

**LINDA LINGLE**  
Governor



State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512

**SANDRA LEE KUNIMOTO**  
Chairperson, Board of Agriculture

**DUANE K. OKAMOTO**  
Deputy to the Chairperson

# **LATE TESTIMONY**

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

**BEFORE THE HOUSE COMMITTEE ON HAWAIIAN AFFAIRS  
WEDNESDAY, FEBRUARY 18, 2009  
9:10 A.M.  
ROOM 329**

**HOUSE BILL NO. 1663  
RELATING TO TARO SECURITY**

Chairperson Carroll and Members of the Committee:

Thank you for the opportunity to testify on House Bill No. 1663. The purpose of this bill is to establish a ban on the planting, growing and testing of genetically modified "Hawaiian taro" in the State of Hawaii. In addition, this bill seeks to list certain varieties of taro known to have been grown in Hawaii over the past sixty years as "Hawaiian taro". The Department respects that the growing of taro is an integral part of the Hawaiian culture. However, this issue seems to have a broader implication reaching beyond the Hawaiian culture. Due to the risks to taro from invasive species and serious concerns that this measure may be used as a means to prevent research and use of biotechnology for other important crops, we must oppose this measure as proposed.

The Taro Security and Purity Task Force was established with the signing of Act 211 in July 2008. This taskforce, comprised of taro farmers, cultural practitioners, regulatory agencies, and the scientific community is finally moving forward with meaningful discussion in hopes that satisfactory non-GMO solutions can be found to address many of the issues concerning taro farming in Hawaii.

Taro plants in Hawaii continue to remain vulnerable to the introduction of foreign pests and disease. Due to federal preemptions, the Department is not provided notification of arrivals or information on the origins of foreign taro that is allowed to enter Hawaii without State inspection. The Department will continue to work with our Congressional Delegation to overcome federal policies even as we continue efforts to build and secure joint federal-state inspection facilities to deal with both foreign and domestic imports. These solutions will not happen quickly and given that the threats to taro and other crops are very real, we caution against limiting the tools available to combat these threats.

Agriculture, from its beginning to present, has suffered from pest and disease infestation causing enormous, unpredictable losses in food production. Biotechnology is a critical tool used in many countries to combat crop threatening insects and diseases. Without the biotech development of the ringspot virus resistant papaya, all papaya production in Hawaii, both conventional and organic would have been devastated by the disease. There is a perception, promoted by opponents to biotechnology, that there is something inherently wrong with the technology which is contrary to what is widely accepted by the scientific community.

The loss of taro or any major industry in agriculture, by any means, would be devastating to Hawaii. However, advancements in biotechnology exist only through continued research. Passage of this bill will take away a valuable tool available to us which may prevent industry losses. Some threats have already arrived, while others are knocking at the door. We hope that serious consideration is given to the known threats of diseases and pests to taro versus the perceived fears of biotechnology.

Agriculture is already at a critical state as battles rage over water, land and limited resources. Instead of undermining ongoing efforts to seek alternative solutions, let us continue to support co-existence among all agricultural sectors.

# LATE TESTIMONY



## **HB 1663, RELATING TO TARO SECURITY** House Committee on Hawaiian Affairs

February 18, 2009  
Room: 329

9:10 a.m.

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The Office of Hawaiian Affairs (OHA) **SUPPORTS** House Bill 1663, which would prohibit any individual from developing, testing, propagating, releasing, importing, planting or growing genetically modified taro in Hawai'i. OHA supports this measure as an important recognition of a plant that has genealogical, spiritual and cultural links with Native Hawaiians and Hawai'i. Furthermore, kalo is integral to the identity of Native Hawaiians and, thus, the State of Hawai'i as a whole.

