

FincaLab® “Light Calibrated” Green Coffee Grading Mat

The Light Calibrated™ coffee grading mat is the perfect complement for the SCAA green coffee defect manual. It's calibrated gray background and ready reference to bilingual scoring criteria help simplify the grader's work.

- Features:**
1. Optimal background for grading coffee
 2. Bilingual defect scoring information (English/Spanish)
 3. Green coffee color reference
 4. Accessory for measurement of ambient light level

Gray background

The human eye is an optical sensor that is hardwired to its image processor, the human brain. Although the sensor/processor package is better than any camera (so far) it is still constrained by the laws of physics. The eye's iris is part of an optical subsystem that adaptively adjusts the retina's sensitivity with respect to the spatial distribution of light in the image. It's a very, very sophisticated system.

With respect to grading coffee, what this means is that the color and light value of the background affects the human optical system's performance. The performance of the optical system is maximized if the background has a diffuse reflectance near that of the green coffee being graded. This best allows the eye to adjust the "exposure" so that the coffee is near the center of the eye's sensitivity curve where the available image contrast is maximized....exactly like a camera. Black or white backgrounds are sub-optimal for grading coffee; when a black background (or a white one) is used, the eye automatically compensates for the average light level (just like a camera) and the image of the coffee is forced off the center of the available contrast curve. This is similar to the situation where a portrait photo is taken of a backlit subject. The subject appears as a silhouette and facial recognition is impossible. The 20% gray background used in the Light Calibrated™ mat is closer to the reflectance of the coffee than is that of a black or white grading mat and thus it helps optimize performance of the human optical system.

Measurement of ambient light level

For measurement of the ambient light level, the mat is used just like a professional photographer's "gray card." A photo of the gray surface can be used to measure the intensity and color of the incident light if the camera's ISO sensitivity, shutter speed, and f number are known! For practical purposes, this means that the mat can be used with virtually any modern digital camera to assure that the light meets the grading standards set by the SCAA. No laboratory instruments needed.

Procedure to measure ambient light level:

- 1) Place the grading mat where you plan to use it for grading coffee, gray side up.
- 2) Set the ISO sensitivity of your camera to ISO 100.
- 3) Determine the exposure for a photo of the focusing target in the center of the gray mat by depressing the shutter button partway to focus the camera on the target and display the shutter speed and f number on the camera's viewing screen. Be sure to avoid shadows and make sure that the camera's image shows only the gray surface of the mat and no surrounding images or text.
- 4) Note the camera's f number and shutter speed....compare these to the table at the bottom of the mat to assess the light level falling on the mat with respect to SCAA standards.