Aloha! I am pleased to submit the Hawaii Department of Agriculture's Annual Report for the fiscal year 2005.

Agriculture in the State of Hawaii continues to experience positive transformation. From a rich history of plantation farming to a diversified industry, the state now boasts local agribusinesses producing a wide variety of specialty crops, filling niche markets with unique products. With the passing of the Important Agricultural Lands Act 183, the 27-year-old constitutional mandate to conserve and protect important agricultural lands in the state perpetuates working landscapes for their economic value and intrinsic beauty. Just as important, consumers continue to rediscover the value, quality and role of local agriculture in the State of Hawaii, further driving the industry to a very productive fiscal year.

Successful initiatives accomplished during FY 2005 include:

- The inception of the "Seal of Quality" program, to capture and protect the marketing value of Hawaii's name for locally produced products.
- The first ever agricultural terrorism exercise in the state, where more than 30 different local, state and federal agencies and organizations discussed roles and responsibilities in response to a fictitious incident of agro-terrorism.
- The award of a $300,000 USDA grant, funding an innovative private/state multi-lingual collaborative outreach effort. The project provided the department with the unique ability to communicate effectively with immigrant farmers and ranchers in the state, while providing clientele greater access to USDA and departmental programs.
- The expansion of aquaculture in the state, enhanced with open ocean fish farming and a new departmental aquaculture veterinarian, with the industry reaching over $28 million in value during the fiscal year.

Amongst such transition – diversification of the industry, recognition of agricultural lands as important, and a favorable consumer attitude towards local products – the agriculture industry in Hawaii continues to steadily rise as a significant and respected driver of Hawaii's economy.

Sincerely,

Sandra Lee Kunimoto

Sandra Lee Kunimoto
Chairperson
Hawaii Board of Agriculture

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This annual report may be also made available in large print, taped or in Braille to meet special needs, if requested in advance by calling (808) 973-9560.

Planning & Development

The Hawaii Department of Agriculture actively seeks to protect existing farming areas and promote increased access to and productive use of the thousands of acres of prime agricultural lands and infrastructure vacated by sugar plantations throughout the state. The department, as principal advocate for agriculture among state agencies, offers consultative input into land use zoning, environmental program development and implementation, and broader planning and economic development issues that affect agricultural resources and the growth of agricultural businesses. While modest in comparison to the visitor industry's $10 billion in economic activity, the economic activity generated by diversified agriculture is solid, steadily increasing, and will be bolstered by the continued strength of the pineapple and sugarcane industries.

The 2005 Legislature adopted and Governor Linda Lingle signed into law the landmark Important Agricultural Lands Act (Act 183, 2005 Session Laws of Hawaii) which establishes the foundation for the identification, protection, and planning for the maintenance of a strategic agricultural land resource base. The Important Agricultural Lands Act (IAL) will support a diversity of agricultural activities and opportunities thereby expanding agricultural income and job opportunities for current and future generations. Act 183 also mandates the department to develop incentives to promote agricultural viability and sustain long-term agricultural use and protection of these productive agricultural lands.

In the year to come, the department will be establishing a consistent process to encourage input from agricultural stakeholders to assist in identifying and assessing potential IAL incentives. A preliminary report will be delivered to the 2006 Legislature followed by a final report with proposed IAL incentives for legislative consideration by 2007.

The department also supported the protection of agricultural resources, increased the use of former sugarcane lands and infrastructure, and expanded diversified agriculture development in general through a number of ongoing efforts. These efforts included the submittal of extensive testimony before county councils and departments, state departments, State Land Use Commission, and community organizations on agriculture-related issues such as amendments to agricultural property tax programs, county-level initiatives to protect prime agricultural lands, facilitating discussions between farmers and landowners on "good neighbor" and land tenure issues; amendments to county agricultural zoning and community plan ordinances; and amendments to environmental regulations affecting the use of agricultural land and water resources.

GRANTS AND PROJECTS

Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers ($300,000), June 2005 – December 2006

This 18-month outreach project, conducted by the non-profit Pacific Gateway Center and funded by the U.S. Department of Agriculture (USDA), benefits socially disadvantaged farmers and ranchers on Oahu and the Big Island. Unable to access existing HDOA and USDA programs due to language barriers, these farmers have been able to receive one-on-one technical support, guidance and education regarding the following issues: access to credit, food safety, farm land availability, and ag theft. Partners in the project include HDOA, Agribusiness Development Corporation (ADC) and the University of Hawaii - College of Tropical Agriculture and Human Resources (UH-CTAHR.)

Secondary and Two-Year Postsecondary Agriculture Education Challenge Grants Program ($70,000), School Year 2005-2006 – School Year 2006-2007

Funded in part by USDA, this Waialua High School project brings agriculture education back to the classroom, allowing students and faculty alike to understand the infinite possibilities available in the modern agricultural workplace. With the development of a Speakers Bureau, “Field of Dreams” field trip program, student internships, curricula integration, and wages for a former agriculture education volunteer, Waialua High School is now among the forerunners in agricultural education, with an expanding aquaculture program, mamaki tea projects, integrated science curricula and more.

The Waialua pilot project is slated to become a statewide program, working towards a vibrant workforce for the future of Hawaii’s agricultural industry. Supporters of the Waialua project as well as the future initiative include: HDOA, Hawaii Farm Bureau Federation, Hawaii Agricultural Research Center, Pioneer, Alluvion, and UH.

Agro-Terrorism and Emergency Response Preparedness

In August 2005, more than 100 representatives from more than 30 different agencies and organizations participated in an agro-terrorism table top exercise, co-hosted by the Department of Agriculture and State Civil Defense, and funded by the Department of Homeland Security, Office for Domestic Preparedness. Individuals were broken into discussion groups (Response, Public Information, Health and Safety, Investigation and Enforcement, and Emergency Operations Center) to talk through possible events leading up to a staged avian influenza outbreak on a poultry farm on Oahu. The successful exercise lead to increased understanding among all levels of response agencies of the nature of agricultural emergencies.

The Department continues to practice emergency preparedness, such as updating plans and procedures to comply with federal standards (NIMS and ICS), for a rapid response in the event of an agricultural emergency whether intentionally introduced or not.

Agriculture-Related Emergency Preparedness

During FY 2005, HDOA increased efforts to enhance department preparedness for an agriculture-related emergency, including potential agro-terrorism incidents.

Several tabletop exercises were held within the Animal Industry Division and the department to drill the department's response to an animal disease emergency and to identify areas to identify areas to improve the department's response.

In July 2005, a team of trainers from the National Center for Biomedical Research and Training - Academy of Counter-Terrorism Education, Louisiana State University, conducted training in preparedness and response to agricultural terrorism.

The three-day training and certification process involved about 25 individuals, mainly from HDOA, but also included local U.S. Department of Agriculture and Hawaii Department of Health personnel.

In August 2005 (FY 06), State Civil Defense, in conjunction with HDOA, held a large tabletop agro-terrorism exercise involving more than 100 members of city, state, federal agencies and Hawaii's agricultural industry.

Above: State Veterinarian James Foppoli, conducts a tabletop exercise in June 2005 involving staff from within HDOA that would be tapped to assist in an animal health emergency.

Above: Trainers from the Academy of Counter-Terrorist Education provide valuable training in agro-terrorism response in July 2005.

Right: (l - r) Special Assistant to the Chairperson Betsy Polhemus and HDOA veterinarians Drs. Jason Moniz, Billy Bergin and Isaac Maeda concentrate their thoughts on the scenario presented during the training session.

ADMINISTRATIVE SERVICES OFFICE

Elaine Abe
Administrator

The goals of the Administrative Services Office are:

1) to meet the staff support needs of the department's programs and personnel by providing guidance, training, information, efficient equipment and vehicles, and adequate facilities, and facilitating the processing of their requests in order to enhance managers' decision-making capabilities and employee productivity; and

2) to meet the needs of the public by assisting them in their requests or directing them to the appropriate entity to address their needs.

The department's financial statements are available beginning on page 43.

The following is a list of projects that have been completed during FY 2005:

- Completed nationwide recruitment for aquatic disease veterinarian.
- Implemented HGEA Drug and Alcohol Testing program.
- Completed a second reduction-in-force process for five employees from Animal Quarantine Branch.
- Attended various training sessions including ASK Recruitment, Alternative Work Week, Pre-employment Physical Exams, Employees' Retirement System Hybrid Plan, and Family Medical Leave Act.
- Conducted DHRD survey to determine number of and type of departmental employees on active military duty status.
- Conducted two open forum meetings for EMCP employees.
- Assisted various programs in filling 34 positions (permanent/temporary and exempt), including Commodities Program Manager and Accountant V.
- Completed coordination of various capital improvement projects to correct safety concerns and other deficiencies at department facilities including upgrading of electrical and fire systems and re-roofing the main buildings at the King St. Complex, demolishing unused kennels and modifying the service window at the Animal Quarantine Station and renovating portions of the Department of Health's State Laboratory Facility for use by the Quality Assurance Chemical Analysis Laboratory.
- Implemented the Department's on-line telephone directory.
- Completed issuing new department identification badges to all Plant Quarantine Inspectors.
- Coordinated and compiled information and responded to inquiries from the Legislative Auditor's Office and their privately contracted auditor, Grant Thornton, as they conducted a financial audit of the department for the period ending June 30, 2005.
- Revised and updated Department's inventory procedures to address findings in Legislative Auditor's financial audit of the department.
- Updated and revised department's 10-year motor vehicle replacement schedule based on input from programs.
- Completed conversion of the department's Kahului Office telephone system to HATS.
- Updated in-house procedures for procurement cards to incorporate mandatory pCard use for purchases under $2,500 and developed new forms for equipment and purchases over $2,500. Also expanded the use of the pCard to 34 employees as of June 30, 2005 and its usage to include equipment, and out-of-state travel expenses, as well as purchases more than $2,500.
- Connected Aquaculture Sand Island Office, Chemical Analysis Laboratory at Waimano and the Kona Plant Quarantine Office to the NGN network.

Major projects in progress include:

- Working with consultants to transfer Plant Quarantine on-line system to the Department.
- Working with consultants to migrate Animal Quarantine Station application from Speed II to APPX.
- Continuing to network all Oahu and neighbor island offices to State's NGN.
- Developing a computer equipment replacement schedule.
- Implementing new Plant Industry server to house Plant Pest Control and Pesticide information.
- Establishing six-year special repair and maintenance and capital improvement program for department's office buildings.
- Auditing leave records of program recordkeepers.
- Reviewing and rewriting internal personnel policies and procedures.
- Monitoring the length of time to service various program requests.
- Implementing the DOA Workplace Violence Action Plan.

AGRICULTURAL DEVELOPMENT DIVISION

Matthew K. Loke, Ph.D.,
Administrator

The Agricultural Development Division serves to promote the economic viability of commercial agriculture in Hawaii by sponsoring joint marketing programs for agricultural products with high revenue growth potentials; facilitating the development and expansion of marketing opportunities for targeted agricultural and processed products; and providing timely, accurate and useful statistics.

MARKET DEVELOPMENT BRANCH

Calvin Lee, *Manager (retired December 2005)*

The mission of the Market Development Branch is to facilitate the development of the agricultural industry, consisting of commodity groups of agricultural producers and food processors, through the expansion of new and existing markets.

Major activities during FY 2005 were:

Matching Funds Promotional Contracts

This is the second fiscal year that the Branch implemented a new procedure to solicit and award matching funds marketing grants. To insure transparency, the procedure followed the State's RFP (Request for Proposal) process that was posted on the State Procurement Office (SPO) Website. This year, staff made the following improvements to the program:

1) Limited the number of proposals that could be submitted by each organization to two in each category;
2) Required projects to fall into only one category;
3) Increased the amount to be funded by the State in several categories; and
4) Used contracts rather than purchase orders. The applications fell into three predetermined categories:
   a. Distribution Systems focusing on encouraging Hawaii Ag-businesses to pool resources, at least four companies, in order to improve efficiency in transportation/shipping, distribution, sales representation, or consolidation issues. There were four awards in this category.
   b. Mainland and International Trade Shows focusing on a Hawaii-theme exhibit with a minimum of four unrelated companies attending the trade show. There were four awards in this category.
   c. Industry Education and Promotion of Agriculture focusing on producer's competitiveness and human capital capacity building; and marketing effort or hosting events supportive of Hawaii's agriculture. There were 13 awards in this category.

Local Market Promotions and Activities

- Participated in agricultural trade and consumer fairs and exhibits such as the Lodging, Hospitality, and Foodservice Expo on Oahu which drew 6,000 trade buyers and HDOA's exhibit featured Hawaiian escargots and selected produce from Oahu; and the Made In Hawaii Festival on Oahu which drew over 30,000 consumers and in which HDOA coordinated nine chefs who demonstrated menus featuring all local products.
- Directory of Hawaii Agricultural and Food Producers – Maintained and continued updating the registration of local companies in the branch's database (directory) that gives Hawaii companies and global buyers the ability to transact business with each other.
- Updated directory of farmers' markets in Hawaii in cooperation with the counties. This directory is also used by the UDSA on their website.
- Sponsored and assisted in coordination of the agricultural exhibit tent at the 2004 Hawaii State Farm Fair in Kapolei.
- Sponsored the Hawaii State 4-H Livestock fair in Kahuku, which drew over 6,000 people to visit the fair.
- Sponsored a statewide promotion of locally produced range-fed beef with the Hawaii Beef Industry Council that will feature the production of a consumer brochure and promotions at various food festivals and farmers' markets throughout the state.
- Co-sponsored a Buy Fresh, Buy Local, Island Fresh promotion with the University of Hawaii, College of Tropical Agriculture and Human Resources (CTAHR) and the Hawaii Farm Bureau Federation (HFBF) that will feature newspaper editorials on local produce and the development of an availability chart on local produce.
- Updated the Calendar of Events of trade shows, fairs, and festivals that benefit agricultural and food producers and Ag-tourism companies.
- Cosponsored and helped organize the Agricultural Conference in Honolulu in October 2004.

