



Hawaii Coffee Growers Report

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With assistance from the
Hawaii Coffee Growers Association
and Industry

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Figures provided in this presentation are from three sources. These sources are explained below.

1. 2016 Hawaii Coffee Marketings: Final Season Estimates by USDA/HDOA National Agricultural Statistics Service (NASS) (2016)

- NASS data are the official coffee industry figures and are from an accumulation of data provided by industry state-wide.
- Agricultural funding, grant proposals and industry reports are typically based off of these figures.
- There is a need for a greater percentage of farmers to report farm and mill data.

2. Statewide Agricultural Land Use Baseline 2015 Report by Melrose et al (2016)

- For coffee: This baseline report includes operations 2 acres and larger. Satellite imagery was used to map coffee farms; however, mapping was difficult where mature orchard-dominated ag practices (such as mac nut and coffee plantings) were adopted. (pp. 95-97)

3. Accumulated Data from Hawaii Coffee Growers Throughout the State

- These figures are purely estimates.
- Growers were asked to provide data and interesting or positive news about their operations, associations and farms.
 - Included were farms on Lanai and within the five coffee growing districts (Kauai, Molokai, Maui, Oahu and Hawaii) stated by the HDOA summary of [Chapter 4-143 \(effective may 24, 2014\) Hawaii Administrative Rules – Standards for Coffee](#), and
 - Farms within six major land districts of the Big Island (Hilo, Puna, Ka'u, Kona, Kohala and Hamakua).
- Data provided were not created by UH CTAHR or the Hawaii Coffee Growers Association.
- This data will not have a reference associated with figures provided due to information gathered from multiple sources in which some sources requested confidentiality.

Outline

- State of Hawaii
- Kauai
- Oahu
- Molokai
- Lanai
- Maui
- Big Island
- Overview of industry
- Georgia-grown coffee
- California-grown coffee
- Coffee leaf rust and reducing risk of new introductions
- References

State of Hawaii

2015-2016	USDA/HDOA NASS 2016 Statistics	Notes
No. of Farms ⁴	950	Est. for 2013-2014
Bearing acreage ⁵	6,900	
Total Utilized Cherry Production ⁵	34.7 mill lbs	
Cherry Value ⁵	\$54.2 mill	14% less than 2014- 2015

State of Hawaii Weather

- 2015-2016 – Strong El Niño
 - Record high temperatures during the summer to autumn and severe drought from October 2015 to April 2016.
- 2016-2017 – La Niña Watch⁶
 - Projected below to average rainfall in summer and then above average rainfall from Sept. to Jan. although there is a drying trend in Hawaii's rainfall in La Niña years during the past 30 years.
 - Temperatures this summer should be slightly higher than normal but should reduce to closer to normal or below at the end of the year through March.

