

# SB 2988

Measure Title: RELATING TO THE MACADAMIA FELTED COCCID.

Report Title: Macadamia Nut Trees; Macadamia Felted Coccid; Agriculture; Appropriation (\$)

Description: Appropriates funds to the Department of Agriculture to research and develop methods for the prevention and treatment of macadamia felted coccid in cooperation with the University of Hawaii College of Tropical Agriculture and Human Resources.

Companion:

Package: None

Current Referral: EET/WLA, HEA/WAM

Introducer(s): GABBARD, INOUE, SHIMABUKURO, Baker, Riviere

JAN 27 2016

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## A BILL FOR AN ACT

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RELATING TO THE MACADAMIA FELTED COCCID.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1       SECTION 1. The legislature finds that macadamia nuts are  
2 among the top five highest grossing agricultural commodities in  
3 Hawaii. According to the United States Department of  
4 Agriculture, National Agricultural Statistics Service, Hawaii  
5 harvested an estimated forty-four million pounds of macadamia  
6 nut crop for the 2012-2013 crop year. The estimated farm value  
7 of macadamia nuts for that same year is \$35,200,000.

8       In March 2005, the macadamia felted coccid, *Eriococcus*  
9 *ironsidei*, was discovered on macadamia nut trees in South Kona.  
10 Originally from Australia, this insect can cause severe damage  
11 to macadamia nut trees when uncontrolled. Initially,  
12 insecticidal oils researched and recommended by the University  
13 of Hawaii college of tropical agriculture and human resources  
14 were thought to be effective at controlling the spread of these  
15 insects. However, infestations of macadamia felted coccids have  
16 now spread to orchards in the Pahala area. Although  
17 insecticidal oil treatment has been effective in controlling the



1 insect in young macadamia trees, this treatment has proven  
2 ineffective on older macadamia nut trees due to their large size  
3 and heavy canopy. Because insecticidal oil is proving to be  
4 ineffective, farmers must develop new methods to control the  
5 coccid.

6 Research is currently being done by the department of  
7 agriculture and the University of Hawaii college of tropical  
8 agriculture and human resources to develop new methods to  
9 control the macadamia felted coccid. The following research  
10 work is currently being conducted or planned:

- 11 (1) Determining the role of tree canopy modification and  
12 understory plants to encourage the presence of natural  
13 enemies to the macadamia felted coccid;
- 14 (2) Analyzing the potential of alternative pesticides;
- 15 (3) Determining the impact of macadamia felted coccid on  
16 plant health and yield;
- 17 (4) Determining action thresholds for macadamia felted  
18 coccid management;
- 19 (5) Determining the phenology of macadamia felted coccid  
20 in the field; and



# S.B. NO. 2988

(6) Identifying and testing biological control agents in Australia that could be introduced in Hawaii to control the macadamia felted coccid.

The legislature anticipates that the macadamia felted coccid, if uncontrolled, will continue to spread to other regions and counties of Hawaii and may devastate the macadamia nut industry.

The purpose of this Act is to appropriate funds for research to develop new methods of preventing and treating macadamia felted coccid infestations.

SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of \$700,000 or so much thereof as may be necessary for fiscal year 2016-2017 for the department of agriculture, in cooperation with the University of Hawaii college of tropical agriculture and human resources, to research and develop methods for the prevention and treatment of macadamia felted coccid.

The sum appropriated shall be expended by the department of agriculture for the purposes of this Act.



# S.B. NO. 2988

1 SECTION 3. This Act shall take effect on July 1, 2016.

2

INTRODUCED BY:

Mike Hubbard

SP Rivers

Matt L

Frederic R. Brown

Randy de Bak



# S.B. NO. 2988

**Report Title:**

Macadamia Nut Trees; Macadamia Felted Coccid; Agriculture;  
Appropriation

**Description:**

Appropriates funds to the Department of Agriculture to research and develop methods for the prevention and treatment of macadamia felted coccid in cooperation with the University of Hawaii College of Tropical Agriculture and Human Resources.