Mainland and International Market Promotions and Activities

- Co-sponsored, coordinated, and implemented the sixth annual Governor's Exporter of the Year program with the Department of Business, Economic Development and Tourism (DBEDT).
- Coordinated and administered the Western United States Agricultural Trade Association (WUSATA) generic and branded programs. In FY 05, MDB undertook the following: 1) a generic program that included a trade show in Japan to develop markets for tropical flower and nursery products and a joint project with the State of Oregon to develop a market for potted plants in Beijing, China, and 2) a branded program that assisted Hawaii companies in developing specific export markets for their products.
- Participated in and provided in-kind support for a second USDA Emerging Market grant to develop a market for value-added Hawaii products in China. The first grant enabled Hawaii to develop a high-end gift basket of value-added Hawaii products that will be test marketed in China in December 2005 and January 2006.
- Applied for and was awarded a USDA Federal-State Marketing Improvement Program (FISMP) $50,000 grant entitled "Feasibility of a Farmer-Based E-Commerce Market in the State of Hawaii."
- Coordinated the adoption of the Hawaii Administrative Rules for the Seals of Quality program through administrative approvals, public hearings on all islands, and final approval by the Board of Agriculture.
- Coordinated Mainland floral design shows for professional floral designers in cooperation with the Hawaii Tropical Flower Council (HTFC) and the major national florists associations. Over three hundred floral designers attended the three shows held from April though June 2005 in Texas, Michigan, and California. These shows were followed by eight more by the end of December 2005.
- Sponsored and coordinated the Hawaii pavilion at the Produce Marketing Association (PMA) Exposition in Anaheim, California. Twelve vendors participated in the trade show to showcase Hawaii's fresh produce and flowers and their expected sales are $2,130,000 over the year.
- Provided contract management services for the USDA Specialty Crop funded projects.
- Provided contract management services for the State Agricultural Research funds.

HDOA's Market Development Specialist Larry Yamamoto, Chairperson Sandra Lee Kunimoto and Aquaculture Development Specialist Dean Toda promote the Hawaii display at the Produce Marketing Association Expo in Anaheim, California

HAWAII AGRICULTURAL STATISTICS BRANCH

Mark Hudson, *State Agricultural Statistician/Director*

The Hawaii Agricultural Statistics (HAS) Branch is a cooperative effort between the Hawaii Department of Agriculture and the National Agricultural Statistics Service, U.S. Department of Agriculture. This partnership, spanning four decades, allows the efficient use of state and federal resources, while at the same time providing a comprehensive array of agricultural intelligence and reducing respondent burden.

Major activities of the HAS included data collection, analysis, and timely publication of agricultural statistics for the State. The result of these efforts was a measure of total farm-gate estimated value of $544.7 million during 2004. Most of HAS data collection efforts were in the diversified agriculture sector, which was valued at $403 million in 2004.

Activities during FY 2005 included the following:

- Completed Census of Farm and Ranch Irrigation.
- Completed the Ag-Tourism Survey.
- Made 15,500 individual contacts via personal interviews, telephone, and mail questionnaires.
- Published 130 reports.
- Distributed more than 43,000 releases to farmers, other individuals, businesses, universities, and governments worldwide.
- Answered more than 1,200 individual requests for information by mail, telephone, and office handouts.

Statistical reports are available on the HDOA website at: *www.hawaiiag.org/hdoa/* or free e-mail subscriptions are available at *www.usda.gov/sub-forms.htm*

MARKET ANALYSIS AND NEWS BRANCH

The Market Analysis and News Branch (MANB) is responsible for enhancing the effectiveness and efficiency of agriculture by conducting economic, market and business feasibility research, evaluating the efficiency and effectiveness of market development programs, collecting data on agricultural commodity shipments, supply and wholesale prices and disseminating information through various media. Through these functions, MANB assists the state's agricultural industry in its development and expansion efforts and provides sound input for program planning and policy making within and outside the Department.

MANB is tasked with two primary, yet distinct functions. The first involves research on all market aspects of agricultural products. Towards this end, MANB conducts some ten research or program evaluation studies annually. The second function is carrying out the market news program, jointly with the Market News Branch of the Agricultural Marketing Service, United States Department of Agriculture. This program provides up-to-date information on current market conditions – wholesale market prices throughout the state, movement of fresh fruits and vegetables, and supply and demand information on different products.

Activities and accomplishments for FY 2005 included the following:

- MANB completed the grant project entitled "A Risk Management Education Program for Agri-Entrepreneurs in Hawaii." The $51,000 grant, awarded by the USDA Risk Management Agency on a competitive basis was used to sponsor two farmers' outreach programs and the 2004 Hawaii Agricultural Conference, which was very successful and attracted some 550 people from the agriculture industry.
- MANB completed the grant project entitled "An Agricultural Market Information System for Small Farm Decision-Making in Hawaii." This grant was awarded by USDA-AMS-FSMIP on a competitive basis to provide marketing information to assist small farmers and entrepreneurs in Hawaii to make informed business decisions and minimize business risks.
- Completed a preliminary assessment on possible impacts of the super ferry in State of Hawaii.
- Completed a research study, which examines how structural changes affected farm practices and growth of the Hawaii coffee industry.
- Completed a research study entitled "An Economic Assessment of the Former Kekaha Sugar Company Land and Infrastructure: Its Current and Potential Economic Capability" for the ADC.
- Continued to collaborate with the National Agricultural Statistics Service (NASS) and the National Association of States Department of Agriculture (NASDA) in enhancing the data collection efforts of the MANB.
- Continued to collect, compile, publish and disseminate weekly reports on a timely basis with limited personnel. The reports include:
  - Honolulu Wholesale Prices of Fresh Fruits and Vegetables;
  - Neighbor Island Wholesale Prices of Fresh Fruits and Vegetables;
  - Weekly Honolulu Arrivals of Fresh Fruits and Vegetables;
  - Honolulu Barge Arrivals; and
  - Honolulu Wholesale Egg Market.

AGRICULTURAL LOAN DIVISION

Dean Matsukawa
Administrator

The Agricultural Loan Division administers the department's Agricultural Loan Program and Aquaculture Loan Program. The primary objective is to promote the development of the state's economy by stimulating, facilitating, and granting loans to qualified farmers, aquaculturists and food manufacturers. The division also serves as a safety net for agriculture and aquaculture by providing loans in times of emergency.

The program strives to work with private lenders through participation loans and providing loan guaranties. The program, as a lender of last resort, also provides direct financial assistance to those that are unable to obtain financing from conventional sources.

The program is self-sufficient, operating through interest collections, and is able to achieve its objective of growth, development and preservation of the agricultural and aquacultural industries without requiring any taxpayer funding. Administration of the program requires a balance between providing financial assistance while ensuring that loans have a reasonable expectation of repayment.

The division is committed to the growth, development, and well being of the agricultural and aquacultural industries in Hawaii. For FY 2005, the division provided $2,743,815 in low-interest financing for Hawaii farmers. The loans assisted farm operations throughout the state from Kauai to the Big Island of Hawaii. The crops that were financed varied from vanilla, mushrooms, floral, nursery, orchids, and truck crops.

The state's strong economy has resulted in strong competition for labor and high land prices. In addition, the agriculture and aquaculture industries face challenges such as increased regulations, high capital costs, tax, and theft issues. The program helped the farm industry address some of these problems by providing funding for labor housing, purchase of farm land, equipment for expansion, expansion into new crops and development of farm infrastructure.

Agriculture no longer encompasses only growing crops but also includes agro-tourism and value-added products. As the agricultural and aquacultural industries evolve, the division must constantly adapt to the new markets, technologies and needs of the farm community. The division remains supportive of agriculture and aquaculture and will continue to serve as a resource and safety net to these industries. The division will continue its outreach to increase awareness of the program.

With the assistance of an agricultural loan, Neil Okimoto in Pahoa on the Big Island constructed a 16,000 square-foot greenhouse to grow poinsettias for the Christmas season.

Agricultural Loan Division

The division provided financial assistance to expand Hamakua Heritage Farm, Inc.'s mushroom growing facility. The facility controls temperature, humidity, air exchange, and light required for optimal growth. Shown above "Alii" mushrooms are being harvested and packed for shipment.

Major activities and accomplishments of the program for FY 05 were as follows:

- Approved 19 loans for a total of $2.744 million during FY 05. The loans helped farmers retain or increase farm acreage by 1,376 acres. The division's loans also helped to preserve or increase employment for 146 farm employees.

- The division's portfolio as of June 30, 2005 was valued at $19.6 million with 190 loans booked. The loan breakdown by county is as follows:

Hawaii County	$9.2 million
Oahu County	$3.6 million
Maui County	$4.4 million
Kauai County	$2.4 million

- Collected $5.44 million in FY 05. Of the amount collected, $1.126 million was in interest and $4.314 million was in principal.

- Modified 11 loans during FY 05 for a variety of purposes to assist farmers with cash flow, extensions of disbursements dates, exchanges and releases of collateral.

- The division underwent a legislative audit during FY 05. The division, based on recommendations from the auditor, initiated changes to its procedures.

Charts illustrating agricultural loan activities may be found on page 50.

AGRICULTURAL RESOURCE MANAGEMENT DIVISION

Brian Kau, P.E.
Administrator/
Chief Engineer

The Agricultural Resource Management Division works to ensure that the state has adequate and reliable sources of agricultural water, farmland, infrastructure for farming, and agricultural-related processing facilities. The division provides administrative oversight over state agricultural park lots, processing facilities, and several irrigation systems statewide.

By maintaining and operating abandoned plantation irrigation systems, the division supports and encourages the development and expansion of diversified agriculture on former mono-crop plantation lands.

Activities for FY 2005 included the following:

For the first time in many years, irrigation water has been consistently available in the Lower Hamakua Ditch (LHD) with few interruptions. This occurrence represents a "turning of the corner" for diversified agriculture in the region where one can look to the LHD as a steady, reliable source of irrigation water to significantly strengthen the agricultural economy in the area. Additionally, LHD watershed project improvements continue at a steady pace. The final phase (IV) of flume improvements and last phase of the Paauilo pipeline are nearing design completion. Construction should start in 2006. Construction to modify the intakes is underway and scheduled for completion by the end of summer 2006.

The second major watershed project the department is working on is the Upcountry Maui – Upper Kula Dual Agricultural Irrigation Line. The department, with the assistance of the U.S. Department of Agriculture-Natural Resources Conservation Service, State of Hawaii Department of Land and Natural Resources, and the County of Maui Department of Water Supply, is constructing a new agricultural water pipeline to provide farmers of the Upper Kula region the ability to use non-potable, less expensive irrigation water for their crops. This is approximately the fifth consecutive year that progress has been made on this pipeline. The third phase (currently under construction) includes a significant portion of the project installation via trenchless construction. This method minimizes the amount of open trenching and excavation, minimizing disturbances to the environment and landowners.

FY 05 proved to be another exciting year in partnerships for the department. We continue to participate in partnerships with the Natural Resources Conservation Service, U. S. Army Corps of Engineers, U. S. Department of the Interior-Bureau of Reclamation, and State of Hawaii Department of Defense-Civil Defense Division. This year, the department has received more than five million dollars in federal grant funding that will be or has been applied to the renovation of our irrigation infrastructure.

The Hawaii Agricultural Water Use and Development Plan (AWUDP) has entered into its third phase. This phase, being completed by the University of Hawaii - College of Tropical Agriculture and Human Resources, looks to expand on the first two phases by addressing water needs for families of crops in areas within proximity of the irrigation systems studied in Phase I. It is anticipated that a water duty will be produced for future planning purposes to forecast agricultural water demand based on potential diversified agricultural growth in areas serviceable by these irrigation systems.

Although the AWUDP itself does not reserve water for future use, it will provide a quantitative projection of planned agricultural activities, associated water demands, and strategies for supplying such water, which may be used to justify requests for water reservation.

The State Agricultural Park Program is a home to well-established agricultural operations. The tenant mix includes growers of landscape materials and potted orchids, as well as anthuriums and tropical fruits. Many have taken advantage of the amenities and reasonable rent structure available in the agricultural parks to start their farming operations. The agricultural park program continued to monitor and assist lessees who did not meet the program's objectives and continued to award leases to qualified applicants.

Staff continued to counsel and work with lessees who were experiencing difficulty meeting their lease terms and conditions at older agricultural parks in Pahoa, Keahole, Panaewa, Waimanalo, and Waianae. Farmers with new or recently granted leases at Kahuku, Hamakua, Molokai, and Kalaeloa started their farming operations. A sample of activities within our agricultural parks is presented below.

Upcountry Maui Irrigation System Phase III - Directional Drilling Project

After sitting idle for a number of years, the Molokai Cooling Facility was transferred in April 2005 to Akea Farms, Inc., the winning bidder of the department's request for proposals issued in the summer of 2004. Currently undergoing extensive repairs, the facility will reopen in early 2006, providing a much needed service to process farm produce for both the lessee as well as the Molokai agricultural community. The cost of repairs is internally funded through Akea Farms, Inc.'s cash flow and plans are to operate the facility year round. It is estimated that between 25 percent and 50 percent of the cooling facility's capacity will be available to qualified members of the Molokai farming community who have demonstrated that they have an active food safety program.

