It is my pleasure to present the Hawaii Department of Agriculture's Annual Report for Fiscal Year 2003. This year has certainly been exciting and challenging since my appointment as Chairperson commenced in January 2003. The Deputy to the Chairperson, Diane Ley, and I am proud to work with department administrators and staff who are truly interested and motivated to undertake significant initiatives to help agriculture flourish in our State and improve the services provided by the department.

We have made it a priority to develop stronger partnerships and there is a renewed spirit of cooperation between state and federal agencies, farmers, ranchers, educational and research institutions and others in the industries of agriculture and aquaculture. These partnerships are never more important as we all try to make the best use of limited resources.

During FY 2003, the department's approximately 300 staff members statewide were charged with monumental tasks, including:

- monitoring of 12.5 million pieces of incoming baggage, cargo, mail parcels and 4.2 million arriving airline passengers; while conducting special inspections of nearly 100 percent of 670 flights from Guam to prevent the importation of the brown tree snake;
- conducting inspections of 300,000 imported animals, disease surveillance testing of more than 14,000 livestock animals, and implementing the highly successful 5-day-or-less rabies quarantine program for dogs and cats;
- conducting more than 800 pesticide inspections and investigations, and treatment and removal of noxious weeds from about 3,000 acres statewide;
- testing of 2,300 gasoline pumps, 1,800 taximeters, and 1,650 measuring devices for accuracy; and inspections of eggs, coffee, fruits, vegetables and other commodities;
- management of more than 3,600 acres of agricultural park lands, and 85 miles of irrigation systems; and also the management of 215 agricultural loans; and
- promoting Hawaii products at trade shows in California, Chicago, Florida, Houston, Nevada and Japan.

As we move into the second year of this administration, I look forward to continuing implementation many of our initiatives, which include projects to increase marketing opportunities for various agriculture and aquaculture products. We are continuing our work to assist in the development of a world-class farmers' market, increasing collaboration with a major cruise line to showcase Hawaii-grown products, and beginning a new market development project to promote locally grown beef. There are also ongoing efforts to increase export avenues by working with federal and foreign government agencies on plant quarantine issues.

A major legislative initiative that the department is helping to advance is to fulfill the constitutional mandate to conserve and protect important agricultural lands in Hawaii - a critical factor in strengthening agriculture and assuring its long-term economic viability.

On behalf of the entire Department of Agriculture, I respectfully submit this annual report outlining the programs and initiatives accomplished to strengthening agriculture and aquaculture in Hawaii.

Sincerely,

Sandra Lee Kunimoto
Chairperson
Hawaii Board of Agriculture

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This annual report is also accessible via the department's website at: **www.hawaiiag.org/hdoa/**

This annual report can also be 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 Department actively seeks to protect existing farming areas and promote increased access to and productive use of the thousands of acres of important agricultural lands and infrastructure vacated by sugar plantations throughout the State. The Department, as the principal advocate for agriculture among State agencies, offers consultative input into land use zoning, environmental program implementation, and broader planning and economic development issues that affect agricultural resources and the growth of agricultural businesses.

The Department is participating in the 70+ stakeholder Agricultural Working Group (AWG) whose efforts were recognized in the 2003 Legislature. The AWG is to provide the 2004 Legislature with proposed legislation to identify and protect important agricultural lands and a range of incentives to benefit agricultural businesses and landowners of important agricultural lands. The effort of the AWG should bring focus to the growth of agriculture as an important and respected segment of Hawaii's economy.

In years past, the Department has reported on the progress of Hawaii farmers in achieving estimated farm-gate values of selected crops. An updated version of this effort is being worked on. In the years to come, most of the 14 selected crop groups will invariably experience ups and downs, however, there should be continued real growth. While modest in comparison to the visitor industry's $11 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 industry and the resurgence in sugar production.

The following is a listing of activities for fiscal year (FY) 2002-2003 that supported the protection of agricultural resources, increased the use of former sugarcane lands and infrastructure, and expanded diversified agriculture development in general:

- Submitted extensive testimony before County Councils and departments, State Land Use Commission, and community organizations on agriculture-related issues including: City and County of Honolulu's proposed amendments to agricultural property tax, initiative to preserve prime agricultural lands, redefinition of the agriculture zoning ordinance, and the ongoing conflict between urban encroachment and agriculture in Kamilonui Valley; functional definition of agriculture for Maui County; facilitating discussions between farmers and landowners on "good neighbor" and land tenure issues; and amendments to County agricultural zoning and community plan ordinances.

- Represented the Department's and agriculture's interests before the following committees and organizations: National Association of State Departments of Agriculture, Western Governors' Association, Water Quality Standards Technical Advisory Group, U.S. Department of Agriculture State Technical Committee, Community-Based Economic Development Advisory Council, and Hawaii Forestry and Communities Initiative Working Group and Executive Board.

- Provided comment on more than 60 land use applications, legislative bills, legislative inquiries, proposed land exchanges, and environmental rule-making that have significant impact on agricultural resources throughout the State such as establishment of Critical Habitats for threatened/ endangered species, water quality standards for streams, non-point source pollution program rules, and identifying and protecting important agricultural lands.

- Responded to more than 85 telephone, walk-in, and written requests from citizens, government agencies, legislators, consultants, non-profits, the University of Hawaii at Manoa, and out-of-state organizations for presentations, information and limited analysis of issues pertaining to agricultural resources, development opportunities, urban farming, low-land flooding, insurance, alternative crops, and agricultural land leases.

Agribusiness Development & Research

To promote a strong and vigorous agricultural industry, the department must have the ability to respond to urgent problems without having to wait for supplemental legislative funds. This program is designed to address critical agricultural research and also marketing and promotional needs to ensure the continued growth of Hawaii's agriculture.

The following are projects approved by the Hawaii Board of Agriculture during FY 2003:

- **Development and Evaluation of Strategies to Manage Closteroviruses, Mealybugs and Mealybug Wilt of Pineapple ($70,000) FY2002**
  Mealybug wilt of pineapple is one of the two most important disease problems affecting pineapple production in Hawaii. The focus of this research continues to strategically reduce the incidence of pineapple mealybug wilt associated virus infected pineapple and therefore improving yield and reducing the probability of mealybug wilt of pineapple. This is the second year of a three-year project.

- **Evaluation of Systemic Acquired Resistance Intermediates PABA and Benzol for Nematode Control on Pineapple ($20,000)**
  Nematode control continues to be an important aspect in the profitable production of pineapple in Hawaii and innovative controls are still needed. This project will evaluate intermediate inducers of Systemic Acquired Resistance for nematode control on pineapple. Greenhouse experiments will be conducted to evaluate the effect of chemical inducers on nematode reproduction and plant growth.

- **Breeding and Selection for Hawaii Coffee with Cupping Quality, Disease Resistance and High Yield ($37,300) FY2002**
  The goal of this coffee breeding and selection program is to produce a unique Hawaiian coffee with increased yield and cup quality and the insurance of disease and pest control. New coffee hybrids have been selected for cupping quality and seedlings were prepared for field trials. This is the second year of a three-year project.

- **Implementing Taro Production and Reducing Disease Levels by Use of Organic Amendments ($20,000)**
  This project will test alternative methods to determine if taro yield can be increased by the addition of soil amendments without the long period needed for crop rotation. The objectives of this project are to evaluate the agronomic effect of soil amendments on yield and to assess whether soil amendments will reduce the levels of disease at harvest.

- **Rambutan Flowering, Fruit Set and Production in Hawaii ($30,000) FY2001**
  Hawaii's rambutan grows in an environment that is significantly different from the traditional growing areas. As a consequence, production in some areas of Hawaii can be erratic due to inconsistent flowering and poor fruit set. This is the final year of a three-year project that will develop rambutan culture and management information on flowering and fruit set and identify varieties with the ability to produce consistently in Hawaii.

- **Anthurium Germplasm Maintenance ($20,000) FY2002**
  The availability of various anthurium varieties permits Hawaii's anthurium industry to meet the changing needs in the global marketplace and access varieties as production problems may arise. This is the second year of a three-year project that will establish and maintain anthurium germplasm in-vitro.

- **Genetic Resistance to Burrowing Nematode in Anthurium ($40,000) FY2002**
  Burrowing nematode is a major pest adversely impacting the anthurium industry. Crop losses occur despite high expenditures on nematicides. With chemical protection under increased scrutiny for safety and environmental concerns, alternative controls are important to research. Breeding new and improved varieties can utilize genetic engineering to place genes for pest resistance into flowers. This is the second year of a three-year project that will continue to employ genes for protease inhibitors as a means to control nematode growth and their rate of reproduction.

- **Macadamia Variety Trials ($5,000)**
  The results from this project will provide the industry with several new high yielding cultivars that produce kernels of superior quality. Further evaluations of three selections will be conducted over a wide range of growing sites. New selections that have a potential for further evaluation will be identified and propagated from seedlings planted in test plots.

- **Evaluation and Control of a New Strain of the Sugarcane Smut Fungus, Ustilago scitaminea, the Biggest Disease Problems for Sugarcane Worldwide ($110,000)**
  In susceptible cultivars, sugarcane smut caused by Ustilago scitaminea can spread rapidly, causing significant yield losses and reduce cane stands to unmillable grassy stalks. This research program will evaluate the variability and thus the likelihood of the appearance of other new strains of the fungus and the need to alter the breeding and control programs for the future. Numerous smut fungal isolates from around the state will be analyzed using amplified fragment length polymorphisms technique.

ADMINISTRATIVE SERVICES OFFICE

Elaine Abe
Administrator

The goals of the Administrative Services Office are to streamline and improve its operations, while providing administrators and program managers with guidance, training and management "tools" to enhance their decision-making capabilities in administering their programs.

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

- Coordinated the Department's Legislative Testimony and Bills during part of the 2003 Legislative Session.
- Developed Interim Procedures for Legislative Testimonies and Bills.
- Developed ASO Program Plan to Compliment the Department of Agriculture's Emergency Preparedness and Response Plan.
- Updated the Emergency Response Telephone Trees, Listing of Disaster Response Coordinators and Workers, and Listing of First Aid Certified Personnel and Kits.
- Implemented a visitor sign-in procedure to the King Street Complex in response to heightened security during the War with Iraq.
- Completed issuing identification badges to all departmental personnel.
- Developed procedures to record homeland security costs and revenue losses related to the War with Iraq.
- Successfully implemented the change from separate Union and Employer Health Plans to One Employer Union Trust Fund.
- Implemented the new EMCP Performance Evaluation and Variable Pay Program for Department's excluded managers.
- Implemented the Department's Workplace Violence Policy.
- Implemented the new Form HRD 1 which replaced three current forms.
- Coordinated movement of DSL lines to terminate at ICSD.
- Assisted in the implementation of the new Agricultural Gateway Web Server.
- Coordinated migration of Requisition/Purchase Order System.
- Installed the SANS at the new Kapalama facilities for Plant Quarantine Branch and Quality Assurance Division Offices.
- Completed networking computers at the Kahului Office on Maui, Hilo Office on Hawaii and Animal Quarantine Holding Facility on Oahu to the State's NGN.
- Modified Animal Quarantine application and forms to accommodate new quarantine programs.
- Reviewed and recommended disposition of 2,111 Animal Quarantine accounts receivable and refund accounts.
- Coordinated departmental responses relating to the Legislative Auditor's Office review of the Department's Revolving and Trust Funds/Accounts.
- Conducted workshop on the State's Executive Budget Process for Department administrators, managers and other budget personnel.
- Completed various capital improvement projects to correct safety concerns and other deficiencies at Department facilities including asbestos abatement, roof repairs and air conditioning improvements at the Kanahoahoa Building, demolition of a caretaker cottage, and improvements needed to make reasonable accommodations for individuals with disabilities.
- Brought Department's vehicle fleet into compliance with the U.S. Department of Energy Alternative Fuel Vehicle (AFV) program.

