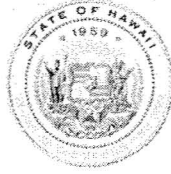


LINDA LINGLE
Governor



SANDRA LEE KUNIMOTO
Chairperson, Board of Agriculture

DUANE OKAMOTO
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
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Phone: (808) 973-9600 Fax: (808) 973-9613

**TESTIMONY OF SANDRA LEE KUNIMOTO
CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE HOUSE COMMITTEE ON AGRICULTURE
JANUARY 30, 2008
8:30 A.M.**

**HOUSE BILL NO. 2451
RELATING TO AGRICULTURE**

Chairperson Tsuji and Members of the Committee:

Thank you for the opportunity to comment on House Bill No. 2451. The purpose of this bill is to direct the College of Tropical Agriculture and Human Resources of the University of Hawaii (CTAHR) to establish and implement a commercial taro farming education and training program to provide education and training opportunities, including work-based learning or apprenticeships, for individuals who wish to become successful commercial taro farmers. The Hawaii Department of Agriculture (HDOA) supports the intent of this bill provided that its passage does not replace or adversely impact our priorities in our Executive Biennium Budget.

The establishment of a commercial taro farming education and training program would build capacity needed to support and grow the taro industry. CTAHR is the entity most qualified to develop and administer such a program which could integrate research, education and extension expertise. The HDOA is willing to support and consult on appropriate matters relating to the proposed program.



Legislative Testimony
HB 2451, RELATING TO AGRICULTURE
House Committee on Agriculture

January 30, 2007
Room: 325

8:30 a.m.

The Office of Hawaiian Affairs (OHA) SUPPORTS H.B. 2451, which directs the University of Hawai'i's College of Tropical Agriculture and Human Resources (CTAHR) to establish and implement a commercial taro farming education and training program to provide education and training opportunities to potential farmers.

OHA recommends that the bill be amended to include language that CTAHR establish a cultural component to the commercial taro farming and education training program. This cultural component should include information on the significance of taro to Native Hawaiians, the role it served in the culture and best management practices that address the culturally sensitive nature of this sacred plant.

OHA urges the Committee to PASS H.B. 2451 with the above suggested improvement. Thank you for the opportunity to testify.

HAWAII FARM BUREAU FEDERATION
2343 ROSE STREET
HONOLULU, HI 96819

JANUARY 30, 2008

HEARING BEFORE THE
HOUSE COMMITTEE ON AGRICULTURE

TESTIMONY ON HB 2451, HB 2452, HB 2453
RELATING TO TARO

Chairs Tsuji and committee members:

My name is Alan Takemoto, Executive Director, of the Hawaii Farm Bureau Federation, which is the largest non-profit general agriculture organization representing approximately 1,600 farm and ranch family members statewide.

The Hawaii Farm Bureau Federation supports HB 2451, HB 2452, HB 2453, which provides support through program development and research for taro production. These measures are aimed to assist taro farmers to increase their production and viability. Farm Bureau supports this effort to improve the taro farmer's ability to not only sustain themselves but also to expand and improve their long term success.

We urge this committee to approve the passage of this measure.

Thank you.



Maui County Farm Bureau

*An Affiliate of the American Farm Bureau Federation and Hawaii Farm Bureau Federation
Serving Maui's Farmers and Ranchers*

TESTIMONY

**HB 2454
HB 2451
HB2452**

RELATING TO AGRICULTURE

HEARING BEFORE THE HOUSE COMMITTEE ON AGRICULTURE

Chair Tsuji Committee Members:

My name is Warren Watanabe, Executive Director of the Maui County Farm Bureau, a non-profit general agriculture organization and an affiliate of the Hawaii Farm Bureau Federation.

MCFB on behalf of our member farmers, ranchers and agricultural organizations, respectfully requests your strong support of HB2454, HB2541 and HB2452, providing various forms of assistance to taro farmers across the State.

These measures have been identified by taro farmers as an important factors to increase their viability. Farm Bureau supports measures that assist farmers to improve their ability to not only sustain but expand and improve their operations to ensure their long term success.

Your support by approving these measures will help sustain and grow agriculture for tomorrow.

We respectfully request your support towards the passage of this measure.

Respectfully submitted,

Warren K. Watanabe
Executive Director
MCFB



Hawaii Agriculture Research Center

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TESTIMONY BEFORE THE HOUSE COMMITTEE ON AGRICULTURE

HOUSE BILL 2451, 2452, 2453

**RELATING TO AGRICULTURE
RELATING TO TARO**

January 30, 2008

Chairmen Tsuji and Members of your Committee:

My name is Stephanie Whalen. I am President and Research Director of the Hawaii Agriculture Research Center (HARC). I am testifying today on behalf of the center, our research and support staff, and our members and clients.

HARC supports the intent of House Bills 2451, 2452 and 2453 all relating to support for taro growers. However, it believes that the discussions held during the interim have help to reduce the tension developed during last session and are leading to a process which will establish a policy to prioritize and fund research and support for the taro growers. It is its belief that a continuation of this process, a partnering with the growers, should be supported and funded.

Taro farmers face the same constraints in land, water, labor, etc that other crop producers in Hawaii face. Here are many specialty crops grown on small acreages across the state, all in need of support resources. With its limited resources the college is providing educational and business support for agriculture in island wide workshops and through its incubator program. Partnering with OHA which has a grant program for Native Hawaiian businesses might be explored to facilitate funding for start up or expanding taro businesses.

Thank you for the opportunity to testify.

