

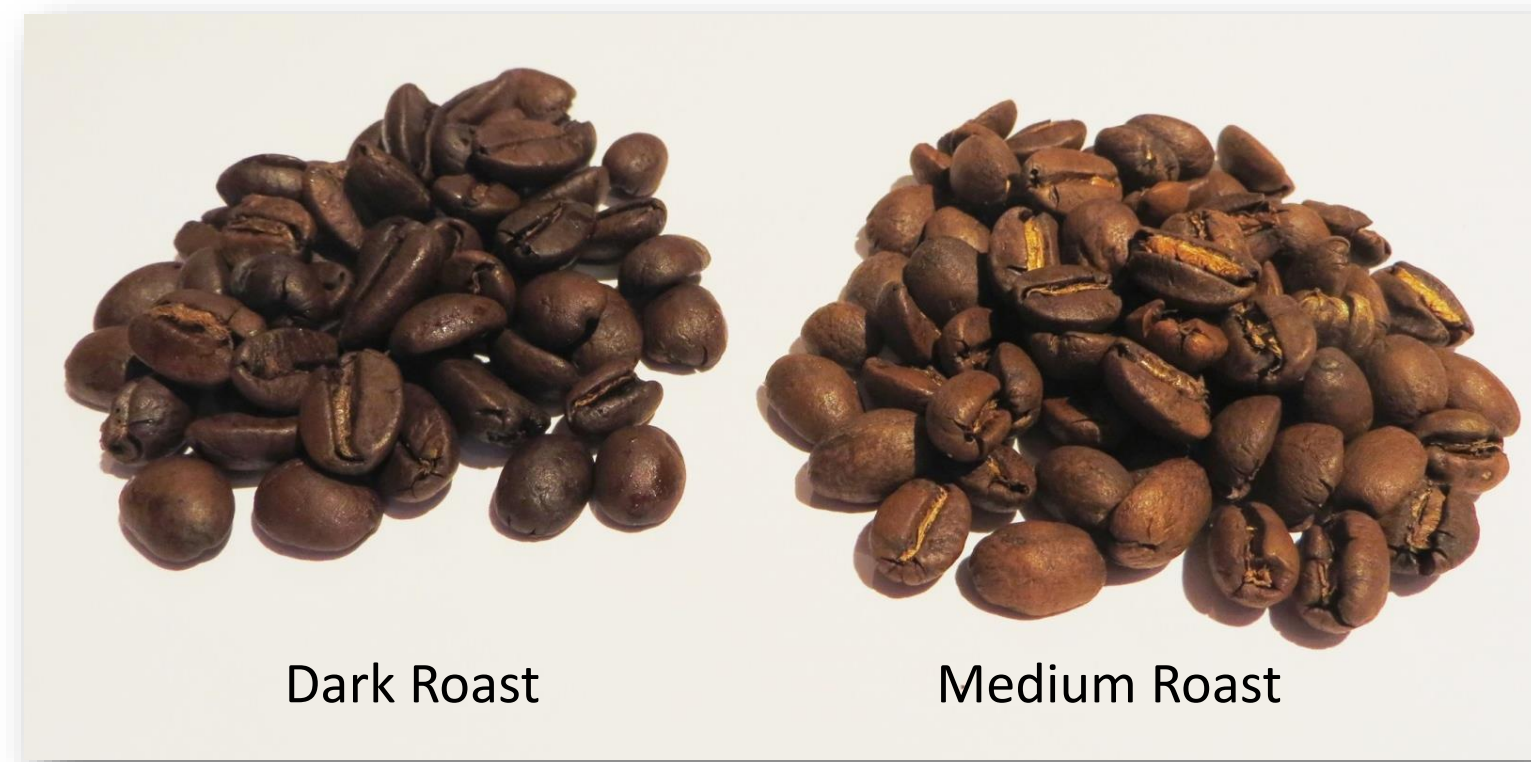
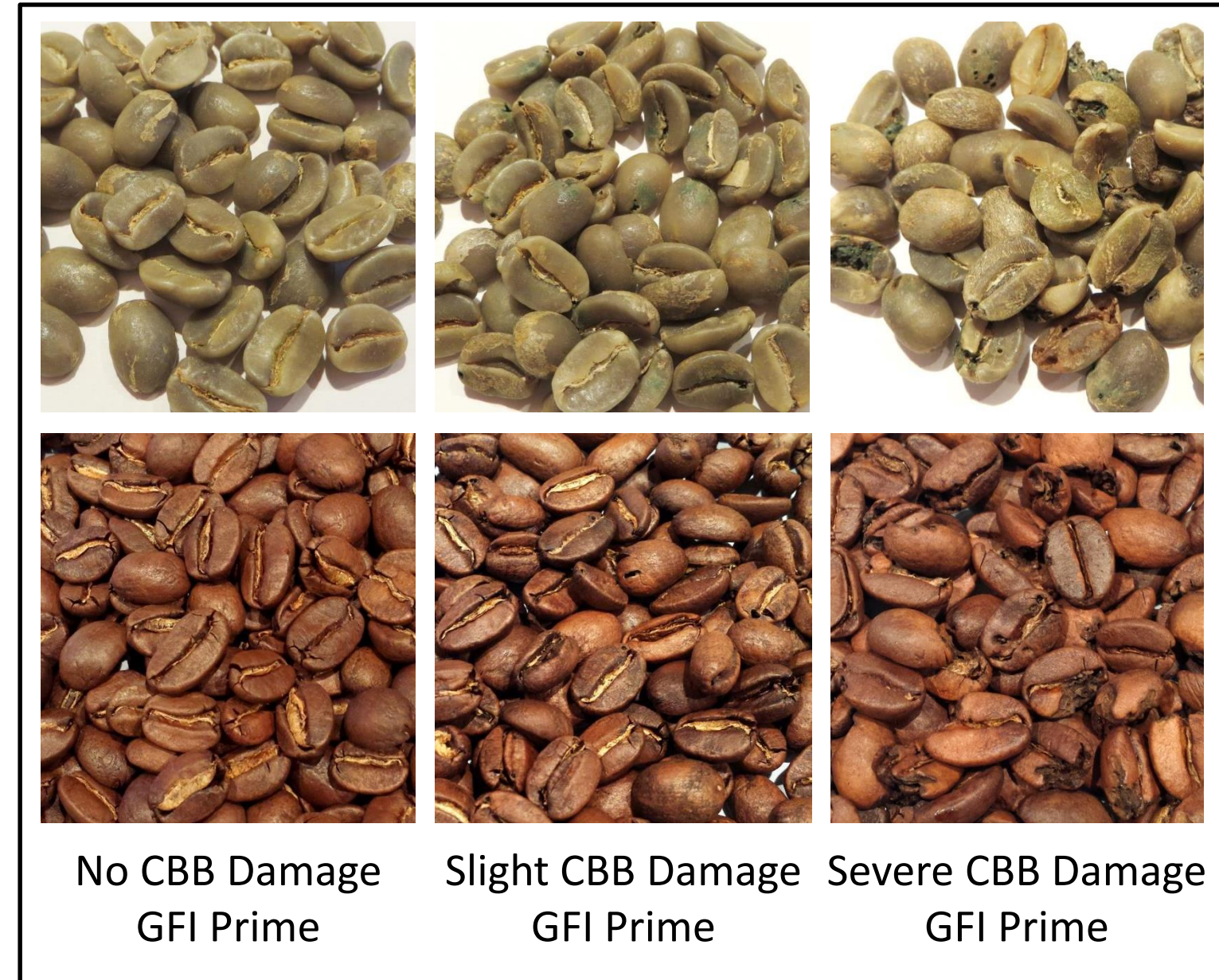
How Does CBB Damage Affect the Cup of Coffee?

