

Pruning and Plant Growth Regulator Research

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Recommendations for Coffee Berry Borer Integrated Pest Management in Hawai'i 2013

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The following document is a collaborative effort between the University of Hawai'i at Mānoa College of Tropical Agriculture and Human Resources, Hawai'i Department of Agriculture, United States Department of Agriculture PBARC, and coffee grower groups. There is much, and sometimes conflicting, information on how to control the coffee berry borer (CBB). We have synthesized the best available information resulting from the January 2013 CBB Summit. The contents of this document are general recommendations which could change as new information becomes available.

Our goal in drafting these recommendations is to provide farmers with general guidelines to better manage coffee berry borer in Hawai'i. Foreign coffee-producing regions have proven that no single approach will control CBB. Although not all recommendations will necessarily apply to all farmers, we recommend that growers use an integrated pest management approach, using as many of the suggestions as possible and in the order listed for maximum effect. This document starts with field sanitation, the most important step to reducing CBB population. We then follow with recommendations for the rest of the crop cycle, including pruning, field monitoring with traps and sampling, pesticide application, harvesting, and shipping.

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CBB Control

Field Sanitation

Field Monitoring

Pesticide Application

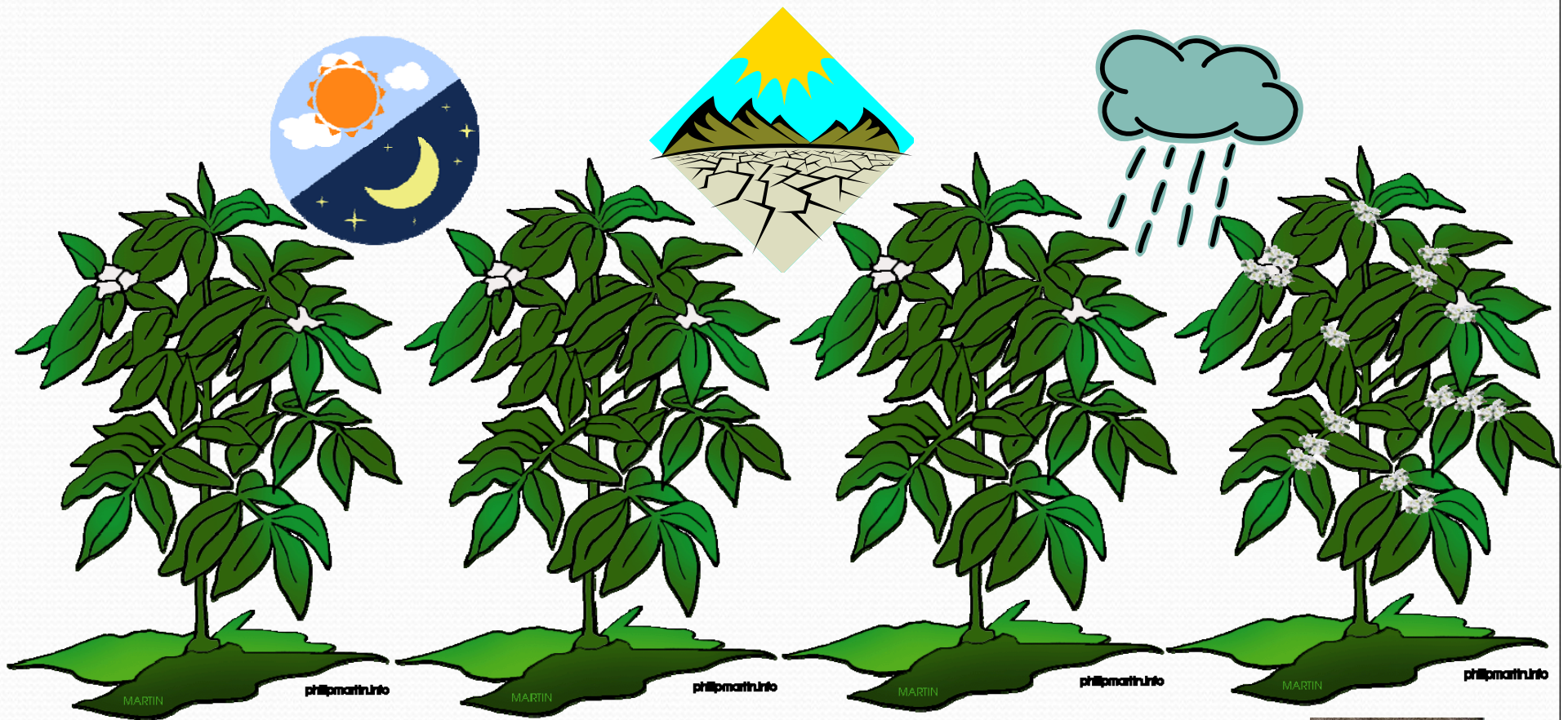
Reducing CBB levels in the field



Without sanitation
coffee berries will
always be present in
this field

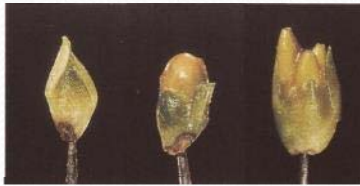


Coffee Flowering



<http://informedfarmers.com/proced-sync-coffee-flowering/>

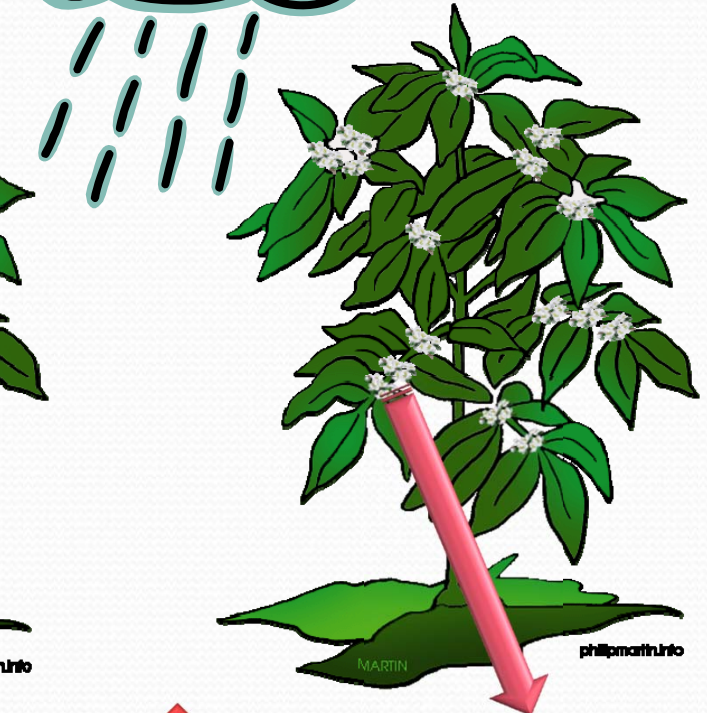
Plant Hormones associated with Coffee Flowering



<http://informedfarmers.com/proceed-sync-coffee-flowering/>



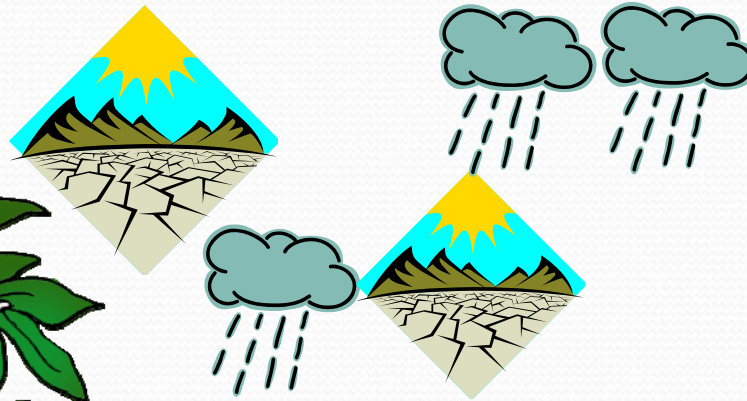
↑ Absciscic Acid (ABA)