**Hawaii
Crop
Improvement
Association**

Adolph Helm, President-Elect
19 Hua'ai Road, PO Box 339
Hoolehua, Hi 96729
Phone: 808-567-9421

HB2451, Agriculture
House AGR/WLH Committees
Wednesday, Jan. 30, 2008
Room 325: 8:30 am

Position: Support

Chairs Tsuji and Ito, and Members of the Hse AGR/WLH Committees:

My name is Adolph Helm. I am a Molokai resident, and Project Manager of Dow Agro-Science, an HCIA member company. The HCIA represents seed production and research facilities operating in Hawaii for nearly 40 years. The HCIA is comprised of five member companies that farm an estimated 8,000 acres on four islands, valued at \$97.6 million in operating budget (2006/2007 HASS). We are proud members of Hawaii's diversified agriculture and life sciences industries.

Appreciation is expressed for the House Agriculture Chair and the many legislators who support this measure and the other taro measures on the agenda. While HCIA member companies do not grow taro, nor do we plan to grow taro, we support the preservation and protection of taro in Hawaii.

This measure would create a Commercial Taro Program at the UH-CTAHR that would provide education as well as training opportunities for those who want to be commercial taro growers. The suggested program, developed with consultation from native Hawaiian organizations and taro farmers, covers a solid platform for an interested person to become an established grower---from basic information, to farm practices, pest and disease control, economic and financial issues, to processing and marketing. It is an exciting proposal!

Please support this measure. Thank you for the opportunity to testify.

UNIVERSITY OF HAWAI‘I SYSTEM

LEGISLATIVE TESTIMONY



HB 2451, Relating to Agriculture

HB 2452, Relating to Agriculture

HB 2453, Relating to Taro

Testimony Presented Before the
House Committee on Agriculture

January 30, 2008 at 8:30 a.m.

by
Virginia S. Hinshaw
Chancellor
University of Hawai'i at Mānoa

Testimony Presented Before the
House Committee on Agriculture
January 30, 2008 at 8:30 a.m.

by
Virginia S. Hinshaw
Chancellor
University of Hawai'i at Mānoa

HB 2451, Relating to Agriculture

HB 2452, Relating to Agriculture

HB 2453, Relating to Taro

Chair Clift Tsuji, Vice Chair Brower, and Members of the Committee:

Thank you for this opportunity. The University cannot support this bill because of our pressing priorities, such as R&M and health and safety issues, which are critical to our ability to perform our core mission.

We appreciate that this might be an important priority for the state, so we wanted to provide the following information to assist you in your decision-making.

HB 2451 directs the UH Mānoa College of Tropical Agriculture (CTAHR), in consultation with native Hawaiian organizations and taro farmers, to establish a taro farming education and training program and appropriates funds.

HB 2452 directs CTAHR, in consultation with the Hawai'i Department of Health, to establish a program for commercial taro farmers to maximize business viability and success, and appropriates funds.

HB 2453 appropriates funds for a taro farming grant program to assist taro farmers in need to help preserve the cultural legacy of taro farming for future generations.

CTAHR has a long history of working with taro growers to improve taro varieties, increase disease resistance, and help solve their pressing production problems. Since the establishment of the Hawai'i Agricultural Experiment Station more than a century ago, diseases of taro have been a focus of our research. Sadly, during that century, the Hawai'i acreage planted in taro has declined by more than 70 percent, and taro production in the state has fallen to historic lows. Among the factors contributing to these losses are invasive diseases and pests such as taro leaf blight, pocket rot, and apple snails; rising crop and land costs coupled with competition from inexpensive imports; lack of access to high-quality water and land resources; declines in taro biodiversity; and a decrease in the number of farmers able to sustain themselves by growing this labor-intensive crop.

CTAHR recognizes and respects the cultural significance of Hawaiian taro. We know that recent years have seen heated debate as to what our college's role should be in protecting this important crop. We have been participating in dialogue with taro farmers from each island, the Hawai'i Department of Agriculture, the Hawaii Farm Bureau Federation, and the Office of Hawaiian Affairs. That dialogue has led to the development of the recommendations included in the attached draft report. We feel that the best way to proceed forward is to honor the process agreed to in this dialogue by forming a taro security and purity task force in order to guide policy and prioritize research for the protection of taro in Hawai'i, including ways to help taro growers achieve greater economic viability.

One way in which CTAHR is currently fostering economic viability for growers of diversified crops including taro is through the University of Hawai'i's Agribusiness Incubator Program, which is described in the attached literature. The AIP provides business consulting services to start-up agribusinesses and to established companies seeking to expand that might not otherwise have access to such assistance. Preference is given to businesses that benefit Native Hawaiians. AIP consultants offer their clients assistance in the areas of strategy, business and marketing planning, financial assessment, process improvement, and project management. In addition, the incubator participates in community-based efforts to promote diversified agriculture in the state. The AIP has assisted in the past, is currently assisting, and will continue to assist taro farmers throughout the state.

Thank you for the opportunity to testify on these bills.

TARO SECURITY AND PURITY MEETING REPORT

PREPARED BY:

Taro Stakeholders with edits by the University of Hawai'i

DECEMBER 2007

Background

During the 2007 legislative session, taro farmers and Native Hawaiians expressed growing concern over increasing threats to the taro plant, taro farming, taro-growing places and taro farmers' survival in Hawai'i. Much of the dialogue was overshadowed by the issue of genetically engineered (or GMO) taro. Senate Concurrent Resolution 206, passed into law in June 2007, recognized the need for alternative action as response to this dilemma.

SCR206 specifically mandates that the Department of Agriculture "develop a taro security and purity research program that is designed to ensure that taro can be saved and protected from natural attack" through means *other than* genetic engineering. It further mandates that HDOA collaborate with taro growers and Native Hawaiian groups to develop and establish a program that addresses four areas specific to protecting taro - increased taro import inspections and prevention of as yet un-established pests and diseases (security and prevention); support for alternative forms of research other than genetic engineering to address farmers concerns; public outreach, engagement and education; and increased reportability of taro pests and diseases, particularly the as yet unestablished Alomae-Bobone viral complex and taro beetles.