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OBJECTIVE:

The MAIN GOAL of this project was to better understand the effects of Coffee Berry Borer damage to roasted coffee by determining the percent in cup that CBB damaged beans can be tasted.

A secondary goal of this project was to determine if a darker roast masked the taste of CBB damaged beans.



PARTICIPANTS:

Two Q-grade cuppers
Two extension agents who took a Greenwell Farms (GFI) cupping class
One extension agent without cupping education

EVALUATIONS:

- Round 1: Non-blind cupping of coffee with slight* CBB damaged beans
- Round 2: Non-blind cupping of coffee with severe* CBB damaged beans
- Round 3: Blind cupping of coffee with slight* CBB damaged beans
- Round 4: Blind cupping of coffee with severe* CBB damaged beans
- Round 5: Medium vs dark roast of slight CBB damaged beans

*According to SCAA definition. All beans were hand-sorted for defects and only CBB damaged beans were evaluated.

METHODS:

- SCAA cupping protocols were followed
- 195-200°F commercially filtered water
- Same lot comparison; GFI Prime
- < 10.1-10.8% green bean moisture content
- Roast to Agtron58 plate; nearly full city roast
- Coffee grinder flushed before next sample
- Weigh ground coffee only; auto grind to fine
- Individual evaluations discussed following cupping

Example: Percent by weight of CBB-damaged ground coffee cupped

	0%	5%	10%	15%	20%	25%
Good Coffee (g)	10.0	9.5	9.0	8.5	8.0	7.5
CBB Damaged (g)	0	0.5	1.0	1.5	2.0	2.5
Total Wt. (g)	10.0	10.0	10.0	10.0	10.0	10.0

RESULTS AND OBSERVATIONS:

- **Slight CBB Damage:** Extension agents determined a taste difference at 20-25% by weight with astringency, sour and bitter flavors. Q-grade cuppers detected a loss of aroma and astringency at 5-10%.
- **Severe CBB Damage:** Extension agents determined a taste difference at 5% by weight with astringency, bitter, and burnt flavors. Q-grade cuppers detected a flat, dry finish and metallic flavors at 3%. A pungent ammonia smell was noted when the coffee was ground.
- **Medium vs Dark Roast:** Dark roasting did not hide the flavors of slightly CBB damaged beans. When ground, the dry coffee had a pungent ammonia smell and the cup had a smoky taint and slight tobacco flavor.

DISCUSSION:

CBB damaged green beans can range from under 10% when implementing CBB IPM recommendations to upwards of 80% in unmanaged farms. During the Hawaii coffee industry's 2014 Strategic Planning Session, maintaining and improving coffee quality was one of the main goals identified by the industry.

During this cupping project, novice and professional cuppers, detected unpleasant flavors and aromas attributed to the cup from slight (5-25% by wt.) and severe (3-5% by wt.) damaged coffee and dark roasted CBB damaged coffee. As a result, growers are encouraged to assess their farm's CBB bean damage percentage and to improve coffee quality by modify farming methods if CBB damages are high.

Further investigation into blind taste tests should be conducted to get flavor and aroma evaluations from a larger field of cupping participants. In addition, evaluating combinations of slight and severe damaged beans may be considered to be more representative of growers' products. Investigation of other known coffee contaminants associated with CBB, such as Ochratoxin-A and Aflatoxins, should also be considered.



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