- Fabricated a trailer for the Chemical/Mechanical program to transport a sprayer for coqui frog eradication activities.

Major projects still in progress include:

- Working with consultants to design and implement on-line system for the Maui Risk Assessment.
- Working with consultants to migrate Agricultural Resource Management Information System and Administrative Services applications from Speed II to APPX.
- Continuing to network all Oahu and neighbor island offices to State's NGN.
- Implementing new two new servers at the Main Office.
- Continuing 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.
- Continuing work on updating and implementing the Department's on-line telephone directory.
- Implementing the HGEA Drug and Alcohol Testing Program.
- Conducting a survey to determine customer satisfaction with personnel related matters.
- Continuing to record fixed assets for the Department in accordance with GASB 34.

Other future projects include developing a Standard Operating Procedures Manual for the department, migration of Animal Quarantine Information System, conducting a workshop for program managers on using the FAMIS reports, implementing in-house printing capabilities for summary warrant vouchers.

AGRICULTURAL DEVELOPMENT DIVISION

Matthew K. Loke, Ph.D.,
Administrator

The Agricultural Development Division assists in the market research, planning, development, and expansion of Hawaii's agricultural industries through market research and promotional events, as well as disseminating a collection of production and marketing information.

MARKET DEVELOPMENT BRANCH

Calvin Lee, *Manager*

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

Trade Shows and Trade Missions

- Sponsored a trade mission to Japan and a reverse trade mission to develop new markets for tropical cut and potted flowers, with support from a grant from the Western United States Agricultural Trade Association.
- Sponsored a Hawaii exhibit at the International Orchid Show in Fukuoka, Japan to develop exports markets for Hawaii orchids.
- Co-sponsored a Hawaii exhibit at the Natural Products Expo West Tradeshow in Anaheim, California to develop new markets for Hawaii natural products.
- Co-sponsored a Hawaii exhibit at the National Restaurant Association Tradeshow in Chicago to develop new markets for Hawaii products.
- Co-sponsored three separate exhibits with the Hawaii Export Nursery Association (HENA) to develop markets for Hawaii's nursery plants. The three exhibitions were at the Tropical Plant Industry Expo (TPIE) Tradeshow in Ft. Lauderdale, Florida, the Nursery/Landscape Expo Tradeshow in Houston, Texas, and the Western Nursery and Landscape Expo in Las Vegas, Nevada.
- Co-sponsored the Mid Pacific Horticulture Tradeshow in Hilo, Hawaii targeting local, mainland, and International trade buyers.

Promotional Materials

- Contracted with a professional photographer to produce photos of agricultural products that will be used in the Branch's promotional activities.

Matching Funds Promotional Contracts

- Hawaii Food Manufacturers Association $150,000 matching funds promotional program for valued added agricultural and food products targeting the local, tourist, and mainland markets has been implemented. The program consists of local trade and consumer events and Mainland trade shows.
- Hawaii Coffee Association $98,000 matching funds promotional program promoted the sales and awareness of all of Hawaii's coffees to trade buyers and consumers on the mainland and in Hawaii. Activities included participation in the Specialty Coffee Association of American Trade Show, coordinating and implementing the Hawaii Coffee Association Conference and Trade Show, and consumer advertising targeting the mainland market.

Local Market Promotions and Activities

- Participated in agricultural trade and consumer fairs and exhibits such as the Lodging, Hospitality, and Foodservice Expo on Oahu; the Made In Hawaii Festival on Oahu; and the Big Island Farm Fair on the Island of Hawaii.
- Directory of Hawaii Agricultural and Food Producers – Updated 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. Contracted with a consultant to develop an online system to have the companies listed on the database update their own files on the Web thereby increasing the accuracy and efficiency of the database. Enhanced the market development section of the website by adding an "Ag Briefs" information bulletin, product availability charts, photos, recipes, and product information.

The Market Development Branch assisted in organizing an exhibit booth at the Produce Market Association Exposition in Orlando, Florida, in October 2003.

Participants in the Hawaii booth included the Hawaii Papaya Industry Association (HPIA) and the Hawaii Tropical Flower Council.

Pictured at the booth is Tom Tjerandsen, export marketing specialist with the HPIA.

More than 700 companies from 24 countries exhibited their products at the event.

- Organized and coordinated the agricultural exhibit at the 2002 Hawaii State Farm Fair.
- Sponsored a promotion of Hawaii grown range fed beef with the Hawaii Cattlemen's' Council and the Royal Hawaiian Shopping.
- Sponsored the Hawaii Agriculture 2002 Conference in cooperation with the Hawaii Farm Bureau Federation, University of Hawaii College of Tropical Agriculture and Human Resources, and the Agricultural Leadership Foundation.
- Sponsored a promotion of locally produced pork featuring the production of brochures, Island Fresh product labeling, and a "Taste of Elegance" chefs' event.
- Updated the Calendar of Events of trade shows, fairs, and festivals that benefit agricultural and food producers and Ag-tourism companies.
- Sponsored a "Buy Hawaii" promotion with Peter Merriman on "Chef's in Paradise" TV program.
- Participated in a committee on "agricultural feasibility" that evolved into a subcommittee of the Agricultural Working Group that will make recommendations for drafting legislation affecting agricultural land use issues.

Mainland and International Market Promotions and Activities

- Co-sponsored, coordinated, and implemented the fourth annual Governor's Exporter of the Year program.
- Coordinated and administered the Western United States Agricultural Trade Association (WUSATA) Market Access Program of the USDA, Foreign Agricultural Service (FAS) that consists of 1) a generic program that included a trade mission to Japan and a reverse trade mission from Japan to establish markets for Hawaii horticultural products, 2) a branded program that assisted Hawaiian companies in developing specific export markets for their products, and 3) an export readiness program that provided Hawaii companies the opportunity of having a one-on-one consultation with an expert on exporting.
- Sponsored a promotion in Michigan of Hawaii products in cooperation with Keith Famie, a noted chef on the Food Network and other media venues.
- Sponsored a promotion of Hawaii products in Ponte Vedra, Florida in conjunction with Hawaii Cooks with Roy Yamaguchi.

- Coordinated a presentation of the finest Hawaiian products for Governor Lingle's visit with President Bush and other high level dignitaries in Washington.
- Participated in an Ad Hoc Committee seeking market development grants from federal and private sources.
- Participated with an inter-division HDOA team to coordinate the implementation of the "Seal of Quality" program for Hawaii agricultural products.

HAWAII AGRICULTURAL STATISTICS SERVICE BRANCH

Donald Martin, *State Agricultural Statistician*

The Hawaii Agricultural Statistics Service (HASS) 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 nearly 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 HASS included data collection, analysis, and timely publication of agricultural statistics for the State. The result of these efforts was a measure of total farm income of $5?? million during FY 2002. Most of HASS data collection efforts were in the diversified agriculture sector that was valued at $3?? million in FY 2002.

Activities during FY 2002 included the following:

- Special breakdown of Big Island coffee.
- 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.nass.usda.gov/sub-forms.htm

MARKET ANALYSIS AND NEWS BRANCH

Matthew K. Loke, Ph.D., *Acting Manager*

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 2003 included the following:

- MANB was awarded a USDA-FSMIP grant for $50,000, in cooperation with the University of Hawaii at Manoa, to study the economic impact of factors such as geographic location, transportation rates and regulations, industry structure, and product selection and differentiation on the competitiveness of selected Hawaii agricultural products destined for mainland domestic markets. The USDA-FSMIP received a total of 72 proposals and 28 projects were funded.
- Assisted in writing, review and editing the study entitled "The Gathering Place of Honolulu," a feasibility study conducted in cooperation with a private contractor to assess the possibility of establishing a "world class" farmers' market in Hawaii.
- Completed a photo catalog of fresh fruits and vegetables that are available at wholesale market in Honolulu. A separate catalog of fresh fruits and vegetables grown in Hawaii was also completed.
- Completed a study on the economic impact of the Waiahole irrigation system on Oahu's agriculture and another study on the outlook for the papaya industry in Hawaii.

- 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

Kevin Yokoyama
Acting Administrator
(January 1, 2003 - June 30, 2003)

Doreen Shishido, *Administrator*
(Retired in December 2002, not pictured)

The Agricultural Loan Division administers the Agricultural Loan Program and the Aquaculture Loan Program. These loan programs provide financial assistance to qualifying entities that are unable to obtain financing through conventional sources. In this role, the division contributes to the growth, development, and well being of the agricultural and aquacultural industries in Hawaii.

The Agricultural Loan Division facilitates the promotion, development, and sustenance of Hawaii's agricultural and aquacultural industries. The funding provided under the division's loan programs serves a range of purposes including expansion of operations, development of infrastructure to improve operations, purchasing of equipment to increase efficiency, and to assist in the recovery from natural disasters through the Emergency Loan program. This assistance helps to sustain and further develop these industries, which continues to provide jobs and income to residents, reduces dependence on imports, and provides green and open space appreciated by residents and visitors to the islands.

While diversified agriculture has been expanding and is an essential industry to the State, agriculture is often viewed as a relatively risky endeavor. In addition to the normal business risks such as economic conditions, competition, and government regulations, farmers face natural disasters like drought, floods, high winds, diseases, and pests. These added risks could preclude loans from conventional lenders. The Agricultural Loan Division bridges this financing gap when conventional lending sources are unable to provide funding. To this end, the division provides funding to borrowers that have been denied loans from conventional lending sources and meet the program's eligibility criteria. The division also can cooperate with conventional lenders to jointly fund loans by minimizing their risks through guaranteed and participation loans, which leverages public and private sector funds.

Fiscal year 2003 was challenging for many businesses, including farming enterprises. The terrorist attack of 9/11 and its lingering impacts, the West Coast dock lockout, and the war in Iraq contributed to a general poor and uncertain economic climate. During this time some farmers appeared hesitant to accept more debt, however, the division did provide funding for farmers on Oahu, Hawaii, Maui, and Kauai. Among the types of enterprises assisted were farm operations that produced tropical flowers, bananas, Asian vegetables, truck crops, organic vegetables, taro, orchids, tropical ornamental fish, and baby vegetables. The division also assisted existing borrowers during the difficult economic period through modification of their loans to accommodate their changing operating situations. Some of the ways in which the division provided assistance was to provide payment relief to better match cash flow and consenting to voluntary liquidation of collateral to reduce debt load.

Currently, the program is faced with a limited funding situation. During the prior year of FY02, $4.8 million was transferred from the program to the State general funds to help balance the budget. Also, $6.39 million in loans were approved under the Agricultural and Aquaculture Loan Programs, and $4.525 million was approved under Acts 78 and 266, passed by the legislature for a special Kauai economic development loan program.

In FY03, another $2 million was transferred to the State general funds. With reduced funding the division is seeking to stretch and leverage available funding through joint lending activities with other lenders. Joint lending activity, including guaranteed and participation loans, have been very minimal in recent years. Contributing to this has been significant changes that have occurred in the commercial lending sector including mergers, acquisitions, and restructuring. This has lead to personnel changes and differences in the way the commercial sector processes and approves loans, including agricultural loans. As it appears that much of the major changes have taken place, this is an opportune time to focus on outreach with the commercial sector to inform of the benefits of lending in partnership with the division. Additionally, since the division has limited funding we are also seeking to leverage our available funds. To better develop the division's network and in an effort to stimulate more joint lending activity an outreach effort has been initiated. As part of the outreach, the division has met with numerous commercial lenders, other government lenders, and micro-lenders to familiarize them with the program.

The program is a self-sustaining entity as it operates from its own revolving fund and has not required annual fund appropriations from the general fund. As a revolving fund, principal amounts collected from loan payments are used to

Below: The division provided funding to enable Ed Miyashita to expand his vegetable farm in Waimanalo, Oahu.

replenish the revolving fund, while interest payments pay for all of the division's administrative and operating costs. The administration of the program is a balancing act, as the division requires reasonable expectation of repayment while also existing to assist those that are unable to obtain financing from conventional sources.