The purpose of this report is to provide legislators with a summary of the October 8, 2007 stakeholders meeting convened by HDOA, and possible recommendations for subsequent legislation and activities based on that meeting.

Organization

Since the passage of SCR206, members of the House Agriculture Committee and the Hawai'i Farm Bureau Federation (HFBF) and staff from the Department of Agriculture have visited taro farmers and taro-growing

communities in Kaua'i, Maui, Hawai'i, and O'ahu during the summer and fall of 2007 to learn more about taro farmers' issues and concerns. Subsequent to that, HDOA convened a meeting on October 8, 2007 on O'ahu with stakeholders from the scientific community, the agricultural industry, the taro-growing community, and Native Hawaiian groups to address the development of a taro security and purity research program as tasked by legislation.

HDOA worked with the University of Hawai`i's College of Tropical Agricultural Research and Human Resources (UH CTAHR) and HFBF to identify researchers, farmers, policy makers and members of the Native Hawaiian community that might participate in "a meeting to discuss the development of a Taro Purity and Security Research Program designed to ensure the protection and preservation of taro cultivars and its supporting stakeholders." The meeting was well attended by members of all stakeholder communities. It was noted that due to the unfunded mandate of SCR206 and lack of resources within HDOA, attendance by more taro growers was difficult.

Information sharing

Agencies

HDOA provided information to the group regarding its main policy objectives for the upcoming year. A critical area of concern revolves around the large amount of taro imported into Hawai`i and the lack of access to shipping manifests and inspection information. HDOA explained:

The amount of taro imported into Hawai'i for consumption has steadily increased over the years.

Current levels imported are now over 800,000 lbs through direct foreign import into the State and over one million through transshipments through the continental U.S. (Total state production = 4.5 million lbs.). Regions of origin include Africa, South and Central America, the South Pacific and Asia, including China.

HDOA further explained: "Prior to 2000, [HDOA] inspected taro coming in from the Pacific after their release from USDA. Since 2000, [HDOA was] federally pre-empted. After the DHS-USDA split, [HDOA has] not been notified when taro comes into the State from any foreign country." HDOA notes that foreign taro imports are not declared on shipping manifests when they enter Hawai'i through the mainland. Inspections information

is stored at USDA national and is not available to local agriculture inspection agencies. Taro imports from Pacific Island Countries and other regions may be importing pests with which HDOA is not familiar.

Additionally, the pre-emption clause of the Title IV--Federal Plant Protection Act (**Public Law 106-224 , June 20, 2000**) prohibits the State of Hawai'i from preventing pests from coming in by refusing entry to taro corms and makes us less secure. The law places the State at risk for legal challenges from importers of goods that are denied entry.

Researchers

The University of Hawai'i displayed information on their work in taro publications, taro hybrids development, gene mapping and investigations into the origins of taro, and disease and pest research. UH has had a long involvement in taro research, since the publication of Bulletin 84 *Taro Varieties in Hawaii* in 1939.

While GMO research has been highly contentious, work at UH Hilo to develop a "Hawai'i Institute for Heritage Plants for the Preservation, Research and Sustainability of Kalo and Other Native Hawaiian Plant Stocks" has been encouraging. UH CTAHR Agriculture Extension Services have played an important role in maintaining taro varieties collections from throughout Hawai'i and the Pacific, and Lyon Arboretum has tissue-cultured a number of the Hawaiian cultivars for preservation. Both these programs suffer from insufficient funding.

Taro farmers and Hawaiian representatives

Taro farmers displayed their own successes in organic cover cropping to reduce pests and diseases and in their collaborative research with Pacific Biodiesel regarding an organic soil conditioner that has had positive impacts on apple snail mortality. They described the deep relationship that taro growers and Hawaiians share with taro through chant and words.

Kalo continues to be of key importance to the Hawaiian culture and agricultural community. The taro-farming community has long called for supports to make farming more sustainable through better access to and incentives for the use of agricultural lands. A recent report prepared by OHA and the USGS also illustrates the critical need for water access for *lo`i kalo*: <http://pubs.usgs.gov/of/2007/1157/>

Members of *Onipa`a Nā Hui Kalo*, a grassroots association of taro farmers and supporters from across the State, recounted their extensive

community education efforts aimed at making kalo farming sustainable by sharing its practices and values with the community and younger generations. Their activities include: regular community *lo'i* restoration workdays, state-wide huli-banking efforts, collaborations with CTAHR on publications (e.g., revision of *Bulletin 84*, photo collections, and *Taro: Mauka to Makai*) and research initiatives, taro DNA mapping, continuing education workshops on Hawaiian taro cultivar identification for taro growers, botanical gardens collection staff, development of a state-wide network of Hawaii taro collectors and implementation of the "Edible Aroid Conservation Strategies" database using IUCN international species protection standards.

One community member noted the growing attentiveness to taro:

Kalo remains the centrepiece of Hawaiian culture. In many areas its importance is growing as the younger generations of Hawaiians return to the roots of their culture. In areas such as Hā`ena and Wainiha on Kaua`i, for instance, there are more *lo`i* and more people eating *kalo* and *poi* than there were only a decade ago. Not only are more people farming and eating *kalo*, but the sound of the *pōhaku* on the *papa* [the stone on the poi board] echoes once again as the younger generations are returning to traditional *poi* pounding – a practice that had gone dormant for nearing two generations.

Stakeholder Concerns

Despite stakeholder contention over the issue of genetic engineering (GE), participants successfully initiated a healthy dialogue around taro concerns and collectively recognized a need to support non-GE research initiatives. Defining "taro purity" and "taro security" is a critical first step in creating a common understanding and guiding future research priorities for taro.