The traditional mo'olelo of Wākea and Papahānaumoku explains that the first kalo plant, Häloanakalaukapalili, is the elder brother of Native Hawaiians. As the elder sibling, Häloa provides sustenance to Native Hawaiians, and in return, we, the younger sibling, care for him and ensure that he flourishes. The bond that connects Native Hawaiians to kalo remains a sacred one, and our kuleana dictates that we preserve that bond and protect Häloa. A living entity of this eminence cannot be modified or scientifically "improved." He must be honored and left alone.

OHA recognizes that Häloa is facing many challenges today, including diseases, invasive species and a dearth of water and farmable land. However, we believe that there are natural alternatives to genetic engineering - such as fallowing lo'i, restoring stream flows and improving the overall health of the environment - that have yet to be fully explored. We suggest scientists work with kalo farmers and the Native Hawaiian community to conduct a complete and comprehensive examination of these natural methods, which are neither intrusive nor offensive to Häloa or our culture.

OHA respectfully urges the committee to PASS H.B. 1663, and we thank the committee for the opportunity to testify.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

Testimony Presented Before the  
House Committee on Hawaiian Affairs  
February 18, 2009 at 9:10 a.m.

by  
James R Gaines  
Vice President for Research, University of Hawai'i

### HB 1663 RELATING TO TARO SECURITY

The University of Hawaii supports this bill with amendments.

The University of Hawaii (UH) is sensitive to and mindful of the spiritual and cultural significance of taro in Hawaii. By releasing its patents on non-Hawaiian, disease resistant, traditionally cross-bred, hybrid taro into the public domain and entering into an agreement to consult with the Hawaiian community before conducting any research on genetically engineered Hawaiian taro, the University has demonstrated not only its respect for the cultural significance of Hawaiian taro, but also its desire to expand and enhance its interactions with the Hawaiian taro farmers and the native Hawaiian community.

UH is working on many fronts to establish trust with the Hawaiian community, including, among other efforts, its participation on the Taro Task Force. That Task Force, created by the Legislature as Act 211 in 2008, is currently meeting and driving positive dialogue to address the multitude of threats to Hawaiian taro. We believe it would be prudent for this Legislature to examine the outcomes of the Taro Task Force's efforts before supporting any further legislation regarding taro research.

Although the UH is a publicly funded university, its research obligations reach around the world. Our expertise in ocean sciences, tropical ecology and Asian & Pacific languages not only make us the best university locally, but one of the most highly respected university in the Pacific region. We believe that research on Hawaiian taro in Hawaii should only be done at the invitation of the Hawaiian community. We also believe however, that the research expertise of the UH cannot be legislated away from the real needs of real people in developing nations who are challenged by the loss of their staple taro crops due to the effects of new diseases and global warming and the pressures of overpopulation.

The UH proposes that this bill be amended such that research and development of non-Hawaiian taro varieties can be conducted in Hawaii within certain limits. These limits would allow laboratory and greenhouse development of new, non-Hawaiian, taro varieties, but would prohibit the testing of these varieties in unsecured facilities or release into the environment of Hawaii. Field testing and commercial propagation of successful new varieties would only be done outside of the state.

The UH strongly believes that any legislation should use an accurate and scientifically accepted definition of terms. The definition of "genetic modification" as provided in this bill is scientifically inaccurate and serves only to add confusion to this issue. Furthermore, the term "release" is defined only in terms of genetic engineering. We suggest that the term "genetic engineering"

and an appropriate definition replace “genetic modification” in this bill as this is the accurate intent of this legislation.

In closing, UH reiterates that it is not now, nor does it have plans to genetically engineer Hawaiian taro. UH has an agreement in place with the Hawaiian community and UH has every intention of upholding the terms of that agreement. We continue to participate in the Taro Task Force in order to build trust and keep communication with the Hawaiian taro farmers clear and open. We firmly believe that by working together we can find a middle ground where culture and science can complement each other.

Thank you for the opportunity to testify on this bill.



