

**REPORT TO THE THIRTY-FIRST LEGISLATURE  
2021 REGULAR SESSION  
STATE OF HAWAII**

**ANNUAL REPORT ON THE BIOSECURITY PROGRAM  
IN RESPONSE TO ACT 236, SLH 2008**



**Prepared by:**

**THE STATE OF HAWAII  
DEPARTMENT OF AGRICULTURE**

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**REPORT TO THE THIRTY-FIRST LEGISLATURE**

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## **SECTION I**

### **Background**

#### **A. Act 236, 2008 Session Laws of Hawaii**

Act 236 of the 2008 Session Laws of Hawaii recognized that the unchecked spread of invasive species was a threat to Hawaii's economy, natural environment, and the health and lifestyle of Hawaii's people. Act 236 created a Biosecurity Program within the Department of Agriculture to support the Department's efforts in combatting invasive species. In particular, Act 236 recognized that the Department was undertaking several activities to fight invasive species by:

1. Administering pre-entry measures to minimize the risk of invasive pests entering the State;
2. Conducting port-of-entry inspections to detect and quarantine or destroy pests upon arrival; and
3. Administering post-entry measures to mitigate the establishment of pests in the State.

Additionally, Act 236 acknowledged the Department's efforts to reduce the State's dependency on imported agricultural products by increasing the capacity of Hawaii's agricultural industry that would in turn reduce the risk of importing agricultural commodities that could contain invasive pests. The Biosecurity Program was created to support the Department's ongoing efforts to combat invasive pests. The Legislature also established the Pest Inspection, Quarantine, and Eradication (PIQE) fund to finance much of these activities.

#### **B. Role of the Hawaii Department of Agriculture**

Efforts to prevent the introduction of invasive species, control and mitigate existing invasive species, and where possible, to eradicate invasive species incursions, are covered by multiple divisions and branches within the Department of Agriculture. There are also multiple funding sources used to fund these activities including general funds, PIQE, barrel tax, and federal funds.

The Plant Industry Division is composed of the Plant Quarantine Branch (PQB), Plant Pest Control Branch (PPC), and the Pesticide Branch. All three branches play a role in biosecurity with the Hawaii Department of Agriculture (HDOA) and work closely together to accomplish the objectives. PQB is largely tasked with the inspections and permitting of agricultural commodities (live plants; non-propagative plant parts such as fresh produce, cut flowers, animal feed; non-domestic animals; microorganisms; and soil) at ports of entry to prevent the

introduction and interisland spread of new or existing invasive species. This branch works closely with its federal partners (United States Department of Agriculture Animal and Plant Inspection Service (USDA-APHIS) and USDA Plant Protection and Quarantine (USDAPPQ) to ensure Hawaii's ports of entry are being kept free of invasive species threats. PPC's focus is primarily on the detection, response, control, containment, and eradication of pests that have managed to bypass inspections at the ports of entry. It is staff from this branch that are in the field actively working with farmers, homeowners, and businesses to help treat, prevent, and where possible, eradicate invasive species threats when they are discovered. The Pesticides Branch ensures that pesticide technologies are available for these efforts and are being properly used. Specific activities of the Plant Industry Division relating to biosecurity are as follows:

**Prevention** – activities to prevent the introduction of invasive species

- Inspection at port-of-entries for agricultural commodities entering the State and moving inter-island.
- Issuance of permits for the importation and possession of restricted commodities such as restricted plants, non-domestic animals, and microorganisms.
- Origin certification programs for high risk commodities (compliance agreements between origin state, commodity handlers/shippers, and destination state) designed to minimize or eliminate pest risk levels.

**Diagnostics** – ability to identify pests and invasive species: Insects, Slugs, Snails, Plant Pathogens, Non-domestic Animals, Microorganisms, and Noxious Weed identification.

**Detection** – surveillance for the existence and location of an invasive species that may be introduced.

**Rapid Response** – Immediate survey, control, and eradication measures to detect, capture, or eliminate a single threat or incipient population of invasive species before it can become established.

**Monitoring** – ongoing surveys to track the presence or absence and status of introduced invasive species over time and to evaluate effectiveness of prevention, control and restoration activities. Surveys are conducted at high risk areas, including within the airport and harbor environs, surrounding the ports-of-entry, agricultural lands, and selected protected areas within the State.

**Biological Sampling** – ongoing surveys to track the presence and status of existing species over time and to evaluate effectiveness of prevention, control and restoration activities.

**Research and Development** – the development of scientific knowledge, methods, and technologies to prevent, detect, control and/or monitor invasive species and assist in implementing technologies to control invasive species' effects on agricultural production.