Hawaii Foliage Exports, Inc., a tenant in the Panaewa Agricultural Park, was named Governor's Exporter of the Year in 2001. Hawaii Foliage Exports, Inc. is a wholesale exporter of dracaena varieties and palms they grow in the Panaewa Agricultural Park nursery. Marketed under the PerfectlyHawaiian™ brand and through its network of distributors in California, Hawaii Foliage Exports, Inc.'s products can be found nationwide in commercial interior landscapes.

The first rental reopening for the Waimanalo Agricultural Park was completed after the expiration of the first fifteen years of operation. Lessees of the agricultural park produce a variety of produce and vegetables such as bananas, eggplants, chili peppers, snap beans, soy beans, choi sum, won bok, and bittermelons, as well as nursery products, including exotic fruit trees, potted palms, anthuriums, and orchids. These commodities are sold at open markets, local grocery stores, and supermarkets.

A long-term lease was awarded to Cates International, Inc. for a 3.769 acre parcel in the Kalaeloa Agricultural Park. Cates will construct a fish hatchery to produce moi (Pacific threadfish) broodstock and fingerlings to stock the nation's first open ocean cage aquaculture farm on a 28-acre ocean site off Ewa Beach leased from the State. The moi, raised by Cates, have been showcased by chef Roy Yamaguchi of Roy's Restaurant at the American Culinary Federation's annual convention in Washington D.C.

Data on ag park lease dispositions and water fees may be found on pages 51 and 52.

Capital Improvement Projects for FY 2005:

The following projects were completed on the Big Island this year:

- Phase III Flume Improvements (Lower Hamakua Ditch)

The following projects are ongoing on the Big Island:

- Phase IV Flume Replacement-design (Lower Hamakua Ditch)Intake Improvements-construction (Lower Hamakua Ditch)
- Paauilo Distribution Pipeline Improvements Phase 2-design (Lower Hamakua Ditch)
- Paauilo Rendering Plant – design
- Waimea Irrigation System Flume Improvements - design
- Honomalino Watershed-planning (South Kona)

The following projects were completed on Maui this year:

- Upcountry Phase II Main Line Extension - construction

The following projects are ongoing on Maui:

- Upcountry Phase III Main Line Extension - construction
- Upcountry Kimo Road Lateral - construction
- Upcountry Phase IV Main Line Extension - design
- Upcountry Phase V Pulehiki/Kamehamehaiki Lateral – design
- Upcountry Phase VI Main Line Extension - design
- Lower Kula Watershed Project - planning

The following projects are ongoing on Molokai:

- Emergency Irrigation System Improvements – design/construction
- Molokai Irrigation System Reservoir Improvements - planning

The following projects are ongoing on Oahu:

- Waianae Agricultural Park Drainage Improvements Phase II – design/ construction
- Waiahole Irrigation System Reservoir Improvements - design

The following projects are ongoing on Kauai:

- East Kauai Irrigation System - design
- Kokee Irrigation System Improvements – design

Left: Benches of nursery plants at Hawaii Foliage Exports, Inc., located in the Panaewa Agricultural Park on the Big Island.

Bottom: Prasong Hsu's chili pepper plants and pumpkin patch at the Kahuku Agricultural Park on Oahu.

ANIMAL INDUSTRY DIVISION

James Foppoli, Ph.D., DVM
Administrator/
State Veterinarian

The mission of the Animal Industry Division is to protect Hawaii's livestock and poultry industries and public health by preventing disease introductions and detecting and controlling economically important diseases or pests within the state.

The division conducts the following: animal disease surveillance, epidemiology and control; administration of voluntary livestock and poultry disease certification programs; laboratory diagnostic services; dog and cat quarantine to prevent rabies introduction; inspection of all animals and birds entering the state; and livestock brand registration.

In recent years, the focus of the division is shifting from mandatory to voluntary disease surveillance and control programs and animal health emergency management in support of the livestock industry. Public health and environmental programs aimed at preventing the introduction of rabies virus and West Nile virus into the state are important ancillary functions.

Hawaii's statuses for State-Federal Cooperative Disease Control Programs during FY 05:

- **Brucellosis Free, cattle and swine**
- **Pseudorabies Free, Stage V**
- **Bovine Tuberculosis, Accredited Free**

Hawaii is also recognized as free of bluetongue virus and anaplasmosis, allowing the export of cattle from Hawaii to Canada without costly holding and testing procedures. Surveillance for anaplasmosis and bluetongue continue to insure that the free status is documented and maintained. Hawaii remained free of notifiable foreign animal diseases during FY 05; however, efforts to strengthen foreign animal disease preparedness continue.

Toward the end of FY 05, the division started an important new initiative: a livestock premise identification system as part of the National Animal Identification System. Livestock producers will be receiving informational materials and applications for premise identification in the upcoming months. Continuing activities relating to voluntary disease control programs include: scrapie in sheep and goats; chronic wasting disease in cervidae; and Johne's disease in dairy cattle. Surveillance for bovine spongiform encephalopathy (mad cow disease) is an important continuing State-Federal cooperative program. Import restrictions placed on birds continued through FY 05 in an effort to reduce the chances of West Nile virus introduction.

The division received grants from the United States Department of Agriculture, Animal and Plant Health Inspection Service, totaling $292,930 during FY 05. The grants supported the voluntary scrapie herd and flock certification program, development of a plan for mass carcass disposal, foreign animal disease response, Johne's disease surveillance and control, and livestock premise identification as part of the National Animal Identification System. The division also received Department of Homeland Security funds ($22,000) as part of a Hawaii Department of Agriculture grant totaling $85,512 for agro-terrorism related activities. In addition, program funds were used to conduct emergency response drills within the division and the department.

Our achievements during FY 05 have only been possible because of the commitment of the division's veterinary and support staff in developing and implementing livestock disease and public health initiatives.

RABIES QUARANTINE BRANCH

Isaac M. Maeda, D.V.M., *Program Manager*

June 30, 2005, marked the end of the second year of operation for the five-day-or-less rabies quarantine program. There was a significant increase in the number of dogs and cats that qualified for direct release at Honolulu International Airport under the five-day-or-less program in FY 05. During FY 05, a record number of 7,653 animals were processed through the rabies quarantine program. This represents an approximate 12 percent increase from the 6,834 animals entering the state in FY 04 and a 60 percent increase from the 4,771 animals that entered Hawaii prior to the start of the five-day-or-less program in FY 03.

The five-day-or-less program relies heavily on staff and computerized databases to monitor and verify information relevant to qualification. Currently, more than 33,000 active records are maintained on the system. To more efficiently and effectively manage the data and processing of five-day-or-less dogs and cats, the program is in the process of updating and enhancing the computer system.

The dramatic increase in pets qualifying for the five-day-or-less program and the concurrent rise in documents evaluated and processed, substantially increased the

workload for the clerical, veterinary and inspection sections. In addition to data entry and review of documents, the veterinary staff expends a considerable amount of time each day contacting pet owners and veterinarians to either verify qualification information or request additional information. Clerical, veterinary and inspection personnel also spend a significant amount of time e-mailing and speaking with pet owners on the phone or in person explaining program requirements. The Livestock Disease Control Branch port veterinarian and livestock inspectors also provide critical support to the program by assisting rabies quarantine veterinary technicians in processing dogs and cats released at the airport seven days a week.

The department maintains an interactive website dedicated to Hawaii's rabies quarantine program that contains all of the information and forms relating to quarantine and the importation of cats and dogs. Pet owners may access pre-arrival FAVN rabies serological test results and five-day-or-less quarantine-eligible dates at this HDOA website. Checklists for the five-day-or-less program are available at the site to assist pet owners of both resident pets and non-resident dogs and cats with preparations to qualify for this reduced quarantine option.

Under the five-day-or-less program, pets may be released at Honolulu International Airport if they complete pre-arrival requirements that include:

- Two rabies vaccinations, with the last vaccination administered no more than 12 months prior to arrival if it was a one-year vaccine, or no more than 36 months prior to arrival if it was a three-year vaccine. (The two vaccinations may not be administered within 90 days of each other; and the last vaccine must be administered no less than 90 days prior to the pet's entry into the state)
- Microchip implantation for identification purposes;
- OIE-FAVN rabies blood test results with sufficient level of rabies antibodies;
- 120-day pre-arrival waiting period between the time the lab receives the blood sample and the earliest date the pet may enter the state under the new program (the pre-arrival waiting period is necessary due to the long and variable length of rabies incubation, where the virus may hide in an animal before clinical signs of the disease become apparent); and
- Pet owners must also submit required paperwork at least 10 days prior to the pet's arrival.

Pet owners that do not submit the required documents have their pets held in quarantine for up to 120 days until all requirements are completed and documents submitted.

Approximately 89 percent of arriving dogs and cats have qualified for the five-day-or-less program in FY 05.

Jerry and Linda Mann travel frequently between their homes in New York and Kauai and are pleased with the five-day-less quarantine program, which allows their mini dachshunds, Sahlen and Oscar, to avoid quarantine.

Furthermore, of the 6,821 pets that qualified, 6,596 pets (approximately 97 percent) qualified for direct release upon arrival at Honolulu International Airport. In comparison only eight percent (612) of the arriving animals were quarantined for 120 days.

During FY 05, the portion of quarantined dogs and cats undergoing 30-day quarantine decreased to approximately three percent compared to nine percent in FY 04. The effect of these combined changes resulted in the daily population of animals occupying the animal quarantine station at any given time during FY 04 to range between 218 and 313 animals. In contrast, the fluctuation in daily animal population at the station varied between 232 to 537 dogs and cats in FY 03.

In addition to rabies exclusion, the quarantine program continues to monitor dogs carefully for ticks exotic to Hawaii. One species, Dermacentor variables, was discovered and eliminated from two dogs arriving in Hawaii during FY 05. This species has been reported to potentially serve as a vector for Rocky Mountain Spotted Fever, Tularemia and other rickettsial and bacterial diseases of veterinary and human medical importance. Rhipicephalus sanguineus, the brown dog tick, is the only tick established in Hawaii associated with dogs.

The following are rabies quarantine statistics for cats and dogs arriving between July 1, 2004 and June 30, 2005 (FY 05):

PROGRAM	NUMBER	PERCENT
120-day	612	8%
30-Day	220	3%
Five-Day-Or-Less	225	3%
Airport Release	6,596	86%
Total	7,653	100%

LIVESTOCK DISEASE CONTROL BRANCH

Jason D. Moniz, D.V.M., *Manager*

The Livestock Disease Control Branch prevents, investigates, conducts surveillance, controls and eradicates animal diseases that may have serious economic impacts on the state and nation's livestock and poultry industries, some of which may impact public health. The branch inspects animals entering the state and insures compliance with division rules and laws pertaining to the control and eradication of animal diseases.

- **West Nile Virus (WNV)**

  West Nile virus arrived in the continental U.S. in 1999 and since then it has made its way westward and now affects all States except Hawaii and Alaska. To reduce the risk of WNV entering Hawaii, new poultry and bird import rules were promulgated to disallow susceptible birds and poultry from entering the State without a pre-arrival mosquito free isolation. In addition, an embargo on the movement of birds and poultry through the U.S. Postal Service was put in place to prevent entry without inspection. Failure to comply with pre-arrival isolation requirements results in a refusal of entry.

  Should epizootic levels occur on the West Coast a temporary embargo of all birds entering the State from the affected areas may be put in place.

- **Bovine Tuberculosis**

  Bovine Tuberculosis free status maintained

  Bovine tuberculosis (BTB) a chronic, debilitating disease of cattle, bison, goats, cervids and other animals that can also cause a serious disease in man, is caused by the bacteria Mycobacterium bovis.

  The State of Hawaii continues to maintain a "Bovine Tuberculosis Free Status". State and federal veterinarians routinely monitor cattle herds and wildlife on eastern Molokai, where bovine tuberculosis has been a recurrent problem for the past 60 years. The last BTB infected cattle herd, located on eastern Molokai, was depopulated without further spread in 1997 and no new cases of BTB in cattle have been found.

  A hunter assisted survey for BTB in wildlife began in 1998 on Molokai to monitor the prevalence of infection in axis deer, feral swine, feral goats and mongoose. Five feral swine have been found infected, the most recent from Mapalehu in May 2004. To date, all infected feral swine have been caught at or adjacent to Ualapue, where the 1997 infected cow was found. The BTB infection appears to be maintaining itself in the feral swine population in and around the Ualapue area.

  To prevent the potential spread of bovine tuberculosis from eastern Molokai, all cattle east of Kamalo are required to have an annual negative BTB test or test negative within 30 days prior to movement out of the area. All herds are in compliance with established testing and movement requirements. In addition, feral swine movement out of areas east of Kamalo has been prohibited.

  Wildlife surveillance data is being evaluated to determine if further mitigation actions are required to prevent infection of cattle on the island. The evaluation will also determine the feasibility for eradication of BTB in feral swine or any other wildlife species that may be found infected. This review is expected to be completed in FY 06.

- **Bovine Brucellosis**

  Bovine Brucellosis class free status maintained

  Bovine brucellosis is an infectious disease of cattle, bison and elk, caused by the bacteria Brucella abortus. Brucellosis can also infect man. Hawaii has been officially classified free of bovine brucellosis since 1983.

  During the fiscal year, 7,382 cattle were tested for brucellosis which resulted in seven suspects and one reactor being identified. Supplemental testing, epidemiological investigations, and herd tests found no evidence of herds infected with Brucella abortus. Infrequent suspects and reactors have been caused by Brucella suis which causes brucellosis in swine; however, this organism in cattle rarely causes disease. The suspect and reactor cattle originated in areas with known Brucella suis infected feral swine. Due to the self-limiting nature of Brucella suis in cattle, no quarantines or other control actions were necessary. Gastrointestinal infections with Yersinia enterocolitica have also been responsible for false positive reactions to Brucella in cattle.