Association of Hawaiian Civic Clubs  
P. O. Box 1135  
Honolulu, Hawai'i 96807

**LATE TESTIMONY**

TESTIMONY OF LEIMOMI KHAN, PRESIDENT  
IN SUPPORT OF TARO FARMERS REGARDING

**HB 1663, RELATING TO TARO SECURITY**

**Committee on Hawaiian Affairs**

**Hearing date and time: Wednesday, February 18, 2009, 9:10 a.m., Room 319**

Aloha Chairperson Carroll, Vice Chair Shimabukuro, and Members of the House Committee on Hawaiian Affairs. Thank you for this opportunity to testify on House Bill 1663, which recognizes the importance of the kalo, or taro, in the heritage of the State and which prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawaii.

The Association is a growing national confederation of fifty-five Hawaiian Civic Clubs, located throughout the State of Hawai'i and in the States of Alaska, California, Colorado, Illinois, Nevada, Utah, Virginia, Washington State, and Tennessee. It initiates and works to support actions that enhance the civic, economic, educational, health and social welfare of our communities, and in particular, the culture and welfare of the Native Hawaiian community.

The Association supports taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to kalo.

This position is supported by several resolutions passed by delegates at annual conventions that express concerns relating to genetic modification of native natural resources.

On November 2, 2002, the Association passed a Resolution which urged the State of Hawai'i to place a moratorium on all bioprospecting expeditions currently being undertaken on public lands, submerged lands, and natural resources under the State's jurisdiction until such time as an appropriate legislation can be enacted.

On November 15, 2003, the Association passed three Resolutions. Resolution 2003-38, expressed concern that multinational corporations were misappropriating Hawaiian natural resources such as Hawaiian healing plants for commercial purposes with no compensation to the State of Hawai'i or to the Hawaiian people;

Resolution 2003-14, urged the University of Hawai'i to cease development of the Hawaiian Genome Project or other patenting or licensing of Native Hawaiian genetic material until such time as the Native Hawaiian people have been consulted and given their full, prior and informed consent to such project; and

Resolution 2003-13 urged the State legislature to enact legislation, in consultation with Native Hawaiians, that recognizes and protects the Native Hawaiian peoples' collective traditional knowledge, cultural expressions, art forms and intellectual property rights, including requiring that all cultural content that has been acquired under free prior informed consent; reserving the right to refuse to participate or authorize use of intellectual property rights; requiring that all cultural content has been reviewed for accuracy and appropriateness; retaining copyright authority over all indigenous knowledge that is shared with others for documentation purposes; insuring controlled access for sensitive cultural information that has not been explicitly authorized for general distribution, as determined by members of the local community; and arranging for benefit sharing agreements.

On October 5, 2005, the Association passed Resolution 2005-23, which resolved that the legislature of the State of Hawai'i and the University of Hawai'i be asked to impose policies to safeguard and protect Hawai'i's public trust resources from genetically engineered and bioprospecting threats, in consultation with Native Hawaiian organizations.

On November 30, 2007, the Association passed Resolution 2007-091, which urged the State of Hawai'i to require labeling of all products containing GMO substances.

Thank you for this opportunity to testify in support of taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to kalo.



**KAHEA**  
THE HAWAIIAN-ENVIRONMENTAL ALLIANCE

# LATE TESTIMONY

## H.B. 1663- In Support

February 18, 2009, State Capitol Rm. 329  
House Committee on Hawaiian Affairs

Aloha mai kakou Chair Carroll, Vice-Chair Shimabukuro and Committee Members,

We write in **strongest possible support of H.B. 1663**, calling for a ban on the genetic modification and patenting of kalo (taro).

KAHEA: The Hawaiian-Environmental Alliance is comprised of over 7,000 individuals and organizations, Native Hawaiian cultural practitioners, kūpuna, conservationists, scientists, and educators working to protect Hawai'i's unique natural and cultural resources. We firmly believe that because "the land and the people are one," protecting Hawai'i's unique cultural heritage means defending our natural environment, and the public trust resources upon which our cultural practices depend.