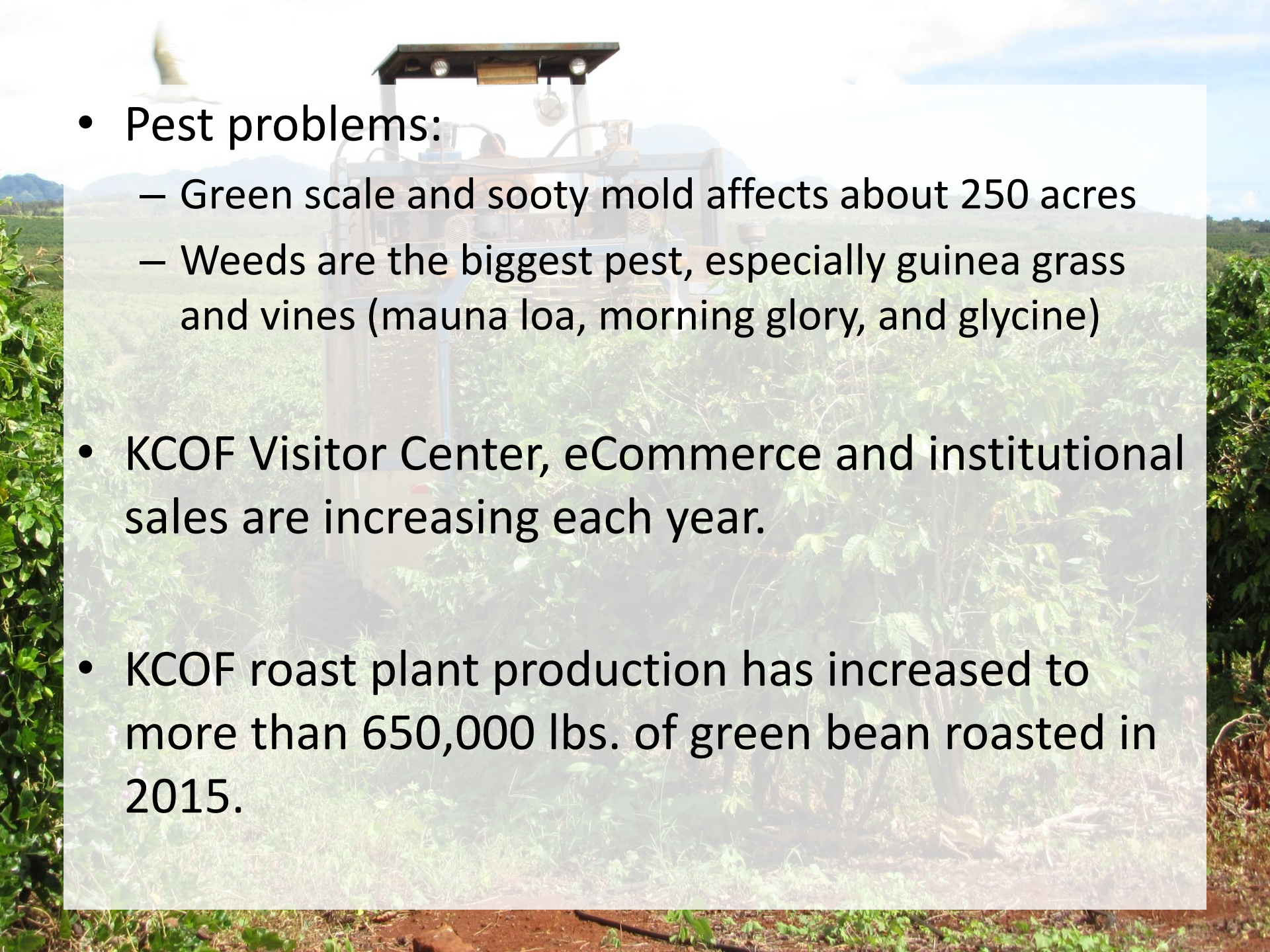
Kauai

- 3 commercial coffee farms
 - Kauai Coffee Company
 - Moloa'a Bay Coffee
 - Blair Estate
- 3,000 acres; no new plantings
- No CBB reported
- Moloa'a Estate Coffee
 - Has successfully diversified into other products such as cacao and teas.



Kauai Coffee Company

- 2015-2016 season
 - 1.8 million lbs. of green bean
 - Average of 4,600 lbs. of cherry per acre
 - Reduced yield due to mauna loa vine, an extremely dry winter and heavy rains during peak harvest in Nov.
 - Water rationed on 1,000 acres
- 2016-2017 season
 - Pattern of dry and wet resulted in heavy flowering from mid-March through April.
 - Promising yield with good water supply into summer
 - Estimated 2.4 million lbs. of green bean (33% increase)

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- The background image shows a yellow tractor with a canopy, viewed from behind, moving through a field of green plants. In the distance, there are rolling hills under a blue sky with some clouds. A semi-transparent white rectangular box is overlaid on the center of the image, containing a bulleted list.
- Pest problems:
 - Green scale and sooty mold affects about 250 acres
 - Weeds are the biggest pest, especially guinea grass and vines (mauna loa, morning glory, and glycine)
 - KCOF Visitor Center, eCommerce and institutional sales are increasing each year.
 - KCOF roast plant production has increased to more than 650,000 lbs. of green bean roasted in 2015.

CBB Scouting at Kauai Coffee Company

- Employees scout fields.
- Entomologists from UH CTAHR Kauai Agricultural Research Center scout fields and monitor traps during the summer and fall.
- Most scouting is concentrated in fields near the visitor center and along the highways.
- Every truck load of cherry delivered to the factory is checked for evidence of CBB.