**Education Outreach** – actions taken to support public education and outreach programs.

**Partnerships and Cooperative Activities** – cooperative efforts with stakeholders (agricultural industries); federal, state, county, and private partners; including domestic and international partnerships and agreements.

**Information Management** – activities to facilitate access to and exchange of information concerning invasive species. Includes storage and sharing of data and databases.

**Quality Control Programs** – activities to measure levels of effectiveness, including on-going risk assessments to determine pest-risk pathways, evaluation of mitigation activities, and re-prioritization of inspection activities for invasive species.

**Quarantine Treatment Facilities** – “shared” government certified treatment facility(ies) approved to conduct disinfestations treatments to recondition and/or destroy shipments infested with quarantine pests, or to subject shipments to treatments that will exterminate the quarantine pest.

**Permitting** – issuing permits based on statutes, administrative rules, and prior Board of Agriculture decisions to ensure the introduction of regulated commodities can be appropriately imported into the State and not introduce or become invasive species in accordance with pest risk.

**Compliance and Enforcement** – strengthening the enforcement components to compel compliance with quarantine laws and regulations.

**Export Programs** – providing services to facilitate the export of agricultural goods to domestic and foreign markets.

The Animal Industry Division approaches biosecurity as a process for risk management of high impact animal diseases. This is accomplished as a spectrum of activities that encompasses mitigation of invasive animal disease occurrence and appropriate response methods to support continuity of business and protect human health. Detection of high impact animal diseases will affect both local industries as well as global trade. The Rabies Control Branch and the Animal Disease Control branch share the same objective of minimizing the impact of animal disease occurrence but focus on different species. Pre-arrival requirements provide assurances that newly imported animals have been properly identified, complied with disease testing and have undergone pre-transport examination. Upon arrival, inspection occurs to verify animal

identification, examine for clinical signs of illness and check for the presence of foreign parasites. In addition to monitoring newly importing animals, Animal Division staff performs routine surveillance of existing populations to detect emerging or re-emerging animal diseases that are subject to control or eradication. To determine the level of impact when irregularities are detected, the Veterinary Laboratory provides diagnostic support. Upon confirmation of the presence of invasive animal disease or parasites, response methods are initiated to contain disease spread, work towards eradication, and minimize the impact on existing industries, human health and global trade.

## **SECTION II**

### **Description of Projects and Activities Funded by the Pest Inspection, Quarantine, and Eradication Fund**

#### Plant Quarantine Branch Database and e-Manifesting.

PQB maintains a database called INVICTA to record import inspection, permitting, and pest hotline reporting activities. The database is a critical and essential tool not only for information storage but is also used to determine effectiveness of operations and aids commodity and pathway risk analysis. Once analyzed, the data is used by PQB to focus inspection activities to intercept pests. However, the database is outdated, limiting among other things, the ability to retrieve information needed for comprehensive risk analysis. The database is being maintained and updated as much as possible with PIQE funds until PQB rolls out a more comprehensive and modern database. A request for proposals (RFP) was completed and HDOA selected Pacific Point, Inc to develop PQSYSTEM17. HDOA implemented the contract in March 2018. An additional development and maintenance contract of \$99,424.04 was initiated in FY2020. Software licenses critical to the operation of PQSYSTEM17 were renewed in FY2020 for \$180,345.46.

Previous risk assessments conducted at ports of entry statewide, have determined that different commodities pose different risk levels for the introduction of pests. INVICTA has been instrumental in the implementation of these risk assessments but does not have the capacity to efficiently determine commodity and pest risk and allow for efficient electronic-manifesting (e-Manifest). The new database has incorporated a standardized e-Manifest module that will allow shippers and importers to electronically submit a shipping manifest to HDOA before (sea containers typically 5 days prior and air shipments typically 6-8 hours prior) the commodities arrive in the State. This will allow PQB to efficiently utilize limited manpower by scheduling inspections based on the risk level of the arriving commodities. A pilot project for the e-manifesting system has continued throughout this fiscal year to better design a module that

can be incorporated into the new database. PQB has developed training modules and is working with select importers to transition them into the new system.

#### Nursery Certification and Compliance Project.

PQB continues to maintain a compliance project with selected nurseries who ship nursery stock in soil for Rapid Ohia Death (ROD). It includes best management practices as well as periodic testing of soil in the nursery for the fungus that causes ROD.