Major highlights for FY03 were the following:

- The division's portfolio as of June 30, 2003 was valued at $22.0 million with 215 loans booked. Of this, $11.9 million was attributed to the county of Hawaii, $4.2 million to the county of Oahu, $3.4 million to the county of Maui, and $2.5 million to the county of Kauai.
- Approved 14 loans for $1.436 million during FY03. Also modified 26 loans to accommodate the changing operating environment and needs of borrowers.
- FY03 collections yielded $3.816 million. Of the collected amount, $1.182 million was in interest and $2.634 million was in principal.
- During this fiscal year, the legislature transferred $2 million from the division's revolving loan funds to the State's general funds to help balance the budget deficit.
- Initiated an outreach effort and made 58 contacts, including 37 commercial lenders, five micro-lenders, and three government lenders.
- Participated in the agricultural economic feasibility group within the department to discuss various issues pertaining to furthering agricultural development in the State.

Below: With the assistance of a loan, Jack Saysiry was able to recover from flood damage to his Waialua, Oahu farm.

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 for 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 2003 included the following:

- The 2003 legislature passed senate bill 1034, which became Act 90. This landmark legislation allows the transfer of agricultural leases from the Department of Land and Natural Resources to the Department of Agriculture. The transfer should provide the farmers with better interaction and service, because the department has a better understanding of the unique requirements that farmer have. The department anticipates the first round of transfers to take place during the summer of 2004.

- Irrigation water was reintroduced into the Lower Hamakua Ditch for the first time in over a year. Due to continuing reconstruction and repairs to the ditch, we were unable to supply irrigation water for an extended period of time. The first group of projects has been completed which has led to increased reservoir storage, a new distribution system, and more efficient and reliable flumes. Improvements to the ditch will continue throughout the year.

- In 2002, the Department of Agriculture received a grant from the Department of Interior, Bureau of Reclamation to begin an agricultural water plan. The grant, in combination with matching state funds, has allowed the completion of the Hawaii Water Plan which will be submitted to Congress in September of 2003. The plan will serve as a springboard to develop the Hawaii Agricultural Water Use and Development Plan which will identify current agricultural requirements and a map for the future.

- The agricultural park program continued to monitor and replace lessees who did not meet the program's objectives and continued to re-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, Kalaeloa, and Kekaha started their farming operations.

- Rental reopenings for Pahoa Agricultural Park, Phase II and Keahole Agricultural Park, Phase II were completed. Kahuku Ag Park had 18 out of 24 lessees submit a Petition to Dedicate Land for Agricultural Use to the City & County of Honolulu. If accepted, the agricultural park farm lots are generally reassessed at a lower value, providing savings for the lessees in real property taxes.

Capital Improvement Projects for FY 2003:

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

- Paauilo Reservoir Lining-construction
- Paauilo Pipeline Replacement-construction
- Phase I Flume Replacement-construction (Lower Hamakua Ditch)

The following projects are ongoing on the Island of Hawaii:

- Phase II Flume Replacement-construction (Lower Hamakua Ditch)
- Phase III Flume Replacement-design (Lower Hamakua Ditch)
- Intake Improvements-design (Lower Hamakua Ditch)
- Honomalino Watershed (South Kona)-planning

The following projects are ongoing on Maui:

- Upcountry Phase II (main line extension-construction)
- Upcountry Phase III (main line extension, Kimo Road lateral, and Pulehuiki/Kamehamehaiki lateral) - design
- Lower Kula Watershed Project - planning

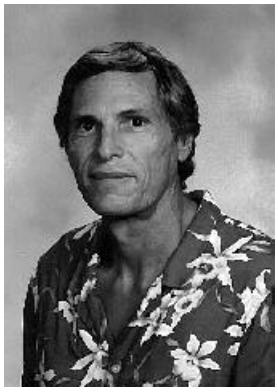
The following project was completed on Molokai:

- ADA improvements to Molokai Irrigation System office.

The following projects are ongoing on Kauai:

- East Kauai Irrigation System - design
- Design/Build Project for Portable Power Generators - construction

ANIMAL INDUSTRY DIVISION



James Foppoli, Ph.D., D.V.M.
Administrator

The mission of the Animal Industry Division is to protect Hawaii's livestock and poultry industries and the public health through the prevention of disease introductions and the detection and control of 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. The primary focus of the division is shifting from mandatory to voluntary disease surveillance and control programs in support of the livestock industry; however public health and environmental programs aimed at preventing the introduction of rabies virus and West Nile virus into the State are important ancillary functions. The development of methods to insure rapid and appropriate response to incursions of highly contagious diseases, such as foot and mouth disease, is a division priority.

Hawaii's statuses for State-Federal Cooperative Disease Control Programs are:

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.

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. Mad cow disease has adversely impacted the cattle industry in many countries worldwide and may cause human disease. Measures to support public health, the horse industry, and Hawaii's endangered avifauna were implemented during FY03 to address the threat of West Nile virus introduction.

The Division received a Homeland Security grant of $68,000 for emergency preparedness and response activities. Much of the grant was used for the development of the Animal Health Emergency Management System, an internet-based mapping system for Hawaii livestock and poultry with associated informational databases. The mapping program was near completion at the close of FY03.

ANIMAL QUARANTINE BRANCH
Isaac M. Maeda, D.V.M., *Program Manager*

On June 30, 2003, rule amendments were implemented that provided a 5-day-or-less rabies quarantine option for qualified dogs and cats in addition to 30-day and 120-day programs which remain in effect for pets that do not qualify under the new rules. Significant in the 5-day-or-less program is the provision for qualifying dogs and cats to be released directly at Honolulu International Airport. Fees for the five-day-or-less program are $165 if the pet qualifies for direct release from the airport and $224 if the pet must be held for up to five days in quarantine. The cost of the 30-day and the 120-day quarantine programs remains unchanged at $655 and $1,080, respectively.

In contrast to the 120-day program, the reduced 30-day and new 5-day-or-less programs rely heavily on staff and computerized data bases to monitor and verify information relevant to qualification. The Department also maintains a website dedicated to Hawaii's rabies quarantine program. The Department's interactive website contains all of the information and forms relating to quarantine and the importation of cats and dogs. Pet owners may access pre-arrival rabies test results, 30-day and 5-day-or-less quarantine-eligible dates, as well as download relevant forms and information. Checklists for both the 30-day and 5-day-or-less programs are at the site to assist pet owners with preparing their pets to qualify for these reduced quarantine options. Under the 5-day-or-less program, pets may be released at Honolulu International Airport if they complete pre-arrival requirements, which 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 18 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 no less than 10 days prior to the pet's arrival.

Pet owners who do not submit the required documents upon arrival will have their pets held in quarantine for up to five days or until all requirements are completed and documents submitted. In addition, the program also allows Hawaii residents to travel with their pets and return to the state without quarantine if they follow the specified procedures before they leave.

Since the new 5-day-or-less rabies quarantine program became effective, approximately 53 percent of the 1,203 pets that have entered the state from June 30, 2003 through August 31, 2003 have qualified for the program. Of the 732 pets that qualified under the 5-day-or-less program, 636 pets (86 percent) qualified for direct release upon arrival at Honolulu International Airport.

Quarantine statistics for animals arriving between June 30 and August 31, 2003

Program	Cats	Dogs	Total	Percent In Program
120-Day	105	182	287	24%
30-Day	81	103	184	15%
5-Day-or-Less	36	60	96	8%
Airport Release	254	382	636	53%
Total Entries			1,203	100%

During FY03, the portion of quarantined dogs and cats undergoing 30-day quarantine was 69 percent. The average daily population was 620 animals with a range of 443 to 747 animals occupying the quarantine station at any given time during FY03. Active duty, military pets comprised approximately 34 percent of quarantined dogs and cats, similar to prior years.

The total number of animals completing quarantine increased slightly for FY03 compared to FY02 from 4,681 to 4,771 animals. In addition to the 4,325 animals completing quarantine, 446 dogs and cats spent varying lengths of time at the quarantine station while transiting to other destinations.

In addition to rabies exclusion, the quarantine program continues to monitor dogs carefully for ticks exotic to Hawaii. No exotic ticks of medical importance were discovered during FY02. *Rhipicephalus sanguineus* the brown dog tick is currently the only tick established in Hawaii associated with dogs.

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 have serious economic impact on the state and nation's livestock and poultry industries, some of which 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 continues its westward spread across the North American continent. In each year since first appearing in New York in 1999, West Nile virus has infected mosquitoes, birds, horses and humans as it spread westward, each year infecting a new adjacent section of the country. This year the intermountain and northern plains states have the highest incidence with spread occurring into the states west of the continental divide and as far west as California. Given this pattern of movement the West Coast is expected to have the highest incidence in 2004, placing Hawaii at its highest risk since West Nile's first appearance in North America in 1999.

  A working group of pertinent scientific and regulatory personnel from Department of Agriculture, Department of Health, Department of Land and Natural Resources, U.S. Fish and Wildlife Service, U.S. Geological Survey and the University of Hawaii continue to monitor for the disease and implement preventive measures in an effort to preclude the entrance of the virus into Hawaii. The department continues to work with the U.S. Postal Service to embargo the movement of birds through the mail, thereby allowing inspection of all shipments entering the state. Susceptible species of birds prior to entering the state are required to be isolated in a mosquito-proof environment, under veterinary supervision, immediately prior to entry. These efforts along with Hawaii's geographic isolation work to reduce the risk for West Nile virus to enter Hawaii.

- **Newcastle's Disease**
  Outbreaks of Newcastle's Disease occurred in the Western and Southwestern U.S. in October 2002 with foci in California and Texas. The outbreaks were suspected to be caused by the illegal international movements of gamecocks. The outbreak involved 19,146 premises in the states of California, Nevada, Arizona, New Mexico and Texas. Twenty-two commercial operations were involved in the outbreak. The outbreak resulted in 2,328 premises being completely depopulated, most in California.

  Hawaii had good control over the movement of poultry and birds into the state during the outbreak as a result

of the Postal Service embargo and permit system it had in place for West Nile virus. Poultry and birds from affected counties and buffers around these counties were denied entry into the state during the outbreak.

- **Bovine Tuberculosis**

Bovine Tuberculosis free status maintained

Bovine tuberculosis 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 maintains its Bovine Tuberculosis Free Status. However, the State continues to monitor cattle herds and wildlife on the east end of Molokai where bovine tuberculosis has been a persistent problem for the past 63 years. The last infected cattle herd was located on the east end of Molokai and was depopulated without spread in 1997. Since then annual herd tests that have been conducted on all of the east end cattle herds has detected no new cases of bovine tuberculosis.

A hunter assisted survey of wildlife began in 1998 on Molokai to monitor the prevalence of bovine tuberculosis in axis deer, feral swine, feral goats and mongoose. Since 1998, 447 axis deer, 426 feral swine, 69 feral goats and 183 mongoose have been tested for bovine tuberculosis. Five feral swine have been found infected with bovine tuberculosis, the most recent in June 2003. All of the infected feral swine have been caught at or adjacent to Ualapue, where the 1997 infected cow was found.

To prevent the potential spread of bovine tuberculosis from the east end of Molokai, all cattle east of Kamalo, Molokai are required to have an annual negative bovine tuberculosis test or be tested negative within 30 days prior to movement out of the area. All herds are in compliance with these movement and test requirements. In addition, a quarantine of feral swine disallowing their movement east of Kamalo is also in place to prevent the potential spread of bovine tuberculosis infected feral swine from the area.

- **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.