Oahu

- Two commercial farms: Waialua Estate Coffee and Green World Farm
 - Other coffee (research) sites at Kunia, Maunawili and Waimanalo, and (trees at) Fosters gardens and Waimea
 - CBB found at Waialua, but also in coffee in Makaha Valley, Waianae Kai and at a residence in Wahiawa (new information as of 7/17/16)
- 175 acres; no new plantings
- 2015 had fair rain in the 1st qtr followed by a hot and dry summer which impacted fruit set and led to low production.
- 2016 is drier than average in the 1st qtr but has been followed by good rainfall in May. NWS reports Oahu about 60% of average rainfall.

Waialua Estate Coffee

- Managed by Mike Conway
 - Derek Lanter left Dole in May
 - Mill supervisor - Constante Dace
 - Field supervisor - Chris Valdez
- 3,000 – 7,000 lbs. of cherry per acre
- In 2015-2016, green bean yields were estimated to be 325,000 lbs.
 - Under 10% CBB infestation at WEC (bean damage ~5%)
 - Continuing to work with CTAHR
- Expecting 2016-2017 to be a good season with an estimated 500,000 lbs. of green bean (54% increase).
 - Four major flowerings since February

Field Strategies at Waialua

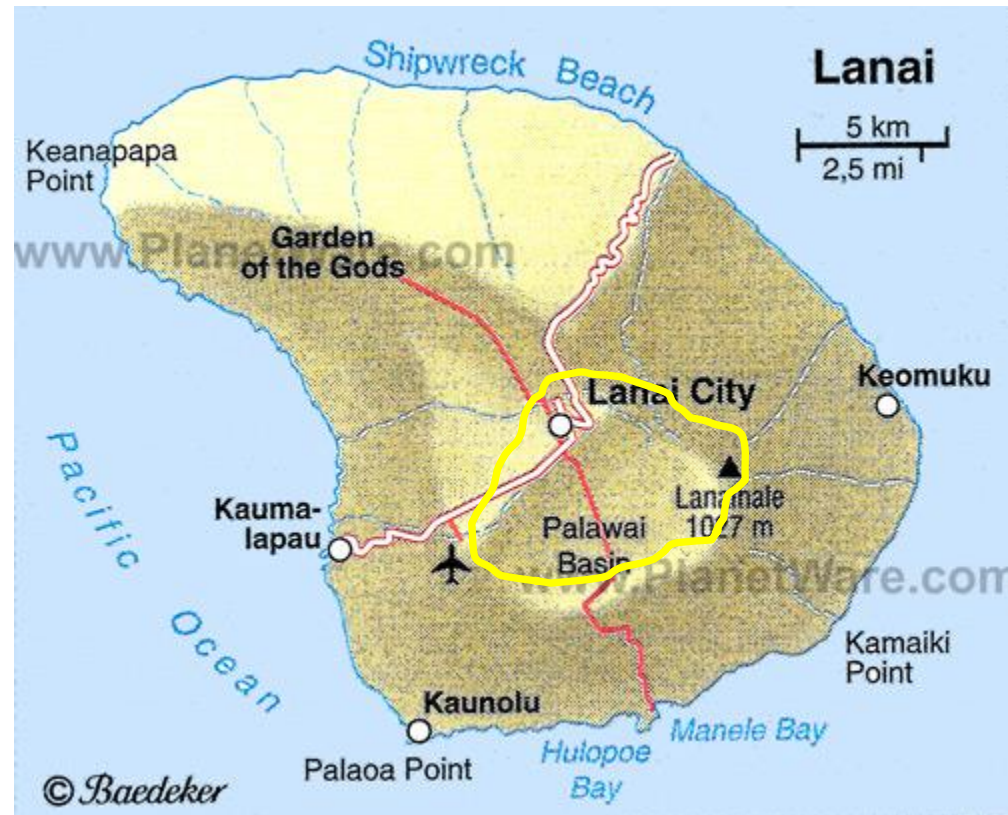
- Efforts to implement their CBB management program have led to greater attention to all aspects of their farming, including improving their plant nutrition and pruning programs.
- Improve tree health and increase leaf matter to allow for additional clean-up rounds to mechanically remove as many remaining cherry on the trees as possible and to minimize hand picking rounds.
- Stump pruning 40 acres annually and on a four-year cycle. Expecting 2-3 years of relatively heavy production (~500K lbs. annually) before pruning again.

