

CBB Discovery in Kona, September 13, 2010

in Kau, May, 2011

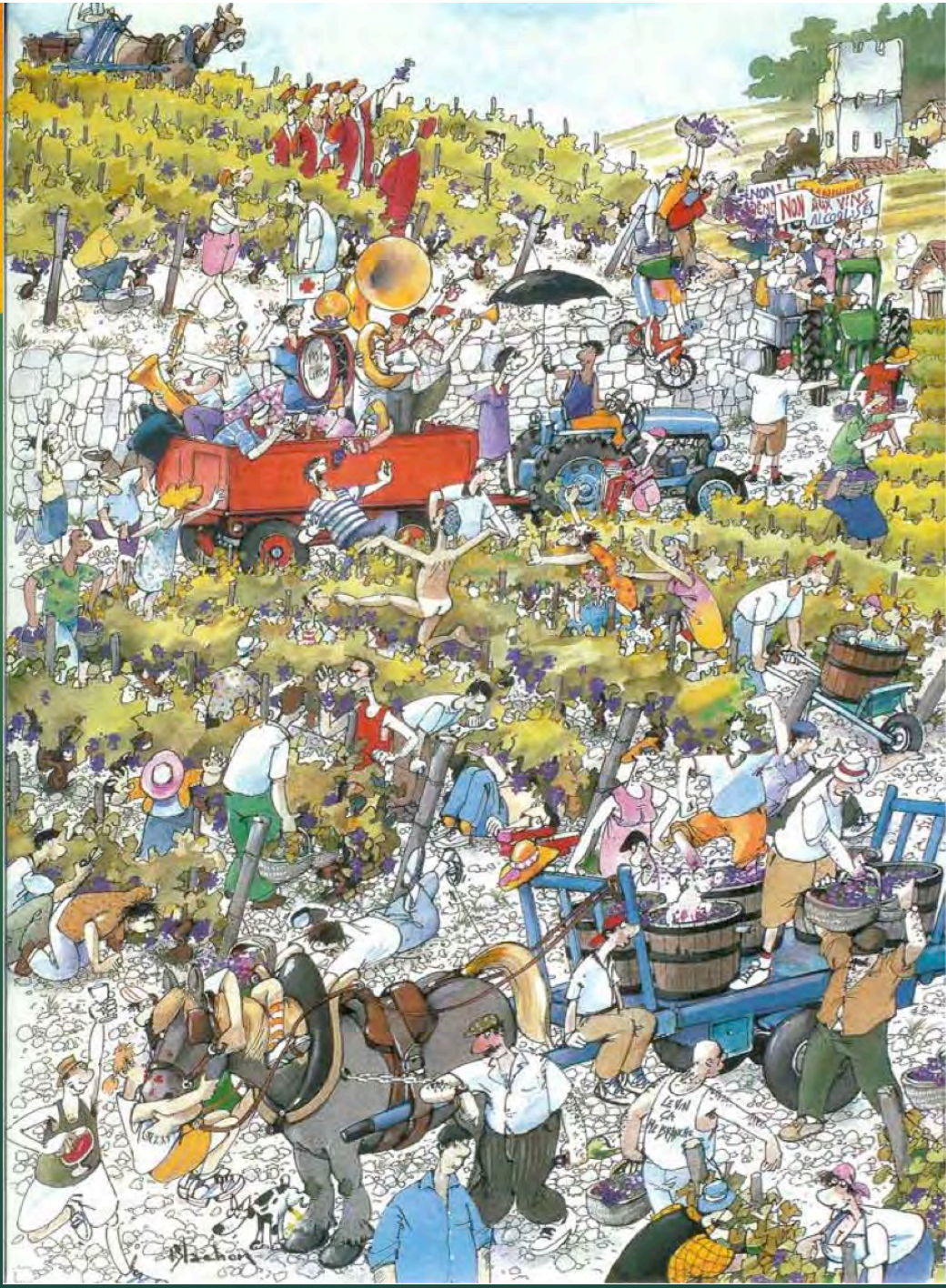
CBB (Coffee Berry Borer) Task Force

What is it about: Dan Kuhn "Chair"

What is the CBB Task Force

- What is the Task force about? – is it doing anything?
- I hope to explain what progress has been made
- CBB Task Force is a voluntary group made up of
 - Industry representatives: the different coffee groups
 - Researchers: PBARC, CTAHR, HARC
 - Regulators: DOA, USDA APHIS
- Surprising Cooperation and effort.