Dr. Edith Terwey, livestock disease veterinarian, draws blood from a newly imported stallion to test for Equine Infectious Anemia, an incurable viral disease in horses.

Dr. Terwey inspects imported hogs for infectious diseases.

❖ **Swine Brucellosis & Pseudorabies**
Hawaii maintains free statuses for Swine Brucellosis and Pseudorabies

Brucellosis
Brucellosis in swine is caused by the bacteria Brucella suis. Infected swine experience reproductive problems including abortion and infertility. Brucella suis can cause serious infections in man. Hawaii retained its free status for swine brucellosis during FY 05.

No domestic swine herds were found infected in FY 05 and as a result Hawaii maintains its Brucella suis free status. However, several herds defined as transitional (exposed to feral swine) were found infected. These herds were quarantined and herd plans to rid the herds of infection were put in place. The goal for these herds is to convert them to negative domestic operations with higher degrees of bio-security to preclude future infections. Feral swine in Kona, Hamakua (Hawaii), Kahakuloa (Maui), Ft. Shafter westward through Waianae, the North Shore and Windward (Oahu) are known to be infected with swine brucellosis.

In addition to annual testing of all sows and boars more than six months of age at slaughter, 25 percent of the herds in the state are randomly selected for testing to determine their brucellosis status. Surveillance for FY 05 included 1,150 domestic swine, 59 transitional swine and 24 feral swine.

Pseudorabies
Pseudorabies (PRV), a viral infection of swine, causes respiratory disease and reproductive failure. Pseudorabies infection of other species (such as dogs) is typically fatal but humans are not susceptible.

Hawaii maintains a Free Status for Pseudorabies in swine. Pseudorabies surveillance testing of 1,150 swine during fiscal year 2005 found no infected domestic swine. Three transitional herds were investigated in FY 05 with one determined to be infected.

Feral swine on the island of Hawaii, Maui and Oahu are known to be PRV-infected. Infected feral swine are a constant threat to domestic swine herds. A statewide quarantine order prohibits the commingling of feral and domestic swine as well as inter-island movement of feral swine.

Historically in Hawaii, all herds infected with pseudorabies or swine brucellosis have been transitional herds with exposure to infected feral swine.

❖ **Transmissible Spongiform Encephlopathies**
Scrapie
Scrapie is a transmissible, insidious, neuro-degenerative disease affecting the central nervous system of sheep and goats. Scrapie has not been diagnosed in goat or sheep flocks in Hawaii.

Hawaii continues to be recognized as consistent with the USDA Voluntary Scrapie Certification Program Standards. A USDA cooperative agreement was used during FY 05 to provide sheep and goat flock owners with educational information, enroll flocks in the status program, conduct surveillance testing on cull and diagnostic animals and provide for some genotype testing. No evidence of infection has ever been found in Hawaii. Amendments to administrative rules are in draft form to insure Hawaii remains consistent with the national program.

- **Bovine Spongiform Encephalopathy (BSE)**
  During FY 05, 285 BSE samples were collected with no positive test results. Hawaii is participating in the enhanced national BSE surveillance efforts that started June 1, 2004.

- **Voluntary Johne's Disease Herd Certification Program (VJDHCP)**
  A USDA cooperative agreement was used to conduct Johne's testing of dairy and beef herds during the fiscal year and provide outreach. In addition, herd risk assessments were funded and conducted on dairies and ranches by private veterinarians through the cooperative agreement. During FY 05, 7,392 cattle were tested for Johne's disease. The VJDHCP goal is to implement disease control measures to reduce or eliminate Johne's disease from cattle herds and conduct annual surveillance to verify a herd's status.

- **Importation/Exportation of Livestock, Poultry and Other Animals**
  An embargo on the movement of poultry and other birds into Hawaii through the US Postal Service was implemented in September 2002. The embargo remains in place to prevent the entry of West Nile virus and other avian diseases from entering the State with infected birds.

  Inspected and approved for entry into the state: 20,499 head of livestock; 7,360 poultry and other birds; 938,720 day-old chicks and hatching eggs; 10,423 dogs and cats; and 9,042 other animals.

  The Branch staff conducted 48 compliance investigations resulting in four citations being issued, 223 written warnings, and 21 animals were refused entry.

Statistical data on animal imports and disease surveillance testing may be found on page 53.

VETERINARY LABORATORY BRANCH

Crane H. Hahn, D.V.M., *Program Manager*

The primary function of the Veterinary Laboratory is to support the mission of the Animal Industry Division in timely detection and control of animal diseases important to the health and economy of Hawaii.

The Veterinary Laboratory provides a broad range of laboratory services including bacteriology, clinical chemistry, parasitology, pathology and serology. Annually, the laboratory receives more than 20,000 specimens from a wide range of animal species, primarily from the livestock and poultry industries, as well as non-profit and other government agencies. These testing services are offered at no cost to the submitting agencies.

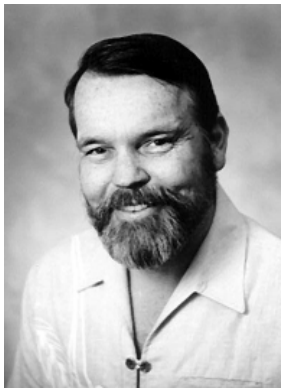
The Veterinary Laboratory is currently certified by the USDA to provide testing for economically important animal diseases such as anaplasmosis, brucellosis, bluetongue, equine infectious anemia, Johne's disease, porcine respiratory-reproductive syndrome, and pseudorabies. In 2004, the laboratory actively participated in Federal-State Cooperative surveillance programs monitoring for the presence of avian influenza, and transmissible spongiform encephalopathies (bovine spongiform encephalopathy, chronic wasting disease and scrapie). The laboratory also has cooperated with other state agencies, such as the state Department of Health, in the collection of specimens for surveillance of West Nile virus in birds which has public health significance.

During FY 05, the laboratory processed approximately 24,000 animal specimens. Approximately 20,000 specimens (82 percent) were received through the activities of the Livestock Disease Control Branch.

The table on page 53 illustrates major categories of diagnostic/surveillance activities performed by the Veterinary Laboratory in FY 05.

Left: Veterinary Laboratory Microbiologist Donna Wong prepares serological samples for testing.

AQUACULTURE DEVELOPMENT PROGRAM



John Corbin
Manager

The Aquaculture Development Program (ADP) provides essential support services to encourage further growth and diversification of the aquaculture industry. ADP is a planning, development, and problem-solving organization whose goals are to assist in the start-up of production and service businesses, and to contribute to their success. Specific activities include planning and policy formulation, new business development, permit facilitation, marketing assistance, disease diagnosis and prevention assistance, and co-funding of statewide technical extension.

The mission of ADP is to: prepare and implement state aquaculture plans and policies for the expansion of aquatic farming, and research and technology transfer business; coordinate statewide development activities; and directly assist both public and private sector interests in achieving their aquaculture-related goals, so as to create jobs and diversify the economies of all islands.

Major activities for FY 2005 were:

- Wholesale product value for the industry hit a new high of $28.2M for calendar year 2004 according to Department statisticians.

- Continued the joint implementation with the Department of Land and Natural Resources (DLNR) of the amended Chapter 190D, HRS, Ocean and Submerged Lands Leasing law by facilitating the approval process for authorization of one additional lease (three currently authorized) and document preparation for three additional aquaculture leases on various islands. Prepared annual joint report to Legislature with DLNR on status of the ocean leasing law. Participated in the planning for establishing a national offshore research center, Pacific Marine Aquaculture Center, in Hawaii.

- Served as Team Member for a study managed by the University of Delaware, Center for Study of Marine Policy that produced a report for Congress entitled, Operational Guidelines for Aquaculture Leasing in the U.S. Exclusive Economic Zone (EEZ). Team also provided input into Federal legislation to be submitted by the Department of Commerce in 2005 to allow aquaculture leasing in federal waters.

- Participated in the governing boards and advisory committees of: Pacific Aquaculture and Coastal Resources Center at UH Hilo, Center for Tropical and Subtropical Aquaculture, National Association of State Aquaculture Coordinators, Natural Energy Laboratory of Hawaii Authority, Marine and Coastal Zone Management Advisory Group, Commodity Advisory Group for Agriculture, University of Hawaii Sea Grant College Program, and the Hawaii Aquaculture Association. Also, participated in economic development task force exercise by Enterprise Honolulu and the Oceanic Institute Hatchery Review Committee.

- Assisted with permits for species importation and farm siting for farmers on Oahu, Kauai, Maui and Hawaii. Co-sponsored two workshops; on water recirculation systems and use of copepods in culturing marine fish.

- Assisted in pulling together the Organizing Committee for the Marine Ornamentals 2006 Conference scheduled for Las Vegas, Nevada in February, 2006. Served on the Committee. This international conference is the fourth in a series that originated in Hawaii. Reviewed industry proposals for the Pacific Tropical Ornamental Fish Program.

Aquaculture now supplies about 99 percent of limu ogo (seaweed) sold in Hawaii. Hawaiian Marine Enterprises in Kahuku has been supplying customers for more than 15 years.

Above: Hawaii has gained a worldwide reputation for high quality broodstock shrimp. Testing and certification by ADP ensure that the shrimp, which are shipped across the globe, are free of harmful shrimp diseases.

Left: Kona Blue LLC raises Kona Kampachi™ (amberjack) in open-ocean submerged cages off Kailua-Kona. Kona Blue is now the first integrated hatchery and offshore fish farm in the country and is an emerging leader in the production of high-quality warm-water marine finfish.

- Promoted the consumption of aquaculture products by participating in the State Farm Fair, Made in Hawaii Exposition, Taste of Aquaculture, Sam Choy's Poke Contest, and the Hawaii Lodging, Hospitality and Food Service Expo. Worked with various internet, television, radio and print media to place stories and promote the industry, including the local *Tech Talk* radio show and Korean Public Television. Also, worked with industry association to implement grant to develop promotional video for the aquaculture industry. Continued electronic bi-monthly newsletter, Aquaflashes. Made presentation on Hawaii aquaculture to a meeting of the Association of Pacific Island Legislatures.
- After a long search, hired a new state aquaculture veterinarian who worked in the Florida aquaculture industry for many years. Carried out for aquatic animal health management over 50 field trips and analyzed 250 case submissions, and provided animal health consultation services to producers and research organizations, statewide, including conducting on farm workshops on disease diagnosis and prevention.
- Received a continuation grant from the USDA for research and technical assistance in disease management for the Hawaii aquaculture industry. Provided reviews of proposed Federal protocols for shipping live Hawaii broodstock shrimp to Japan.
- Co-funded statewide technical extension services to the aquaculture industry, in cooperation with the UH Sea Grant Extension Service, leveraging over $400,000 in matching funds through the project. Also, advised UH on the establishment of an Aquaculture Coordinator for the University of Hawaii system to gear up activities.
- Provided technical reviews of research proposals to the UH Sea Grant College Program, U.S. Department of Commerce, U.S. Department of Agriculture, the Pacific Tropical Ornamental Fish Program (PTOFP) and the Biosystems Technology Program.
- Updated Program website with revised text, new photos and expanded links.

Right: ADP's Theresa Toyama helps out at the Department's trade show booth at the Hawaii Lodging, Hospitality and Foodservice Expo on Oahu. The Expo is the largest trade show targeting the hotel and restaurant industry, and provides great exposure for new aquaculture products.

PLANT INDUSTRY DIVISION

Lyle Wong, Ph.D.
Administrator

The Plant Industry Division consists of three branches, the Pesticides Branch, the Plant Pest Control Branch and the Plant Quarantine Branch. Together, the branches work to protect Hawaii's agricultural industries by preventing the entry and establishment of detrimental insects, weeds and other pests and by assuring the safe and efficient use of pesticides in Hawaii.

The division also works with growers, exporters, and other government agencies to resolve quarantine restrictions in order to allow export of Hawaii's fresh fruits, vegetables, flowers and foliage products to markets worldwide.

PESTICIDES BRANCH

Robert A. Boesch, *Manager*

The Pesticide Program regulates the distribution and use of pesticides through a program of licensing, testing the competency of restricted-use pesticide applicators, and educating and monitoring pesticides distributors and applicators. This is to ensure the efficient, effective and safe use of pesticides to minimize adverse effects on the environment.

The major activities of the program in FY 2005 were as follows:

- **Emergency Request to Use Hydrated Lime to Control Coqui Frogs Approved by the EPA**

  The U.S. Environmental Protection Agency issued a quarantine emergency exemption, authorizing the use of hydrated lime to control coqui frogs. The exemption is valid for a period of three years, effective April 26, 2005. Demonstration classes on the safe handling and application of hydrated lime were conducted on the Big Island, Maui and Oahu, with over 150 individuals attending.

- **Board of Agriculture Approves Pesticides Proposed Rules for Public Hearing**

  In its March 2005 meeting, the Board of Agriculture approved draft pesticides rules for public hearing. The proposed rules are the product of work over the past decade. These rules will impact small businesses and the small business regulatory impact analysis has been submitted to the Small Business Review Board for their comments and recommendations. Proposed rule changes include an increase in fees for the licensing of pesticides for sale and distribution in Hawaii and penalties for the misuse of pesticides. Two new sections are proposed, one for the licensing non-chemical pest control devices, another relating to the review of substances to more fully characterize unreasonable adverse effects. The target date for the rules to be final is May 2006.