Taro Purity

Participants described the meaning of "taro purity" from a diverse set of views and experiences. Three distinguishable levels of taro purity evolved from the discussion:

- *Landscape level* - the definition of taro purity begins within the larger landscape of land and water (i.e., soil health and water quality). If these are not pure and healthy, then neither is the taro.

Preservation and revitalization of traditional taro varieties, cultural practices, and taro-growing places and lifestyles are also part of taro purity at this level, each of which supports the production of pure (healthy) taro.

- *Morphological level* – the defining characteristics that distinguish one variety from another. The history of what has happened to taro over centuries, along with gene mapping (DNA fingerprinting), tracing cultivar lineage, and the knowledge of *kūpuna* all help to identify and verify each cultivar found here, across the Pacific, and throughout the world.
- *Molecular level* – some stakeholders felt that purity at the molecular level meant no genetic engineering of taro plants. Others felt that it meant preserving the current Native Hawaiian taro genetic lines.

Taro Security

Stakeholders defined security as protection from outside threats, existing pests and diseases, and outside competition, as well as more secure and improved livelihoods and markets. It also meant protection of traditional taro cultivars, cultural practices and taro lands, and taro-farming family well-being, that is, to be secure in knowing that taro will not only persevere but also revitalized. Five key aspects of taro security—prevention, control and eradication of existing pests and diseases, cultural protection, livelihood and lifestyle protection, and education—are described below.

- *Prevention* – concerns can be broken down into three main sectors:
 - 1) *Preventing new pests and diseases at State borders* - the need for stronger inspection programs to prevent new pests and diseases from entering the State (border protection). Increased pest and disease surveillance, improved communication between USDA, Homeland Security, and HDOA (agencies responsible for inspecting and tracking pests and diseases) regarding observed pests, and more stringent state and federal importation regulations are part of prevention.
 - 2) *Preventing loss of local growers' markets* – from a producers' perspective reducing taro imports is critical, yet the lack of regulations and accessible and affordable land and water resources to allow for improved fallow practices and increased local production is real. Local growers need a more secure market in the same way that many other agricultural crops locally and nationally have received assistance (i.e., import

tariffs and raw product bans). We should be able to grow all we need here and export.

- 3) *Preventing the loss of taro farms and growers* – the numbers of taro farms and intergenerational taro-farming families have been in steady decline for many years as the cost of doing business for taro growers rises. Access to good taro lands and water resources at affordable rents is a major concern. Permits for farm-based poi factories are overly complex and expensive. In the larger perspective, the issue of food security is also part of taro farmers' concerns. Natural disasters such as last year's earthquake demonstrated how rapidly Honolulu would run out of food and how little fresh food, including taro and poi, is actually grown locally.

Prevention also meant assessing the long-term impacts of short-term solutions.

- *Control and eradication of existing pests and diseases* – the lack of solutions or supports for existing problems is high on the list of farmer concerns; at the top is the lack of funding, agency, and resource supports for farmer-based solutions for apple snail control over the past decade

There is a recognized need for more alternative research and holistic solutions that do not include genetic engineering.

- *Cultural protection*¹ – a range of connected issues revolved around the need to recover, protect, and revitalize the traditional taro varieties that are the heritage of Hawaiians and to understand the strengths, weakness, importance, and preferred growing sites of each variety. There is a lack of understanding and recognition of varieties among taro growers, researchers, students, and consumers. As research, collection, and revival proceed, the rights of taro farmers and Hawaiians over these varieties must be safeguarded along with the right to safely continue the practice of sharing planting materials (*huli*).

¹ "Cultural protection" in the context of taro security and throughout this report refers to both protecting the heritage and relationship between taro, growing taro, Hawaiian culture, and traditional cultural practice, and the horticultural definition of "the growing of plant material".

- *Livelihood and lifestyle protection* – concerns beyond economic survival included a lack of protection for traditional lifestyles and landscapes, such as a current trend of permitting homes within functioning, ancient taro systems that are still in operation. Affordable health and farm insurance is something most taro farmers lack access to. Farmers noted that the next generations will no longer be familiar with taro and poi as they are not eaten by young people: taro, poi, and *lu'au* leaf are not available in schools, and federal DOE approvals and federal funding are needed to make that happen. Without access to traditional taro varieties for comparison, consumers don't make alternative choices about preferred varieties and tastes.
- *Education* – there is an awareness that information is lacking on many levels and a concern that more education is needed in legislative, agency, researcher, farmer, consumer, and general public sectors to increase understanding of the importance of taro to Hawai'i, inform policy, improve taro research selection criteria, improve markets, increase taro varietal identification accuracy, and improve pest and disease control efforts.

There is an overall need for more community input and collaboration on all aspects of the taro purity and security discussion, particularly from taro growers and the Native Hawaiian community.

Recommendations about Continuing the Dialogue

In the areas of recommended action described above, partnership is essential. Different entities may be better suited to lead various initiatives and ensure continued, diverse stakeholder participation. HDOA is a partner well-suited to steward initiatives related to policy, legislation, and regulations. Taro farmers should play a key role in guiding the task force and research initiatives in protection, restoration, pest control, and best-practices studies; UH, as a land-grant university, has in its mandates the language to be a key partner in taro research. OHA has often convened dialogues on sustainability, culture, community health, and education and should be prevailed upon to do so for this endeavour.

Process is as important as outcome. All stakeholders felt it was important to continue the dialogue that was initiated at the October meeting and to form a task force, but questions regarding who should

participate or sit on the task force and who decides have not yet been answered. One recommendation is that each partner select their representatives; taro farmers should include both small and large growers and individuals from each island. A representative from the network of botanical gardens participating in preservation of Hawaiian taro varieties should also be included.