Wine Industry Example of Cooperation



Napa Valley story of the European Grapevine Moth

What is the CBB Problem ?

- Substantial economic losses (India initial 35% now 2 to 5%)
- The losses are usually calculated from milling, however farm losses are not included in these statistics.
- Grading with the gravity table or color sorter can separate damaged beans, but very difficult with pin hole damage.
- Pre-grading separation with flotation will work, likewise with larger internal damage but not with smaller damage. The cut of point needs more research.
- Suggestion for changing grading in regards to pinholes only; change the defect count from 5 to 10 to make a full defect.



01/06/2011

Economic Impact

- Kona produces about 3.5 million pounds of green beans annually.
- At \$ 9.00 per pound this amounts to \$ 31.5 million dollars.
- Using the Haiti number of 17% loss, this amounts to \$5.5 million. (is only what is captured in grading) The real loss would be higher due to farm losses prior to processing.
- Some countries reported initial high losses, at 35%+ losses reduced to 2 to 5% after 3 to 5 years. With deployment of intensive control measures. Time is required.
- Statewide production is about 7 million lbs. of green with an average price of maybe \$ 7.00 per pound. 17% loss would amount to \$ 8.4 million.

Mission Statement

- CBB is one of the **most significant coffee pests** in the world. The discovery of this pest in Kona will change how the coffee crop is cultivated and processed, resulting in added production costs.
- The CBB Task Force is a **voluntary collaborative** effort between industry, government and the scientific community to **stop the spread of the CBB to other coffee growing regions** on the Big Island and through out the State of Hawaii and to develop, research and coordinate **appropriate pest control**, to mitigate its impact and possible eradication in the affected areas.
- **Appropriate funding has to be found to develop and implement research and control measures.**

CBB Task Force Members

• Industry Groups and Island Rep.

- **KCFA:** Bob Smith
- **KPFC:** Satero Agoot
- **KCC:** Roger Kaiwi
- **HCGA:** Dan Kuhn
- **HCA:** Tom Greenwell
Jim Wayman
- **Kau:** Chris Manfredi
- **Kona:** Pepe Miranda
- **Maui:** Kimo Falconer
- **Molokai:** Maria Holmes
- **Oahu:** Mike Conway
- **Kauai:** Wayne Katayama

• Researchers

- **PBARC**
Dr. Dennis Gonsalves
Dr. Eric Jang
- **CTAHR**
Dr. Ken Grace
Dr. Skip Bittenbender
Dr. Elsie Burbano
Dr. Mark Wright
- **HARC**
Dr. Chifumi Nagai

• Regulators

- **DOA**
Dr. Lyle Wong
Dr. Neil Reimer
Carol Okada
Jeri Kahana
- **USDA- APHIS**
Mike Sharf
- **County of Hawaii**
Day Day Hopkins

Executive Committee

Ken Grace, Eric Jang, Tom Greenwell, Dan Kuhn, Mike Sharf, Neil Reimer, Jim Wayman, Chris Manfredi