During the fiscal year, 8,332 cattle were tested which resulted in two (2) suspects being found. Epidemiological investigations found no evidence of herds infected with bovine brucellosis. Supplemental testing, epidemiological investigations and herd tests found no evidence of Brucella abortus infections. Hawaii has been officially classified free of brucellosis since 1983. Infrequent suspects and reactors have been found to be caused by Brucella suis, which rarely affect cattle, or Yersinia enterocolitica infections. Brucella suis, which causes brucellosis infections in swine, has been found to occasionally affect cattle causing a self-limiting, subclinical infection. The cattle testing positive originated in areas where they have contact with feral swine known to be infected with Brucella suis. Due to the self-limiting nature of Brucella suis in cattle, no quarantines or other control actions were deemed necessary to address these findings. Self-limiting gastrointestinal infections with Yersinia enterocolitica has also been determined to cause false positive responses to the Brucella abortus surveillance serological tests.

- **Swine Brucellosis & Pseudorabies**

Hawaii maintains free statuses for Swine Brucellosis and Pseudorabies

Brucellosis in swine is caused by the bacteria Brucella suis. Infected swine experience reproductive failures including abortion and infertility. Brucella suis can cause serious infections in man.

Hawaii retained its free status for swine brucellosis despite finding and depopulating two herds found infected on Oahu. On farm surveillance and diagnostic testing discovered one farm on the North Shore and one in Windward Oahu infected. Epidemiological investigations found contact with infected feral swine to be the likely cause of these infections. The herds had no epidemiological relationship with each other. The investigation found no evidence of spread from these herds. Both herd owners have no plans to repopulate their herds.

Feral swine in the 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 the testing of all sows and boars over 6 months of age at slaughter annually, 25 percent of the herds in the state are randomly selected and tested to determine their status. In addition, all swine over 6 months of age, at slaughter, are tested for surveillance purposes. During FY 2003, 1,866 domestic swine and 59 feral swine were tested for surveillance purposes.

Pseudorabies, a viral infection of swine, causes respiratory disease and reproductive failure. Pseudorabies can cause an acute fatal disease to other species but does not affect man.

Surveillance testing of 1,866 swine during fiscal year 2003 found three (3) infected domestic swine. All of

the infected domestic swine were from one farm on the Windward side of Oahu that was depopulated because of being concurrently infected with swine brucellosis. Infection was traced to exposure to infected feral swine. Area and contact testing found no spread.

An additional 59 feral swine were tested with six (6) from the islands of Oahu and Hawaii testing positive. Feral swine on the island of Hawaii, Maui and Oahu are known to be infected with pseudorabies. Infected feral swine populations serve as a constant threat for infection of domestic swine populations.

A quarantine remains in effect that disallows the introduction of feral swine into domestic herds and also disallows the inter-island movement of feral swine. Historically, all domestic herds found infected with pseudorabies or swine brucellosis in the state have been traced to exposure with infected feral swine.

- **Transmissible Spongiform Encephlopathies**
  Scrapie
  Scrapie is a transmissible, insidious degenerative disease affecting the central nervous system of sheep and goats.

  Hawaii continues to be recognized as consistent with the USDA, Voluntary Scrapie Certification Program Standards. A State Scrapie Certification Board is in place to oversee the program which certifies goat and sheep flocks within the voluntary program. Scrapie has never been diagnosed in any goat or sheep flocks in Hawaii. Interstate movement requirements were put in place that requires that all female sheep moving interstate or to shows are identified back to their flock of origin with the use of official government approved ear tags.

- **Bovine Spongiform Ecephalopathy (BSE)**
  FDA regulations prohibiting the feeding of ruminate containing feed, to ruminates, is in place in Hawaii and throughout the nation. No cases of BSE have ever been found in the US. Surveillance for BSE is in place nationwide. For surveillance purposes, Hawaii investigates and submits brain samples from any cattle showing signs of neurological disease for BSE testing.

Scrapie Flock Certification Inspection

- **Voluntary Johne's Disease Herd Certification Program (VJDHCP)**
  During FY 2003 Hawaii was officially recognized by USDA as having an approved VJDHCP. The division participated with the dairy industry and the VJDHCP State Committee to conduct herd risk assessments, develop herd plans and conduct herd testing on the state's dairy industries. During the fiscal year 851 head of dairy cattle were tested for Johne's. The VJDHCP goal is to implement disease control measures to reduce and eliminate Johne's disease from cattle herds and conduct annual surveillance to verify a free status once it is achieved in the state's herds.

- **Importation/Exportation of Livestock, Poultry and Other Animals**
  An embargo placed on the movement of poultry and other birds through the U.S. Postal Service in September 2002 remains in place to prevent the entry of West Nile virus from entering the state through infected birds.

  Inspected and approved for entry into the state: 22,367 head of livestock, 8,644 poultry and other birds, 249,664 day-old chicks, 5,137 cases hatching eggs, 7,219 dogs and cats and 11,439 other animals.

  Conducted a total of forty nine (49) compliance investigations resulting in fourteen (14) citations being issued. Issued 170 written warnings and refused entry on 128 animal shipments not meeting entry requirements.

VETERINARY LABORATORY BRANCH
Crane Hahn, D.V.M., *Program Manager*

The Veterinary Laboratory provides diagnostic and surveillance testing to support the Livestock Disease Control Branch, Animal Quarantine Branch, and other governmental agencies as well as private ranchers and farmers. The laboratory receives and tests a variety of animals and animal specimens for disease diagnosis. The veterinary laboratory is certified to perform diagnostic test for diseases of both economic and public health importance such as brucellosis, anaplasmosis, pseudorabies, equine infectious anemia, bluetongue, porcine respiratory and reproductive syndrome, and Johne's disease. Timely and accurate detection of animal diseases ensures to maintain and improve the general health and well-being of livestock and poultry in Hawaii.

During FY 2003, the laboratory processed approximately 25,000 animal specimens with more than 60 percent (15,435) samples originating from livestock in support of the Livestock Disease Control Branch's activities including cooperative disease surveillance program with USDA. Pathological cases (87 cases) have remained relatively constant since FY 2002 with the majority from recently imported animals.

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 division 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 2003 included:

- Continued the implementation of the amended Chapter 190D, HRS, Ocean and Submerged Lands Leasing law by facilitating the approval process for five additional aquaculture leases by the Department of Land and Natural Resources.

- 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).

- Completed federal grant to evaluate open ocean aquaculture sites using GIS and regulatory processes, in collaboration with the UH Sea Grant College Program and the Office of Planning, Department of Business, Economic Development and Tourism.

- Participated in the governing boards and advisory committees of: the Pacific Marine Aquaculture Center, 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, University of Hawaii Sea Grant College Program, and Hawaii Aquaculture Association.

- Assisted with permits for species importation and siting for farmers on Oahu, Kauai, Maui and Hawaii.

- Co-chaired the Marine Ornamentals 2004 Conference Organizing Committee, as well as Finance Program, Marketing and Publications Committees. This international conference, the third in a series originating in Hawaii, will be held in March 2004 at the Hawaii Convention Center.

- Promoted the consumption of aquaculture products by participating in the State Farm Fair, Made in Hawaii Exposition, Sam Choy's Poke Contest, the Hotel and Restaurant Expo, and the Taste of Aquaculture Festival. Worked with television, radio and print media to place stories and promote the industry. Also, worked with industry association to secure grant to develop promotional video. Continued electronic bi-monthly newsletter, Aquaflashes.

- Carried out for aquatic animal health management over 100 field trips and analyzed 300 case submissions, and provided animal health consultation services to producers and research organizations, statewide, including conducting workshops on disease diagnosis and prevention. Revised the official State certification procedures and documents to reduce any possibility of forgery in overseas markets.

- Received a continuation grant from the USDA for research in disease management for the Hawaii aquaculture industry.

- Co-funded statewide technical extension services to the aquaculture industry, in cooperation with the UH Sea Grant Extension Service leveraging over $200,000 in matching funds through the project.

- Provided technical reviews of research proposals to the UH Sea Grant College Program, U.S. Department of Commerce, U.S. Department of Agriculture, and the Pacific Tropical Ornamental Fish Program (PTOFP). Also assisted in organizing the proposal solicitation and review process for the third year of the PTOFP program, which distributed over $600,000 in grants.

- Served on the Board of Directors and provided assistance to the Hawaii Aquaculture Association (HAA) in the areas of meeting and conference development and execution, grant writing and promotion through the annual Taste of Hawaii Aquaculture reception.

- Contributed three technical papers to the Annual Conference of the Hawaii Aquaculture Association. Prepared White Paper on Open Ocean Aquaculture in Hawaii for use by the department. Gave presentation at PACON Ocean Day 2003.

Craig and Carol Schmarr farm one of the truly unique animals of the ocean – sea horses. Ocean Rider, located at the Natural Laboratory of Hawaii Authority in Kailua-Kona, is a world leader in captive-bred sea horses.

Many of the sea horse varieties grown by Ocean Rider are considered to be on the edge of extinction. Sold direct to consumers worldwide via the Internet, Ocean Rider is a model of cutting edge and conservation-minded aquaculture business (see website: www.oceanrider.com).

PLANT INDUSTRY DIVISION

Lyle Wong, Ph.D.
Administrator

The Plant Industry Division consists of three branches, the Pesticides Branch, 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.

Three of the major activities of the program in FY 2003 were as follows:

Biotechnology Monitoring

In January 2003, pesticides program staff participated with Environmental Protection Agency (EPA) staff in inspecting seed corn companies producing genetically modified corn pursuant to experimental use permits issued by EPA. These inspections were part of a second round of inspections after EPA initiated and settled enforcement actions with Mycogen and Pioneer. Increased federal activity in monitoring biotech crops is expected. The Pesticides Program considers plants with genes from other species that control pests to be treated articles and does not regulate them. Activities in biotechnology monitoring falls under EPA authority and utilizes EPA funds.

Ground Water Review Procedure Being Reassessed – Progress Report

Pesticides user concerns about the ground water protection program resulted in a reevaluation of how the program is being implemented. The Hawaii Department of Agriculture has been using a risk assessment procedure to assess potential of pesticides to leach to drinking water that includes the following steps:

- Label and data review for the following risk factors:
  - Review of the pesticide use pattern for applications to the soil (soil fumigants applied to control nematodes, herbicides applied to the soil to prevent weed seeds from germinating, and ground treatments for termites);
  - EPA approved label advisories or restrictions based on potential to contaminate ground water:
  - Pesticide persistence (half-life) and mobility (solubility, affinity for organic carbon) and using a geographic information system with model using soil and chemical properties to map leaching potential in areas of potential use;
  - Magnitude and extent of potential use.
- If the label and the data suggest that the pesticide may leach, an additional step is taken to provide data summaries provided by the manufacturer, the label on potential use practices and other information to the University of Hawaii for an recommendation on potential regulatory actions.
- Consult with user groups on potential benefits of the new chemicals.

This procedure has developed since 1987, when the Hawaii Pesticides Law was changed to require the Department of Agriculture to determine if unreasonable adverse effects exist when the use of a pesticide will result in the detection of residues in drinking water.

Model development and fieldwork over the past decade has provided much information on pesticide fate in the environment. Some newer pesticides have not been licensed in the State due to potential to leach to drinking water sources.

Since many of these newer pesticides are considered safer to people, the Department of Agriculture has awarded a contract to the Water Resources Research Center to determine the environmental fate of some of the newer pesticides and to make recommendations on the current decision making process used by the pesticides program.

Fieldwork has been completed at five sites (Waimanalo, Poamoho, Kunia, Maui, and Kauai). Cooperators included the University of Hawaii Experiment Stations at Waimanalo, Maui (Kula) and Poamoho, Pioneer Research, Kauai (Mana Plains) and Hawaii Agriculture Research Center, Kunia. Over one thousand (1000) samples have been collected and will be analyzed by the Department's Chemical Analyses Laboratory at the Kamauleule Building at Waimano Home.