The question of who is the proper convener for this important dialogue also has not been answered, except to say that taro farmers must play a lead role in decision making. Taro farmers must be full partners at the table in this effort along with HDOA, OHA, UH and other potential partners.

More discussion is needed on a number of topics that participants thought should continue in the interim while a Taro Purity and Security Task Force is being formed, including finding consensus for the definition of taro purity and security, sorting out conflicting information, and identifying areas where further information would provide clarification, especially in relation to federal and state regulations. It has been suggested that HDOA might continue in this role.

The question of "how" carries with it the following recommendations:

- It is important that agencies and institutions not isolate or pit one group of farmers against another – i.e., small growers and larger commercial producers, Hawaiian vs non-Hawaiian growers – we are all *kahu* (caretakers) of *Haloa* (the taro) together.
- More and better communication between different interest groups is needed, especially more input from taro growers, along with academics, field agents, practitioners, and *kūpuna*.
- The formation of a formal statewide taro growers' organization has been recommended by some.

Funding Recommendations

Funding is always a tough issue. Task forces are typically formed as unfunded mandates by the Hawai'i State Legislature. If SCR206 is truly meant to form an inclusive taro research task force, then farmers must be funded to fully enable participation from all islands, and a staff person position is recommended to facilitate, coordinate, communicate, and record the work. The legislature is urged to support the establishment

and funding of a Taro Purity and Security Task Force for two years. Private funds can and should leverage public funds.

It is strongly recommended that the State make available funding *in this legislative season* for pressing research on apple snail controls and in three key areas of education outreach - support for the ongoing efforts of farmers in taro variety identification workshops, revision of Bulletin 84, and initiation of community dialogues towards the development of a statewide taro institute.

EPA and USDA funding should be considered both as matching research funds and to support outreach education, including "crop disaster" funding to combat the apple snails.

Non-funded initiatives, such as making State lands available to taro farmers in support of fallowing apple snail infested areas or to encourage new taro farmers can be acted on quickly in this year's session.

Conclusion

The October 2007 meeting demonstrated how a joint effort by stakeholders can successfully identify and address growing threats to the taro industry in Hawai'i. The task force will address the areas of primary concern identified in this report—**protection, control, culture, livelihood, and education**—with taro farmers, HDOA, OHA, and UH in partnership. Such a joint effort ensures meaningful participation and continued dialogue among all stakeholders.

As one taro farmer concluded:

"The importance of taro really comes out in its practical, deep-rooted connection to the past and the future. The solutions are right in front of us. Look into the *lo'i*. Look to the history and the surrounding landscape to reveal why things are the way they are today." And, walk forward together to revitalize all that taro is to Hawai'i.

APPENDIX I. Recommendations for Protection of Taro Purity and Security to be considered by the Taro Task Force

The following recommendations address both research needs and overall taro purity and security needs corresponding to the above five categories.

Prevention

- Improve policy, legislation, regulations, and programs to protect taro purity and security
 - a. Federal pre-emption is being introduced again in Congress. The Office of General Counsel has advised USDA to refuse to notify HDOA on the grounds of Federal Pre-emption. HDOA has requested assistance from Senator Inouye to lift the USDA refusal to notify Hawai'i of taro import records, pest interceptions and future taro shipments but needs further backing in this measure from the legislature, other agencies, and taro farmers. More information is needed.
 - b. A number of HDOA statewide invasive species actions already in the pipeline also address taro security issues, including:
 - i. Finishing the USDA-HDOA Pest Risk Report
 - ii. Starting the USDA-HDOA Maritime Risk Assessment
 - iii. Starting the interim joint-use facility at the Airport (HIA)
 - iv. Planning for the permanent inspection facilities at Airports and Harbors
 - v. Implementing a shipping manifest system
 - vi. Researching unknown pests specific to taro to petition for "actionable" listing from USDA and revise our regulations.
 - c. Formally redefine raw taro corms shipped to Hawai'i as "underground stems" and "propagules" under USDA definitions. This will allow HDOA to further inspect shipments. It is strongly recommended that all raw taro products coming in to the state be inspected by Hawaii-based authorities.
 - i. Improve information sharing among federal and state agencies to facilitate better reaction time on potential pest and disease. Country and port of origin information is critical in assisting HDOA quarantine staff in determining risk.
 - d. Evaluate and tighten taro import regulations to better protect local growers.
 - i. Limit importation of taro to only skinned, cooked, or frozen products as the best means of protecting local taro crops from

the introduction of new pests and diseases on imported taro products.

- ii. Add the viruses involved in the Alomae-Bobone viral complex to the List of Restricted Microorganisms and several species of taro beetles to the List of Restricted Animals.
 - iii. Broaden restrictions on plant material (taro) from the Solomon Islands to other Pacific Islands and tropical regions including Fiji, Tahiti, Tonga, Cook Islands, Papua New Guinea, Puerto Rico, tropical America, South and Southeast Asia, and China.
- Bring taro importers (distributors and end receivers) into the discussion for a better understanding of what they need and to increase their awareness of the risk to local growers
 - a. connect importers to local growers so they no longer have a need to import.
 - Support a “Hawai’i-grown taro” product branding program and expand end markets to create consumer preference for locally grown taro and a more diverse selection of taro varieties.

Control and eradication of existing pests and diseases

- Prioritize research to address the most pressing concerns of taro farmers first.
 - a. Partnerships rather than “cooperators” is the encouraged framework for selecting, initiating, and conducting taro research between agencies and taro farmers for the future. Past decision-making in isolation of the taro farmer and Native Hawaiian community and lack of communication has resulted in less than desirable agency/university/farmer relationships.
 - b. Develop and implement clear protocols and oversight for bringing in research materials, containing them during research, and disposing of them at project’s end to protect taro from accidental escape or inadvertent release.
 - c. A Taro Council is recommended to guide research and policy statewide and address research oversight issues.
 - d. Research on improved controls for apple snails (statewide pest) is the highest priority for taro farmers in this category at this time (see below).
- Develop practical, affordable, efficient and effective “best practices” for existing pest and disease control using the best knowledge of agencies, researchers, and taro farmers.