Moloka'i

- Coffees of Hawaii (no report submitted)
 - New Owner: Patrick Haddad and Family are the new owners (2015)
 - Also owns Hawaiian King Candies, LLC.
 - Located in Kualapu'u
 - 123 acres²
 - Primarily 'Red Catuai' grown

Lana'i

- James Spencer of Lanai Premium Coffee, LLC.
- Planting in Palawai Basin
- Typica grown
- New plantings:
 - First 10 acres next spring
 - 10 acres each year thereafter
 - Total of 50 acres



Lana'i Premium Coffee

- This year's crop will be seed for future plantings
- All processing and drying to be done on-island
- No CBB reported
- Current season pest issues:
 - Ants, green scale and sooty mold
- Past and current weather issues:
 - High temperatures
 - Moderate cloud cover and wind
 - Minor drought





- New land owners of Lanai, “[Pūlama Lāna‘i](#)”, plan to encourage agricultural businesses on the island to promote a thriving model of sustainability.
- Lanai Premium Coffee, LLC. Is the first company to sign a land lease agreement with Pūlama Lāna‘i.
- Water is available for irrigation.
- Lanai Premium Coffee, LLC. will promote agritourism on 2 acres near the airport.
 - 1 acre of coffee, processing, drying and roasting sheds, greenhouse and nursery pad

Maui

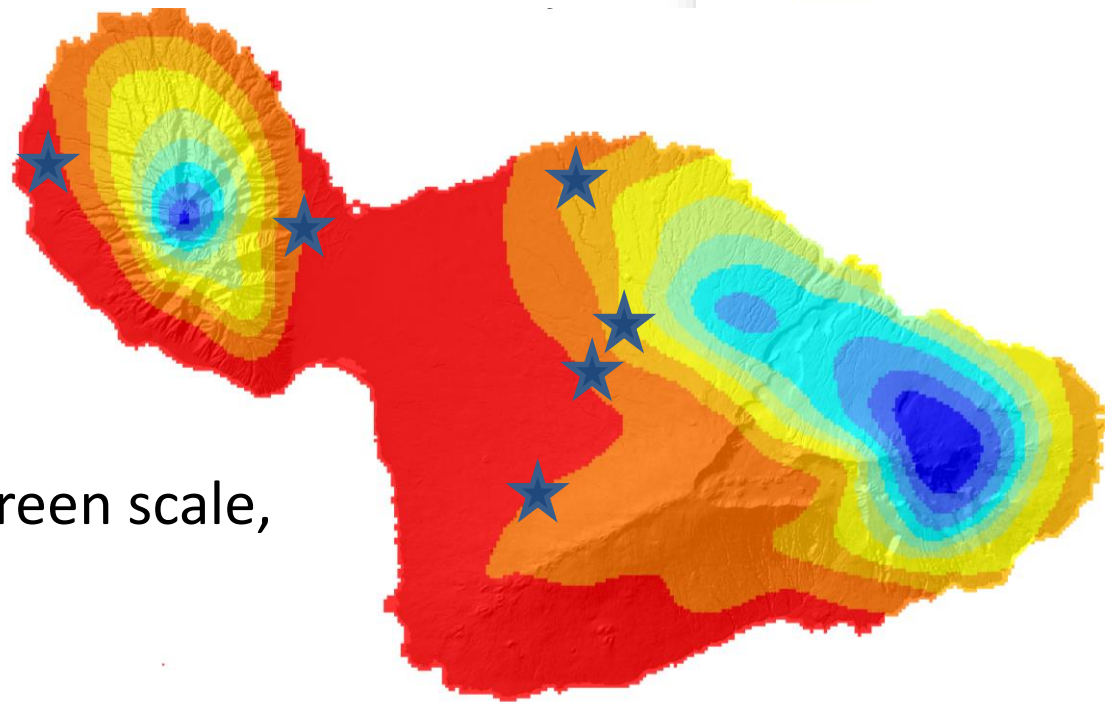
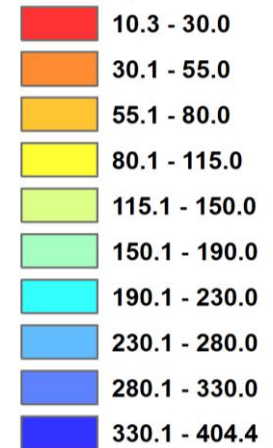