#### Christmas Tree Inspection Project.

PQB continues to work collaboratively with Oregon Department of Agriculture (ODA) and the Washington State Department of Agriculture (WSDA) to maintain implementation of best management practices (BMPs) and inspection protocols with Oregon Christmas tree shippers to ensure that the shipments are free of pests. In previous years, ODA personnel have come to Hawaii to work with HDOA to inspect the trees as they arrive and to assess the results of the efforts. The BMPs continue to be successful with a 94% of the shipments found free of pests in 2016, 97% in 2017, 98% in 2018, 97% in 2019 and 88% in FY2020. Speaking to ODA staff, due to the COVID-19 pandemic and economic downturn, there was a shortage of manpower which reduced the shippers' ability to fully maintain BMPs, resulting in an increase in interceptions. PQB will be working with ODA to correct this for 2021.

#### Plant Pathogens.

PPC staff coordinated with University of Hawaii (UH) staff to conduct surveys for the Orchid fleck virus on citrus plants at the UH research station in East Hawaii. The virus is vectored by a flat mite and is not known to occur elsewhere in the US. Citrus trees that were infected with the virus were treated with a miticide and cut down.

#### Insect Pests.

PPC engaged in statewide field surveys at nurseries, farms, and residences to delineate the banana lacewing bug, *Stephanitis typica*, a new US record. The banana lacewing bug was found to be on Oahu only. Statewide surveys were conducted for the avocado lace bug, *Pseudacysta perseae*, a new State record. The avocado lace bug was found only on Oahu and Hawaii Island. Chemical/Mechanical Control staff conducted a limited pesticides trial to combat the avocado lace bug that was causing trees to drop their leaves and fruit. Branch staff consulted with University of Hawaii Cooperative Extension staff for control measures and on outreach.

## Apiary.

Statewide biosecurity surveillance for Africanized honeybees (AHB), AHB DNA diagnostic, surveillance, inspections for honeybee pests is ongoing. *Varroa*, *Nosema*, *Tropilaelaps* mites, American and European Foulbrood. Africanized honeybees have not been detected in Hawaii. The Department has been screening credible reports about sightings of Asian giant hornets, *Vespa mandarina*, in Hawaii. These hornets were recently found in British Columbia and the State of Washington, and received significant new coverage earlier in the year when they were reported in various news outlets under the common name “murder hornet.” They have not been found in Hawaii.

## Funding of Personnel.

The PIQE is a significant source of funding (\$3.5 million) for PQB staff positions. PIQE supports approximately half (42 of 90) of the PQB positions. These positions were originally general funded but lost during the RIF in 2009. The staff in these positions conduct the day-to-day inspection, permitting, certification, pest response activities, and special projects funded by PIQE which meet the mandates of ACT 236, SLH 2008.

## Funded Projects.

Hawaii Ant Lab Core Funding. This statewide initiative focuses on the development and use of novel and proven technologies to prevent, detect, respond, and control little fire ant. Increased spread of the little fire ant due to tough terrain, non-cooperative land owners, and unique natural environments have allowed the little fire ant to spread to various locations throughout the State. To affect change, the Hawaii Ant Lab needs resources to address this invasive pest. The Hawaii Ant Lab at the University of Hawaii received \$378,835 in FY2020 to carry out this work.

Early Detection and Prevention of Little Fire Ant on Oahu. This project funds a trained research, survey and response team to provide monitoring of high-risk sites such as nurseries and landscape suppliers and to participate in response activities should little fire ant be found on the island. The Hawaii Ant Lab at the University of Hawaii received \$189,111 in FY2020 to carry out this work.

Little Fire Ant Research. This project allows the Hawaii Ant Lab and the University of Hawaii to perform research and field trials on the effectiveness of hydrogels and other water-storing granules to control little fire ant populations. The University of Hawaii received \$60,361 in FY2019 to carry out this research.

Support for Big Island Invasive Species Committee. This project funding of \$115,000 in FY2019 supports three projects central to the Big Island Invasive Species Committee’s mission. The projects include community-based training for residents to control little fire ants;



promotion of the Plant Pono plant industry endorsement program; and survey and control of high-impact invasive plants that have escaped into the natural environment.

County of Hawaii Coqui Frog Control in North Kohala. This project will allow for educational activities and outreach events, prevention activities and control and eradication efforts of the coqui, and the maintenance of a 24/7 coqui hotline and response team. This project received \$49,896 in FY2019.

Diamondback Moth Management. In Hawaii, the total farm gate value of the crucifer industry is approximately \$4.55 million. The industry primarily consists of head cabbage, Chinese cabbage, mustard cabbage and kale. The most serious problem facing the crucifer industry in Hawaii is the control of an insect pest called the diamondback moth (DBM), *Plutella xylostella*. In collaboration with University of Hawaii College of Tropical Agriculture and Human Resources (CTAHR), a \$49,500 FY2019 contract funds field monitoring and workshops to provide crucifer growers a resistance management program and develop other sustainable management strategies for the control of diamondback moth and other lepidopteran pests on crucifers.