Traditional taro farming is a unique and cherished cultural practice in Hawai'i. From working together to build 'auwai and lo'i to helping each other "pull" taro and trading huli for the next season, taro cultivation affirms traditional Native Hawaiian principles, identity, beliefs and health. It is where the land and the people literally become one. Like the rights afforded to cultural practice for gathering and accessing the shoreline, the traditions of taro farming in Hawai'i deserve of our highest protections.

Genetic modification and patenting of kalo is culturally inappropriate. Kalo is both a fundamental and sacred food source to Hawaiians, who understand that their shared ancestry began with Hāloa, the Kalo. Hāloanakalaukapalili was the first kalo plant born to Hawai'i's gods. He fed his younger brother, Hāloa, the Human - the first human ancestor of Hawaiians. Hāloa, the Human, was given the kuleana (responsibility) to care for his older brother, Hāloa the Kalo, who would in turn provide food for all humans.

There is no scientific research that proves that GMO-taro is safe for native ecosystems or for human consumption. In a social context, the consequences of privately owning and patenting taro are far-reaching and detrimental to the tradition and economy of taro farming in Hawai'i. When the risks of a particular decision are not well-understood, yet potentially severe and far-reaching, decision-makers should abide by the precautionary principle and proceed with extreme caution.

PROTECTING

NATIVE HAWAIIAN

CUSTOMARY &

TRADITIONAL RIGHTS

AND OUR FRAGILE

ENVIRONMENT

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KAHEA: the Hawaiian-Environmental Alliance is a non-profit 501(c)3 working to protect the unique natural and cultural resources of the Hawaiian islands. KAHEA translates to english as "the call."

What we do know, is that GMO-taro can cross-pollinate with native kalo varieties and have effects upon soil and human health. We also know that the unknown longterm and potentially dangerous effects to the species, our environment and our local agricultural economy may be irreversibly permanent!

Informed community consent for genetic modification of kalo has not been sought. GMO-taro has no proven benefits to taro farmers or consumers that would justify the threats and risks posed to the great many who depend on kalo for a livelihood and for sustenance. Hawaiians have been successfully breeding and farming many varieties of kalo for two thousand years- time and experience have proven that species diversity and access to clean water and land is what is needed for a sustainable agriculture industry that can feed our islands.

Where the risks are unknown and the consequences irreversible, decision makers should abide by the precautionary principle and proceed with the greatest caution. We strongly urge this Legislature to fulfill its obligation to the people of Hawai'i by embracing a precautionary approach to the genetic modification and patenting of taro by passing H.B. 1663. Mahalo for the opportunity to submit this testimony in strongest support of a ban on GMO-taro.

Malama 'Āina,

Miwa Tamanaha  
Executive Director

Marti Townsend  
Program Director



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# LATE TESTIMONY

## TESTIMONY

### RE: HB 1663 RELATING TO TARO SECURITY

Chair Carroll and Members of the Committees:

Hawaii Farm Bureau Federation is Hawaii's general agriculture advocacy organization. We represent commercial farmers and ranchers across the State. HFBF is in strong opposition if HB 1663 which prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawaii.

Commercial farmers and ranchers are in constant search of new technologies to advance the long term sustainability and viability of their operations. Genetic modification of crops is the latest technology that has advanced the development of new varieties providing farmers with a tool to outpace the increasing costs faced by the industry. Contrary to frequent statements, GM crops are among the most tested to be introduced into the fields. They are subjected to experiments and analysis far beyond that for conventional or mutational breeding processes. For us in Hawaii, the results are tangible. Without GM, the papaya industry would not exist and the pockets of organic papaya would not be possible due to the prevalence of the Ringspot virus.

All of these technologies take time. When one recognizes the urgency to develop the technology because of a problem it will be too late. We urge the committee to consider all of the ramifications as decision on this measure is made. What is the decision between having a GM taro or having no taro?