- ~45 farms
- 450-545² acres
- Ave. 2,300 lbs. cherry per acre
- ~15 acres of new plantings
- Maui Coffee Association

Maui

- Growers in upcountry Olinda and Kula report higher than normal rainfall which affected yields during their spring harvest.
- Trees were heavily pruned last season which reduced yields this season.
- No CBB reported
- Other pest problems: green scale, ants, and Cercospora

Annual Rainfall (inches)

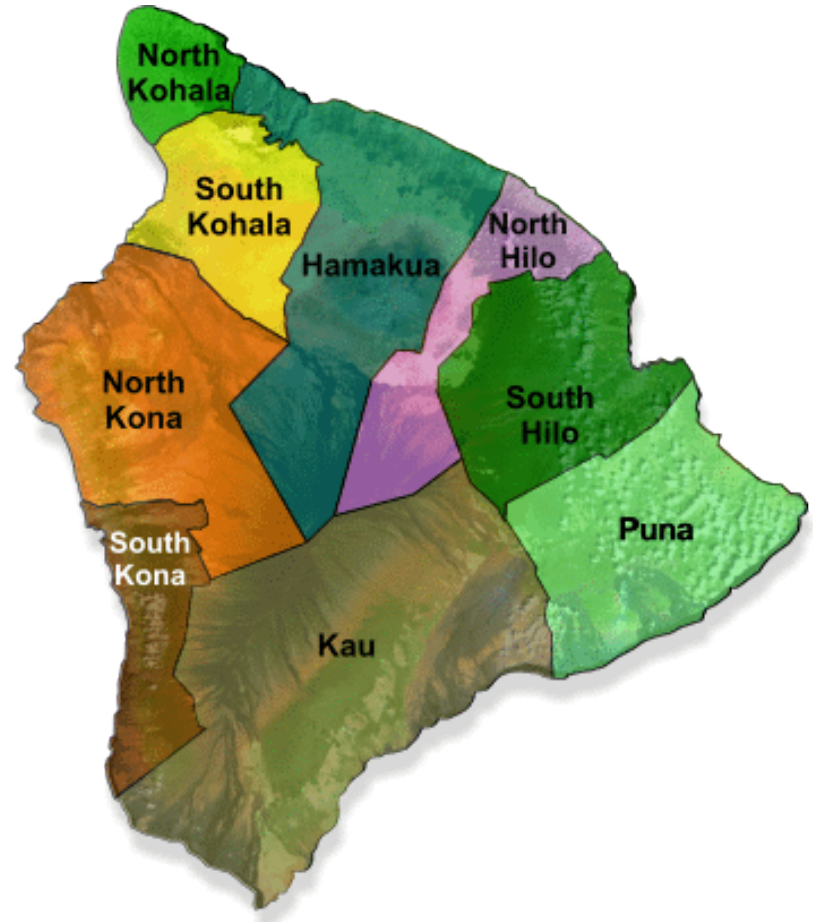


Ka'anapali Coffee Estates/MauiGrown

- 420 acres in Lahaina
- 2015-2016 season
 - ~500,000 lbs. of cherry
 - Flowering (early and late) events spread widely apart
 - Large losses due to late flowering and high numbers of immature green berries during harvest
- 2016-2017 season
 - Weather is good; not as hot as the last two seasons
 - Experiencing more uniform flowering
 - Est. 520,000 lbs. of cherry (4% increase)
- Preparing to relocate their processing plant within the next two years

Big Island

- 790³-1,060 farm parcels
 - >500 individual owners
- 4,700-5,525² acres
- Kohala & Hamakua
 - ~15 farms
 - ~45 acres
- Hilo
 - ~4 farms
 - ~10 acres