- **Chemical Analysis Laboratory Now in Pesticides Branch**

  The Department of Agriculture reorganized to move the Chemical Analysis Laboratory from the Quality Assurance Division to the Plant Industry Division. This move was authorized to make better use of Federal funds available to the pesticides program. The laboratory analyzes about 500 samples a year for pesticides. The laboratory is located at the Department of Health Laboratory on Waimano Home Road in Pearl City.

Staff from the Pesticides Branch and Plant Pest Control Branch held a workshop for the public and the media at CTAHR's Urban Garden Center demonstrating the proper use of hydrated lime for the control of coqui frogs.

Hydrated lime is a caustic chemical that can be harmful to humans and other animals if not used properly. Similar workshops were held on each island.

PLANT PEST CONTROL BRANCH

Larry M. Nakahara, *Manager (retired December 2004)*
Neil Reimer, *Manager (from October 2005)*

The primary function of the Plant Pest Control Branch is to reduce population densities of plant pests that cause significant damage to agriculture and the environment to manageable levels. This is achieved through statewide programs to eradicate or control plant pests, which include destructive insects, mites, snails and slugs, noxious weeds, plant diseases, and any other organisms harmful to plants, by utilizing chemical, mechanical, biological, and integrated control measures. The Branch consists of the Biological Control Section and the Chemical/Mechanical Control Section.

Statistical data from the Plant Pest Control Branch may be found on pages 54 and 55.

Some of the activities of the Branch during FY 2005 included the following:

New Pest Detection and Identification

Identified 694 samples of insects and other organisms from which 102 specimens were processed and added to the Branch's Zoological Reference Collection. The collection now contains approximately 166,100 specimens. In addition, 104 samples of insect specimens intercepted by the Plant Quarantine Branch were identified and 179 calls regarding various pests were received from the general public and processed.

Recorded eight new immigrant insects and one disease organism in Hawaii during FY 05. Six of the insects are plant pests and two are fortuitous beneficial parasitic wasps. The disease organism is a very serious rust fungus.

- **A bluegum psyllid parasitoid**, Psyllaephagus pilosus Noyes (Hymenoptera: Encyrtidae). The bluegum psyllid, Ctenarytaina eucalypti (Maskell), was first reported in the State infesting eucalyptus on Maui and Hawaii in 1993. In February 2002, specimens of a parasitoid, Psyllaephagus pilosus Noyes, not previously recorded in Hawaii were reared from bluegum psyllids collected on Maui at Olinda. This parasitic wasp was not intentionally introduced to Hawaii and is a case of fortuitous biological control. It most likely arrived in Hawaii in association with its host. The parasitoid probably came from California, where it is now well established after being purposely introduced from Australia in 1992-1993 for biological control of the blue gum psyllid.

- **Large orange sulfur**, Phoebis agarithe agarithe (Boisduval) (Lepidoptera: Pieridae). Adults of this new butterfly were first observed on Maui in the Olowalu area in mid-July 2004. The sighting was confirmed by the HDOA Entomologist on Maui when several specimens were observed in flight around Manila tamarind (opiuma) trees (Pithecellobium dulce) in early September 2004 in the area from Ukumehame to Olowalu. Opiuma is a leguminous tree that is naturalized in Hawaii and is reported to be a host of the caterpillars of this butterfly. Species identification was confirmed later in the month when two adult specimens were finally captured at Olowalu as they visited the flowers of the common red hibiscus and the weedy bitter melon.

  In January 2005, adults were observed in flight on Oahu in the Moanalua-Salt Lake area, in Ewa, and at Kalaeloa (Barbers Point), where specimens were netted. Larvae were collected in West Maui from opiuma trees along with some empty pupal cases in March 2005.

- **Macadamia felted coccid**, Eriococcus ironsidei Williams (Hemiptera: Eriococcidae). This new scale insect, commonly known as the macadamia felted coccid in Australia, was found infesting macadamia trees at a commercial macadamia nut farm at Honomalino in South Kona in February 2005. Known from Australia, it gets its name from the felt-like sacs which enclose adult females and pupal cases of males. Macadamia is the only known host and all above-ground plant parts, including leaves, stems, and flowers (racemes), may be infested. It is potentially a serious pest because uncontrolled infestations may adversely affect macadamia nut production by causing distortion and stunting of new growth and chlorosis on older leaves. Severe infestations can cause dieback of trees and a reduction in the yield of nuts.

- **Erythrina gall wasp,** Quadrastichus erythrinae Kim (Hymenoptera: Eulophidae). Samples of leaves and stems of the Indian coral tree, Erythrina variegata L., damaged by the erythrina gall wasp (EGW) were first collected on Oahu at Manoa in April 2005. The EGW is a new species that was only described in 2004 from specimens collected in Singapore, Mauritius, and Reunion in response to its invasion. It was later learned through a publication that it was first recorded damaging coral trees in southern Taiwan in 2003. There is a lack of literature information on the EGW because it is a newly described species. Much of the information available is about its description, host

Entomologist Ronald Heu examines damage caused by erythrina gall wasps on Indian Coral tree. EGW larvae cause distortion of leaves and young shoots.

plants, damage, and current distribution. Its native origin or range is unknown. There is some speculation by specialists that tropical Africa may be its origin and may be the key to the discovery of natural enemies. EGW infestations are readily observed as swellings and distortions on young leaves and shoots. The galls are formed by the plant in reaction to the damage caused by the larvae developing within the young plant tissue. As the EGW infestation progresses, leaves curl and appear deformed while petioles and shoots become swollen. Other species of Erythrina affected by the wasp include the native wiliwili tree (Erythrina sandwicensis) and "tall erythrina" (E. variegata 'Tropic Coral') used for windbreak and landscaping.

- **Hibiscus psyllid,** Mesohomotoma hibisci (Froggatt) (Hemiptera: Carsidaridae). This psyllid was found infesting the leaves and petioles of the hau tree (Hibiscus tiliaceus L.) on Oahu at Makiki in May 2005. This species is reported to be common throughout the Pacific area. Host plants include H. tiliaceus, H. rosa-sinensis, and H. boryanus. Adults of this insect were reportedly causing a nuisance by flying around and alighting on people.

- **A eucalyptus gall wasp,** Epichrysocharis burwelli Schauff (Hymenoptera: Eulophidae). Specimens of this eucalyptus gall wasp were first collected on Oahu at Aiea from the leaves of lemon gum eucalyptus, Eucalyptus citriodora, in April 2001. Its identity was not known until July 2005. The wasp causes small blister-like galls on the leaves. This wasp is only known to attack lemon gum eucalyptus with the damage being cosmetic. Wasp larvae inject a toxin in the leaves which results in the formation of galls.

- **A glassywinged sharpshooter egg parasitoid,** Gonatocerus ashmeadi Girault (Hymenoptera: Mymaridae). Specimens of this egg parasitoid were first reared from egg masses of the glassywinged sharpshooter collected at various localities in Honolulu in November 2004. This parasitoid has been reported as one of the more common and effective natural enemies of the sharpshooter in its native range in the southeastern U.S. and northeastern Mexico. It was not purposely introduced into Hawaii, but apparently is another case of fortuitous biological control, most likely having arrived in Hawaii from California in association with its host. Consistently high numbers of this parasitoid have contributed to a dramatic decline in sharpshooter population densities.

- **Trilobite scale**, Pseudaonidia trilobitiformis (Green) (Hemiptera: Diaspididae). Specimens of this scale were collected from crepe gardenia and crepe jasmine at Kailua-Kona on the Island of Hawaii in December 2004. This armored scale, believed to be native to southern Asia, has spread throughout Africa, Malaysia, and Tropical America, and has been detected in the South Pacific. It has an extensive list of hosts, including ornamental plants and fruit crops.

- **A rust disease on ohia**, Puccinia psidii Winter (Basidiomycetes, Uredinales). An ohia lehua plant, Metrosideros sp., infected by a rust disease was submitted to the University of Hawaii, College of Tropical Agriculture and Human Resources, Agricultural Diagnostic Service Center (UH-CTAHR-ADSC) Plant Disease Clinic by an Oahu grower of native Hawaiian plants in Waimanalo. Initial identification of this disease was based on records of a rust disease that is known to occur on plant species related to ohia. Until the discovery of this rust on ohia, there were no records of any rust on ohia in Hawaii or elsewhere. The rust was tentatively identified as P. psidii, which is commonly known as the eucalyptus rust and the guava rust in Florida, the Caribbean, and Central and South America, but shall be called ohia rust in Hawaii. Subsequent surveys

Above: Maui Entomologist Mach Fukada (left) and Plant Pathologist Eloise Killgore (right) examine an ohia tree on Oahu for ohia rust.

Right: Close up of pustules formed by the rust.

revealed that this rust was already widespread in Hawaii, occurring on various members of the family Myrtaceae on all islands except Niihau.

In May 2005, a very similar rust disease was observed on rose apple (Syzygium jambos) foliage on trees along the Maunawili Trail by State Division of Forestry and Wildlife personnel on Oahu. Two species of Eugenia and a guava plant were observed in Makiki with a similar rust disease in July 2005. Later, infected ohia plants were also found on Oahu at Manoa, Makiki, and Kalihi. Symptoms of the disease first begin as tiny, bright yellow, powdery eruptions in a circular pattern on the leaf or stem surface. These infection loci or spots expand and become necrotic, and spread over the entire leaf, stem, or shoot. Leaves and stems can become deformed by the disease and growing tips can die back when infection is severe. Symptoms are more likely to be observed on young, tender, growing points.

In November 2005, UH-CTAHR Plant & Environmental Protection Sciences (PEPS) Plant Pathologist Dr. Shaobin Zhong confirmed the identity of the rust as P. psidii by comparing the DNA profiles of P. psidii spore samples from Florida and Brazil. This rust fungus has a very wide host range, which includes eucalyptus, guava, rose apple, paper bark tree, allspice, jaboticaba, Surinam cherry, Eugenia spp., and other Myrtaceae species.

Projects of the Branch's Biological Control Section included the following during FY 2005:

- **Nettle Caterpillar** [Darna pallivitta Moore]. The nettle caterpillar remained confined to the east side of the Big Island but has spread beyond the original area of infestation. Some of the newly infested localities may have resulted from the movement of infested plant material rather than natural dispersal by the adults. In August 2004, this pest had been detected in Keaau and by April of 2005, it was found in Kurtistown. It was observed in the Orchidland Subdivision in May 2005 and in June, the caterpillars were found at Hawaiian Paradise Park in Puna.

  During August 2004, a shipment of palm trees that arrived at a Maui nursery from the Big Island was found to be infested with the nettle caterpillar. It was discovered after one of the nursery workers was stung while unloading plants. Only one caterpillar was found during inspection of the palm shipment, but the entire shipment was treated with an insecticide and returned to the shipper. A survey of potential nettle caterpillar host plants was conducted at the nursery but no stages or signs of the pest were found.

  Propagation of the nettle caterpillar continued in the HDOA Insect Quarantine Facility (IQF) in Honolulu and in the Hilo Insectary on the Big Island. A virus that has killed larvae in laboratory colonies has hampered research. The Hilo Insectary has played a vital role in providing nettle caterpillar larvae to the Honolulu IQF for parasitoid propagation and host specificity testing.

  At the end of January 2005, one year of data was collected on field parasitism of nettle caterpillar eggs on the Big Island by the locally established parasitic wasp, Trichogramma papilionis Nagarkatti. Unfortunately, during this study period, only a single detection was made and parasitism rates were very low, suggesting that the egg parasitoid does not have much impact on the pest.

  The Nettle Caterpillar Project, a joint effort between the HDOA and the University of Hawaii, conducted foreign exploration for natural enemies of D. pallivitta. Exploratory surveys were conducted in Indonesia In late 2003. Since the caterpillar's native range is southeastern Asia, an HDOA entomologist and an entomologist from Thailand's National Biological Control Research Center conducted surveys in Thailand. Another HDOA entomologist conducted exploration in Taiwan, where the infested shipment made to the Big Island originated. During October 2004, the HDOA entomologist, with the help of local staff from agricultural organizations, nurseries, and an agricultural college, found D. pallivitta caterpillars on palm plants at nurseries in central and southern Taiwan. Dead caterpillars, which were found to be

parasitized by wasps, were collected and brought back to the Honolulu IQF for propagation and study. Two parasitoid species emerged, one of which was successfully colonized in the IQF. This wasp, determined to be *Aroplectrus dimerus* Lin (Eulophidae), is undergoing host-specificity testing to assure that it will not attack any native Hawaiian or beneficial caterpillar species.

- **Giant Whitefly** [Aleurodicus dugesii Cockerell]. As a result of fortuitous biological control, this serious plant pest never achieved its potential to devastate the wide variety of host plants it was capable of infesting. The parasitic wasp Idioporus affinis LaSalle and Polaszek, which most likely arrived in Hawaii in association with the whitefly via shipments of infested plant material from California, became established, multiplied rapidly, and dispersed readily to achieve complete control over the pest.

  The Giant Whitefly Biocontrol Project is one of the most outstanding examples of the effective and permanent control of a potentially serious pest insect that can be achieved in a relatively short period of time with the minimum expenditure of funds. Statewide control was secured so quickly, just two years after the initial detection of the pest that the majority of residents may not have been aware of the problem or may have mistakenly assumed that the infestations were those of the spiraling whitefly, a very closely related species that was first found in Hawaii on Oahu in 1978.