↑ Gibberellic Acid (GA)

↓ ABA

Sporadic Rainfall and Coffee Flowering



Goal: Reduce loss during strip pick

The diagram illustrates the goal of reducing loss during strip pick by using ProGibb 40%. It shows two coffee plants: one on the left that is sparse and one on the right that is full of red cherries. Between them are four weather icons: a sun over cracked earth, a sun over cracked earth with rain, two rain clouds with rain, and a sun over cracked earth with rain. In the center, there is a white jug of ProTone 56 and a blue label for ProGibb 40%.

OMRI Listed
ProTone 56
Plant Growth Regulator

Plant Growth Regulator
ProGibb® 40%
Water Soluble Granule
FOR ORGANIC PRODUCTION

Active Ingredient:	
Gibberellin A ₃	40.0% w/w
Other Ingredients	60.0% w/w
Total	100.0% w/w

Contains a total of 128 g of Gibberellic Acid in 320 g of product.
EPA Reg. No. 73049-1
EPA Est. No. 33762-IA-001 (Lot Suffix 'S4') List No. 60218
EPA Est. No. 067256-IL-001 (Lot Suffix '1H')

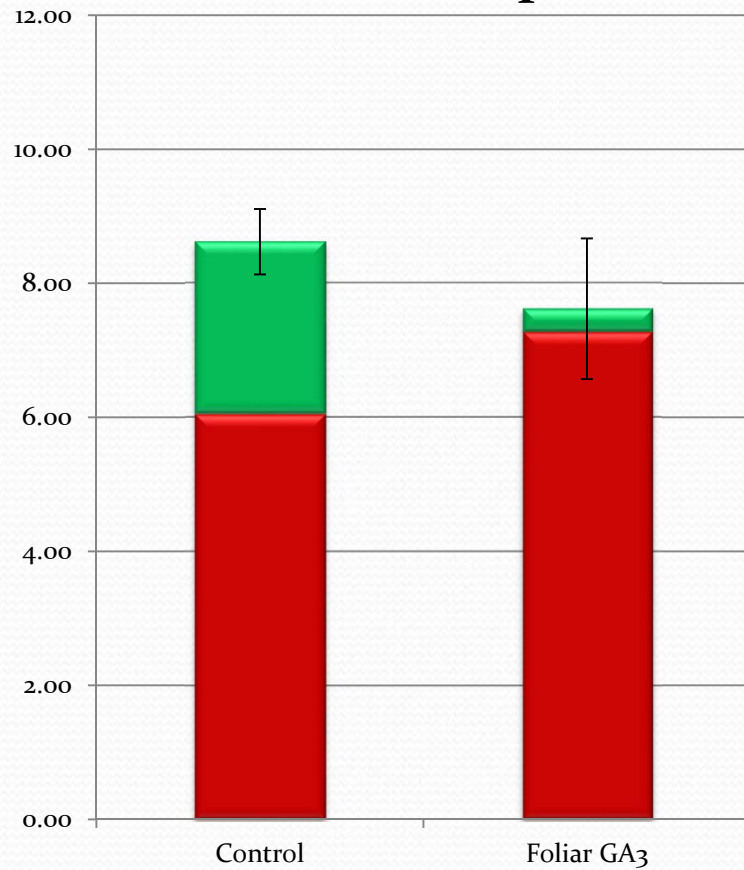
MARTIN philipmorrin.info

Goal: Reduce CBB between seasons

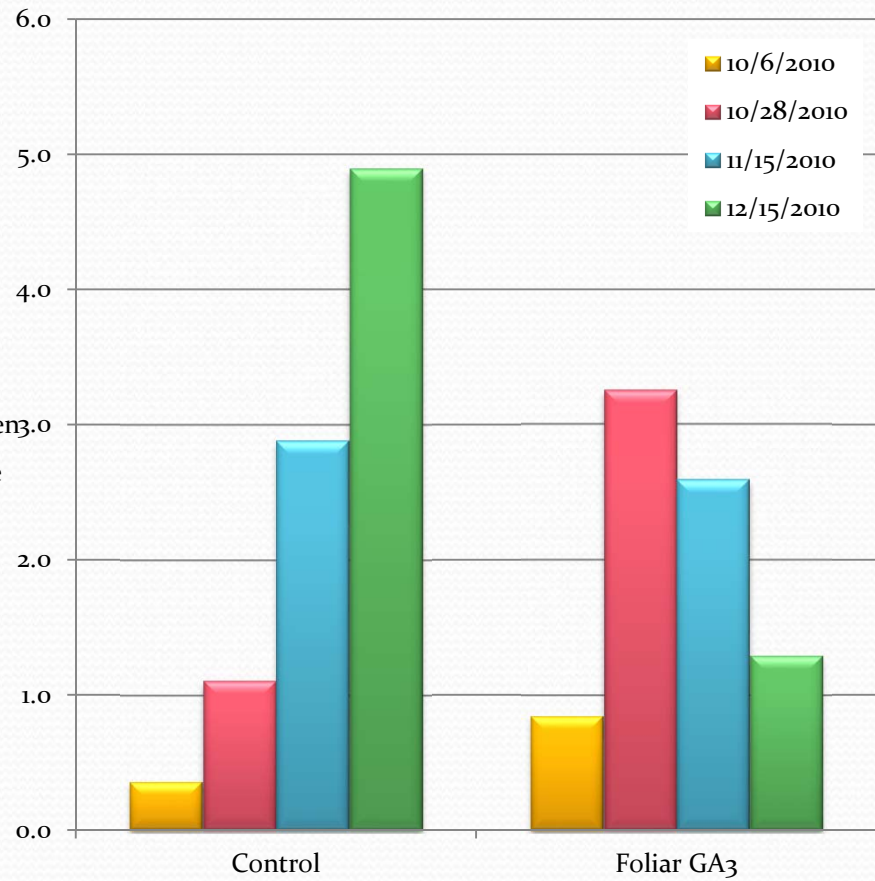


GA treated trees harvested earlier

Ripe and Green Coffee Berries harvested per tree



Ripe berries (kg) each harvest date



Ripe berries in Kona Nov 16, 2012

Untreated Control



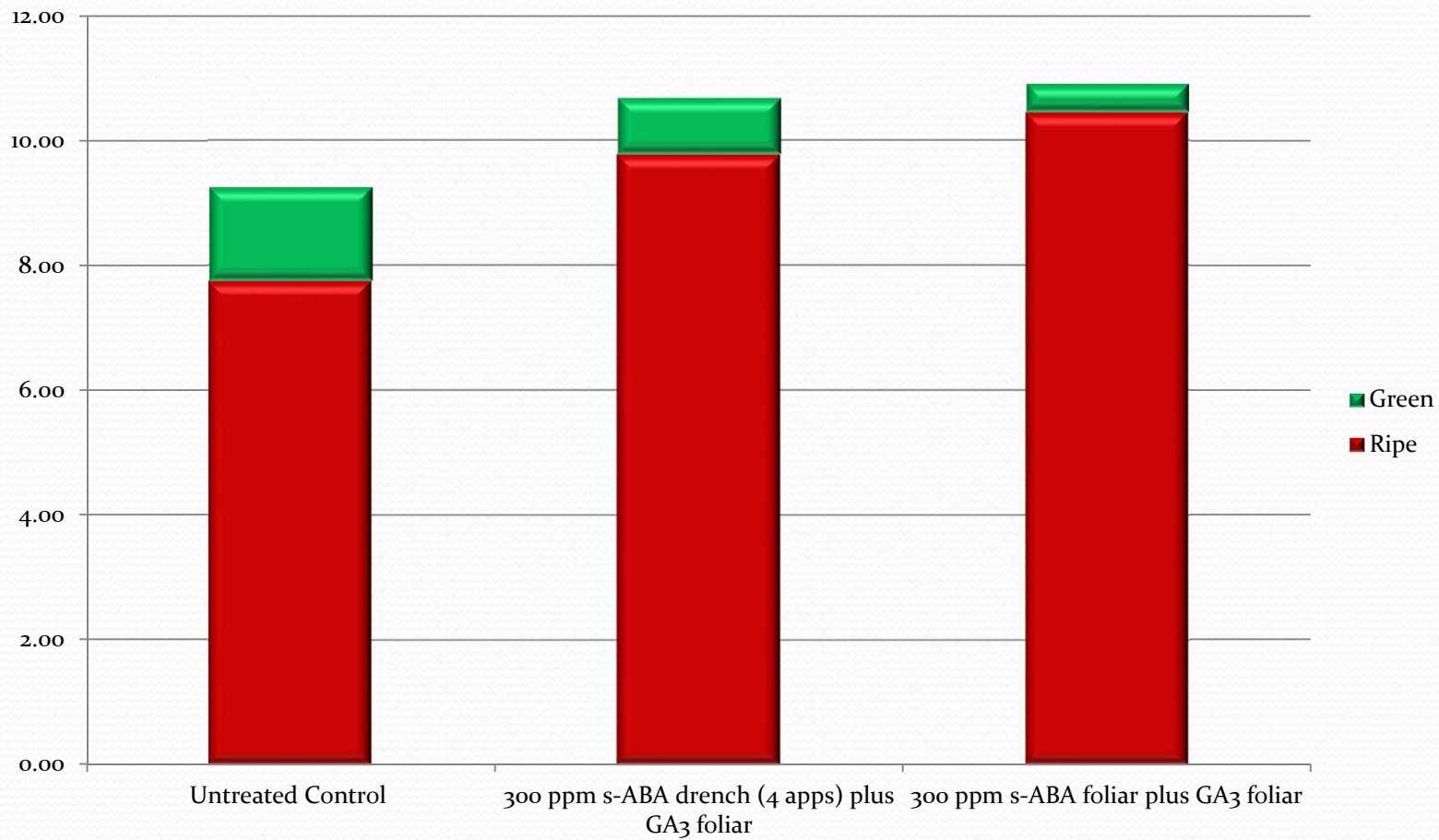
300 ppm s-ABA foliar plus
GA3 foliar* (1 app)