- b. Increased support for community research initiatives aimed at finding non-GE alternatives to taro purity and security is strongly recommended. Several projects that have evolved within the taro-farming community hold excellent promise for practical, affordable, environmentally sound pest and disease management.
- Research into the systematic, landscape-level application of apple snail controls (water, land, *ahupua'a*) is necessary in many taro-growing districts. The involvement of HDOA, DAR, HISC, and USFWS where federal lands are involved is essential to implementation, coordination, and evaluation of methodology and effectiveness.
 - Increased legislative funding and support for research (using the above guidance) and active control efforts of apple snails is strongly recommended; see the *Statewide Strategic Control Plan for Apple Snail in Hawaii* (on-line at www.hear.org).
 - Further research on the characteristics and behavior of traditional Hawaiian varieties in relation to pest and disease infestations is needed to better understand disease resistance.
 - Development of hybrid disease resistant taro varieties using traditional cross-pollination methods should be done with careful grower and consumer testing and evaluation. Recent hybrids for this purpose have not passed consumer tests in some sectors and have left taro farmers with a crop that is difficult to sell.
 - An essential component of control and eradication of existing or potential pests and diseases in taro is farmer education, including providing information on infestation locations, decontamination protocols, and where new threats might come from.

Cultural protection

- Increase efforts to distinguish and identify the many taro varieties present in Hawai'i, using modern and indigenous scientific knowledge, with a priority emphasis on traditional Hawaiian cultivars.
 - a. Develop physical and morphological descriptions and criteria for positive identification of existing cultivars and all recently developed hybrids
 - b. Develop photographic and written descriptions of the varieties
 - c. Genetic (DNA) mapping of taro varieties
 - d. Revise Bulletin 84 based on improved descriptors and distribute to taro growers for improved identification

- e. Continue assessment of existing taro collections through on-the-ground site visits and evaluations
- Increase efforts in conservation and long-term preservation. Germplasm preservation should include both passive and active preservation practices.
 - a. Increase collaboration and networking between taro growers, local arboretums, botanical gardens, and other collections.
 - i. Develop a clear and binding protocol for germplasm sharing between botanical gardens, researchers, and repositories outside the state prior to releasing collection materials to researchers, laboratories, or germplasm storage facilities (especially outside Hawai'i) that protects the rights of indigenous cultures and taro farmers to the plants of their own skills and heritage by disallowing ownership of taro plant materials in any form.
 - ii. Distinguish between foundational collections (long-term preservation) and working collections for research and further conservation efforts
 - b. Increase the number of active growers and the prevalence of all traditional Hawaiian taro varieties as a preservation mechanism of both purity and security (assurance). An increased number of growers will result in less impact if one farm is hit by disease or pests and will also increase the availability of a diversity of taro varieties for the market. Active collections should be based in Hawai'i.
 - i. Increase the number of dedicated taro collections and taro varieties on each island; include active growers and botanical gardens.
 - ii. Increase the availability of Hawaiian cultivar growing materials (*huli*) to taro growers.
 - iii. Encourage families to become specialists in one or a few of the traditional varieties with the intent of increasing the ability of local growers to care for, increase their knowledge of, and share *huli* and taro products from that variety (adoption).
 - c. Increase support for continued local tissue-culture preservation of Hawaiian taro cultivars as a means of medium- and long-term preservation. The goal of storage is not just for perpetuation but to expand the presence of each variety in the islands.

- i. Initiate and increase the accuracy of a Virus Index to eliminate disease within cultured plants
 - ii. Develop longer tissue-culture storage capabilities; focus on cryogenic storage later.
- d. Consider collaboration with the USDA Seed Storage Facility at Fort Collins, Colorado (cryogenics lab) as a long-term mechanism for germplasm protection (see a(i) above)
- e. Increase resources to support collection activities, including collection assessments and field surveys to recover missing traditional taro varieties that may still be present in the wild or in small patches throughout the state.
- Research and document historical and current knowledge for each variety, including best growing conditions and practices, plant behavior, environmental conditions, and growing locations preferred by each variety.
 - a. Tap into taro expertise on all islands among famers, *kūpuna*, institutions, and agencies.

Livelihood and lifestyle protection

- Support and promote taro farming as a viable endeavor.
- Create incentives to protect and sustain this traditional livelihood through a series of State and County tax incentives.
 - a. For farmers who grow and sell their produce locally (fewer fuel miles)
 - b. For landowners or lessees who reactivate land to grow taro and revive ancient taro systems on state or private lands
 - c. Develop a tuition reimbursement program for students refundable if they take up taro farming or food production (for local consumers) for a minimum of three years after graduation
 - d. Provide affordable health insurance for taro-growing families
 - e. Provide no incentives, tax or permit relief, or other assistance (state) to GE research/crops.
- Increase access to State lands and water resources for *kalo* farming, most importantly to reduce pest and disease losses in taro crops and increase the number of taro farms in Hawai'i and to improve competition with taro imports. Long-term production is a land and water issue.