Dioxin Laboratory Set Up at the University of Hawaii Manoa

Using funds made available by the U.S. Environmental Protection Agency to develop phytoremediation technologies and the Pesticides Use Revolving Fund, the University of Hawaii, College of Tropical Agriculture and Human Resources, Molecular Biology and Biochemical Engineering Department established a laboratory with the capability to analyze samples for dioxin compounds. The laboratory is important for testing soils from old sugarcane herbicide mixing sites to assess the presence and appropriate mitigation measures for dioxin compounds.

PLANT PEST CONTROL BRANCH (PPC)
Larry M. Nakahara, *Manager*

The primary function of the Plant Pest Control 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 organism harmful to plants, by utilizing chemical, mechanical, biological, and integrated control measures. It also certifies the genetic purity of seeds grown in the State, an activity that is being transferred to the Quality Assurance Division. The Branch consists of the Biological Control and Chemical/ Mechanical Control Sections.

Some of the activities of the Branch during FY 2003 included the following:

New Pest Detection and Identification

- Identified 187 samples of insects and other organisms from which 31 specimens were processed and added to the Branch's Zoological Reference Collection. The collection now contains approximately 165,900 specimens. In addition, 39 samples of insect specimens intercepted by the Plant Quarantine Branch were identified and 190 calls regarding various pests were received from the general public and processed.

- Recorded six new immigrant insects in Hawaii during FY 2003. The first four species listed have the potential to become significant plant pests if not suppressed by biocontrol agents. The twig borer may only attack plants or portions thereof that are not in good health, while the giant flower beetle appears to be harmless to plants.

- **A thrips**, Dolichothrips indicus (Hood) (Thysanoptera: Phlaeothripidae). USDA-APHIS-PPQ inspectors made several interceptions of this thrips from gardenia and guava being taken out of Hawaii during 2001 and 2002. The origin of this species is India. It is also known from Trinidad, Puerto Rico, other islands in the Caribbean, Florida, and eastern Brazil. Hosts recorded in literature include avocado, eggplant, litchi, lemon, melon, Momordica, and Piper.

- **A banyan leaf tier,** Choreutis sp. (Lepidoptera: Choreutidae). Larvae of this moth were first discovered in March 2001 at Pauoa on Oahu, hidden within leaf rolls on banyan trees. The caterpillars tie the edges of the leaves with silk to create the roll. It is the first member of the family Choreutidae to be found in Hawaii. Choreutid larvae are mostly leaf-tiers. Adults are active during the day.

A banyan leaf tier caterpillar exposed in leaf roll. The caterpillar ties the edges of a banyan leaf to create a protected site in which to feed and pupate.

- **Nesting whitefly,** Paraleyrodes minei Iaccarino (Homoptera: Aleyrodidae). Specimens of this tiny whitefly were collected from red hibiscus in the Pawaa area of Honolulu in April and May 2003. Nymphs of this whitefly appear to create "nests" by producing and spreading white flocculent silken material around itself on both the upper and lower leaf surfaces. This whitefly is commonly known as the nesting whitefly in California, where it is a pest of avocado. Whiteflies in general feed on plant sap and excrete honeydew, which collects dust and supports the growth of sooty mold. The honeydew also attracts ants that interfere with biological control.

- **A wiliwili seed beetle**, Specularius impressithorax (Pic) (Coleoptera: Bruchidae). Specimens of this beetle were first collected from seed pods of wiliwili, Erythrina sandwicensis Degener, on Maui in April 2003. This bruchid was later found to be present on most of the major Hawaiian Islands. Larvae have been found boring within the wiliwili seeds. Emerging adults create exit holes in the pods. Heavy damages to seeds have been observed.

- **A branch and twig borer,** Heterobostrychus hamatipennis (Lesne) (Coleoptera: Bostrichidae). Specimens of this beetle were collected from a dead branch of a mango tree at Kalihi on Oahu in June 2003. T. Guerrero submitted the specimens to A. Samuelson of the Bishop Museum, who made the species determination.

- **A giant flower beetle,** Protaetia orientalis (Gory and Percheron) (Coleoptera: Scarabaeidae). Adult specimens of this large beetle were collected on Oahu at the Hickam Air Force Base Mamala Bay Golf Course in November 2002. Each beetle measures 2 centimeters long, which is twice the length of the mango flower beetle, P. fusca (Herbst), that is commonly found in Hawaii. The beetles were resting or congregating on the underside of leaves or near branch tips of kou-haole, Cordia sebestena L., also known as Geiger tree. Since this was the only plant on which they were observed, it may be that they are attracted to the flowers of the kou-haole tree for its nectar or pollen. There were no signs of foliar damage on these trees so the adults, like those of the mango flower beetle, may not be herbivores. However, the beetle may become a nuisance because its large size, rapid and erratic flight pattern, and loud buzzing sound during flight may alarm people.

Projects of the Branch's Biological Control Section included the following during FY 2003:

- **Yellow Sugarcane Aphid** [Sipha flava (Forbes)]. Production of the yellow sugarcane aphid (YSA) parasitic wasp, Lysiphlebus ambiguus (Haliday) (Pakistan biotype), declined to low levels in the Hilo Insectary. Conditions contributing to the decline included invasion of rearing cages by ants, contamination of potted sorghum host plants by other aphids, chlorosis of host plants due to causes not yet determined, and lack of time to address the various problems because of changing project priorities. Despite the continuing difficulties, upsurges in production during some months of the year enabled shipments to be made to Kauai for a final attempt to get this YSA parasitoid established on that island.

Giant flower beetle adult measuring ¾ inch in length. Specimens of this large beetle were found on kou-haole trees at Hickam AFB in November 2002.

During the previous two years, several recoveries were made on the islands of Hawaii and Maui. In April 2003, a survey of pastures near Pukalani, where L. ambiguus had been released earlier, revealed a high rate of parasitism by the YSA parasitoid. The significance of this is that it was the first observed incidence of such a high level of parasitism of YSA on Maui. During the past year, 10 releases, consisting of a total of 30,770 adults, were made on Maui (3) and Kauai (7). From FY 1998 through FY 2003, more than 500,000 adults were released, mostly in pastures on the islands of Hawaii and Maui, but also in sugarcane fields on Kauai. Propagation of this YSA parasitoid will be terminated.

- **Citrus Leafminer** [Phyllocnistis citrella Stainton]. The citrus leafminer (CLM), which appeared to be a very serious threat to all citrus in Hawaii when it was first found on Oahu at Waimanalo in June 2000, is now a pest of little significance. This was the result of the fortuitous introduction of its primary natural enemy, Ageniaspis citricola Logvinovskaya. This encyrtid wasp apparently arrived in Hawaii in association with CLM infestations on potted citrus plants.

Although the CLM inflicted a great deal of damage to citrus plantings on Kauai during the past two years, its damage is not readily observed at present. Thus, it has become very difficult to collect the parasitoid on Kauai, as well as on Oahu, for shipment to the neighbor islands. Fortunately, CLM infestations were still active on Maui, where A. citricola could be readily collected for shipment to the Hilo Insectary. The pupae were held for adult emergence and subsequent field release on CLM-infested citrus trees. The first detection of the CLM on the island of Hawaii was made in a grapefruit orchard at Kohala Ranch on June 28, 2002. Shortly thereafter in mid-July, 270 A. citricola pupae were collected on Maui at Lahaina and shipped to the Hilo Insectary from where 220 of the emerging adults were transported to Kohala Ranch and released.

As residents became aware of this pest and its damage, infestations were reported, during July

through December, from several districts around the island, including Puna (Hawaiian Paradise Park, Kurtistown), South Hilo (Waiakea, Pepeekeo), Hamakua (Honokaa, Waipio Valley), North Kohala (Hawi), South Kohala (Kawaihae), and North Kona (Keahole, Kaloko, Honokahau, Kailua). A total of 12 releases, amounting to 4,434 A. citricola adults, were made in those localities during that period. Adults that emerged from pupae collected on Maui, supplemented by those from Oahu collections, were vital to the control effort during the earlier part of FY2003.

In November 2002, confirmation of the establishment of A. citricola was made at the Kohala Ranch site and it began to serve as a reservoir for parasitoid collection. As reports of CLM infestations diminished as a result of excellent biocontrol, the final releases of A. citricola adults were made in remote, isolated localities during late-January 2003 (200 at Kalapana in Puna and 120 at Waipio Valley in Hamakua) and early-February (285 at South Point in Ka'u).

Nettle Caterpillar [Darna pallivitta Moore]. Propagation of the nettle caterpillar continued in the HDOA Insect Quarantine Facility in Honolulu, as well as in the Hilo Insectary. However, a disease infection of the Hilo colony resulted in the termination of propagation at that facility in September 2002. The original infestation at Panaewa extended its range across Volcano Highway to a flower and foliage nursery. New host records at that site included Curculigo capitulata (whaleback), Monstera deliciosa, Alpinia purpurata (red ginger), and Phlebodium aureum (hare's foot fern, laua'e haole). After a period of disinfecting, a new colony was established in the Hilo Insectary with eggs provided by UH-Manoa CTAHR-PEPS researchers in Hilo. The larvae appeared to be doing well on Rhapis palm plants. The colony is being maintained to produce eggs and larvae that will be set out in the field to detect parasitoid activity. In May 2003 at Panaewa, during an investigation of a report about minor expansion of the known range of the nettle caterpillar, larvae were found feeding on Canavalia cathartica (maunaloa). This discovery is significant because maunaloa is the first dicot plant in Hawaii to be confirmed as a host plant. All previous sightings were on monocots. Several dicot species have been identified as hosts of D. pallivitta in its native region.

Entomologist Walter Nagamine releasing parasitic wasps to control infestations of the giant whitefly

- **Giant Whitefly** [Aleurodicus dugesii Cockerell]. Heavy infestations of the giant whitefly (GtWF) were discovered on red hibiscus at Honolulu International Airport in late-May 2002. Subsequent surveys disclosed heavy infestations in the adjacent Mapunapuna industrial area and lighter infestations in the Salt Lake residential area. At several sites, large numbers of Encarsia guadeloupae Viggiani, were found parasitizing GtWF nymphs.

  This parasitic wasp was introduced from Trinidad in 1980 for biocontrol of the spiraling whitefly (SWF), A. dispersus Russell, a close relative of the GtWF. Although they are similar in size and lay their eggs in a spiral pattern, they are easily differentiated on the bases of some physical characters. Mature GtWF nymphs have a grayish brown color in contrast to the white SWF nymphs. The wings of the GtWF adults have brownish patches like camouflage and are held tent-like when at rest instead of being typically white and held flat over the back like those of the SWF. Also, the waxy, tubular secretions of the mature GtWF nymphs elongate and appear like whiskers, while those of the SWF form curls.

  The GtWF, native to Mexico, was found in California in 1992 and in Florida in 1996. In July 2002, heavy infestations were detected on red hibiscus in neighboring localities at Hickam Air Force Base, Kalihi, Moanalua, and Alewa Heights. In early-January 2003, a heavy GtWF infestation was found on plumeria trees near Moanalua Gardens.

  Large numbers of ladybird beetles, primarily the three species introduced from the West Indies for SWF biocontrol, were observed feeding on GtWF nymphs, but there was only a trace of parasitoid activity. By the end of January, GtWF infestations were commonly observed in the Downtown Honolulu area, especially on Citharexylum spinosum (fiddlewood), a currently popular ornamental tree favored by some horticulturists despite its potential for invasiveness. Heavy infestations were annoying Chinatown shoppers and shopkeepers.

Other less favored hosts included Turnera ulmifolia (yellow alder), Hibiscus tiliaceus (hau), and Thespesia populnea (milo). A very interesting occurrence was the confirmation of a report of a very heavy GtWF infestation on fiddlewood at a Kaneohe residence because it was the only confirmed infestation on the windward side of Oahu at that time. Several other infestations were found later. At this time, it appeared that the SWF biocontrol agents, despite their earlier success in suppressing GtWF infestations on red hibiscus, would not be effective enough to maintain the GtWF population density at manageable or tolerable levels. Thus, preliminary contacts were made with biocontrol officials in California for assistance because they had introduced two species of parasitic wasps from Mexico for GtWF control. By March, GtWF infestations on Oahu had dispersed eastward to Makiki and westward to Waipio.