Puna

- ~20 farms in Puna
- ~70 acres in production
- Ave. 3,500 lbs. of cherry per acre
- 2015-2016
 - Severe rain resulted in about ~30% crop loss
 - BTB, cercospora and anthracnose
 - 1% - 50% range in CBB damage; average of 7%

Puna

- Hobbyist growers are being educated about CBB when coffee is rejected at the mill
 - Finding niche markets with friends and family to promote coffee grown in Puna
- Estimates 2016-2017 yield and CBB activity to be similar to past season
- Growers are improving efficiencies with new roasting equipment and quality of coffee with grant funding

Ka'u

- ~83 farmers
- ~660 to 830 acres
 - ~24 acres of new plantings in 2015-2016
 - Ave. 3,000 lbs. of cherry per acre
- Main coffee organizations and entities
 - Ka'u Coffee Growers Cooperative
 - Palehua Ohana Farmers Cooperative
 - Ka'u Coffee Mill

New RHL Farm Leases

- Resource Land Holdings secured land from Lehman Brothers in 2015
 - ~6,000 acres total in Pahala and Naalehu
 - Brenda Iokepa-Moses is the RHL land manager.
 - 15-year coffee farm leases
 - Some farmers did not sign new leases for their farm with RHL.
 - These leases were absorbed by other farmers.



2015-2016 in Ka'u

- Severe cloud cover and wet conditions led to poor flowering and reduction in yield.
- Severe wind broke branches and minor drought reduced yield.
- CBB damages ranged from 1 to >50%.
 - Average CBB damage was about 30%.
 - Due to heavy rains, growers were unable to harvest and spray *Beauveria* on time
- ***see both land***
- ***owners leasing parcels to coffee farmer to apply pressure on to coffee farmers with high***
- ***CBB count to take care of their CBB infestation or lose their leases. It's due to this non-action***
- ***by management allowing run away CBB counts.***
- Pests other than CBB: Black twig borer and banana moth

2016-2017 in Ka'u

- Estimating yield to be similar to or greater than last season unless trees were pruned last season.
- Severe winds in early July which broke branches and damaged trees which will affect yield for some.
- CBB activity and damages appears similar to the previous season. Pruning and timely sprays have helped with control.
- Growers encourage active and timely farming and management of coffee farms to control CBB in Ka'u.
- KCGC reports nearly doubling their membership

Kona

- ~3,800 acres
- ~880-1,000² farms
- >420 individual farm owners
- ~20 million lbs. of cherry
 - Ave. 4,200 to 7,400 lbs. of cherry per acre

CBB in Kona

- 2015-2016
 - Bean damage ranged from <1% to >30%
 - Average was about 13.5%, which was less than 2014 season
 - As a result of continued education, the *Beauveria* subsidy programs, and the demand for quality cherry and green bean, farmers appear to be gaining better control of CBB and improving overall coffee quality.
 - Mills rejected cherry with a certain amount of bean damage
 - Ex: Based on an Oct. 15, 2015 letter to growers, rejections started at about 40% damage.
 - NASS reports 1.8 million lbs. of cherry harvested but not sold in 2015/2016.

- *Beauveria* Subsidy Programs
 - KCFA; completed June 2016
 - [SHAC](#); ongoing until funding is exhausted
 - [HDOA](#); new and ongoing until June 2019 or when funding is exhausted
- 2016-2017
 - CBB activity appears less than last season.
 - Current bean damage assessments appear similar to or less than last season
 - Marketable green bean estimates appear similar to last season