Ornamental Ginger Survey and Identification. Commercial production of ornamental ginger has been on the decline for the past 10 years on Oahu. Extension agents worked with CTAHR pathologist to learn that there are three plant viruses affecting ginger production (banana bract mosaic virus (BBrMV), canna yellow mottle virus (CaYMV), and banana streak virus (BSV) and at least one fungal pathogen (*marasmius*) that attributes to crop decline and death. More diagnostic work and a statewide survey is warranted before quarantine is pursued. The University of Hawaii received \$121,470 in FY2019 to carry out this work.

Coffee Nematode Management. The coffee root-knot nematode (CRKN), *Meloidogyne konaensis*, is a serious pest of coffee in the Kona and Kau coffee producing regions. A current project will be expanded to address the lack of awareness of CRKN among growers and how rootstocks and grafted plants can help while also conducting more research on CRKN. Extension outreach efforts have focused on workshop/field-day events, including printed and online outreach materials. The University of Hawaii received \$39,985 in FY2019 to carry out this work.

Two-Lined Spittlebug. The two-lined spittlebug (TLSB), *Prosapia bicincta*, has caused severe impacts to key pasture grasses. In response to the recent invasion and the severe impact of the two-lined spittlebug to the Big Island of Hawaii, immediate actions to restrict its further spread and to prohibit establishment on the other non-infested Hawaiian Islands is necessary. The University of Hawaii received \$333,086 in FY2020 to address rancher education, surveillance, biology and ecology research, integrated pest management, and biological control.

Conditioning Parasitoids to Exploit Coffee Berry Borer. The coffee berry borer (CBB), *Hypothenemus hampei*, has caused severe impacts to coffee growers since its discovery in Hawaii in 2010. This project surveys for native parasitic insects which may infest CBB and explores whether they can be conditioned to search for CBB in coffee. The University of Hawaii received \$46,000 in FY2020 to conduct this research.

Systematics and Ecology of Hawaiian Bark Beetles. The coffee berry borer (CBB), *Hypothenemus hampei*, has caused severe impacts to coffee growers since its discovery in Hawaii in 2010. This project surveys for bark beetles related to CBB in the State in order to catalog potential candidates for host testing of CBB parasitoids prior to their release into the environment. The University of Hawaii received \$157,764 in FY2020 to conduct this research.

Coffee Berry Borer Subsidy. The coffee berry borer (CBB), *Hypothenemus hampei*, has caused severe impacts to coffee growers since its discovery in Hawaii in 2010. A subsidy program was begun in 2015 that reimburses coffee growers up to 50% of the costs of purchasing an organic microbial pesticide to help reduce CBB damage. The County of Hawaii received \$260,000 in FY2019 to fund this ongoing program.

HIAGPESTCOM 19. Approximately 92% of the food consumed in Hawaii is imported from elsewhere. This overreliance on imports increases the risk associated with the unwanted importation of non-native invasive species and can cause food shortages if the supply chain is disrupted, as happened to some commodities during the recent COVID-19 pandemic. This project uses traditional communication techniques and social media to build awareness of invasive species and encourages innovation within the agriculture community for import replacements. This ultimately builds capacity within the farming community, strengthen existing markets and reach new ones, making Hawaii's agricultural sector more resilient. The Hawaii Farm Bureau received \$90,000 in FY2020 to conduct this outreach campaign.

Plant Quarantine/Invasive Species Awareness at the Daniel K. Inouye International Airport. In 2018, an initiative by PQB personnel was launched to promote awareness of the impact of invasive species on our environment and the promotion of the PQB as the first line of defense in combatting invasive species in Hawaii. The effort includes 10-second videos on a 1-minute loop with other products or organizations. The videos appear on all the television monitor screens above the escalators going down to the baggage claims for all domestic arrivals, including the escalator going down to baggage claim at the interisland terminal for a total of 4 video monitors. The videos are also be displayed on both sides of the new arrival and departure board at the Hawaiian Airlines/interisland ticket lobby. This is a 3-year project funded with \$300,000. It also includes a static, back-lit, tension fabric display in the Hawaiian terminal near the food court.