New reported hosts included avocado, citrus, and guava. On March 25, 2003, a major breakthrough occurred when Idioporus affinis LaSalle and Polaszek was discovered at Waimalu. This pteromalid wasp apparently arrived in Hawaii in association with the GtWF on infested host plants and was not detected until its population density increased. I. affinis was collected amid GtWF infestations by a California entomologist in Mexico at Guadalajara in 1997. On Oahu in April, surveys indicated that I. affinis was starting to increase in numbers and distribution. It was found to be parasitizing GtWF nymphs on red hibiscus hedges at Kapolei, Kalihi, and Pawaa. From April through June 2003, 57 releases, totaling 33,720 I. affinis adults, collected from fiddlewood, first at Waimalu and later at other localities, were made at various release sites in Honolulu from Moanalua to Waikiki. New GtWF hosts included bauhinia, coconut, and naupaka.

- **Koster's Curse** [Clidemia hirta (L.) D. Don]. Periodic collections of clidemia berries, infested by the clidemia fruit-feeding caterpillar, Mompha trithalama Meyrick, and also by the clidemia flower-feeding caterpillar, Carposina bullata Meyrick, are being conducted in East Hawaii on a time-available basis. From November 2002 through January 2003, the Operation Miconia Crew collected green clidemia berries from infestations near the University of Hawaii Geothermal Well at Pohoiki in Puna. This is the most favorable collection site where releases of this species had been made in late-February and throughout March 1999, and where the initial recovery had been made in April 2000. The collected fruit were held in cages in the Hilo Insectary for adult emergence. The moths usually emerged and were released during the following month. Portions of some collections were immediately sent to cooperators in South Kona and on Molokai. Adults emerging from the Pohoiki collections were released in December on Molokai at Kainalu (158) and on Hawaii at Kaumana (40) just above Hilo. Releases in February were made on Hawaii at Kukuiopae in South Kona (385), Kurtistown (165), and Kaumana (12), but data were not received from the Molokai cooperator for later releases made at Kainalu. HDOA Hilo personnel made a collection at Pohoiki in March, which resulted in releases during April in the West Maui Watershed (200) and on Hawaii at Hawaiian Acres in Puna (50), Ainaloa Estates near Pahoa (120), Kipahoehoe in South Kona (80), and Kaumana (50). Collection and distribution of both clidemia biocontrol agents will continue.

- **Gorse** [Ulex europaeus L.]. The cooperative project with Manaaki Whenua Landcare Research New Zealand to introduce another gorse biocontrol agent, Cydia succedana Denis and Schiffermuller, commonly known as the gorse pod moth, into Hawaii for further suppression of gorse infestations has been initiated. Seeds of three Fabaceae (legume) species were sent from the Hilo Insectary to the New Zealand cooperator in July 2002 for propagation in pots in the greenhouse and subsequent use in host specificity testing of this seed-feeding caterpillar. In the United States Forest Service greenhouse at Hawaii Volcanoes National Park, gorse seedling germination studies are being conducted to quantify the effects of various control strategies, including biocontrol and burning.

  Data collection in the gorse experimental plots at Humuula on the slopes of Mauna Kea was initiated in December 2002. Beginning in early-February 2003, host plant cuttings were shipped from Hilo to New Zealand for host specificity testing of C. succedana as planned.

  On Maui, surveys of gorse at Haleakala National Park in early July 2002 revealed a resurgence of gorse biocontrol agents that resulted from the flushing of gorse following recent heavy rains. The gorse seed weevil, Exapion ulicis Forster, was very abundant. Approximately 75 percent of the seeds within the gorse seed pods sampled were damaged. The gorse defoliator, Agonopterix ulicetella (Stainton), was observed in low numbers, but this was normal for this species during the months following the annual spring population explosion. Although the gorse mite, Tetranychus lintearius Dufour, was limited in distribution during the earlier surveys, an upsurge of its population during August 2002 resulted in reports of moderate damage from Maui collaborators.

Ivy Gourd [Coccinia grandis (L.) Voigt]. Insectary propagation of the ivy gourd leafmining weevil, Acythopeus cocciniae O'Brien, had been terminated in April 2002 to devote more resources to the

propagation of the ivy gourd gall weevil, A. burkhartorum O'Brien. However, the continued emergence of adults from the final few propagation cages prolonged the release of A. cocciniae until early September. During July and August 2002, 6 releases, totaling 923 adults, were made on Maui at Waiehu, Wailuku, and Kahului, while on Hawaii, 5 releases, totaling 995 adults, were made at Kailua-Mauka, Napoopoo, and Kahaluu. A final shipment to Maui in early September resulted in a release of 140 adults at Wailuku and 147 at Kahului.

On September 19, 2002, the last 212 adults to emerge were released amid ivy gourd infestations at Waimanalo in East Oahu. The initial release of A. cocciniae had been made on Oahu at Makiki Heights in November 1999. This weevil is now well established at all release sites on Oahu and Hawaii, and is dispersing on its own.

In comparison to A. cocciniae, A. burkhartorum is larger in size, has a much longer life cycle, and its immature stages seem to be more vulnerable to predation by ants and birds. Lab production has been retarded by low fecundity. After a successful effort to boost the A. burkhartorum propagation colony, releases resumed on Oahu in November 2002. Liberation of the gall weevil during FY 2003 consisted of 19 releases, totaling 884 adults, made at Waimanalo and Moanalua from November 2002 through June 2003.

On May 30, 2003, A. burkhartorum galls were found on ivy gourd vines under the shade of monkeypod trees at the release site along Moanalua Stream below Tripler Army Medical Center. This discovery, along with previous observations of galls on ivy gourd along the H-1 Interstate near Kunia, was very encouraging signs of the establishment of the gall weevil. Late in February 2003, 40 lab-reared A. burkhartorum adults and 391 field-collected A. cocciniae adults were packaged and turned over to a University of Guam (UOG) official for transport to the UOG quarantine facility to boost their propagation stock, acquired from Hawaii in March 2002.

- **Miconia** [Miconia calvescens DC]. With the establishment of the miconia biocontrol pathogen, Colletotrichum gloeosporioides f. sp. miconiae (Cgm), in the major infestations on the islands of Hawaii and Maui, no further releases of the fungus were made during the past year. However, research continued in a collaborative project with the USDA Forest Service Invasive Species Unit on assessing the effect of the Cgm on miconia plants. In greenhouse tests, the fungus suppressed plant growth by 50 percent after only one application. Results of field tests are forthcoming. In a collaborative project with the Government of French Polynesia, the HDOA Plant Pathologist revisited Tahiti to monitor an existing release plot and to release the fungus at another site. The biocontrol activity of the fungus in Tahiti appears to be more successful than in Hawaii for several possible reasons. The miconia infestation in Tahiti is extremely dense and the weather is continually rainy with high relative humidity, so the fungus has been able to maintain itself and produce tremendous amounts of inoculum, causing mortality of young seedlings. It is spreading readily beyond the initial release sites. Also, in Tahiti, the fungus is not competing with other on-going control efforts, such as chemical spraying and mechanical removal of miconia plants, as is the case in Hawaii. According to French Polynesian officials, they will be setting up a laboratory in the near future to mass-produce the fungus. Miconia continues to be a top priority weed in Hawaii and the search for other biocontrol agents is continuing in South America.

Fireweed [Senecio madagascariensis Poiret]. During exploration for potential fireweed biocontrol agents in 1999, eleven species of fireweed natural enemies were collected in South Africa and Madagascar and colonized in the HDOA Insect Quarantine Facility in Honolulu. Early in FY 2001, the colonies of seven species were destroyed because they lacked host specificity and had minimal impact on fireweed. The propagation of two more species, a tephritid fly and a curculionid beetle, was terminated in FY 2002 because they did not prove to be effective and the colonies had dwindled. As a result, only two species remained colonized for testing in FY 2003.

During the past year, host specificity testing was completed for the most promising species, Secusio extensa (Butler), an arctiid moth whose larvae defoliate fireweed. The colony was established from one lot of about 100 larvae collected from fireweed at Ft. Dauphin, Evatra, Madagascar, in October 1999 by the HDOA Exploratory Entomologist. The caterpillars were packaged with other potential biocontrol agents and hand-carried to the HDOA Insect Quarantine Facility for rearing. A report of the bionomics and host range of this species is being been prepared as a prelude to a request for release of this species from quarantine.

The other potential fireweed biocontrol agent, Sphenella sp. poss. austrina, is a tephritid fly, whose larvae feed on the flower heads of S. madagascariensis. This fly was colonized through the receipt of two shipments from South Africa, each containing hundreds of fireweed flower heads infested by two tephritid species and other plant material with several other biocontrol candidates. Host specificity studies for this tephritid fly is ongoing.

- **Maile Pilau** [Paederia foetida L.]. The Skunk Vine Biocontrol Project, a collaborative effort between the HDOA Plant Pest Control Branch and the USDA-ARS Invasive Plant Research Laboratory (IPRL) in Ft. Lauderdale, Florida, continued in FY 2003. The propagation colony of the lace bug, Dulinius sp. prob. conchatus Distant, which was collected at different sites at Osaka Airport on the island of Honshu by the IPRL Research Leader and an associate researcher, was destroyed in the HDOA Insect Quarantine Facility. The lace bug readily fed and colonized on noni (Indian mulberry), Morinda citrifolia L., a Polynesian introduction into Hawaii and a key test plant in the family Rubiaceae.

  One shipment of the chrysomelid beetle, Trachyaphthona sp., consisting of two lots, was received from Kyushu University, Fukuoka, Japan, in September 2002. The first lot, consisting of 32 adults, was collected at Mt. Koura, while the second, consisting of 9 adults, was collected at Mt. Wakasugi, both from skunk vine infestations in Fukuoka Prefecture. This was the final collection of the 2002 season funded by the USDA-ARS. Previously, three shipments of chrysomelid beetles, consisting of seven lots, collected in Fukuoka, Kagoshima, and Nagasaki Prefectures, during the first half of June 2002, were received from Kyushu University. Unfortunately, none of the beetles from all four shipments successfully colonized despite the emergence of some second-generation adults. However, the rearing confirmed vital information about the larvae feeding on the roots of skunk vine (maile pilau). On June 20, 2003, the first shipment of the new season arrived, containing 100 (87 alive, 13 dead) Trachyaphthona sp. adults that were collected on skunk vine at Mt. Unzen-dake in Nagasaki Prefecture. They were placed in cages containing potted skunk vine in the department's Insect Quarantine Facility.

Projects of the Branch's Chemical/Mechanical Control Section included the following during the FY 2003:

- Conducted surveys in Phase II of Project Eradication, an intensive campaign to remove all banana plants within a 10-square-mile area in the North Kona District. This resulted in the detection of five residential lots having banana plants infected with banana bunchy top virus (BBTV). Investigations indicated BBTV was not eradicated from the 10-square mile area. Staff canvassed all North Kona properties and destroyed all infected banana plants to suppress BBTV from moving to other disease-free areas on the island of Hawaii.

- Collaborated in a multi-agency taskforce with DLNR-Aquatic Resources and Engineering Divisions, City & County of Honolulu, U.S. Military and other agencies to control giant salvinia, Salvinia molesta DC, a floating aquatic weed, which covered nearly 300 acres of Lake Wilson in Wahiawa, Oahu. Opening-up the surface waters was essential to avert massive fish kills and public health concerns should salvinia's dense growth continue to impede oxygen transfer to the lake's waters. The six week effort, from Febrauary 21 to April 3, allowed 28 DOA employees to spray over 268 gallons of AquaMaster (a glyphosate herbicide) onto salvinia on the lake's surface waters and bank areas. Spray booms on two boats were used to shrink and sink an estimated 50 percent of the floating weed, while other agencies removed the remaining salvinia through mechanical means. The DOA spent $36,000 in in-kind-services for labor to spray the herbicides and $1,000 to construct a spray boom for one of the boats. On Memorial Day, May 26th, Lake Wilson was sufficiently cleared of giant salvinia and opened for public fishing.