Science Advisory Panel

Eric Jang, Ken Grace, Fernando Vega, other world CBB experts

\$ Expended towards CBB

Expenditures By Agencies And Groups / Oct. 2010 - Jan. 2011

HCGA	Early work CBB, Elsie Burbano	Expended	\$ 2000	
	Trap construction	"	\$ 1000	
	Travel funds	"	\$ 600	
				<u>\$ 3,600</u>
HCA	Trap construction	"	\$ 1000	
	Early work CBB, Elsie Burbano	"	\$ 2000	
	Travel Funds	"	\$ 500	
				<u>\$ 3,500</u>
KCC	Trap construction	"	\$ 1000	
				<u>\$ 1,000</u>
KCEA	Trap Construction	Committed	\$ 1000	
				<u>\$ \$1,000</u> <u>\$ 9,100</u>
USDA Aphis	Field Survey	Expended	\$ 25,533	
	Travel	"	\$ 6,659	
	Supplies	"	\$ 1,000	
				<u>\$ 33,249</u>
UH/CTAHR	Research funds:	Expended and Committed		
	Dr. Russell Messing (methods of field sanitation, alternate host plants of CBB, use of low-toxicity compounds such as neem to prevent oviposition)			\$ 40,000
	Dr. Mark Wright (PI) (CBB lifecycle in Hawaii, improved traps, possible use of traps for population control)			\$ 50,000
	Note: Additional \$38,000 committed for FY2012			
	Dr. H. C. Bittenbender (PI) (Development of Best Management Practices for coffee, organization of workshops for coffee industry)			\$ 24,000

\$ Expended towards CBB

Expenditures By Agencies And Groups / Oct. 2010 - Jan. 2011

Note: Additional \$22,000 committed for FY2012

Dr. Loren Gautz (PI) (Development of heat and fumigation quarantine treatments, improved sanitation methods)	\$ 30,000
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[Note: Additional \$30,000 committed for FY2012]

CBB Brochure	\$ 2,000
Website	\$ 5,000
Travel (other than above)	\$ 2,000
Other administrative time	\$ 5,000
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\$ 158,000 **\$90,000**

DOA

Expended	
Survey work (3000 man-hours)	\$ 72,000
Lab work for identification (1000 man hrs.)	\$ 24,000
Travel	\$ 6,000
Beauveria (50 man-hrs.)	\$ 1,500
Other	\$ 3,000
	<hr/>
	\$ 106,500

PBARC

Expended	
Trapping/detection	\$ 10,000
Beauveria bassiana fungus work	\$ 50,000
Flowering control	\$ 10,000
Field work	\$ 10,000
Travel	\$ 10,000
Other	\$ 30,000
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	\$ 120,000

Total estimated expenditures towards CBB control: **\$ 423,849** **\$ 513,849**

CBB Research and Control Funding?

- Up to now, response by agencies with in-house funding, CTAHR, PBARC, DOA, USDA-APHIS..... Robbing Peter to pay Paul.
- Not sustainable
- Task Force asked for 1 million per year funding from State Legislator (bill was introduced), DOA- Oil Barrel Tax, Congressional delegation.
- NO response at this point
- Need to raise money within the industry and then ask for matching funds. (County of Hawaii might participate). Ask the other Counties in the state. Ask Bishop Estate, ask industry related companies like Matson and others.
- It will take a mayor effort to raise funds in this economy and we need to take the lead.



RESOLUTION

July 8, 2011

We the members of HCGA agree to the following action in regards to the Coffee Berry Borer (CBB):

Whereas: CBB is the most devastating coffee pest worldwide.

Whereas: CBB has been discovered in Kona in September 2010 and Kau in May 2011.

Whereas: CBB threatens the Coffee Industry in Hawaii, which contributes \$60 million in green value and over \$100 million in roasted value to the economy.

Whereas: Funding for CBB research and control is limited

Whereas: The coffee industry as a whole has to “step up” and raise money for research and control measures.

Therefore: HCGA agrees that its members will contribute 5 cents per pound of green certified coffee towards CBB research and control measures, with use and distribution of the funds to be determined and voted upon by the CBB Task Force.

Stipulation: The majority of coffee organizations in the state will participate. Companies representing a majority of green coffee imported into the State of Hawaii would participate with some consideration as well.

What has been done(not done)!