*The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.*



DAVID Y. IGE  
Governor

SHAN S. TSUTSUI  
Lt. Governor



State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512  
Phone: (808) 973-9600 FAX: (808) 973-9613

SCOTT E. ENRIGHT  
Chairperson, Board of Agriculture

PHYLLIS SHIMABUKURO-GEISER  
Deputy to the Chairperson

TESTIMONY OF SCOTT E. ENRIGHT  
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE SENATE COMMITTEES ON ECONOMIC DEVELOPMENT,  
ENVIRONMENT AND TECHNOLOGY  
AND WATER, LAND AND AGRICULTURE

February 12, 2016  
1:20 P.M.  
CONFERENCE ROOM 414

SENATE BILL NO. 2988  
RELATING TO INVASIVE SPECIES

Chairpersons Wakai and Gabbard and Members of the Committees:

Thank you for the opportunity to testify on Senate Bill 2988. This bill would appropriate funding for research to develop new methods of preventing and treating macadamia felted coccid infestations. The Hawaii Department of Agriculture is in support of this bill and would defer to the University of Hawaii College of Tropical Agriculture and Human Resources as to the level of funding that is needed.

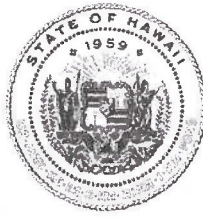
The macadamia nut industry is a vital part of the agricultural economy here in Hawaii. With an estimated farm value of over \$35 million, macadamia nuts are one of the top five agricultural commodities for the State of Hawaii.

The macadamia felted coccid is an insipid pest that can cause severe damage to macadamia nut trees and hurt our macadamia nut industry. It is vital to develop new methods to prevent the spread of this pest and limit the damage that it will have on the macadamia nut industry.

Thank you for the opportunity to testify.



DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

**Testimony of  
SUZANNE D. CASE  
Chairperson**

**SUZANNE D. CASE**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

**KEKOA KALUHIWA**  
FIRST DEPUTY

**JEFFREY T. PEARSON, P.E.**  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**Before the Senate Committees on  
ECONOMIC DEVELOPMENT, ENVIRONMENT, AND TECHNOLOGY  
and  
TRANSPORTATION AND ENERGY**

**Tuesday, February 16, 2016  
2:50 PM  
State Capitol, Conference Room 229**

**In consideration of  
SENATE BILL 2999  
RELATING TO THE ENVIRONMENT**

Senate Bill 2999 proposes to require state agencies to participate in a carbon offset program to offset carbon emissions caused by their employees' air travel and would require the Department of Land and Natural Resources (Department) to establish and administer this program. **The Department supports this measure and provides the following comments.**

Native forest ecosystems, as well as plantations aimed at revenue generation are an integral part of Hawaiian cultural practices; benefit recreational activities, such as hiking and hunting; provide open space and aesthetic beauty; provide invaluable lessons for environmental education; and can provide sustainable income from various forest resources.

The Department recognizes that state employees' air travel produces significant carbon dioxide and other greenhouse gas emissions that lead to adverse global climate effects. Afforestation and reforestation projects involving tree planting endemic, native or non-native trees can sequester substantial amounts of carbon dioxide, as well as provide a variety of ecological, cultural, recreational, educational, and economic functions.

The Department notes that establishing and administering a carbon offset program, as described in this bill, would require a considerable amount of personnel time and initial costs. However, over time fees paid to the Department from respective state employee cost offsets should cover the costs to maintain the program (staffing), and serve as a potential revenue stream to accelerate the amount of trees planted and cared for by afforestation or reforestation projects led by the Department. The Department suggests integrating the compensation of these costs when determining the cost of the offset.





February 10, 2016

Senator Glenn Wakai, Chair  
Senator Sam Slom, Vice Chair  
Senate Committee on Economic Development, Environment, and Technology

Senator Mike Gabbard, Chair  
Senator Clarence K. Nishihara, Vice Chair  
Senate Committee on Water, Land, and Agriculture

**Testimony in Support of SB 2988, Relating to Agriculture (Appropriates Funds to the Department of Agriculture, in Cooperation with the University of Hawaii's College of Tropical Agriculture and Human Resources, to Research and Develop Methods for the Prevention and Treatment of Macadamia Felted Coccid).**

**Friday, February 12, 2016, 1:20 p.m., in Conference Room 414**

The Land Use Research Foundation of Hawaii (LURF) is a private, non-profit research and trade association whose members include major Hawaii landowners, developers and a utility company. LURF's mission is to advocate for reasonable, rational and equitable land use planning, legislation and regulations that encourage well-planned economic growth and development, while safeguarding Hawaii's significant natural and cultural resources, and public health and safety.