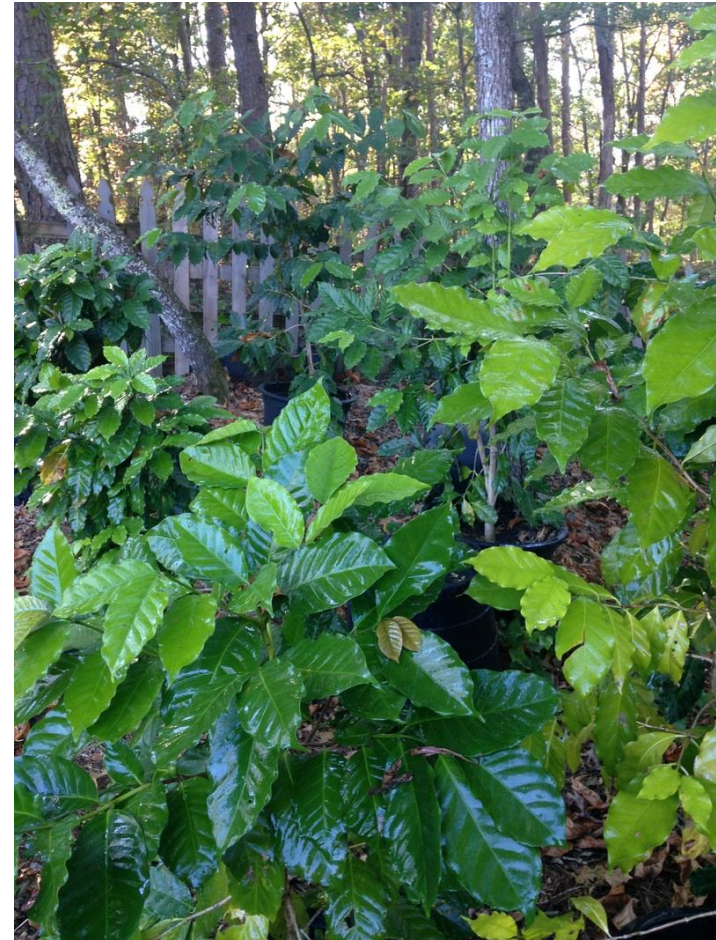


Overview: Hawaii Coffee Industry

- 2016-2017 coffee season looks promising state-wide
- Coffee industry is continuing to grow
- CBB currently contained to the Big Island and Oahu
- More farmers are adopting CBB management practices and reducing bean damages
- Must remain vigilant of the spread of CBB to neighbor islands
- Must be aware of pathways to introducing coffee leaf rust, coffee berry disease and other pests and diseases not yet found in Hawaii that could devastate the industry
- No longer the only state producing commercial coffee

Georgia Coffee

- Habersham County, GA
- “Yonah Coffee” est. in 2011 by Kevin Candelario Arita and Richard Stafford
- Arabica seeds imported from Honduras
- Grown in specially-designed greenhouses and for 8 months under oak trees
- 100 plants
- First harvest - May 2015



California Coffee

- Goleta, CA – Santa Barbara County
- Good Land Organics and Diversitree Nursery owned by Jay Ruskey
- Growing coffee since 2004 with Jim Shanley (Shanley Farms) and Mark Gaskell (UC Davis)
- 16 commercial growers
- Total of 14,000 trees planted

www.cacoffeegrowers.com





Coffee Leaf Rust

(*Hemelia vastatrix*)



Viability of Coffee Rust spores was checked after storing at room temperature ($77 \pm 10^{\circ}\text{F}$) and in deep freeze (-4°F). Spore samples lost their viability as early as 45 days at room temperature and retained viability for about 120 days at -4°F^1 .



Scientists are currently working on:

- Breeding rust resistant plants with good cup quality
- Acquiring additional coffee germplasm
- Obtaining emergency use permits and registering fungicides

Steps to Reduce Risk

- Do not transport coffee plants, seeds, leaves, soil, used farm or mill supplies, etc. to Hawaii.
 - Follow all HDOA [plant quarantine](#) rules (click [here](#) for coffee rules; pp. 70-9, 70-10)
- If traveling:
 - Leave clothing, footwear, hat, and other supplies in the country when exposed or potentially exposed to pests and diseases not found in HI.
 - Shower and wash clothing or other materials potentially exposed to rust, etc. prior to arrival in Hawaii.
 - Heat clothing and other materials to 165°F for 3 minutes or more to kill rust spores⁷.

Mahalo!

References:

1. Deepak K., B.T. Hanumantha, H.L. Sreenath. 2012. Viability of coffee leaf rust (*Hemileia vastatrix*) urediniospores stored at different temperatures. *J Biotechnol Biomater*. 2:143. doi: 10.4172/2155-952X.1000143
2. Melrose, J., R. Perroy and S. Cares. 2016. Statewide agricultural land use baseline 2015. 14 July 2016. <http://hdoa.hawaii.gov/wp-content/uploads/2016/02/StateAgLandUseBaseline2015.pdf>
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