- **Communication**

- Farmer Meetings in Kona (done; need more regular meetings)
- Miller Meetings (done; need more regular meetings)
- Website DOA, CTAHR (done)
- Visitor Brochure CTAHR, DOA (done)
- Link up with World Expert (done; but many answers do not exist, need further research)

- **Cooperation among different entities**

- Industry Groups, Researchers and Government (done; excellent cooperation)
- Involve Landowners (Bishop Estate, for example) (limited involvement)
- Involve County, State and Federal entities. (aside from the County , no success yet)

- **Site survey**

- DOA survey of different Islands (completed; needs to continue)
- Assessment of infestation in the hinterland of Kona and gulches.
Possible areal survey, hiking groups etc. (Not done)

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- **Communicat**
 - Farmer Meet
 - Miller Meeti
 - Website
 - Visitor Brock
 - Link up with
- **Cooperation**
 - Industry Gro
 - Involve Lan
 - Involve Cou
- **Site survey**
 - DOA survey
 - Assessment c
 - Possible area

Hawaii coffee is delicious!

BUT...

please help us prevent the spread of a tiny coffee beetle.

FRIENDLY TIPS



- DO NOT pick coffee fruit from trees.



- DO NOT pick fallen coffee fruit off the ground.



- INSPECT and CLEAN your footwear before leaving farm property.

PLEASE DO NOT REMOVE ANY COFFEE FRUIT OR GREEN (UNROASTED) COFFEE BEANS FROM FARMS OR WILD TREES.

Mahalo for helping us control the spread of hitch-hiking pests!



AG - Tourism ?

Hawaii Coffee Facts

Hawaii is the only state in the USA producing coffee. Coffee has been an important part of local culture for almost 200 years, since coffee trees first arrived in Hawaii from Brazil in 1825 on the British ship H.M.S. Blonde. Today, coffee is grown on all the major islands, with 6,500 acres statewide and annual production of 6-7 million pounds of green coffee beans.

When it comes to coffee, Hawaii has it all - from seed to cup, from small family farms to large mechanized estates, and from hand pickers to accomplished baristas. There are many opportunities to see coffee orchard, processing and milling operations. Visitors are welcome to tour plantations and learn how coffee is grown and prepared. Hawaii is also a great place to drink and purchase coffee. Hawaii has great roasters with access to the freshest high-quality beans.

Be sure to tour a coffee farm while you are visiting Hawaii, enjoy a hot cup of the best coffee you have ever tasted or a refreshing iced coffee, and purchase several bags of fresh-roasted beans to take home with you. Mahalo for helping us to protect and perpetuate the rich heritage of coffee in the Hawaiian Islands.

What has been done(not done)!

- **Quarantine**

- Hearings and implementation for whole of the Big Island (done)
- Central Kona Treatment Facility for fumigation, freezing or heat treatment (somewhat done)
- How to treat organic coffee (being researched and looking for protocols)

- **Trap Acquisition and Maintenance**

- Industry Groups, HCGA ,HCA, KCC,KCFA raise money and acquire traps (Ongoing 10,000)
- High School Ag- program and Greenwell Farms make traps (ongoing and successful)
- Acquisition of Ethanol and Methanol deployment of traps (done)
- Maintenance of traps (needs to be identified)

- **Research** (no quick fixes, no magic bullet)

- Don't reinvent the wheel. Collect worldwide data (Science advisory) (happening)
- Get world experts to participate. ARS, Columbia, Kenya, India, etc. (happening)
- Pinpoint relevant research for Kona (with input from all) (happening)
- ProFume protocol, Heat treatment, Freezing protocol, IPM for Kona, Fungus deployment, Find local fungus, Post harvest treatment, Best Traps/ Lure combination, Synchronized flowering, farming and miller protocol etc. (happening)
- Many questions asked can not be answered at this time (need more research)

What has been

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 - Central Kona Treatment Facility
 - How to treat organic coffee
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What has been done(not done)!

