

FLIGHT

— Coffee —

Agriculture - Bean defects and grading

The green coffee beans classification standard provided by the SCAA is an excellent method to compare coffee beans. It is superior over some systems in that it better accounts for the relationship between the defective coffee beans and the cup quality. However, it leaves out a few of the important coffee defects that can occur in coffee.

SCAA Method of Coffee Grading

Three-hundred grams of properly hulled coffee beans should be sorted using screens 14, 15, 16, 17, and 18. The coffee beans remaining in each screen is weighed and the percentage is recorded. Since classifying 300 grams of coffee is very time consuming, 100 grams of coffee is typically used. If you are dealing with a high grade coffee with only a few defects, use 300 grams. If the coffee is of a lower quality with many defects, 100 grams will often suffice in a correct classification as either Below Standard Grade or Off Grade. The coffees then must be roasted and cupped to evaluate cup characteristics.

Specialty Grade Green Coffee (1): Specialty green coffee beans have no more than 5 full defects in 300 grams of coffee. No primary defects are allowed. A maximum of 5% above or below screen size indicated is tolerated. Specialty coffee must possess at least one distinctive attribute in the body, flavour, aroma, or acidity. Must be free of faults and taints. No quakers are permitted. Moisture content is between 9-13%.

Premium Coffee Grade (2): Premium coffee must have no more than 8 full defects in 300 grams. Primary defects are permitted. A maximum of 5% above or below screen size indicated is tolerated. Must possess at least one distinctive attribute in the body, flavour, aroma, or acidity. Must be free of faults and may contain only 3 quakers. Moisture content is between 9-13%.

Exchange Coffee Grade (3): Exchange grade coffee must have no more than 9-23 full defects in 300 grams. It must be 50% by weight above screen size 15 with no more than 5% of screen size below 14. No cup faults are permitted and a maximum of 5 quakers are allowed. Moisture content is between 9-13%.

Below Standard Coffee Grade (4): 24-86 defects in 300 grams.

Off Grade Coffee (5): More than 86 defects in 300 grams.

Below is a chart for grading coffee beans. It is based on the primary defect and the number of defective coffee beans:

-Primary Defects-

Primary Defect	Number of occurrences equal to one full defect
Full Black	1
Full Sour	1
Pod/Cherry	1
Large Stones	2
Medium Stones	5
Large Sticks	2
Medium Sticks	5

-Secondary Defects-

Secondary Defect	Number of occurrences equal to one full defect
Parchment	2-3
Hull/Husk	2-3
Broken/Chipped	5
Insect Damage	2-5
Partial Black	2-3
Partial Sour	2-3
Floater	5
Shell	5
Small Stones	1
Small sticks	1
Water Damage	2-5



Stinkers



Broken



Shells



Stones & Sticks



Insect damage



Half black



Green



Malformed



Floaters



Black



Dried cherries

Antestia

Damage from the Antestia bug, resulting in coffee beans ranging from slightly discolored to almost entirely black and shriveled up.

Bits

Pieces of coffee beans crushed during processing.

Black Beans

Black, or very dark, un-roasted beans. Black beans typically result from harvesting immature cherries or by harvesting dead cherries that fall naturally from the tree. Black beans can also result from exposure to water and heat and insect-damage. Unroasted coffee beans with more than 25% black, deep blue, or dark brown surface area, may be considered black beans. Black beans have a detrimental effect on coffee taste. The number of black beans in a representative sample is a basic measure of coffee grade.

Blotchy

Irregular greenish, whitish or yellowish patches on unroasted coffee beans. Blotchy beans may result from incomplete or uneven drying during processing.

Boat Shaped

Beans with ends that curve upwards like a boat.

Bullhead

An extra large coffee bean. Sometimes a peaberry which has not totally grown together.

CBB Damaged

Coffee Berry Borer damaged coffee beans. The Coffee Berry Borer, or *Hypothenemus Hampei*, is one of the most significant pest problems for coffee farmers. The CBB is a black, two millimeter long, beetle that bores holes through the seeds coffee cherries. "Broca" is the widely used Spanish term for the coffee berry borer. CBB damage is also called "Broca damage".