Above: Close up of Salvinia molesta

Right: Plant Pest Control Specialists Nilton Matayoshi (r) and Derek Arakaki (l) apply an aquatic herbicide to Salvinia Molesta at Lake Wilson in Wahiawa.

- Discovered BBTV at a private residence at Pukalani, Maui on December 23rd. Surveys and chemical control measures were implemented immediately. Staff disseminated BBTV information with CTAHR personnel at a shopping center and plant sale. By the end of the fiscal year, BBTV-infested banana plants were found in 29 of 400 residential lots inspected. A total of 156 mats and 507 infected banana plants were destroyed in an effort to suppress and contain the disease to this locality. BBTV was not found in other parts of Maui in spite of BBTV being established in Pukalani for over a year.

- Provided early BBTV disease detection assistance to Kauai commercial banana growers as part of a BBTV management program on the island. During the fiscal year, BBTV widened its spread to new farm lots in the southern areas of Kauai in the Lawai-Poipu-Numila areas. BBTV was detected in Kapahi in April 2000 following an earlier eradication attempt. BBTV had first been discovered at Kilauea Town in October 1997 where an eradication project was attempted. Later surveys in 2000 showed that the Kapahi infestation was due to a failed eradication of BBTV from the Kilauea infestation. Staff conducted island-wide surveys to delineate the spread of this disease and control any outbreaks that may occur on Kauai.

- Surveyed agricultural lands on Oahu where BBTV is widespread. Staff assisted commercial farms in the early detection of this disease. Commercial growers were urged to manage the virus on their farms by controlling the insect vectors with insecticides and destroying diseased plants with herbicide injections.

- Assisted papaya growers on Hawaii by identifying papaya ringspot virus (PRV) in commercial field plantings and marking diseased trees for later removal by growers. A total of 43,947 infected plants were tagged for destruction during the fiscal year on over 210 farm lots in the Puna and Hamakua Districts on Hawaii. This was a 9.2 percent increase over last fiscal year's total of 40,216 plants tagged.

- Collaborated with DLNR and Invasive Species Committees on Hawaii, Maui, Kauai, and Oahu involved with controlling miconia, Miconia calvescens DC. On Hawaii, the group suppressed miconia in parts of Hilo, Puna and Honaunau. On Maui, miconia control was also carried out by RCUH, and Haleakala National Park in East and West Maui. Staff and other volunteers continued to suppress incipient populations of miconia in Manoa, Waimanalo, Kahaluu, Tantalus, Maunawili, and Kalihi Valley.

- Conducted research on chemical toxicants to control coqui frog, Eleuthrodactylus coqui Thomas, infestations found on Hawaii, Maui, Oahu and Kauai. The discovery of citric acid applied as a 16 percent spray solution proved highly effective against the coqui frog, replacing the need for caffeine and hydrated lime as ranacides.Efforts were made to find a manufacturer of hydrated lime willing to register the product as a pesticide. Cement companies that manufacture hydrated lime were not interested so efforts were redirected to exempt hydrated lime, like citric acid, for use as a pesticide. Hydrated lime is a soil amendment that is commonly used to raise the pH in soil.

- Treated a quarter acre of pathos landscaping at a home improvement store at Iwilei on Oahu for frogs with citric acid. Plants were dug out, bagged, and removed. During the operation, 17 coqui frogs and 195 greenhouse frogs, Eleuthrodactylus planirostris (Cope), were collected. At Wahiawa Heights, coqui frogs were hand-picked to prevent populations from increasing. A highly successful sprayer loan program was initiated on the Big Island allowing residents from community associations and other organizations the use of 100-gallon gas-powered sprayers for application of citric acid. Groups obtained permission from property owners under their jurisdiction, purchased the citric acid, received instructions from program staff, and applied the mixture where needed.

- Worked with the Coqui Frog Working Group to stress public education as a way to engage the public in controlling the growing coqui frog problem on the Big Island. Brochures and flyers that illustrated the frog problem on the island and information on what residents could do to control the frog in their areas were handed out at various community events. Informational meetings were held, and PowerPoint presentations were given to nurserymen and the public. These PowerPoint presentations were also aired on Public TV a number of times on the island, where the frog is a major problem because of optimum environmental conditions in the Hilo-Puna area of East Hawaii. The coqui frog did well in areas from sea level to 4,000 feet elevation with 60 inches or more rainfall where food (arthropods) was abundant. The frog also did well in irrigated areas, such as plant nurseries, resorts, and backyard gardens. While males mainly called during the warm summer months from June to September, adults and juveniles were found all year-round.

- Worked with the Coqui Frog Working Group to develop the successful "habitat modification" of Lava Tree State Park on the Big Island to demonstrate controlling the coqui frog by modifying the landscape. Removal of under-story weedy plants, which were frog breeding sites and a haven for criminal activity, provided the impetus for community groups to take notice and volunteer in the replanting of the park with

native plants. Nanawale Community Association and Malama O Puna were pleased at how removal of the under-story made criminal activities less desirable at the park. Especially helpful were the labor resources provided by the Hawaii Correctional Community Center. Inmates did most of the heavy lifting and cleanup.Frogs were greatly reduced following the removal of the weedy vegetation, except in lava pockets with small chambers where frogs could hide.

- Continued chemical and mechanical control of designated noxious weeds, such as thorny kiawe, (Prosopis juliflora [(Sw.) DC], on Oahu and Kauai; miconia, Miconia calvescens DC, on Kauai and Oahu; fountaingrass, (Pennisetum setaceum [(Forssk.) Chiov.], on Lanai and Oahu; ivy gourd, (Coccinia grandis [(L.) Voigt], on Kauai; gorse, Ulex europaeus L., on Hawaii; and fireweed, Senecio madagascariensis Poiret, on Kauai where very favorable control was obtained at Half-Way Bridge and at a new infestation site at Kalihiwai that was discovered in June 2003.

- Developed a strong working relationship with OISC (aka Fountaingrass Working Group) composed of U.S. Army, Federal, State, University of Hawaii and various other non-profit agencies whose goals are to detect and control invasive alien species that are deleterious to Hawaii's agriculture and natural resources.

- Conducted routine surveys of agricultural and vegetable seed vendors to ensure the quality and proper labeling of seed sold to consumers. Germination tests were also performed on commercially sold vegetable and agricultural seed lots to ensure that minimum germination standards were met.

- Examined incoming foreign seeds for noxious weed seeds under a cooperative agreement with USDA-APHIS-PPQ. Two seed lots were rejected because of corn import regulations that prohibit the entry of foreign millet seeds in U.S. seed imports.

- Serviced the needs of the expanding seed corn industry that increased its plantings on former sugarcane lands on Kauai and Oahu and into fallow pineapple lands on Maui. The program also held several meetings with growers and Quality Assurance Division (QAD) staff to shift certification activities to QAD so more time could be spent on pest eradication and control activities. A total of 580 new applications were processed this fiscal year. With carry-over from FY 2002, 500 Foundation and Hybrid class certifications were issued for seed corn shipments weighing 4.3 million pounds.

PLANT QUARANTINE BRANCH
Neil Reimer, *Manager*

The 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 done through:

(1) permit reviews;
(2) air and sea ports-of-entry inspections;
(3) interisland inspections;
(4) investigating and enforcing State quarantine laws and regulations;
(5) educating travelers and the public; and
(6) inspecting and certifying plants for export.

FY 2003 Highlights

- Brown Tree Snake Rapid response training was conducted on Guam and Saipan during the end of April and early June. Three staff from HDOA along with a DLNR staff member underwent a three week course on rapid response techniques and procedures. They were also trained in snake capture and handling techniques. Additional HDOA staff will be attending future training sessions. The objective is to have at least one HDOA staff member from each island trained to respond to snake sightings in Hawaii.

- Plant Quarantine Branch (PQB) moved into a new facility at 1849 Auiki St. The new facility includes more quarantine rooms for plant importers, more space and improved conditions for temporary holding of confiscated animals, improved mist extraction equipment, and a dedicated room for nematode extraction and identification, autoclave and freezer for commodity destruction, a loading dock to facilitate inspection of containers, and other improvements over the previous site which will be the new location for the University of Hawaii Medical School complex.

- PQB conducted pre-entry inspections of Dole and Del Monte pineapple operations in Costa Rica. The Board of Agriculture established import conditions to ensure that shipments arriving in Hawaii from Costa Rica were free of pests. All shipments of pineapple slips from Costa Rica met the import conditions and passed visual inspections for pests in Honolulu. These shipments were part of recent attempts by Dole and Del Monte to switch the variety of pineapple that they currently have in production in Hawaii in order to stay viable in the market.

- A Rosy Boa snake (Lichanura sp.) was confiscated from a passenger arriving on a flight from Los Angeles. The boa was declared by the passenger from Tucson, Arizona.

- In December 2002, Hilo PQ started witnessing interisland treatments for coqui frogs using 16 percent citric acid. From December through June 2003, 54 shipments consisting of 84 parcels (Young Bros. containers) containing 8,427 potted plants were treated and certified.

Above: Nilton Matayoshi, (l) and HDOA animal specialist, Domingo Cravalho, Jr.. during brown tree snake training exercises in Guam.

Left: Neil Reimer, Ph.D., Branch Manager of the Plant Quarantine Branch (standing) and Earl Campbell of the U.S. Fish & Wildlife Service catch a brown tree snake during training in Guam.

- Kahului Airport has experienced a substantial increase in nonstop flights from the US mainland with the existing carriers adding more flights and the addition of Continental Airlines with service from Houston, Texas. Maui's PQ inspectors met this challenge with the existing staff shortage and cleared an average of 21 flights and 4,000 passengers each day. Each Saturday, they cleared 25 arrivals with an average passenger load of 5,000 people.

- A hedgehog was turned in by an anonymous person to the VCA Animal Hospital in Kaneohe. The hedgehog was left on their front counter in a paper bag with $20 and a note requesting that it be euthanized.

- An Aloha Airlines agent found a lizard in the forward cabin of a flight from Santa Ana, California. The lizard was identified as a Western Fence lizard (Sceloporus occidentalis) which are common in California.

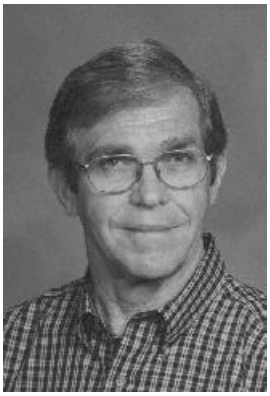
- Staff submitted 786 insect interceptions to the Plant Quarantine entomologist for identification. Of these, 50 percent were not known to occur in Hawaii, 43 percent were known to occur in Hawaii, and seven percent were unidentifiable. Based on these identifications, the dispositions of these shipments were as follows: 57 percent had the pest removed and were released to the importer, 20 percent were refused entry and returned to the port of origin, 20 percent were treated and destroyed, and three percent were treated and released.

- A total of 290 containers of Christmas trees were shipped to Hawaii from Oregon and Washington. In accord with the HDOA protocol, Washington and Oregon Departments of Agriculture witnessed the shaking and cleaning of 100 percent of the trees in 76 percent of the containers. The other 24 percent of the containers were spot checked by the two mainland agriculture departments. No containers were found by HDOA inspectors to be infested with yellowjackets. This is the first time in the last 10 years that all containers were found apparently free of pests.

- Effective April 16, 2003, ACT 012 authorizes the Hawaii Department of Health and Tripler Army Medical Center to import microorganisms for laboratory use without review and permit approval. However, the import of microorganisms for these laboratories still require labeling and invoicing to allow inspection at the port of entry. ACT 012 also provided laboratories participating under the Clinical Laboratories Improvement Amendments of 1988 to be registered with the department pursuant to rules. Rules are currently being drafted.