- **Sanitation Measures for Kona**
 - Wild coffee in gulches and hinterland (asses and control) (not done)
 - Deploy 3-5 person with supplies and truck for eradication (asked for funding)
 - Engage Invasive Species Committee (discussions)
 - Lessen cost for Beauveria use (manufacture in Kona) (discussions)
- **Rapid Response Plan for different coffee Regions (Islands)**
 - Kau example (good example for response)
 - Prepare now, for when it happens, identify method and players (somewhat)
- **Quarantine Facility in Kona**
 - Marshaling Yard (for example), public land vs. private (not done)
 - Fumigation and heat treatment or freezing (organic coffee) (being worked on)
 - Lessen cost of quarantine treatment (\$1000 per container) (not done)
- **Legislative Lobbying for Research and Control Measures (difficult times)**
 - HB 1553 introduced but died in finance committee (no results, prepare for next session)
 - Federal delegation (trying) (no results, need to submit requests)
 - Specialty Crop Grant PBARC (in the mill Dr. Matsumoto) (did not get approved)
 - State Barrel Tax (slight possibility)

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Matsumo

Content of Legislative Request

CBB CONTROL MEASURES "Task Force" Budget Proposal

January 2011

The CBB Task Force is a voluntary collaboration between Coffee Farming Groups, Scientists, Regulators and other Government entities. The group consists of 25 individuals. The Task Force was formed in response to the discovery of the Coffee Berry Borer to Kona in late 2010. CBB is the worst coffee pest in the World and has the potential of negatively impacting the Kona coffee industry. Restricting the spread to other areas and vigorous control measures are essential ASAP.

To achieve a measure of CBB control numerous factors need to be deployed and they have to work together. No single effort will result in adequate control by itself.

1. Sanitation Measures for Kona

There are semi productive and abandoned farms and there is "wild coffee" in the back country. All these areas need to be dealt with, besides getting farmers to clean and sanitize their fields. It is futile to sanitize productive fields if gulches harbor CBB insects on "wild coffee" waiting to reinvest the cultivated areas.

A team of 3 people with truck and equipment needs to be deployed for a period of at least 3 years to help with sanitizing the Kona area. This team needs to be under the supervision of the Department of Agriculture, or the CBB Task force or other responsible group. Farmers need to be involved in this effort.

Cost for 3 people, one truck, supplies **per year \$ 250,000**

2. Traps acquisition and maintenance

Traps play an important role in the monitoring as well as control of CBB. To deploy traps as a control measure the number per acre has to go up over monitoring only. There is a cost to the purchase or making off traps and there is a potentially higher cost in maintaining the traps. The attractant lasts maybe 4 to 6 weeks and has to be replenished and the traps need cleaning as well. In Kona there is approximately 3000 acres of coffee times 8 traps per acre requires 24,000 traps. Mexican traps cost \$ 3.00 each (including freight) which requires \$ 72,000 for trap purchase.

Traps purchase, deployment and maintenance **per year \$ 100,000**

3. Research

Hawaii has a resource in Research facilities and scientists. They have all pledged their support in fighting CBB.

PBARC, (Pacific Basin Agriculture Research Center) in Hilo with access to ARS (American Research Service, part of USDA)
CTAHR (College of Tropical Agriculture and Human Resources) Manoa
HARC (Hawaii Agriculture Research Center) in Kunia
DOA (Department of Agriculture) Honolulu
USDA APHIS Kona