LURF appreciates the opportunity to express its **support of SB 2988.**

**SB 2988.** This bill proposes to appropriate funds out of the general revenues of the State of Hawaii as may be necessary for fiscal year 2016-2017 for the DOA, in cooperation with the University of Hawaii's College of Tropical Agriculture and Human Resources, to research and develop methods for the prevention and treatment of macadamia felted coccid. The purpose of this measure is to provide funds for research to develop new methods of preventing and treating macadamia felted coccid infestations.

**LURF's Position.** Invasive species such as insects, disease-bearing organisms, snakes, weeds, and other pests pose the greatest threat to Hawaii's economy, tourism, agriculture, the natural environment, native species and to the health and lifestyle of Hawaii's people. Invasive species already cause millions of dollars in crop losses, the

extinction of native species, the destruction of native wet, moist and dry land forests, and the spread of disease, but many more harmful pests, such as the macadamia felted coccid, now threaten to invade all of the Hawaiian Islands and wreak further damage, including damage to Hawaii's macadamia nut crop, which is among the State's top five grossing agricultural commodities.

Despite initial efforts to control the spread of the macadamia felted coccid, infestations have now spread from South Kona to the orchards in the Pahala area on the Big Island, and new methods must be developed to control the incursions. Appropriated funds for research to develop new methods of preventing and treating macadamia felted coccid infestations are immediately necessary to mitigate the threats and impacts of uncontrolled spread and devastation of the State's macadamia nut industry.

For the above reasons, LURF **supports SB 2988** and respectfully urges your favorable consideration.

Thank you for the opportunity to present testimony regarding this matter.



P.O. Box 253, Kunia, Hawai'i 96759  
Phone: (808) 848-2074; Fax: (808) 848-1921  
e-mail [info@hfbf.org](mailto:info@hfbf.org); [www.hfbf.org](http://www.hfbf.org)

February 12, 2016

HEARING BEFORE THE  
SENATE COMMITTEE ON ECONOMIC DEVELOPMENT, ENVIRONMENT, AND  
TECHNOLOGY  
SENATE COMMITTEE ON WATER, LAND, AND AGRICULTURE

TESTIMONY ON SB 2988  
RELATING TO MACADAMIA FELTID COCCID

Room 414  
1:20 PM

Aloha Chair Wakai, Chair Gabbard, Vice Chair Slom, Vice Chair Nishihara, and  
Members of the Committees:

I am Randy Cabral, President of the Hawaii Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,900 farm family members statewide, and serves as Hawaii's voice of agriculture to protect, advocate and advance the social, economic and educational interest of our diverse agricultural community.

**HFB strongly supports SB 2988** which appropriates funds to the Hawaii Department of Agriculture, in cooperation with the University of Hawaii College of Tropical Agriculture and Human Resources, to research and develop methods for the prevention and treatment of macadamia felted coccid.

Hawai'i is the 3<sup>rd</sup> largest producer of macadamia nuts in the world (570 farms, operating on 17,000 acres), after Australia and South Africa. Production in 2013-2014 totaled 41 million pounds; **the net farm value was \$35.7 million.**

The macadamia felted coccid (MFC) threatens the entire macadamia nut industry in Hawaii by causing severe tree dieback and then death. Even mature trees can be killed by this small insect. If not controlled, we believe the MFC will spread and could devastate Hawaii's macadamia nut industry. We have seen what the coffee berry borer has done to the local coffee industry and we know that we can't afford to wait. We need to fund research to find economical solutions to this problem. This bill would supply the needed funding to help develop new ways to prevent and treat MFC infestations.