Despite statements to the contrary techniques are available to protect the genetic integrity of culturally important varieties and we strongly support the implementation of those practices for cultural plantings in contrast to commercial plantings.

Hawaii Farm Bureau is in support of our commercial taro farmers and respectfully urges that HB1663 be held. Thank you for this opportunity to provide comment on this measure.



# SIERRA CLUB HAWAI'I CHAPTER

P.O. Box 2577, Honolulu, HI 96803  
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## LATE TESTIMONY

### HOUSE COMMITTEE ON HAWAIIAN AFFAIRS

February 18, 2009, 9:10 A.M.

### TESTIMONY IN SUPPORT OF HB 1663

Chair Carroll and Members of the Committee:

The Sierra Club, Hawai'i Chapter, with nearly 5500 dues paying members statewide, supports HB 1663, prohibiting the development, testing, propagation, release, importation, plandin, or growing of genetically modified taro plants in the State of Hawai'i.

Genetically modifying organisms—the practice of splicing DNA from bacteria, viruses and other organisms into plants to lend them certain traits, like resistance to chemical weedkillers—poses extreme risks to our common environment. Manipulation of genetic material by inserting bacteria, plant, animal, and human genes into food products is a radical departure from traditional breeding techniques and represents an unprecedented break with natural processes.

In Hawai'i, such genetically modified organism (GMO) biotechnology is mainly experimental. Most of the experiments are taking place not in a laboratory, but in the open air, in locations concealed from the public. In fact, Hawai'i has had more plantings of experimental biotech crops than anywhere else in the nation—or the world.

Hawaii's small size, its close proximity of agricultural and populated areas, and its unique, sensitive, natural environment combine to dramatically raise the stakes of testing GMO crops here. A December 2005 report from the Inspector General of the US Department of Agriculture (USDA), found that USDA's inadequate safeguards "increase the risk that genetically engineered organisms will inadvertently persist in the environment before they are deemed safe to grow without regulation."

While decision makers are just beginning to understand the magnitude of the problem in Hawai'i, Taro is an important, cultural crop that is immediately at risk. This crop is primarily grown by small, local farmers. It also has significant cultural importance. To adequately protect the environment and the Hawai'i taro industry, we should put an immediate halt to continued development of GMO Taro.

Thank you for the opportunity to testify.



## LATE TESTIMONY

### Waikīkī Hawaiian Civic Club

President, Malia Nobrega

[malianob@gmail.com](mailto:malianob@gmail.com)

E HUKI LIKE!

#### TESTIMONY IN STRONG SUPPORT OF HB 1663, RELATING TO TARO SECURITY

Hearing Date: February 18, 2009

Time: 9:10am

Conf. Room: House Conference Room 329

Committee: HAW

Submitted by: Malia Nobrega, President, Waikīkī Hawaiian Civic Club

Mahalo nui for the opportunity to provide testimony in **strong support of HB 1663** relating to taro security and placing a prohibition on the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawai'i.

My name is Malia Nobrega and I'm the President of Waikīkī Hawaiian Civic Club and a Native Hawaiian concerned about the sustainability of our unique environment that my kupuna took care of and lived off of, and that Native Hawaiians today struggle to protect for our use and for generations to come.

Waikīkī Hawaiian Civic Club strongly supports this bill because of the prohibition it places on the genetic modification of Taro in the State of Hawai'i. **This prohibition on the genetic modification of all taro here on our aina, our kulaiwi, our one hanau is vital to malama or care for kua'ana or older sibling, our mea ola or biodiversity, our mea'ai or food that we sustain ourselves with.**

Taro or kalo is a part of my genealogy as my elder sibling. It is not just food that we put on our table but a part of our 'ohana. We are appalled that researchers feel that they can genetically engineer our taro and play around with our genealogy and our family members. 'A'OLE!!!!