Crushed

Crushed coffee beans are most commonly the result of improperly set or damaged pulping equipment. Coffee beans can also be crushed during mechanical separation of the beans from the husk, or during mixing in fermentation tanks.

Diseased

Disease damaged coffee beans. There are many coffee plant diseases that can damage a coffee crop, but most are caused by fungus (mold). The most prevalent coffee mold problems are Coffee Leaf Rust (CLR), which shows as yellow-orange blotches on the leaf, and Coffee Berry Disease (CBD), which lives in the bark of the tree and produces spores that attack the coffee cherries. CLR, CBD, and Coffee Berry Borer (CBB) are significant disease and pest problems facing the world's coffee farmers.

Drought Affected

Ragged shaped, pale, and light weight unroasted coffee beans. Also called "droughty", or "flaky"

Elephant Beans

An cluster of two or more deformed beans that grew closely locked together, but sometimes separate during processing or roasting. Also called "ears", due to their often ear-like appearance.

Faded

Unroasted coffee beans that have lost much of their original color, a characteristic of old crop and beans that were dried too rapidly. Processed coffee beans will slowly fade from green to pale yellow, if stored too long before roasting. Also called "soapy" or "bleached".

Foxy

Unroasted coffee beans with a brown or rust color. Foxy beans may result from faulty fermentation, improper washing, over drying, or by harvesting over-ripe cherries. Also called "brown".

Moldy

Unroasted coffee beans with a light green or white fur-like texture characteristic of mold. Roasted coffee beans affected by mold have a "musty", or "moldy", flavour.

Mottled

Unroasted coffee beans with blotchy discolorations, associated with uneven drying during processing.

Musty

Taste or aroma characteristic of mold. A musty characteristic is associated with drying the coffee too slow or storing unroasted coffee in a damp environment. Monsooned and aged coffees may have a slightly musty flavour.

Over Fermented

Coffee allowed to ferment too long during wet processing. After de-pulping coffee cherries to remove the skin and some of the pulp, the separated seed will still have a significant amount of pulp attached. The remaining pulp can be loosened by fermentation, allowing it to be washed away before drying. If fermentation is not stopped as soon as the remaining parchment is no longer slimy, and has a rough texture, the coffee may acquire oniony or sour flavours.

Pales

Unroasted yellow coffee beans that stink when crushed or ground. Pales may result from drought or from harvesting immature coffee cherries.

Peaberry

A single rounded bean from a coffee cherry which bears one bean instead of the usual flat sided pair of beans. Also known as 'caracol', 'perla' and 'perle'. Peaberries are frequently separated and sold as a distinct variety. Papua New Guinea and Tanzanian peaberries are good examples.

Withered

Wrinkled, undeveloped, and light weight coffee beans. Withered beans are

Pulper Nipped

Wet processed beans that are cut or bruised during pulping. Typically caused by damaged or improperly configured pulping equipment. Pulper cut beans will usually show brown or black marks after processing. Discoloration develops by oxidation at the damaged areas and off-flavours may result. Pulper damaged beans roast unevenly, age rapidly, and are susceptible to damage by vapors, dust, and other adverse environments. Also called "blackish" or "pulper cut".

Quaker

Unripened coffee beans, often with a wrinkled surface. Quakers do not darken well when roasted.

Ragged

Coffee with a ragged appearance. Harvesting both mature and immature cherries, or drought-affected cherries, can result in beans with a ragged appearance.

Shell

A common defect where coffee beans have a large cavity similar to a shell. While only a secondary concern, compared to defects such as stones, sticks, black beans, or sour beans, too many shells in a coffee sample is an indication of a lesser coffee grade.

Stinker

A coffee bean that produce an unpleasant or fowl taste. Beans that get stuck in a pulper or fermentation tank too long are may become stinkers. Stinker beans produce an unpleasant smell when crushed or cut. Stinker beans can spoil the taste of an otherwise good batch of coffee.

Under Dried

Beans with a moisture content above 12%. The final drying process should result in coffee beans with a 10% to 12% moisture content.