  An infestation of the giant whitefly was discovered on common red hibiscus in early December 2004 at a Waikoloa residence in West Hawaii, which is a new locality record for this pest. The giant whitefly parasitoid, *I. affinis* was also detected and appeared to be exerting good control. Later in the month, an infestation on hibiscus at the Prince Kuhio Plaza in Hilo seemed to be declining to a moderate level, when compared to the high point in November. The younger growth appeared to be relatively free of this whitefly. Parasitism by I. affinis was high (70.1%), indicating excellent control by this parasitoid.

- **Cardin's Whitefly** [Metaleurodicus cardini (Back)]. Presently, this whitefly is only known from the Hilo area on the Big Island, but it could be more widely dispersed and not yet detected. Fiddlewood (Citharexylum spinosum) appears to be a preferred host. Heavy infestations were observed on these ornamental trees in January 2005. Parasitism by a parasitic wasp, Encarsia sp., was determined to be very low. However, ladybird beetles (Nephaspis spp. and Halmus chalybeus) appeared to bring the infestations under some degree of control. No outbreaks were observed during monthly surveys the rest of the year. This year's wet weather in Hilo may have contributed to depress whitefly numbers.

- **Pickleworm** [Diaphania nitidalis Cramer]. This caterpillar, previously not known to occur in Hawaii, was found in central Oahu, damaging cucumber fruits at a farm in Kunia in November 2003. Subsequent surveys disclosed more damage on other cucurbit crops, including zucchini and kabocha squash, in the area. Tentative identification was made by the UH-CTAHR and confirmed by the USDA-ARS Systematic Entomology Laboratory in Beltsville, Maryland.

  The pickleworm is a tropical American insect that has been detected from Canada to South America. In Hawaii, the pickleworm was found to be widely dispersed throughout Oahu. Favored host plants included cucumber, zucchini, and kabocha squash. In September 2004, it was found on Kauai, infesting a planting of Japanese cucumber at Kalaheo. On the Big Island, an adult specimen was reared from kabocha squash that had been collected in Kona at Kainaliu in November 2004. A subsequent survey in January 2005 found this pest to be well established and widespread on the Big Island. Damage was reported by zucchini farmers at opposite ends of the island in Waimea and Naalehu, and in cucumber plantings just north of Hilo. On Maui, the pickleworm was found infesting cucumber at Ulupalakua in March 2005.

- **Glassywinged Sharpshooter** [Homalodisca coagulata (Say)]. Specimens of this leafhopper were first collected on Oahu in May 2004 in a residential area in Waiau, a section of Pearl City, just above Pearl Harbor East Loch. The HDOA Insect Taxonomist identified the species as the glassywinged sharpshooter (GWSS) and it was later confirmed by the California Department of Food and Agriculture (CDFA). The GWSS is native to the southeastern United States and is also known in northern Mexico.

  In California, this pest had become a serious problem after it was first detected in 1989, mainly because it was a vector of a bacterial pathogen (Xylella fastidiosa) that threatened the grape industry. This bacterium also causes diseases in other plants, including citrus, coffee, and oleander and other ornamental plants. Fortunately, observations of various hosts and subsequent testing of GWSS specimens sent to California have confirmed that the bacterium did not arrive in Hawaii with the pest. Although there is a small grape industry on Maui (Ulupalakua) and Hawaii (Volcano), the biggest concern over the GWSS was its impact on tourism because of reports from Tahiti, where this pest was first found in 1999. Heavy infestations became a persistent nuisance to residents and tourists as a result of the squirting of watery excretion by the adults and nymphs as they inserted their stylet-like mouthparts into the xylem tissue of the foliage and stems of large trees and sucked in the plant fluids.

Entomologist Juliana Yalemar surveys for glassywinged sharpshooter. Inset: Adult GWSS.

The GWSS has a very wide host range, more than 200 host plant species according to a CDFA report. In Hawaii, GWSS hosts include African tulip, croton, crown flower, gardenia, Tahitian gardenia, haole koa, hibiscus, java plum, kou, lime, monkeypod, mountain apple, oleander, papaya, pittosporum, plumeria, pummelo, and ti. Initial surveys conducted on Oahu detected GWSS infestations in Pearl City (Waiau and Waimalu), and in portions of Honolulu (Makalapa, Honolulu International Airport, Salt Lake, Tripler, Mapunapuna, Shafter Flats, Keehi Lagoon, and Kalihi).

- **Papaya Mealybug** [Paracoccus marginatus Williams and Granara de Willink]. Specimens believed to be the papaya mealybug (PMB) were first observed in Central Maui infesting papaya plants in residential areas of Kahului in early May 2004. In June 2004, specimens were determined to be the PMB by insect specialists of the USDA-APHIS-PPQ in Honolulu. A USDA-ARS coccidologist in Maryland, confirmed the identification. The PMB is native to Mexico and Central America. It spread to the Caribbean Islands, Florida and Guam. The PMB is found on the leaves and fruits of host plants.

  On Maui, PMB infestations were subsequently detected in Wailuku, Waiehu, Kuau, Kihei, Wailea, Maalaea, Kaanapali, and Honokowai. None have been found on any of the other islands. Heavy infestations have been observed on papaya, hibiscus, jatropha, and plumeria. In other regions where it is known, the PMB is also reported to infest avocado, beans, citrus, eggplant, mango, peas, peppers, potato, sweet potato, tomato, and other plants. Papaya, plumeria, and hibiscus appear to be the favored hosts.

  On Maui, a predaceous ladybird beetle, Hyperaspis silvestrii Weise, has been observed preying on the PMB. An unidentified parasitic wasp appears to be having a significant impact in suppressing PMB infestations on Maui. A colony of the papaya mealybug was established in the HDOA IQF on papaya plants from specimens collected on Maui. In June 2005, four shipments of parasitoids were received from the USDA lab in Puerto Rico. The parasitoids were originally collected in Mexico and are currently being reared in a lab in Puerto Rico . Each shipment consisted of the three species of parasitic wasps that were successfully utilized previously on Guam.

- **Macadamia Felted Coccid** [Eriococcus ironsidei Williams]. The macadamia felted coccid (MFC) was first found in Hawaii in late February of 2005 in a macadamia orchard at Honomalino in the south Kona District on the island of Hawaii. Pest distribution surveys were immediately begun by the grower. These surveys revealed the pest to be established over more than 1,600 acres and from a maximum altitude of 2,700 feet down to 1,300 feet. The grower had imported scion wood for grafting purposes in the late 1990's from Australia and this is the probable source of the pest.

  Pest surveys of nearby macadamia orchards under separate ownership were started immediately by Biocontrol Section staff to determine if the MFC had moved off the infested parcel. The closest orchards in South Kona and Ka'u to the infested orchard have been surveyed and there was no sign of MFC. The orchards that received propagative material from the known infested orchard are being surveyed island wide and none have yet been found to be infested.

  The MFC is an insect that belongs to the family Eriococcidae, whose members are similar to mealybugs, but differ in having little or no wax on their bodies. Adult females do not have wings and are immobile. Adult males are gnat-like and have wings but do not feed. After hatching, the tiny first instar nymphs, known as crawlers, move about and disperse by the wind or by hitchhiking on birds, people, vehicles, or farm equipment. After wetting down, they feed by inserting their needle-like mouthparts into plant tissue and removing sap. MFC individuals excrete honeydew droplets as they feed. The sugary waste product falls like rain on surfaces below infestations and serve as a substrate for the growth of sooty mold, which can interfere with photosynthesis.

  The MFC is native to Australia and infestations are restricted to macadamia, which is also an Australian native. On the island of Hawaii, the MFC has not been found outside of the two originally infested orchards in Honomalino. None have been detected in macadamia orchards on any of the neighbor islands. MFC infestation distorts and stunts new growth and

causes yellow spotting on older leaves. Severe infestations can cause dieback. On bearing trees, nut yields are reduced and there is a delay in the fall of mature nuts.

In Australia, it has been reported that the MFC has numerous natural enemies, including predaceous ladybird beetles, lacewings, and mites, and parasitic wasps. In South Kona, low numbers of several ladybird beetles and some parasitic wasps have been observed in association with MFC infestations.

- **Erythrina Gall Wasp** [Quadrastichus erythrinae Kim]. The erythrina gall wasp (EGW) invaded Hawaii in early 2005 and has rapidly dispersed throughout Oahu. Samples of damaged leaves and stems with galls were collected in Manoa from a coral tree (Erythrina variegata L.) in mid-April.

  By July 2005, early infestations had been detected on Erythrina trees on Hawaii, Kauai, and Maui, in that order, mostly in or near airports. Severe infestations on Oahu have defoliated trees, stunted their growth, and may even have caused some mortality. The EGW has quickly confirmed reports from other areas of the world of its destructive potential to devastate *Erythrina* trees. The most serious threat by the EGW in Hawaii is to the endemic wiliwili (E. sandwicensis Degener), which is still readily found in lowland dry forests. This native Hawaiian tree could soon become a threatened and endangered species as a result of the EGW onslaught. Another favored host, the tall erythrina (E. variegata L. 'Tropic Coral'), is now the tree of choice for use as windbreak in agricultural areas and for landscaping and screening in urban areas with high-rise buildings. Some of these plantings have already been completely defoliated to resemble tall matchsticks.

  The EGW is proving to be the most rapidly dispersing and severely devastating pest insect in the history of the Hawaiian Islands. This wasp is in the family Eulophidae and is typically very tiny. The males are about 1.0 mm in length, while the females are about 1.5 mm long. The larvae are phytophagous (herbivores). They feed and develop in the young tissue of erythrina stems and leaves. As the larvae feed within the plant tissues, they induce the formation of galls by the host plants.

- **Ivy Gourd** [Coccinia grandis (L.) Voigt]. The propagation colony of the ivy gourd gall weevil, Acythopeus burkhartorum O'Brien, continued to be maintained in the HDOA Insect Propagation Facility on Oahu throughout FY 05. However, lab production of the beetle remained low. Only two releases were made during this fiscal year. In July 2004, 25 adult weevils were released on ivy gourd infestations in Moanalua and 20 were released in Maunawili in November. Periodically heavy rainfall during the year resulted in an upsurge of ivy gourd population densities on Oahu. However, the ivy gourd vine borer and the ivy gourd leafmining weevil, remained active amid ivy gourd infestations to ensure that this invasive weed does not return to its former level of dominance throughout the island.

- **Miconia** [Miconia calvescens DC]. Jean-Yves Meyer, an ecologist with the Government of French Polynesia, visited Plant Pathology Quarantine Facility in Honolulu on his way to a conference on the Big Island. Meyer reported that the miconia pathogen, Colletotrichum gloeosporioides f. sp. miconiae, which was released in Tahiti through the cooperative project with the HDOA Plant Pathology Unit, has been very effective in some areas and is spreading quite rapidly. Government officials in French Polynesia are quite satisfied with the results.

- **Fireweed** [Senecio madagascariensis Poiret]. During exploration for fireweed natural enemies in 2005, the HDOA Exploratory Entomologist collected three Lepidoptera species and a species of weevil in Madagascar. In South Africa, a variety of fireweed natural enemy species collected included two weevils, a flea beetle, a planthopper, a lace bug, and two arctiid moths. Attempts to propagate and colonize most of these potential biocontrol agents in the HDOA Insect Quarantine Facility were not successful. Some species were too few in number while others failed to produce progeny. However, one arctiid moth, Nyctemera apicalis, which was collected in South Africa, was successfully colonized in good numbers and host range studies are in progress.

  The caterpillars are voracious defoliators of fireweed and this species appears to be a very promising biocontrol candidate. Host specificity testing of Secusio extensa (Butler), the Madagascan fireweed defoliating caterpillar collected during exploration in 1999, has been completed and data to produce the document to justify release of this arctiid moth species is being assembled. A final report is being prepared as a prelude to a request for release of this species from quarantine.

  In some replicates of earlier tests, this caterpillar gave some indication of being able to feed and, in some cases, complete its life cycle on sunflower. However, in choice tests, the caterpillars preferred fireweed and the females were consistently attracted to fireweed and showed no interest in depositing any eggs on sunflower. None of the other test plants proved to be suitable hosts for the caterpillars and the female moths showed no interest in them for egg laying.

  Testing of the fireweed flower head tephritid fly collected in 1999 from South Africa, is nearing completion. The larvae of the tephritid fly feed on the inside of the flower buds of fireweed. A few more

native plants still need to be tested. Among them is the Haleakala silversword, Argyroxiphium sandwicense subsp. macrocephalum (A. Gray) Meyrat. A permit to collect the flower buds of the silversword was filed with the U. S. Fish and Wildlife Service through the Haleakala National Park Service.

- **Maile Pilau** [Paederia foetida L.]. The Skunk Vine Biocontrol Project, a collaborative effort between the USDA-ARS Invasive Plant Research Laboratory (IPRL) in Ft. Lauderdale, Florida, and the HDOA Biocontrol Section continued in FY 05, but activities were on hold. During this fiscal year, arrangements were made by IPRL researchers with collaborators in Nepal and Thailand to send potential biocontrol agents of skunk vine to the HDOA IQL in Honolulu for host range testing. However, no shipments have been received to date.
- **Fountaingrass** [Pennisetum setaceum (Forssk.) Chiov.]. The third year of the cooperative project with researchers at the University of Mansoura, Egypt, in the search for biocontrol agents of fountaingrass was highlighted by the visit of Dr. Mohamed Elwakil, Project Plant Pathologist and Principal Egyptian Investigator in June 2005. He hosted a seminar at HDOA during which he shared information on his surveys of fountaingrass in the northern and eastern coasts of Egypt. Dr. Elwakil and his staff have not yet been able to identify any suitable biocontrol agent for fountaingrass, but have another year of funding for exploration.