Prioritized CBB research needs and budget request 2011

1. Research needed to identify sources of Beauveria fungus locally and test for efficacy of endemic strains. Also test for efficacy of commercial strains of the fungus against Hawaii CBB. Request 150,000/year for postdoctoral researcher (\$80,000), technical support (\$40,000) and supplies and travel needed for assays (\$30,000). (PBARC)
2. Research is needed to assess the effectiveness of various postharvest methods that reduce the potential spread of CBB in harvest coffee. This includes the moisture levels under which CBB is not able to successfully survive, improving effectiveness of floatation as a means for separating infested from non-infested coffee cherry and optimal heat treatments and fumigation dose needed to disinfect CBB in coffee. Request: \$180,000/ year for technical support (\$40,000 x 4 = \$160,000), and supplies and travel for tests (\$20,000). PBARC and UH-CTAHR and UH-Hilo
3. Research is needed to assess the phenology of natural population levels of CBB in infested areas, identify and optimize potential control measures (including in-field sanitation) and assess overall effectiveness of area wide control measures implemented by growers. Request: \$200,000/year for postdoctoral researcher (\$80,000), technical support to help in field studies (\$40,000 x 2 = \$80,000) and supplies and travel for implementing control measures (\$20,000). (PBARC and UH-CTAHR)
4. Research is needed to evaluate the best existing trap/lure combination for use in CBB detection and for improved traps and lures for detection and control of CBB. Request: \$100,000/year for technical support (\$40,000 x 2=\$80,000) and supplies and travel needed for tests (\$20,000). (PBARC)
5. Research is needed to determine effectiveness of chemical control of CBB, especially systemic insecticides that could be registered for use in the future. Request: \$60,000 for technical support to conduct insecticide trials (\$40,000) and costs of purchasing treated coffee and analytical studies on residue analysis of coffee cherries (\$20,000). (UH-CTAHR and PBARC)
6. Research is needed to develop synchronizing flowering of coffee varieties for improved horticultural methods that would reduce CBB infestation levels. Request: \$100,000 for technical support (\$40,000 x 2= \$80,000) and supplies and travel for research (\$20,000). (PBARC and HARC).

Per year = \$ 790,000

4. Quarantine facility installation

For example the Kona Marshalling Yard could be a good location for coffee treatment. A container for fumigation with a forklift for loading and unloading is necessary. A heat treatment chamber should be located as well. A second container for locking supplies and operational material is necessary unless the marshalling yard has such provisions.

Treatment facility **One time cost \$ 100,000**
Initial operation and continued support **per year \$ 25,000**

5. CBB Task Force operations

Current efforts are on a voluntary basis. Travel, communication and other expenses are paid by individuals or farmer groups. Communication, Travel and out of pocket expenses should be reimbursed.

CBB Task Force expenses **per year \$ 15,000**

The measures described should be maintained for at 5 years with an evaluation after 3 years to judge effectiveness.

On time charge for fumigation "set up" **\$ 100,000**

Yearly operational costs (3 to 5 years) **\$ 1,180,000**

Timeline

November 13, 2010 until February 2011

- CBB discovered in Kona by Elsie Burbano; September 13, 2010
- Consideration for forming a response group
- HCGA & HCA hires UH expert to go to Kona for Farmers Meeting along with CTAHR
- Formation of CBB Task Force middle of September
- First CBB Meeting Oct. 14 (subsequent Dec.29, Feb.3)
- Executive committee formed meeting Nov.1 (Dec.7,Jan.26)
- Quarantine implementation by HDOA (early December)
- Farmer Meeting in Kona (farm protocol)
- Miller Meeting in Kona (miller protocol)
- Trap construction, \$ by HCGA,HCA,KCC
- High School AG-program builds traps (makes some money)
- Importation of Beauvaria fungus cleared by HDOA
- CBB Symposium

Conclusion

- A lot got accomplished since September 2010
 - We need to agree on what we need and want ! (be united as an industry)
 - Find Funding (among other things)for:
 - Continued Research
 - Sanitation Control Measures for Kona
 - Survey and control of “Wild Coffee”
 - Public quarantine facility “ Set Up” (to lessen cost of treatment)
 - Prevent spread to Neighbor Islands
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- Special thanks to all the CBB Task Force Members and especially the Executive Committee. Tom, Chris, Jim, Ken, Eric, Neil, Mike and especially Carol from DOA – Quarantine, for getting it from all sides.
 - Continue the effort (don't get accustomed to the situation)