**Hundreds of jobs are tied to macadamia farming in Hawai'i;** it is a vital source of employment in Ka'u, which has among the highest unemployment rate in the state. Over 50% of Hawai'i's macadamia tree acres are located in the Ka'u district, the area hardest hit by the MFC. **Please support SB 2988.**



## UNIVERSITY OF HAWAII SYSTEM

### Legislative Testimony

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Written Testimony Presented Before The  
Senate Committee on Economic Development, Environment, and Technology  
and  
Senate Committee on Water, Land, and Agriculture  
Friday, February 12, 2016; 1:20 p.m.

By  
Robert Bley-Vroman, Chancellor  
And  
Maria Gallo, Dean  
And  
J. Kenneth Grace, Associate Dean  
College of Tropical Agriculture and Human Resources  
University of Hawai'i at Mānoa

#### SB 2988 – RELATING TO THE MACADAMIA FELTED COCCID

Chairs Wakai and Gabbard, Vice Chairs Slom and Nishihara, and members of the Senate Committee on Economic Development, Environment, and Technology, and Senate Committee on Water, Land, and Agriculture, thank you for the opportunity to testify in **support** of SB 2988, which appropriates funds to the department of agriculture to collaborate with the University of Hawai'i to research and develop methods for the prevention and treatment of macadamia felted coccid.

Hawai'i is the third largest producer of macadamia nuts in the world, with approximately 15,000 acres harvested on the Island of Hawai'i and a \$38.2 million farm-gate value (NASS 2012). Macadamia felted coccid is a severe pest of macadamia. This scale insect was found in south Kona in February 2005, and is now distributed throughout the Island of Hawai'i. Development of new control methods and appropriate management recommendations are essential for Hawai'i's producers to stop this invasive pest. Horticultural and harvest methods used in Hawai'i and the large size of trees in our well-established orchards contribute to great difficulties in achieving effective control.

In FY 2014, the legislature appropriated funds to initiate collaboration by the Department of Agriculture and CTAHR to address this serious invasive pest problem, augmented by funds committed by industry. With this support, CTAHR has worked in collaboration with the department to research the impact of canopy management, to identify key predators of the coccid and to augment their populations by planting refuge plants in orchards, and to evaluate other new control options.

This is not a simple problem, and a multi-year effort is required. SB 2988 requests appropriation of funds to continue this research effort to the department of agriculture, in order to identify and import effective biological control agents, find ways to further increase the populations of natural enemies of this insect pest, develop better insecticide application technologies, and ultimately develop an effective macadamia felted coccid management plan for Hawai'i macadamia orchards.

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Thursday, February 11, 2016 1:32 PM  
**To:** EET Testimony  
**Cc:** john@olsontrust.com  
**Subject:** Submitted testimony for SB2988 on Feb 12, 2016 13:20PM

**SB2988**

Submitted on: 2/11/2016

Testimony for EET/WLA on Feb 12, 2016 13:20PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
John C. Cross	Hawaii Macadamia Nut Association	Support	No

Comments: Dear Committee members, My name is John C. Cross I am the current President of the Hawaii Macadamia Nut Association. We represent 650 growers, some 18,000 acres of trees, and over 50 million pounds of Macadamia nut harvested per year. I am very sorry that I or our Board members could be there in person to testify in support of this Bill. We could not find any return flights to the Big Island on Friday. Please be aware that while not present it does not mean we are not completely in support of this Bill. We need the added and continued support of the ongoing research on MFC in order to achieve control of the insect. We need both chemical and beneficial insect work performed. Please approve this Bill out of your committee. I will testify in person at the very next opportunity. Please call me if you need to put me on speaker phone at the Hearing, 808-987-4229. Aloha, John C. Cross

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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**COMMITTEES EET/WLA**  
**FEB 11, 2016**  
**SB 2988**

Aloha Chairpersons and Committee Members

My name is Randy Mochizuki and I am the Crop Control Superintendant at the Royal Hawaiian Orchard in Pahala, HI. **I strongly support this bill to fund a way to protect macadamia nut farmers from a devastating invasive pest.**

The coccids were first found in our orchard in 2009 damaging a few trees. It has since spread throughout our 3,300 acres. They have destroyed or damaged a substantial number of trees and continues to do so. I don't believe the Hawaiian macadamia industry has ever seen such a devastating pest.

