a roasting style with moderate heat supply throughout the roast, which resulted in a gradual increase of bean temperature.

So, what's the secret to creating perfect tasting light roasts? Are you expecting that I am going to reveal

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Colombia Armenia Bean

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Picture A.
*Nicaraguan Bean:
 most free moisture evaporated*

a long-hidden family secret that will propel your business straight into the ranks of light-roast fame and fortune? Not hardly, but that's okay because you don't need an "ancient roasting secret." Roasting light can be as easy as preparing a medium-rare steak. Or as cooking pasta al dente, which gives the pasta a pleasant bite, soft mouthfeel and makes your guest grateful at the same time.

Let's assume we have just purchased some bags of Nicaraguan coffee in the most recent Cup of Excellence auction. Furthermore, we have decided to roast the Nicaraguan beans light enough so that the roast with its inevitable caramelization will not mask the coffee's flavor profile. By following a light roasting protocol, we will attempt to preserve the medium-toned acidity and the apricot-like aftertaste of these precious Nicaraguan beans. At the same time, we must take into account the semi-hard bean structure of this coffee, which requires moderate energy supply during a major part of the roast cycle.

Seeing the Light

Are you ready? Let's start a light roast. Make sure that the roasting machine is fully preheated for at least 10 to 15 minutes. Next, we will determine our charging temperature, which should be not too high for this coffee, otherwise these medium-hard beans might tip or scorch. Upon charging, little seems to happen for at least two minutes. However, under

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the green surface of the coffee bean, a major chemical transformation is occurring—the beans are literally soaking up the heat passing through the roasting drum. The free moisture that is contained in the cell structure of the beans is heating up and will eventually start boiling and evaporating. Now, look at picture A. The roast process is 3–4 minutes underway and the color of the beans will slowly start changing towards a golden brown. If you pulled a small sample from the roasting drum with the trier, you would smell a floral, sweet, almost fresh bread-like aroma. From this moment on, it is important to watch the increase in bean temperature. By the sixth or seventh minute, the coffee develops a more brownish color and the beans start expanding. A hint of coffee aroma starts to emerge from the coffee and the first crack gets closer. As picture B. shows, the color approximates hazelnut brown and the surface of the beans is quite smooth.

These Nicaraguan coffee beans can be classified as semi-hard beans, grown at an elevation of approximately 1,250 meters, which causes the beans to look quite even at this stage in the roast. Higher grown beans—1,400 meters and up—will have a different appearance in this stage, with a rough surface and an uneven color development.

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Picture B.
*Nicaraguan Bean:
one minute before first crack*

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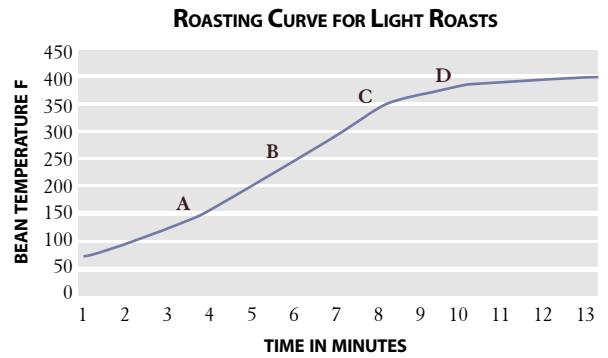
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Picture C.
Nicaraguan Bean:
right after first crack



As the roasting graph indicates (the letters on the graph correspond to the pictures), the roastmaster has to roast prudently to ensure a gradual increase in bean temperature. The best way to accomplish this is by lowering the heat supply to such a degree that the beans will continue roasting gradually and slowly, which is essential for light roasting styles. At the start of the first crack, heat inside the coffee beans becomes exothermic, which causes them to generate heat. Because roasting too fast can produce sour, astringent and malty roasting taints, the roastmaster should lower the heat supply on time to stay in control of the process.

When the first crack starts, listen to the speed of the cracks. The faster you can hear one crack after another, the higher the bean temperature is at this stage. If you feel that it's going

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too fast, reduce heat supply; if it's going too slow, increase heat supply gradually. Picture C. shows the color of the beans immediately after the first crack (nine-ten minutes roasting) and picture D. displays the color about one minute later. As we can see, there is a marginal difference in color between stage C and D. This is exactly what we are trying to accomplish in this light roasting style; by roasting prudently, we realize a gradual development of the coffee's flavor profile, without unnecessarily stalling the process. After stage D, it is up to the roaster how much time to prolong the roasting process; fundamentally and literally, this is a matter of taste. With a roasting color of Agtron 58 to 60, the Nicaraguan coffee described here, tasted delightfully complex, with a subtle medium-toned acidity and—as I hoped for—a delicious apricot-like aftertaste.

Hopefully, these tips can inspire roasters throughout the world to use light roasts as a tool to unveil the flavor profile rather than to mask it.



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Picture D.
*Nicaraguan Bean:
one minute after first crack*

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