300 ppm s-ABA drench (4
apps) plus GA3 foliar*

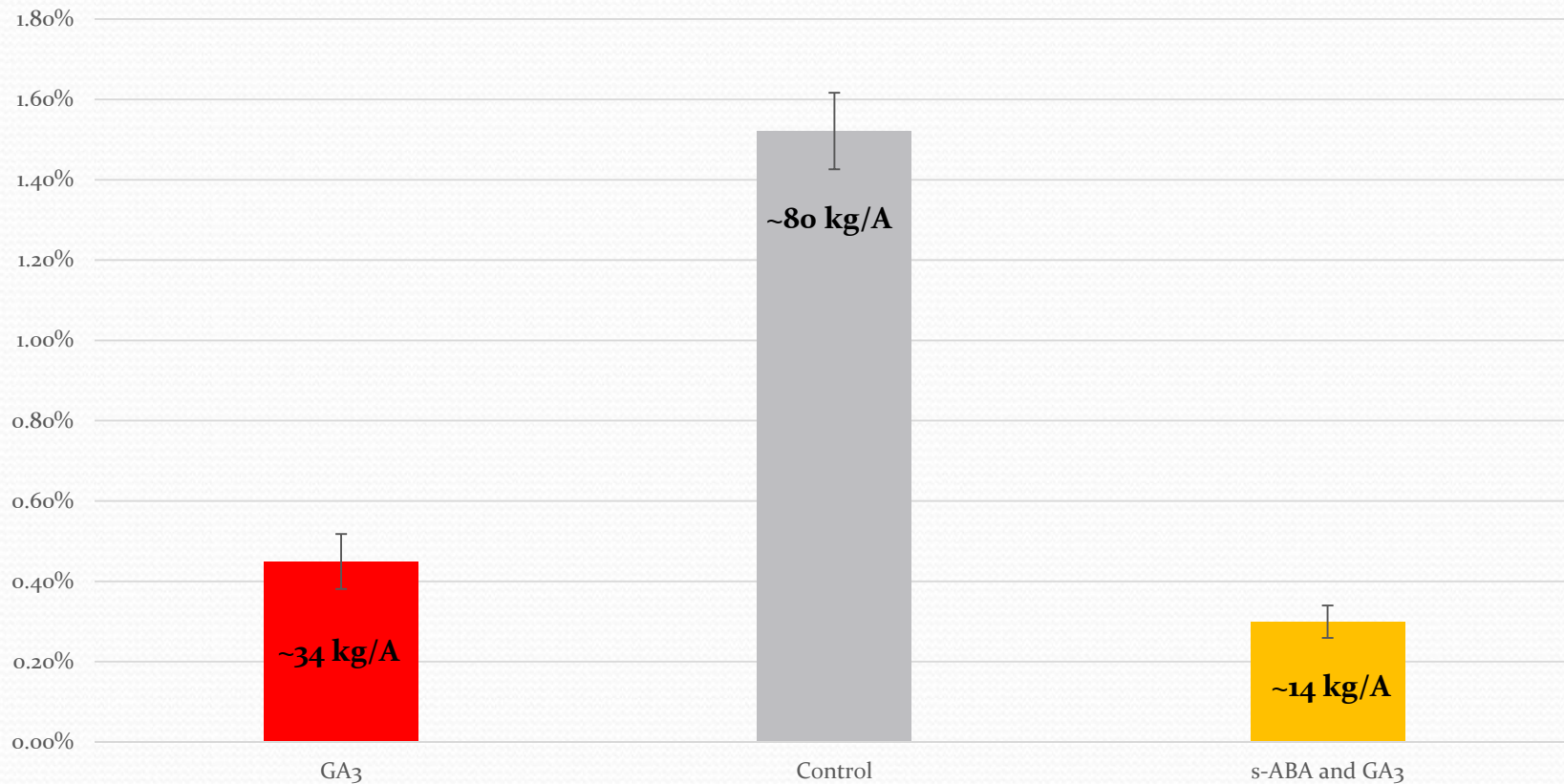


Kona berry harvest if stripping/sanitation completed in December for CBB sanitation