Due to the size of our trees; oil sprays which can control the pest in orchards with smaller trees, are ineffective because of inadequate coverage. We have experimented with several different sprayers and numerous chemicals. We have even tried aerial insecticide application by helicopter. All have proven inadequate to control the coccids in our orchard.

Other orchards in Kau and along the Hamakua coast are also being damaged by the coccids and have been unable to find effective means of control.

It also has the potential of destroying other macadamia orchards in the state affecting 1,800 acres and a 40 million dollar industry.

Thanks to funding from the State and two macadamia nut companies, some of the research mentioned in this bill has started by the University of Hawaii and the Hawaii DOA. But more funding is needed to continue the needed work.

Please help us by supporting this bill.

Thank you for your consideration of my comments.

Dear Chair Wakai, Vice Chair Slom, members of the EET committee, Chair Gabbard, Vice Chair Nishihara, and members of the WLA committee,

I strongly support S.B. No. 2988, which appropriates funds to the Department of Agriculture, in cooperation with UH CTAHR, to research and develop methods for the prevention and treatment of macadamia felted coccid.

This bill will enable further research benefiting the Macadamia industries battle with the Macadamia Felted Coccid. The Macadamia industry on the Big Island has never seen a pest so virulent and devastating. If a successful pest management strategy isn't devised 18,000 acres of Macadamia orchards are at risk.

S.B. No. 2988, will help find a solution to a problem that is threatening a \$35,000,000-38,000,000 industry.

Please support S.B. No. 2988.

Thank you,

Chris Johnson

February 10, 2016

Re: Senate Bill 2988 – Macadamia Felted Coccid (MFC) Research Funding

Dear Members of the Hawaii State Legislature,

My name is Andrea Kawabata and I am providing testimony as an individual only. I currently work as an assistant extension agent for UH CTAHR. My clientele include macadamia nut growers and processors and as such, I am acutely aware of the invasive pest referred to by SB2988. With these comments, I lend my support for SB2988 to provide funding for research into field manipulation, effective pesticides, long-term impacts of MFC, phenology of the pest, and potential biocontrol tactics.

Macadamia Felted Coccid has damaging and lasting effects on the health and bearing ability of macadamia trees and farms in Hawaii. Macadamia nut yield and quality can be greatly reduced in the presence of this insect pest. Trees lose limbs, blossoms, young fruit and leaves, which are essential for proper nut and kernel (what you eat) development. At times when MFC pressure is highest, entire trees can succumb, meaning that production ceases on full-grown, mature trees that growers are dependent on for sustained yields.

The macadamia nut industry supports many families and communities throughout Hawaii and is known throughout the world for its delicious and healthy kernels that we snack on, send as gifts, and consume in candies, spreads, desserts, sauces, butters, etc. Supporting the macadamia nut industry not only supports farmers, but it also supports Hawaii's tourism industry and locals.

This pest has spread to uninfested farms in recent years and studies are needed to understand the best methods of MFC control that make economic and environmental sense for farmers and the community. This pest cannot be controlled without the proper resources provided.

I highly encourage you, the Hawaii State Legislature, to also support this bill and provide funding to the macadamia nut industry and researchers for MFC control.

Thank you for your consideration,  
Andrea Kawabata  
Kona, Hawaii Resident



**wakai1 - Lilinoe**

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Wednesday, February 10, 2016 11:59 AM  
**To:** EET Testimony  
**Cc:** alyssahcho@gmail.com  
**Subject:** \*Submitted testimony for SB2988 on Feb 12, 2016 13:20PM\*

**SB2988**

Submitted on: 2/10/2016

Testimony for EET/WLA on Feb 12, 2016 13:20PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Alyssa Cho	Individual	Support	No

**Comments:**

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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**wakai1 - Lilinoe**

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Thursday, February 11, 2016 9:37 AM  
**To:** EET Testimony  
**Cc:** monicariedel@gci.net  
**Subject:** \*Submitted testimony for SB2988 on Feb 12, 2016 13:20PM\*

**SB2988**

Submitted on: 2/11/2016

Testimony for EET/WLA on Feb 12, 2016 13:20PM in Conference Room 414

Submitted By	Organization	Testifier Position	Present at Hearing
Monica Riedel	Individual	Support	No

**Comments:**

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