- Approximately 491 disease reports were submitted, of which 76 percent were identified as diseases not known to occur in Hawaii, 11 percent were identified as diseases known to occur in Hawaii and 13 percent were non-disease interceptions. About half of the diseases not known to occur in Hawaii were avocado scab, which was later determined to be here in Hawaii, followed by rust on beets and chard.

QUALITY ASSURANCE DIVISION



Samuel Camp
Administrator

The Quality Assurance Division serves both the consumer and producer of agricultural and other products by providing services and enforcing laws and rules designed to improve the market quality of agricultural commodities, promote fair trade and honest business practices, and maintain stability in the dairy industry.

COMMODITIES BRANCH
Walter Mitsui, *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, and 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.

Listed below are brief overviews of developments that have impacted the Branch's activities (See page 54 for a detailed table of activities):

- Completed the move to the new "Measurement Standards and Commodities Building" at 1851 Auiki Street in lower Kalihi, along with the Measurement Standards Branch and Quality Assurance Division Administration.

- Inspected and certified over one million cases of canned pineapple from Maui Pineapple Company, which continues to receive large federal government contracts and assessed over $210,000 in fees.

Agricultural Commodities Marketing Specialists (ACMS) Paul Watanabe (front) and Elliot Nakashima (back) grade pineapple juice.

- 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 five million pounds of papayas were checked and $19,722 in fees were assessed over the year.

- Commodities staff assisted the Measurement Standards Branch on Kauai to set up a taxi meter testing course since there is no Measurement Standards inspector on Kauai.

- Commodities staff on Maui were trained by th retiring Maui Measurement Standards inspector to conduct taxi meter testing and licensing.

- Followed the enactment of Act 49, SLH 2003, which allows the Branch to: 1) provide auditing and certification services for food safety, food security and product traceability; 2) cross-utilize temporary help in various programs under one certification services revolving fund; and 3) acquire the seed certification program from the Plant Pest Control Branch, Plant Industry Division. With current fiscal constraints, reduced full-time staff, and changing demands in the agricultural community, this act will allow the Branch to address new demands, and cross-utilize temporary staff to assist where needed, for better efficiency.

- Staff attended papaya, coffee, and cattle industry meetings and conferences; and Hawaii Marketing Alliance meetings for a "Seal of Quality program.

Agricultural Commodities Marketing Specialist (ACMS) Albert Louie in-training to Certify Seed Corn

- Staff participated in the Agricultural Theft Task Force sponsored by the Hawaii Farm Bureau Federation, which includes various county police and prosecutors and Department of Land and Natural Resources officers. Staff visited farmers markets to educate vendors and distribute ag-theft flyers; they were accompanied by county police officers and prosecutors for greater effect. Flyers were also distributed to various processors, wholesalers, shippers, truckers, and airlines.

- Attended mainland training sessions and conferences, which included: USDA/AMS sponsored Fresh Products Branch Terminal Market Refresher Class, Processed Products Branch National Supervisor's Conference, and a Plant System Auditor's Workshop; FDA sponsored Laboratory Food Safety Counter-Terrorism Workshop and an Integrating Laboratory Resources for National Food Security workshop; the self-sponsored National Egg Regulatory Officials Conference; 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.

Meat Grader Keith Otsuka Grading Beef

- Hosted supervisory visits by USDA officials from AMS - Processed Products Branch, Fresh Products Branch, and Poultry Division. Met with visiting officials from USDA Grain Inspection, Packers and Stockyards Act. Hosted and received training from a visiting US Department of Commerce official in seafood inspection. Military inspectors were also invited to the seafood inspection class.

- Participated in a Federal-State agreement to distribute up to $70,000 under a USDA Organic Certification Cost-Share Program, to qualified organic producers and handlers in Hawaii for the period 10/01/02 through 09/30/04.

- The Commodities Branch is working with a cattle rancher to develop a State beef origin certification program, to facilitate export and marketing of local beef in Japan.

- The Chemical Analysis Laboratory developed over a dozen new methods to analyze pesticides in various matrixes, such as Dieldrin / organochlorines screening in vegetables leaves, roots, and soil; Caffeine in soil; Triclopyr in leaves; Phosmet in air filter; Tim-Bor; Rotenone in formulation; aflatoxin in root powder; Organophosphates in animal tissue; and Bromacil in soil and liquid samples.

- Through EPA and Pesticides Branch funding, the Chemical Analysis Laboratory purchased an Ion trap gas chromatograph / mass spectrometer which will facilitate accurate pesticide detection and a High Performance Liquid Chromatograph with auto sample and data station to be used 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.

- Branch fee assessments and penalties collected totaled $496,001; about 17 percent more than last year.

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 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 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 55 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 95 mass test standards, 808 mass enforcement standards, and 708 field standards for service agencies conducting business in the State of Hawaii.

- The metrology laboratory inspected and calibrated 13 volumetric test standards, 31 volumetric enforcement standards, and 8 volumetric field standards for service agencies conducting business in the State of Hawaii.

- The Branch worked with the Hawaii Coffee Association and local businesses to implement the amended Hawaii Revised Statute §486-120.6, also known as the locally grown coffee law. Over 430 labels were submitted for review and technical analysis.

- The Branch received and investigated over 18 odometer complaints, a significant increase from the 4 investigations done in 2002. In conjunction with the Attorney General's office the investigations completed by the Branch have led to indictments and arrests.

- Inspectors visited 198 establishments for the purpose of identifying those that are subject to the price verification inspection. As a result of this effort, 145 establishments were added to the list.

- The compliance rate for stores inspected for price verification was 98 percent, an increase over last year's 93 percent compliance rate.

- The Branch identified and certified a two-mile taxi course on Sand Island access road in Honolulu and a one-mile taxi course on Kauai.

Measurement Standards Inspector Larry Hagmann conducts inspection on a gas pump.

AGRIBUSINESS DEVELOPMENT CORPORATION

Alfredo Lee
Executive Director

Left: New control panel for the Mauka Hydroelectric plant in Waimea, Kauai..
Right: Refurbished hydroelectric generator.

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, it 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.

Mission Statement: The Agribusiness Development Corporation (ADC) is a vehicle and process to make the optimal use of agricultural assets for the economic, environmental, and social benefit of the people of Hawaii. It is a risk-taking advocate for agriculture.

The ADC is an attached agency to the Department of Agriculture governed by a board of eleven (11) members.

Major activities in FY 2003:

- **Kekaha Agricultural Lands**
  The ADC has successfully negotiated the transfer of about 12,600 acres of Kekaha Agricultural lands and the related infrastructure via an Executive Order (EO) from the Department of Land and Natural Resources (DLNR) to the ADC subject to a Memorandum of Agreement between DLNR and ADC. DLNR agrees to take care of pending issues prior to turning over the property to ADC and will continue to help ADC on land management issues. The EO will allow the ADC to make optimal use of the State's assets and allows ADC the flexibility to administer the agricultural lands and infrastructure.

  ADC continues to provide operational and maintenance services for the infrastructure of the Kekaha agricultural lands. In January of 2003, ADC completed the $1.25 million Mauka (Waimea) Hydroelectric Power Plant repair project, part of the Navy – Phase II contract. With this hydroelectric plant back in operation, the Kekaha agricultural lands are once again energy self-sufficient. Occasional surplus electricity generated from the hydroelectric power plant has been sold to the Kauai Island Utilities Cooperative (KIUC), further reducing Kauai's demand on fossil fuel.

  Utilizing Navy-Phase III funds appropriated via the FY2002 Department of Defense Appropriations Act, ADC awarded contracts for surveying and engineering design work at the Kawaiele and Nohili pump stations and for ravine cleaning and clearing. Funds have also been used to conduct preliminary environmental assessments and permit requirement evaluations at various project sites to include access road repair and Kekaha electrical system improvement projects.

- **East Kauai**
  The ADC continued to provide funds appropriated via Act 208, SLH 2001, for the operation and maintenance of the East Kauai Irrigation System. The East Kauai Water Users' Cooperative, managing entity of the system, utilized the funds to maintain and improve the irrigation system. Starting out with a dozen members, the Cooperative increased its membership to 37 within a one-year period. With more members committing to sharing the operational costs, the Cooperative's goal is to become financially self-sufficient in the next few years.

- **Waiahole Water System**
  ADC continues to provide Waiahole Water System irrigation water without interruption to users in Central and Leeward Oahu. During this past fiscal year, water usage increased by 29 percent, which was due primarily to, increased planting of crops and drought-like conditions. After an initial grace period, ADC began making back debt service payments for the general obligation (G.O.) bond issued for the purchase of the water system.

  Per the decision of the Commission on Water Resource Management, LEGAL FRAMEWORK, FINDINGS OF FACT, AND DECISION OF ORDER (December 2001 Decision and Order), ADC was ordered to develop an assessment and plan, and construct a diversion that would deliver the additional water from the Waiahole ditch tunnel system to the Waikane stream. ADC completed the Waikane diversion in November 2002. Since then, 2 million gallons of water from the ditch is being diverted into Waikane stream daily in an effort to partially restore historical instream flows. Information regarding the background and status of the Commission on Water Resource Management's Decision and Order on Waiahole water use, can be viewed at http://.state.hi.us/dlnr/cwrm/current/cchoa95.

Other Activities:

- The ADC continued lease negotiation with Kamehameha Schools for use of about 118 acres of Kamehameha Schools land for the development an agricultural subdivision project on the Hamakua coast of the Big Island.

- ADC has continued lease negotiations with the University of Hawaii for use of the Kauai Tropical Fruit Disinfestation Facility located near the Lihue Airport. This facility currently is the only plant on Kauai capable of treating papaya for export to the U.S. mainland. The goal of ADC is to keep this facility open as a means to assure long-term viability of the papaya industry on Kauai.

- The ADC Board of Directors has also approved the expenditure of $10,000 and is in the process of entering into a Memorandum of Agreement (MOA) with the University of Hawaii, College of Tropical Agriculture and Human Resources (CTAHR) for the development of a marketing plan and strategy that fully represents all segments of diversified agriculture in Hawaii. CTAHR will create an agricultural marketing project with broad objectives for developing ideal goals or targets for marketing agricultural products, identifying successful strategies and techniques used by the industry, demonstrating such strategies and techniques, and assisting industry to adopt such practices.

- **State of Hawaii, Twenty-Second State Legislature, 2003**
  Two measures that were submitted to the Legislature were passed and signed into law. The first measure, Act 91, Relating to the Agribusiness Development Corporation, retains the selection process for the ADC Board of Directors by repealing provisions that establish the members of the Board of Agriculture as members of the board of directors of the ADC, beginning July 1, 2005. Act 91 allows Hawaii's agricultural industry to fully benefit from the efforts of the board members appointed by the Governor, specifically for the purposes of the ADC.

  The second measure, Act 47, Relating to the Agribusiness Development Corporation, provides the ADC with the needed flexibility in managing public lands by exempting public lands set aside by the Governor to ADC, or public lands leased to ADC by any department of agency of the State, from the provision of Chapter 171, Hawaii Revised Statute (HRS), relating to public lands. This Act affords the ADC the same exemptions for private lands purchased by ADC and allows ADC the flexibility and authority necessary to make optimal use of its assets.

- **Board Members**
  ADC welcomes new board members Eric Weinert (Big Island) and Teena Rasmussen (Maui) who replaced departed Diane Ley and Robert Sutherland. Other private-sector members of the board are Larry Jefts, Yukio Kitagawa, Denis Kam, Chris Kanazawa, Bert Hatton, and Wayne Katayama. Ex-Official members include Chairperson of the Department of Agriculture, Chairperson of the Department of Land and Natural Resources, and Director of the Department of Business, Economic Development and Tourism.