- a. A Statewide Preservation Council (including DOA, UH, OHA, Water Commission, taro farmers, Hawaiian Civic Clubs, and Ahupua'a Councils) with self-sustainability as a model is encouraged to re-evaluate the lands and districts of the State to enhance small-farm opportunities, particularly taro.
- Improve supports and resources for farmers to process their own poi for their own communities. Simplify the permitting process under DOH (food production) and County and State building applications for poi factories and community kitchens.
- Increase support and resources for community research and business collaborations and for multi-generational research to improve long-term evaluations and successes.
- Conduct an informed commodity risk assessment inclusive of the many challenges taro farmers face and the increasing competition of taro imported from other regions.
- Conduct an expanded economic benefits analysis of the taro industry beyond the raw commodity market in Hawai'i, including its value to the Hawai'i Visitor Industry, health and wellness, education, the arts, and other sectors as one means of re-evaluating the allocation of resources from taro purity and security initiatives.
- Pursue federal supports and the listing of taro, poi and *lu'au* as healthy, indigenous foods for DOE school lunch programs in Hawai'i, most especially in communities where taro farming occurs.

Education

- Continue collaborations with UH CTAHR on University of Hawai`i projects (i.e, the *Taro: Mauka to Makai* book).
 - a. The revised edition of *Taro: Mauka to Makai*, with which taro farmers have assisted UH for the last two years, has been ready for printing for one year. This teaching resource has been unavailable for two years since it went out of print; it should be published in 2008. [Note: the manuscript has been forwarded to a printer and should be printed in about 90 days.]
 - b. Provide financial and resource support for the ongoing collaborative efforts to revise Bulletin 84 as a critical piece in active germplasm protection – within one year.

- Increase support for community taro identification workshops and other taro-related educational activities
 - a. Continue to educate botanical gardens, UH staff and students, and taro varieties collectors to increase knowledge and ID skills
 - b. Expand opportunities for the general public to become familiar with the tastes and qualities of the traditional Hawaiian varieties to increase opportunities for varietal markets for taro farmers.
 - c. Involve our children more, especially older students in deepening local knowledge of taro and taro growing.

- Develop materials and workshops on sustainable and best-management practices and expand education outreach in this sector, including:
 - a. A DVD of organic cover crops practices used by farmers in Kauai'i – within one year

- Educate the taro farming, agency, and legislative communities about the legal and legislative issues that affect taro.

- Initiate community dialogues to develop and design a statewide "taro institute" (Hawaiian Institute for Heritage Plants for the Preservation, Research and Sustainability of Kalo and Other Native Hawaiian Plantstocks). This will provide one important mechanism for moving forward with the recommendations of a Taro Purity and Security Research Task Force.

- Increase participation of relevant community, private, and public institutions and groups; businesses; and agencies in sustaining the presence of *kalo* as a viable crop and important cultural practice in Hawai'i through outreach and education.

Our Mission

The Agribusiness Incubator Program (AIP) seeks to provide business consulting services to agriculture-related businesses throughout the State of Hawaii, maximizing their chance of business viability and success, in order to grow the State's diversified agriculture industry.

Through an intensive, hands-on approach to consulting, AIP will work with agribusinesses to establish core business plans and practices, enabling their clients to start a successful agribusiness or take their existing business to the next level.

AIP activities are aligned with fulfilling the following mission statement:

Be widely recognized for having a positive impact on Hawaii's agribusinesses by facilitating our clients' success through business consulting

Our Methodology

We will help agribusinesses with their growth plans, by:

- Providing analysis of financial and operational processes and procedures
- Assisting with the development of a Strategic Plan
- Assisting with the development and execution of a Business Plan
- Providing other planning and project management services to define and achieve client goals
- Building an ongoing relationship that fosters continual improvement of operations


Grow Your Business

If you are looking to start an agriculture-related business or are seeking to take your business to the next level, apply online at <http://aip.hawaii.edu> for consideration. Priority will be given to businesses benefiting Native Hawaiians.

Ideal candidates will:

- Be highly motivated and willing to change
- Possess a vision for growth
- Make the time to actively participate with our program
- Positively impact the agriculture industry in Hawaii



 Cooperative State
Research, Education, and Extension Service

 University of Hawaii



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***Growing Hawaii's
agriculture industry,
one business at a time***

**Program
Overview**

What we do...

The Agribusiness Incubator Program (AIP) helps new and existing agribusinesses achieve business success through our varied business experience, proven methodologies, and access to resources that address the needs of agribusinesses.

Business Management

Our consultants come from some of the largest consulting, accounting, finance and outsourcing firms in the world and can apply their knowledge, experience, and skills to address agribusiness management issues.

We assist agribusinesses with strategy and planning, helping them to define, focus, and achieve their goals. AIP consultants leverage their experience in the areas of accounting, technology, financial systems, process improvement, inventory, distribution, and financing and utilize proven project management methodologies to help agribusinesses reduce risk while increasing the effectiveness of the projects they undertake.

Financial Management

Solid accounting practices and relevant, understandable financial information is vital in helping agribusinesses make wise fiscal and operational decisions.

We assist clients with establishing accounting systems that provide reliable financial information and help clients



understand what it means for their business.

Whether dealing with financing, federal grants or subsidized loans, AIP will utilize relationships to assist clients with applications, development of business plans and proposals, and the completion of required forms.

Additional areas of financial assistance would include determining: Cost of production; Most profitable products; Return on investment; etc.

Marketing

AIP can assist businesses with marketing strategy (branding, positioning, etc.), market/feasibility research, and developing a business case for value-added products.

AIP's relationships with a variety of State agencies and sales/distribution channels can open new doors for increasing the sales and reach of agribusiness products.

Technical Farming

Through our relationships with the University of Hawaii system and other agencies, AIP is able to assist clients in identifying resources that can address technical farming issues such as disease, pests, and other production issues.

Additionally, AIP consultants have extensive backgrounds in Process Improvement and can effectively review current production practices for improvement.

Who we are...

Steven Chiang, Director—Brings experience serving a wide variety of companies as a technology and management consultant for a global consulting firm. In addition, Mr. Chiang has served as a business manager for a global outsourcing firm, CIO at a Hawaii 250 company, and VP of Marketing for a small business.