  Dr. Elwakil and the HDOA Plant Pathologist traveled to the Waikoloa area on the Big Island to view the fountaingrass infestation. He was overwhelmed at the extent of fountaingrass there and every new turn in the road brought another view of more and more fountaingrass. At one of the lookouts, the fountaingrass carpeted the mountain slope and all of the land down to the shore miles away. He later said that there is not as much fountaingrass in all of Egypt as what he had observed on the Big Island. Because of time constraints, they had not even reached Kona, where the infestations are much worse. As he departed the Islands, he said that he would renew his efforts in the exploration with more enthusiasm because of the urgency to control this highly invasive pest.
- **Banana Poka** [Passiflora tarminiana Coppens & Barney, sp.nov. (P. mollissima)] Following in the foot steps of the successful transfer and establishment of the mistflower biocontrol fungal agent, Entyloma ageratinae R.W. Barreto & H.C. Evans from Hawaii to New Zealand, Manaaki Whenua Landcare Research, New Zealand, once again collaborated with the HDOA Plant Pathology Unit. The new project required the conduct of host range tests as part of the risk assessment to allow the importation of the banana poka biocontrol fungus Septoria passiflorae Louw into New Zealand for control of banana poka. This biocontrol agent was released in Hawaii in 1996.

Projects of the Branch's Chemical/Mechanical Control Section included the following during the FY 2005:

- **Little Fire Ant** (LFA), *Wasmannia auropunctata* Chemical/Mechanical (CM)section staff treated infestations of LFA on the Islands of Kauai and Hawaii. Approximately 175 acres on the Big Island and 0.5 acres on Kauai are infested with the invader. Chemical trials were conducted jointly with researchers from the UH-CTAHR, to find insecticides for use at various LFA infestation sites, such as nurseries, residential, golf courses, pastures, and fruit and nut orchards.
- **Banana Bunchy Top Virus** (BBTV)
  Containment and management practices continued on the Island of Kauai and Maui. CM personnel detect and chemically destroyed diseased banana plants. On Maui, BBTV infected plants at commercial and residential were chemically or mechanically rogued.
- **Fireweed**
  Fireweed on the Islands of Kauai and Oahu were contained†. Both islands have managed the sites and have had no new plants emerge. Fireweed had at one time infested two acres on Kauai and about five acres on Oahu. It is believed that through contaminated grass seed that was used to landscape roadside projects that fireweed was introduced to Oahu and Kauai. Surveys continued for new populations on Kauai, Oahu, Lanai, and Molokai.
- **Fountaingrass**
  Surveillance and removal of fountain grass on Kauai, Oahu, and Lanai had been a joint effort between multiple state, private, and federal agencies.
- **Coqui Frog**
  Coqui frog control efforts and sprayer loan programs continued on the Big Island, Maui, Oahu, and Kauai.† Community groups, nurseries and private individuals may use the sprayers with no charge on these islands.

Left to right: Plant Pest Control's Harvey Lee, Renato Bautista, Ray Tanaka and Becky Azama survey the renovation project at Castle Junction in Kaneohe, Oahu, for fireweed.

Plant Pest Control Branch's Samuel Benzon sprays an herbicide on long thorn kiawe along Kapalama Canal.

- **Gorse**
  Chemical or mechanical control of designated noxious weeds continued for gorse (*Ulex europaeus)*, Miconia (*Miconia calvescens*), turkeyberry (*Solanum torvum*), and glory bush (*Tibouchina spp.*). †
- **Erythrina Gall Wasp (EWS)**
  Personnel performed surveillance for the EWS on all islands. Section staff worked with the University of Hawaii on efficacy trials for various chemicals for use against the gall wasp.
- **Long Thorn Kiawe**
  Continued efforts to remove populations of long thorn kiawe, *Prosopis juliflora*, from Oahu and Kauai shorelines. ††
- **Seed Inspection**
  Routine surveys of agricultural and vegetable seed vendors, to ensure the quality and proper labeling of seed sold to consumers, were conducted. Examination of seed lots entering the United States from foreign ports were performed. Seed lots containing prohibited noxious weed seeds or seeds of quarantine status were refused entry. Germination tests were performed on vegetable and agricultural seed lots to ensure that minimum germination standards were met.
- **Public Awareness Activities**
  Section personnel conducted educational outreach for public awareness on all islands. Presentations covered topics such as noxious weeds and coqui frogs at the Hawaii County Fair, Maui County Fair, Oahu Farm Fair, and Kauai County Fair.

† Joint effort with Kauai and Oahu Invasive Species Committees (KISC and OISC, respectively) groups on Kauai and Oahu

†† Joint effort with Kauai Invasive Species Committees (KISC)

PLANT QUARANTINE BRANCH
Neil Reimer, *Manager*
(Assigned to Plant Pest Control in October 2005)
Carol Okada, *Manager (from January 2006)*

The Plant Quarantine Branch administers Hawaii's plant and non-domestic animal quarantine program by preventing the introduction of harmful pests and diseases into the State and by facilitating plant exports. This is accomplished through:

- permit reviews,
- air and sea ports-of-entry inspections,
- interisland inspections,
- investigating and enforcing State quarantine laws and regulations, and
- educating travelers and the public inspecting and certifying plants for export.

Statistical data on the activities of the Plant Quarantine Branch may be found on page 56.

FY 2005

Highlights

- A Cuban Knight Anole was caught at the Mid Pacific Golf Course. The lizard was picked up by an inspector from the Honolulu Airport Plant Quarantine Office.
- A four-foot-long ball python snake was captured by two men in Waipahu near the Waipahu Elementary School, and taken to their home in Waianae. They reported the snake to the police, and a HDOA inspector retrieved the snake.

This Cuban tree frog that was intercepted by HDOA inspectors conducting inspection of plants shipped via Federal Express from Florida.

PQ inspectors Roxine Kubo, Cindy Nakamura, and Keevin Minami, set up a display booth at the Bishop Museum's Reptile exhibition on a family Sunday to increase public awareness of invasive species.

- A dead opossum was found by employees of a business warehouse in Mapunapuna, on Oahu. The dead opossum was found in a container of plaster and texturing compounds, which had just arrived from Torrance, California. The animal was picked up by inspectors and subsequent tests were negative for rabies.

- A foot-long garter snake was found in a Christmas tree container at a Kailua supermarket after the Christmas trees were removed from the container. The Christmas trees arrived with a phytosanitary certificate issued by the Oregon Department of Agriculture.

- An animal was seen running around in the plane while a crew was unloading a cargo flight from Travis Air Force Base in California. The crew closed the aircraft doors and called the Honolulu Airport Plant Quarantine Office for assistance. A Plant Quarantine detector dog team were dispatched and captured the animal. A test for rabies was negative.

- A three-foot-long iguana was caught by a homeowner in Waimanalo, Oahu. An inspector retrieved the animal.

- A Manoa, Oahu homeowner caught a two-foot-long lizard on a wall next to his driveway. Inspectors from the Plant Quarantine Branch Airport Office were sent to pick up the lizard, which was identified as a Solomon Island Prehensile-Tailed Skink.

- A detector dog team detected a soft bag from a United Airlines Flight containing three hermit crabs which were undeclared. The hermit crabs were confiscated and destroyed.

- Some of the items detected by the canine teams included: thirty orchid plants (declared), three peony plants with soil (undeclared), one cymbidium orchid bulb (declared), and one bag of Napa cabbage infested with aphids (undeclared).

- A detector dog team confiscated four coconuts from passengers onboard a KC135 from Guam at Hickam Air Force Base, while conducting a routine inspection for brown treesnakes. The coconuts were later destroyed.

- Staff submitted 1,740 insect interceptions to the Plant Quarantine entomologist for identification. Of these, 37.6 percent were not known to be established in Hawaii, 41.8 percent were known to be established in Hawaii and in 20.6 percent of the interceptions, the presence in Hawaii of the insect was not known. Based on these identifications, the dispositions of these shipments were as follows: 56.1percent had the pest removed and the commodities were released to the importer, 4.93 percent were refused entry and returned to the point of origin, 35.2 percent were treated and destroyed, and 3.8 percent were treated and released.

- A total of 227 containers of Christmas trees were shipped to Hawaii from Oregon and Washington. In accordance with the HDOA protocol, Washington and Oregon Departments of Agriculture witnessed the shaking and cleaning of 100 percent of the trees in 78 percent of the containers. The other 22 percent of the containers were spot checked by the two mainland agriculture departments. Two containers were found by HDOA inspectors to be infested with male yellowjackets.

- In June 2005, a plant quarantine inspector from Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) arrived in Hilo and worked with HDOA staff to conduct a test to validate that growers in Hawaii can produce market-ready potted anthurium plants that are free of burrowing nematodes. During the meetings in Hilo, HDOA received an indication that the protocol will be approved; however, public hearings were to be held in Japan. HDOA is awaiting formal word from MAFF on the approval to export potted anthuriums to Japan.

- Three separate search warrants were served by the Plant Quarantine Branch in conjunction with State, Federal and County law enforcement personnel resulting in the confiscation of a squirrel monkey from a Makiki, Oahu man; two leopard sharks, two ribbon eels and two lionfish from a Moiilili, Oahu man; and two capuchin monkeys from a Holualoa, Hawaii man. The Makiki and Holualoa men, who were in possession of primates were issued citations of

Teams of inspectors conduct the Oahu Risk Assessment that intensifies inspection over a period of time to determine high risk commodities and their routes of entry.

During the ORA, inspectors Leslie Iseke (l) and Glenn Sakamoto (r) inspect a shipment of live seafood, which requires an import permit from PQ prior to shipping.

$1,000.00 each, and surrendered ownership to the animal enclosures. The Moiliili man is currently in federal custody and the case is pending.

- A snake sighting near Hamoa Beach in Hana, Maui in August 2004 prompted a search by personnel from HDOA, Department of Land & Natural Resources-Division of Forestry & Wildlife, Hawaii Department of Health-Vector Control Branch, U.S. Department of Agriculture-Wildlife Services and the Maui Invasive Species Committee. Searchers from the U.S. Geological Survey in Guam as well as Commonwealth of the Northern Mariana Islands from Saipan also joined the effort. The deployment of baited snake traps as well as night searches were conducted for a period of three weeks; however, no snake was recovered.

- Four HDOA Plant Quarantine Branch personnel received their annual one-week refresher course for brown treesnake rapid response training in Guam. Participants were given updated information on BTS interdiction work and conducted night searches in the field for the nocturnal reptile.

- A total of 29 talks and tours consisting of 1,998 individuals were conducted by the Plant Quarantine Specialists (Plant, Land Vertebrates, Microorganism, Insect, Invertebrate and Aquatic Biota). Attendees were given a slide presentation, which included historical as well as operational information on the Plant Quarantine Branch program. In addition, visitors were also shown a live display of prohibited and restricted animals that were confiscated or turned in under amnesty.

- During May and June 2005, the Plant Quarantine Branch conducted an Oahu Risk Assessment (ORA), a program to increase inspection of plant material arriving via air cargo, mainly focusing on shipments coming into Honolulu International Airport in the evenings. Information collected during the "blitz" help to determine the highest risk commodities and routes of entry. The ORA is similar to the Maui Risk Assessment, which has been conducted periodically as part of the Kahului Airport Expansion Project.

  During risk assessments, inspection teams try to inspect cargo from every flight with plant material to determine commodities and routes that are the highest risk for bringing in pests and disease. With this information, inspectors can target these high-risk shipments during routine inspections.

  Future risk assessments are being planned for Hilo, Kona on the Big Island and on Kauai.

QUALITY ASSURANCE DIVISION

William Pierpont
Acting Administrator

The Quality Assurance Division consists of two branches, the Commodities Branch and the Measurement Standards Branch. The branches provide services and enforce laws that help to improve the market quality of agricultural commodities, promote fair trade and honest business practices, and maintain stability in the dairy industry.

COMMODITIES BRANCH

Jeri Kahana, *Manager*

The mission of the Commodities Branch is to "Set the Standards" and provide assurance that standardized, high quality, safe, and authentic Hawaii agricultural products can be showcased in Hawaii as well as throughout the world market through a fair and just agricultural business climate.

The Commodities Branch enhances the economic stability of Hawaii's agricultural industries by maintaining grade standards for locally produced fruits and vegetables, nuts, coffee, flowers and foliage, processed foods and other agricultural products. The branch provides unbiased, professional, and timely service-for-fee grade, condition, and origin certification and food safety audits, to add value and desirability to agricultural products. Under federal-state cooperative agreements, the branch provides federal certification for fresh and processed fruits and vegetables, eggs, seafood and meat, which may not otherwise be available to local clients, as well as state certification for origin and quality of green coffee, and origin of certain products.

The branch provides just, and unbiased enforcement to assure safety and fair business dealings in agricultural products, to protect the agricultural community as well as the general public. The branch administers laws and rules pertaining to fresh fruit, vegetable, coffee, egg labeling and advertising; minimum export quality; licensing of dealers in agricultural products; prevention of agricultural theft; and sampling and testing of animal feed for label guarantee and adulteration.

The Branch's Milk Control Section regulates the dairy industry in the Honolulu and Hawaii milk sheds by licensing producers and distributors of milk, establishing milk production quotas, setting minimum class 1 price paid to dairy producers, and conducting retail milk surveys and inspections. This special funded section is entirely self-funded through license fees assessed to milk producers and processors.

The Commodities Branch's Chemical Analysis Laboratory Section provides chemical analysis services for the Feed Program as well as the Pesticides Branch. Animal feed samples are analyzed for adulteration from agri-chemicals and mycotoxins; environmental samples are analyzed for contamination from agri-chemical and other substances; and pesticides are tested for ingredients. The Chemical Analysis Laboratory Section, under an inter-departmental agreement, is located in the State Department of Health's State Laboratories Division in Pearl City.