## Hawaii Administrative Rule amendments.

PQB administers Hawaii Administrative Rules that directly apply to biosecurity. These rules are continually being reviewed and updated as needed. This is a multi-tiered process which involves staff, various Advisory Subcommittees, the Advisory Committee on Plants and Animals, and Board of Agriculture review followed by the public hearing process. The process was initiated for the following changes:

Chapter 4-70 Plant Import Rules. Addition of a subchapter restricting plants in the family Myrtaceae (Myrtle family) to address the risk of the importation of new strains of the rust fungus, *Puccinia psidii*, commonly known as Ohia Rust or Guava Rust.

### SECTION III

#### **Description of Proposed Projects and Activities to be funded by the PIQE Fund**

##### Funded Projects.

Hawaii Ant Lab Core Funding. This statewide initiative focuses on the development and use of novel and proven technologies to prevent, detect, respond, and control little fire ant. Increased spread of the little fire due to tough terrain, non-cooperative land owners, and unique natural environments have allowed the little fire ant to spread to various locations throughout the State. To affect change, the Hawaii Ant Lab will need available resources to address this invasive pest. HDOA intends to fund the Hawaii Ant Lab at the University of Hawaii in FY2021 to continue to carry out this project.

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Support for Big Island Invasive Species Committee. This project supports three goals central to the Big Island Invasive Species Committee's mission. The projects include community-based training for residents to control little fire ants; promotion of the Plant Pono plant industry endorsement program; and survey and control of high-impact invasive plants that have escaped into the natural environment. HDOA intends to fund the University of Hawaii in FY2021 to continue to carry out this project.

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#### Plant Quarantine Branch Database and e-Manifesting.

Plant Quarantine Database Development. The Department will continue to develop, implement and maintain a Statewide, modern, automated, data collection, reporting, permitting, and eManifest system. The work will address system design and implementation to meet PQB biosecurity efforts.

#### Nursery Certification and Compliance Project.

This project will continue as described in Section II.

#### Christmas Tree Inspection Project.

This project will continue as described in Section II.

#### Plant Pathogens, Insect Pests, and Apiary.

These projects will continue to perform surveillance and response to detections of invasive agricultural plant pests.

#### Funding of Personnel.

This will continue as described in Section II with funding more PQB positions with the replacement of General Fund monies with Biosecurity Special Fund monies.

#### Hawaii Administrative Rule amendments.

The review and amendment process for Hawaii Administrative Rules is a dynamic process. The activities will continue as described in Section II.

## **SECTION IV**

### **Act 243, Session Laws of Hawaii 2016 Report**

The Department of Agriculture provided a report to the 2018 Legislative Session regarding Act 243, SLH 2016. The Act calls for annual reporting based on expenditures from general funds appropriated for FY2016-2017. General funds were not provided for additional years and as such there are no expenditures to report on regarding Act 243, SLH 2016.

**SECTION V**

**Financial Plan**

Pest Inspection, Quarantine, and Eradication Special Fund										
	Actual 2014 - 2020					Projected 2021 - 2023				
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Beginning Fund Balance</b>	4,643,716	6,843,938	7,767,876	8,101,937	8,410,388	8,060,393	7,465,989	7,718,162	7,678,548	7,680,242
<b>REVENUE</b>										
Fees	5,846,025	5,100,803	5,369,318	6,644,219	6,074,598	5,809,187	6,035,717	6,138,360	6,261,127	6,386,349
Investment Pool Interest	15,843	33,616	57,162	76,287	43,205	-	158,150	45,000	46,000	47,000
Other	562	6,255	-	175	4,282	1,402	8,950	-	-	-
<b>TOTAL REVENUE</b>	5,862,430	5,140,674	5,426,480	6,720,681	6,122,085	5,810,589	6,202,817	6,183,360	6,307,127	6,433,349
<b>EXPENDITURES</b>										
Personnel Costs	2,821,868	3,196,542	3,226,237	3,145,506	3,273,310	3,421,001	3,279,830	4,122,974	4,205,433	4,289,542
Other Current Expenses	837,446	986,084	1,717,101	3,176,525	2,993,157	2,983,992	2,670,814	2,100,000	2,100,000	2,100,000
Equipment	2,895	34,110	83,400	33,520	205,613	205,382	296,402			
Motor Vehicles	-	-	65,681	56,679	-	-	-	-	-	-
<b>TOTAL EXPENDITURES</b>	3,662,208	4,216,736	5,092,419	6,412,230	6,472,080	6,404,993	5,950,644	6,222,974	6,305,433	6,389,542
<b>BALANCE</b>	6,843,938	7,767,876	8,101,937	8,410,388	8,060,393	7,465,989	7,718,162	7,678,548	7,680,242	7,724,049