#### **Paoakalani Declaration Addresses This Issue**

Waikīkī Hawaiian Civic Club helped to organize and participated in the two Ka 'Aha Pono-Native Hawaiian Intellectual Property Rights Conference. This conference gathered Kanaka Maoli including kumu hula, elders, artists, teachers and academics, attorneys, and many others

concerned about this very topic. Those gathered at Ka 'Aha Pono produced the Paoakalani Declaration which is a unifying statement that collectively shares the responsibility to determine a pono future for Hawai'i nei, her culture, and indigenous peoples. The Paoakalani Declaration addresses the issue of bioprospecting and states that:

- We have the right to free, prior and informed consent before research relating to our biological resources commences. Researchers, corporations, educational institutions, government or others conducting such research must fully and entirely inform Kanaka Maoli regarding the purposes of their research and recognize our right to refuse to participate.
- Biological samples are being transferred, traded, bought, and sold without the agreement or consent of our peoples, in violation of our inherent human rights.
- Although biological and genetic samples have been transferred, sold, patented or licensed, Kanaka Maoli never relinquished our rights to our biological and genetic materials and, therefore, call for the rightful repatriation of such samples and due compensation.
- We further support a moratorium on patenting, licensing, sale or transfer of any of our plants, animals and other biological resources derived from the natural resources of our lands, submerged lands, waters, and oceans until indigenous communities have developed appropriate protection and conservation mechanisms.

#### **Waikiki Hawaiian Civic Club's Commitment To Protect Hawai'i's Biodiversity**

The Association of Hawaiian Civic Clubs has adopted four resolutions relating to research at the University, the collective intellectual property rights of Native Hawaiians, and the protection of Hawai'i's flora and fauna, over the past four years. One resolution adopted in 2002 calling for regulation of bioprospecting. Two others passed in 2003 related to the collective intellectual property rights of Native Hawaiians as well as a proposed Hawaiian Genome Project at the UH Medical School. In 2005, the Association of Hawaiian Civic Clubs urges the Hawai'i State Legislature to enact legislation to protect Hawai'i's flora and fauna. Collectively, these Civic Club resolutions and the Paoakalani Declaration evidence a strong conviction of the Hawaiian community to protect Hawai'i's biological resources and our related rights. The resolutions and the Declaration also indicate our concern regarding activities of the University and its researchers to undermine our rights.

In January 2006, the O'ahu Council of Hawaiian Civic Clubs has taken a position against the manipulation and patenting of our biodiversity, namely our kalo.

We continue to produce educational videos and organize community workshops related to protecting our biodiversity in Hawai'i and it's implications. We have committed ourselves to work to create legislation and continue educational efforts in the community regarding our biodiversity. In particular, the Waikiki Hawaiian Civic Club offers its assistance to your committee.

Mahalo again for this opportunity to testify and share my mana'o regarding Hawai'i's biodiversity.

Aloha,  
Malia Nobrega



**HB1663: RELATING TO TARO SECURITY**

DATE: February 18, 2009  
TIME: 9:10AM  
PLACE: Conference Room 329

TO: Committee on Hawaiian Affairs  
Representative Mele Carroll, Chair  
Representative Maile Shimabukuro, Vice Chair

FROM: Lisa Gibson  
President  
Hawaii Science & Technology Council

**RE: Testimony In Opposition to HB1663**

Aloha Chair, Vice Chair, and Members of the Committee,

The Hawaii Science & Technology Council (HISciTech) stands in opposition to HB1663. HISciTech opposes any legislation that restricts scientific discovery. We do not believe legislation is the appropriate process to address concerns having to do with research.

*The Hawaii Science & Technology Council (HISciTech) is a 501(c)6 industry association with a 28-member board. HISciTech serves Hawaii companies engaged in ocean sciences, agricultural biotechnology, astronomy, defense aerospace, biotech/life sciences, information & communication technology, energy, environmental technologies, and creative media.*

Thank you for the opportunity to testify.