Notable clients include Charles Schwab, First Insurance Co. of Hawaii, Zippys, ITO EN, Paradise Beverages, JTB, Seibu, and Lion Coffee.

Bradley Char, Consultant—Brings experience in management and technology consulting as a manager at a global consulting and accounting firm. Mr. Char has also served as project manager at a large utility company, auditor for a global accounting firm and consultant to several small businesses providing accounting, financial and information management services.

Notable clients include First Hawaiian Bank, Maui Land & Pineapple, Barclays Global Investors, Shorenstein Company, and MH Electric Co.

Erik Shimizu, Consultant—Brings experience in management consulting and auditing for global consulting and accounting firms. He served clients in auditing, project management, business process improvement, enterprise resource planning implementations, and litigation support.

Notable clients include various State of Hawaii Departments, Kapi'olani Health, Maui Land & Pineapple, Kaiser, and Kamehameha Schools.

Janel Yamamoto, Consultant—Brings experience in financing, regulatory compliance, and process improvement at Hawaii's largest financial institutions. She performed due diligence for a wide variety of business financing, developed and managed policies and procedures, and worked with State and Federal agencies in her role as VP of Hawaii's largest bank.

In addition to her many clients in the financial arena, Janel also assisted with the foundation and operation of small businesses in Hawaii.



Top 10 Benefits of Participating in the Agribusiness Incubator Program

1. **More Focus** – The development of a strategic plan will force you to get to the heart of why you are in business and will help you define what you are trying to achieve. This sets a framework in which you can make strategic decisions and determine which of the myriad of opportunities you should pursue.
2. **Have a Plan of Action** – Strategic Plans and Business Plans help you determine the practical things you should be working on now to achieve your short and long term goals.
3. **Increased Profitability** – A variety of financial analyses, efficiency improvement tactics, and marketing strategies help you increase sales, control pricing, and lower costs.
4. **Increased Confidence and Decreased Risk** – Financial and market analyses help you determine whether an investment into your business growth will pay off, giving you the confidence to move forward. Project management helps to reduce risk and increase the chance of timely success with the major projects you undertake.
5. **Better Chance of Obtaining Financing or Funding** – Business Plans are critical to communicating to lenders and grant providers that your business ideas are viable and realistic, greatly increasing your chances of obtaining financing or receiving grants.
6. **Stronger Control Over Your Operations** – Reduce the chaos, unknowns, and fire fighting in managing your business with financial systems and plans that let you be proactive instead of reactive.
7. **More Information for Better Management** – Financial and production tracking systems give you the information to manage your business and make better decisions.
8. **Increased Productivity** – Access to technical farming expertise through our connections and production analyses help you get more and better products from your existing resources.
9. **Increased Chance of Success** – How do you define success? Does it include more money, an easier work life, a better business reputation, a larger operation, or creating a legacy for your children? The Agribusiness Incubator Program helps you become more successful as YOU define it with a wide variety of business consulting services tailored to your business.
10. **Experienced Feedback** – Discuss your business ideas and challenges with a team of business consultants possessing years of experience working with a wide variety of businesses. Participation in the program is just the start of a valuable ongoing relationship that will support your business as you grow.



Sampling of testimonial excerpts for the Agribusiness Incubator Program (AIP):

“With the help of the Agribusiness Incubator Program, we have learned how to take a strategic approach to reach our goals and objectives, and now have the processes and tools to execute our strategy. Based on our experience, many of our fellow farm operators face similar issues in the management of their businesses and would benefit greatly from working with the Agribusiness Incubator Program.”
-- Plant nursery, Hawaii

“We have been very impressed with the expertise [of AIP]. ...this level of expertise and consulting for people like us in agriculture is vitally important... We feel very fortunate and privileged to be a participant.”
-- Flower nursery, Hawaii

“Not only has [AIP’s service] been of the highest quality, but [AIP] has repeatedly shown [their] commitment and passion for enabling Hawai’i farmers to build successful businesses.”
-- Large agriculture and land operation, Maui

“[AIP has] helped us come a long way... helped us create a new company... [and] given us the confidence to move forward with our new venture.”
-- Fruit and vegetable farm operation, Oahu

“[AIP has] helped us to create two value-added products... guided us throughout the entire process and has been active consultants in our journey to create a new business and value-added product lines... [AIP consultants] are not only effective business consultants, but also are caring and insightful individuals...”
-- Salad greens farmer, Oahu

“[Our company] owes its existence in large part to the dedicated efforts and expert advice bestowed upon us from the entire team at the Agribusiness Incubator Program.”

-- Hawaiian taro farmer, Maui

“This program has been very helpful to our business. [AIP consultants are] very professional, accessible, and willing to work around my very busy schedule.”
-- Tomato farmer, Oahu

“Our financial people were very appreciative of the layout and depth [of a business plan AIP developed], complimenting the final product on its full coverage... [AIP] has proven its value to me and my colleagues. We have seen what it can do and have been impressed.”
-- Development company, Maui

“Too many existing farmers lack the business acumen and confidence to undertake expansion. Potential farmers are often reluctant to establish a business due to lack of knowledge and/or have no plan to ensure a viable operation. The [AIP] has, and would continue to address these issues.”
-- Large landowner, Kauai

“The opportunity to have been selected as a client business to receive the type of counseling and support that I have received is a godsend... [The services provided by AIP] will enable me to procure funding for my fledgling business... [AIP provides] access to knowledgeable, sympathetic experts who can provide appropriate guidance and monitoring, ultimately giving [businesses like mine] a proverbial “clean slate” upon which success can be written.”
-- Specialty grass nursery, Oahu

“AIP is exactly what farmers and others in the commerce of agriculture need in order to focus on the business side of our enterprises... Much Mahalo for a job well done!”
-- Organic farming organization, Oahu