Commodities inspector Richard Dinker grades green coffee beans in the Kona Office.

Listed below are brief overviews of developments that have impacted the Branch's activities. (See page 57 for a detailed table of activities):

- Hired Branch Manager through internal recruitment within the Branch, and one marketing specialist on Kauai.
- Inspected and certified over 1.3 million cases of canned pineapple from Maui Pineapple Company, which continues to receive large federal government contracts and assessed over $200,000 in fees.
- Continued the fee-for-service papaya non-transgenic testing program and established and conducted a new "Identity Preservation Protocol" program for tighter control of non-transgenic papayas that are exported

to Japan. More than four million pounds of papayas were checked and $39,952 in fees were assessed over the year.

- Through the enactment of Act 49, SLH 2003 the Branch hired ten Agricultural Commodities Aids to: 1) provide auditing and certification services for food safety, food security and product traceability; 2) provide temporary help in various programs under one certification services revolving fund; and 3) conduct the seed certification inspection, previously performed by the Plant Pest Control Branch, Plant Industry Division. This act allowed the Branch to address new demands, and cross-utilize temporary staff to assist where needed, for better efficiency.
- Staff attended papaya, coffee, eggs and cattle industry meetings and conferences; and Hawaii Marketing Alliance meetings for a "Seal of Quality program."
- Staff participated in meetings with farmers and the Honolulu Police Department officers on the prevention of agricultural theft. Flyers were also distributed to various processors, wholesalers, shippers, truckers, and airlines.
- Attended mainland training sessions and conferences, which included: Processed Products Branch National Supervisor's Conference, EPA sponsored Pesticide Analytical Workshop on Commercial Formulation End Product Analysis; and the International Association of Milk Control Agencies annual conference. The costs to attend these conferences were mostly paid by federal agencies and the milk special fund, at minimal or no cost to the state.
- Hosted supervisory visits by officials from USDA Agricultural Marketing Service - Processed Products Branch, and Poultry Division.
- Participated in a Federal-State agreement to distribute up to $35,000 under a USDA Organic Certification Cost-Share Program, to qualified organic producers and handlers in Hawaii for the period 10/01/02 through 9/30/04.
- Through EPA and Pesticides Branch funding, the Chemical Analysis Laboratory continued to analyze soil samples for a soil leaching project. This project is geared to help farmers find an easy method to purge their soil of persistent pesticides.
- Established a geographic region origin verification system to ensure that coffee being certified as "Kona" coffee originated within the Kona districts.
- Branch fee assessments and penalties collected totaled $736,701; about 22 percent more than last year.

Above: Egg inspectors use a "candler" to inspect eggs for quality and grade.

Above: Commodities inspector Gary Kumashiro performs pre-operative sanitation inspection at an egg processing facility.

MEASUREMENT STANDARDS BRANCH

William Pierpont, *Manager*

The Measurement Standards Branch works to protect consumers, businesses, and manufacturers from unfair practices, which are based on a measurement process or subject to a standard of quality. The goal is to minimize losses and inaccuracies due to incorrect or fraudulent commercial measuring equipment, processes, or substandard products.

The Standards and Technical Services Section assures that State measurement standards conform to national standards. It performs metrological calibration of the enforcement standards used by the branch and the field standards used by registered service agencies in repairing commercial devices.

The Standards and Trade Practices Enforcement Section has the responsibility of assuring the consumer that transactions involving measuring instruments, labeling, content of packaged commodities, and pricing are accurate and fair to all parties.

Listed below are brief overviews of developments that have impacted the branch's activities (See page 57 for a detailed table of activities.)

- The State Metrologist received advanced training and certification from the National Institute of Standards and Technology (NIST).
- The metrology laboratory received re-certification by the National Institute of Standards and Technology.
- The metrology laboratory inspected and calibrated 93 mass test standards, 672 mass enforcement standards, and 499 field standards for service agencies conducting business in the State of Hawaii.
- The metrology laboratory inspected and calibrated 13 volumetric test standards, 72 volumetric enforcement standards, and eight volumetric field standards for service agencies conducting business in the State of Hawaii.
- The Branch received and investigated over 19 odometer complaints. In conjunction with the Attorney Generals Office the investigations completed by the Branch have led to indictments, arrests, and prosecutions.
- The compliance rate for stores inspected for price verification was 90 percent.

AGRIBUSINESS DEVELOPMENT CORPORATION

Alfredo Lee
Executive Director

The Agribusiness Development Corporation (ADC) was established pursuant to Act 264, SLH 1994 to coordinate the development of Hawaii's agricultural industry and to facilitate its transition from a dual-crop (sugar and pineapple) industry to a diversified, multi-crop and animal industry. More specifically, ADC is responsible for devising means by which arable sugar and pineapple lands and their production infrastructure can be used again by a diversified agricultural industry and for providing marketing assistance that can lead to the development of local, national, and international markets for Hawaii-grown products. For administrative purposes, ADC is attached to the Hawaii Department of Agriculture.

Mission Statement (revised August 30, 2004): "The Agribusiness Development Corporation (ADC) is a dynamic vehicle and process to create and to optimize agricultural assets throughout the state for the economic, environmental and social benefit of the people of Hawaii. It is a risk-taking advocate for agriculture with unique powers to assist agricultural business."

ADC Board Members:

Yukio Kitagawa (Chair)
Teena Rasmussen (Vice Chair)
Bert Hatton
Denis Kam
Chris Kanazawa
Wayne Katayama
Eric Weinert
Sandra Lee Kunimoto (Ex-Officio, HDOA)
Ted Liu (Ex-Officio, Department of Business, Economic Develoment & Tourism)
Peter Young (Ex-Officio, Department of Land and Natural Resources).

The following are highlights of ADC's activity during FY 2005:

- **Kekaha Agricultural Lands**

  In March 2005, ADC completed all of its projects related to the Navy Phase II and Phase III funding for off-base projects at the Pacific Missile Range Facility (PMRF). A total of $4.46 million was spent upgrading infrastructure to include the following: repair/replacement of six drainage pumps and related structures at the Kawaiele and Nohili pump stations, dredging of drainage canals and improvement of flood control gates to facilitate the flow of storm water; repair/upgrade of the Mauka hydroelectric plant; rewiring of the Waiawa hydroelectric plant generator, improvement of access roads; and the hardening of electrical power lines.

  When the 270-acre lease and the agricultural restrictive use easement for the Mana plain are granted to the Navy by the Department of Land and Natural Resources, it is anticipated the Navy will continue to ask ADC to be involved with the operation and maintenance of the pump stations and drainage canal maintenance.

  Gay and Robinson (G&R), one of the two remaining sugar companies in the state, announced that they would quit production farming at Kekaha after harvesting their next crop. However, they have expressed interest to continue farming at Kekaha for sugar cane seed. G&R has been farming at Kekaha since Kekaha Sugar Company's demise in 2001. It is expected that their acreage would drop from about 3,000 acres to about 500 acres when the transition is completed.

  The ADC Kekaha Committee approved the terms and conditions of an agreement to be executed between ADC and the Kekaha Agriculture Association (Coop), which would allow the Coop to manage the common infrastructure to include the Kokee and Kekaha irrigation ditches, the Mauka and Waiawa hydroelectric plants, the backup generators, wells, main drainage ditches and access roads. In exchange, the farmer tenants will get a maintenance credit off their rent and keep most of the revenue from income generating resources.

  The Kekaha Committee approved dividing the Kekaha property into blocks for licensing to agricultural tenants consisting of farmable fields, contributory land and waste land. A total of approximately 5,000 farmable acres was approved to be licensed to the following tenants: Pioneer Hi-Bred, Syngenta Seeds, Far West Ag, Wines of Kauai, and G&R. These tenants have been farming on the property and involved with the

operation and maintenance of the common infrastructure at Kekaha since the sugar plantation closed in 2001. An appraisal of agricultural rental rates was performed by an independent appraiser.

Ceatech, an aquaculture tenant in Kekaha with a revocable permit for 433 acres, filed for Chapter 11 bankruptcy protection in March 2005. Sunrise Capital, LLC obtained court approval to purchase Ceatech's assets a few months later and applied for use of the same land. (The ADC Kekaha Committee approved the issuance of a 20-year license to Sunrise Capital at its July 13, 2005 meeting.)

- **Waiahole Water System (WWS)**
  As a result of the June 2004 Hawaii Supreme Court decision, the Commission on Water Resource Management (CWRM) appointed a hearing officer for round two of the Waiahole contested case hearing on remand of the decision. The hearing was conducted in April 2005. Issues requiring reconsideration include: (1) the designation of interim instream flow standards for windward streams; (2) the 2.2 mgd of unpermitted water; (3) the practicability of The Estate of James Campbell and Puu Makakilo using alternative groundwater resources; (4) the actual needs of ditch water for Field Nos. 115, 116, 145 and of 229 acres in Field No. 146; and (5) ADC's permit for system loss. ADC's direct involvement in the contested case was the system's loss, which was brought down from a high of about six million gallons/day (mgd) in 1999 to a low of about two mgd in 2003. Unfortunately we were not able to keep system loss below two mgd in 2004 and 2005 due to exceptionally wet weather.

ADC continues to work on improving the system and reducing system loss. One potential source of system loss is identified as the unlined portion of the ditch system, mainly the two reservoirs. Through the Department of Agriculture, ADC has been working with the U.S. Army Corps of Engineers to line the reservoirs. The multi-million dollar project will be funded jointly by the federal government (65 percent) and the state (35 percent). The design portion of the project has already begun. Since public funds cannot be used on private properties, ADC is working with landowners Campbell Estate and Robinson Estate for the proper easements.

To better monitor system loss, ADC installed two Parshall flumes at the end of the system, around Reservoir 155, to replace a flow-through water meter that was undersized for the flow it was handling.

ADC also applied for a competitive Natural Resources Conservation Service (NRCS) Conservation Innovative Grant with the purpose of finding innovative methods to measure and to reduce irrigation water system losses.

Approaching ditch maintenance as a public-private partnership, ADC approved the use of funds due ADC (about $15,000) from prior year's water use commitment shortfall, to improve the ditch system. Some of the projects performed by the water users included the dredging of the by-pass ditch at Reservoir 155 and soil erosion control measures taken near Del Monte fields.

ADC has helped to fund the operation and maintenance of East Kauai Irrigation System in the Kalepa lands in East Kauai.

For most of FY 05, central Oahu received more rainfall then the norm. As a consequence, demand for irrigation water was relatively low when compared to the previous several years.

- **East Kauai Irrigation System and Kalepa Lands**
  Once again as per directed by the legislature, ADC contributed to the operation and maintenance of the East Kauai Irrigation System. Unlike previous years when general funds were appropriated for this effort, ADC expended $50,000 from its revolving fund this fiscal year. The scope of work primarily included repairing and maintaining deteriorated ditch sections and cutting back overgrowth along the ditch.

  ADC was also approached by DLNR to take over the East Kauai Irrigation System and approximately 7,000 acres of state-owned agricultural land in the Kalepa area. This proposal is a good fit for ADC's mission of preserving agricultural assets for diversified agriculture use. The ADC board of directors approved to take on this project at its February 18, 2005 meeting. When appropriate approvals from the Board of Agriculture and the Board of Land and Natural Resources are obtained, it is expected that the assets will be transferred to ADC by an executive order from the Governor.

- **Tea**
  ADC has been involved with University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR) on the development of a tea industry on the Big Island for a couple of years. It was determined that a very high-quality tea could be grown in certain parts of the state. There seems to be a strong interest on this project by a diverse group of farmers who are semi-organized.

  With support from the community, parts of the remaining funds reserved for the development of an agricultural subdivision in Hamakua was authorized to be used for this project. The ADC board also approved that $100,000 be allocated to CTAHR for the upgrade and enlargement of the pilot processing plant at the Mealani Experimental Station, speeding up the availability of tea plant cuttings to farmers, refinement of production processing methods, and development of quality standards.

Other Activities

- ADC continues to work with various entities to include the County of Kauai, CTAHR, the Kauai Farm Bureau, and Kauai Economic Opportunity, Inc. for the reopening of Kauai's Tropical Fruit Disinfestation facility. ADC initiated the request for the release of $150,000 capital improvement fund for the upgrading and improvement of the facility, which has been idle for about four years.

ADC is helping to fund repairs to a tea processing station as part of a Tea Project on the Big Island.

- Federal funds made available under the USDA Farm and Ranch Land Protection Program (FRLPP) have not been used by Hawaii landowners in the past due to the lack of state matching funds. Passage of House Bill 1308, signed into law by Governor Linda Lingle as the Legacy Lands Act, ensures that a funding source is available for this purpose, along with other preservation purposes. ADC has been approached to work with landowners to apply for FRLPP grants for the preservation of agricultural lands.

- ADC, HDOA and CTAHR are collaborators in the $300,000 grant awarded to Pacific Gateway for the training of socially disadvantaged farmers.

- ADC works with a group known as the Oahu North Shore Ag Coalition, to promote agriculture and related businesses on the north shore of Oahu, which has about 40,000 acres of former sugar land and an extensive irrigation system. Although the land and irrigation system in the area are not public, ADC's expertise with water system management could be of help to the farmers and landowners.

- ADC was also approached by a group of farmer/ landowners and the Hawaii County to assist with a water resource management project in Kau. There is a thriving agricultural industry in the district which has many acres of agricultural land and several irrigation systems. Some of the former sugar lands in the area have been converted to macadamia nut and coffee orchards.