Kona Harvest – Strip pick 2015

Green Coffee Berries After Harvest Season



Coffee processing



Green bean/grading

Blind taste test

Start here

Parchment
Prior to
hulling

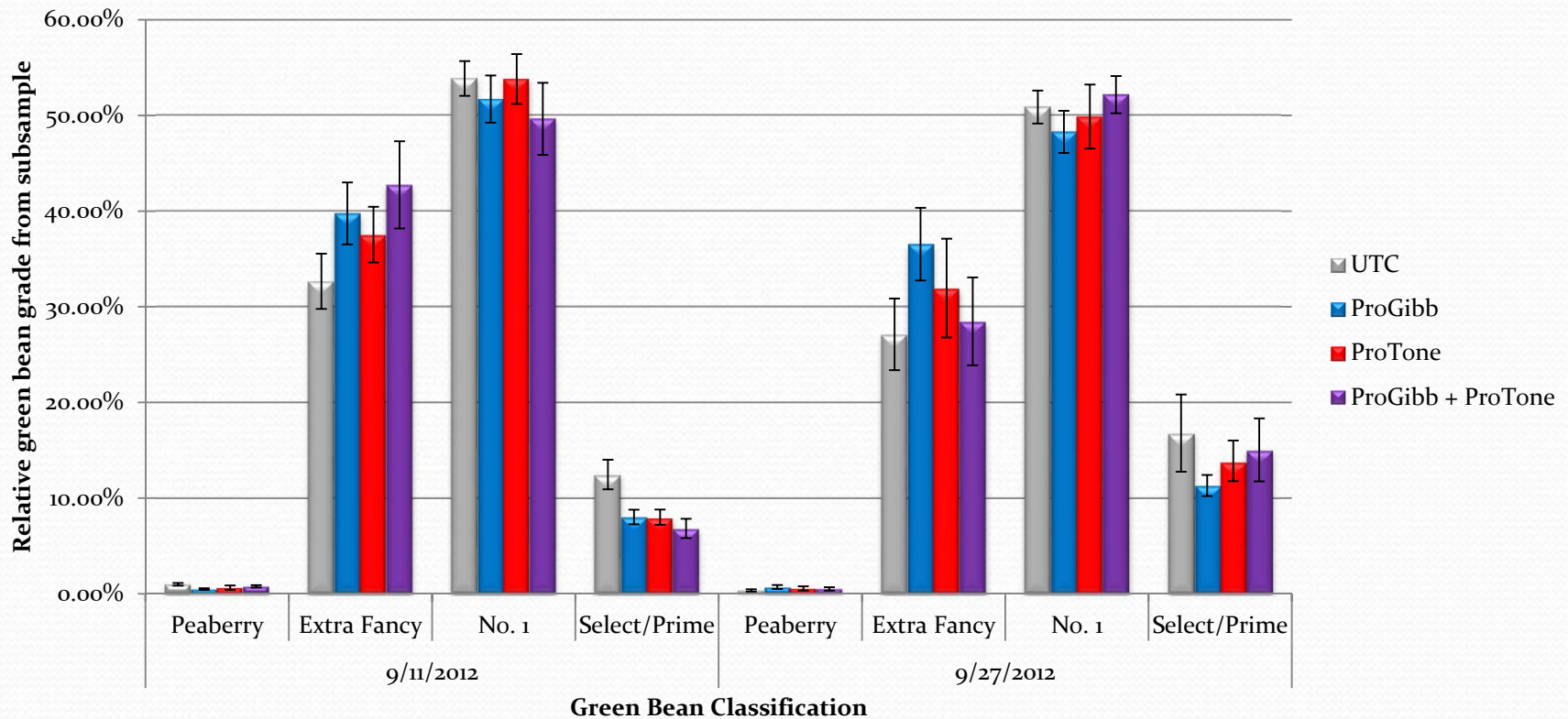
Berry data

http://www.finchahartmann.com/pgs/coff_proc.html

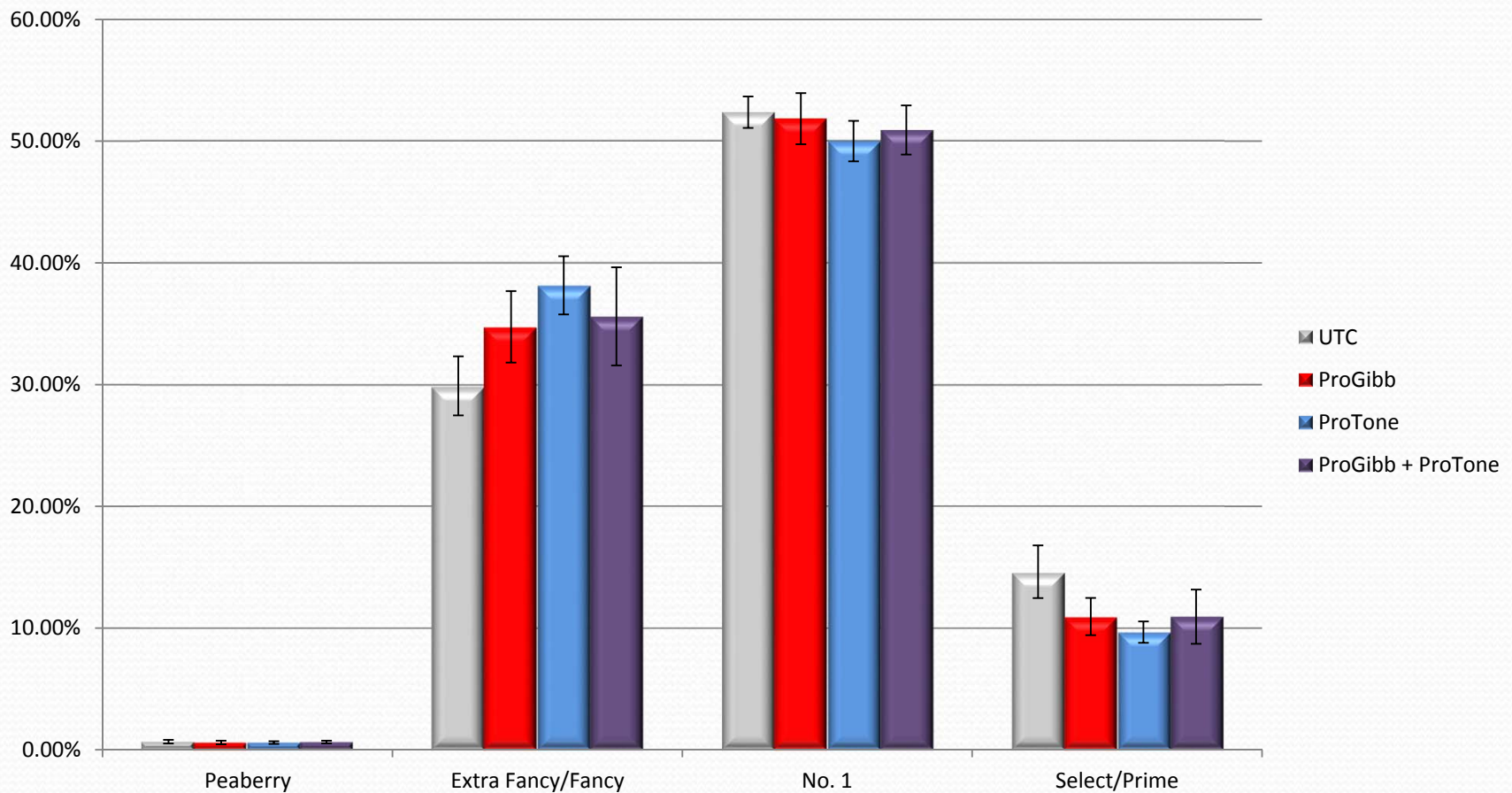
Green bean grading

Extra Fancy/Fancy desirable

Distribution of green bean per treatment



Green bean grading combined harvest data for September 11 and September 27



Cupping Quality

- Commercial cupping of samples from
 - Waialua Estate
 - Kauai Coffee
 - Greenwell Farms
- No difference detected in cupping quality between treatments



Stump prune vs Kona Style



Mahalo to:

Dole Foods Hawaii/ Waialua Estate
Greenwell Farms
Kauai Coffee
Lions Gate Farms
Sugiyama Farm



Collaborators

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HARC – Dr. Chifumi Nagai

Valent Biosciences – Johnny Lopez

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STATE OF HAWAII