Sincerely,

Lisa H. Gibson  
President

**DOWLING  
COMPANY, INC**

February 11, 2009

**House Committee on Hawaiian Affairs and Committee on Housing  
Hearing Date: February 11, 2009, at 9:50 AM in CR 329**

**Testimony in Support of HB 1612. Relating to Affordable Housing  
(Permits the Department of Hawaiian Homelands to receive affordable  
housing tax credit)**

Honorable Chairs Mele Carroll and Rida Cabanilla, Vice-Chairs Maile Shimabukuro and Pono Chong and HAW-HSG Committee Members:

My name is Jennifer Stites and I am the Green Development Manager for Dowling Company, Inc. ("DCI"). DCI is a Maui-based real estate development company that is committed to building in balance.

DCI **supports HB 1612, with an amendment for clarification.** The bill as current written would permit the Department of Hawaiian Homelands (DHHL) the ability to receive and subsequently assign, transfer, or exchange county affordable housing tax credits. We propose an amendment be added to clarify that county affordable housing tax credits may be assigned, transferred, or exchanged anywhere within the County in which they were generated.

This bill with the proposed amendment provides an alternative tool for developers who want to invest in affordable housing projects. Extension of the tax credit for DHHL projects will encourage developers to consider DHHL sponsored projects. Access to affordable housing is critical to our communities and any further delay of incentives that encourage affordable housing projects will assist in ending the housing shortage crisis.

Based on the above, we respectfully request your **favorable consideration of HB 1612.**

Thank you for the opportunity to express our **support for HB 1612 with our proposed amendment for clarification.**

## Kauai County Farm Bureau

*Affiliated with Hawaii Farm Bureau Federation*

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***The Voice of Kauai's Agriculture***



February 18, 2009

ATTN: Rep. Mele Carroll, Chair  
Rep. Maile S.L. Shimabukuro, Vice Chair

RE: HB 1663: Relating to Taro Security

HEARING DATE: Wednesday, February 18, 2009; 9:10am, room 329

Aloha Chair Carroll and members of the committee:

**The Kauai County Farm Bureau opposes HB1663 which prohibits the development, testing, propagation, release, importation, planting or growing of genetically modified taro in the State of Hawaii.**

Affiliated with the Hawaii Farm Bureau Federation, the Kauai County Farm Bureau is a non-profit organization representing over 300 farming families on Kauai united for the purpose of analyzing problems and formulating action to ensure the future of agriculture and promoting the well-being of farming.

As a general agriculture advocacy organization, we represent commercial farmers and ranchers around the island. Commercial farmers and ranchers are in constant search of new technologies to advance the long term sustainability and viability of their operations. Genetic modification of crops is the latest technology that has advanced the development of new varieties providing farmers with a tool to outpace the increasing costs faced by the industry. Research is an essential ingredient of innovation, not only to move the industry forward but also to help protect farmers from challenges that arise.

Please support our commercial Taro farmers on Kauai by supporting continued research in this area. GM has demonstrated some benefits already in this area related to other crops. Without GM the papaya industry would not exist and the pockets of organic papaya would not be possible due to the prevalence of the Ringspot virus. This kind of research can be an asset to all growers, even if these farmers never plant GM crops. Farmers already face many challenges to face in developing a viable commercial operation. We urge the committee to consider all of the ramifications as a decision on this measure is made.

Techniques are available to protect the genetic integrity of culturally important varieties and we strongly support the implementation of those practices for cultural plantings in contrast to commercial plantings.

Kauai County Farm Bureau is in support of our commercial taro farmers and respectfully urges that HB1663 be held. Mahalo for your time and consideration. Please do not hesitate to contact me should you have any questions.

Sincerely,

Roy Oyama, President

On behalf of the Kauai County Farm Bureau board

Personal contacts: 808-332-9426 [oyama\\_farm@yahoo.com](mailto:oyama_farm@yahoo.com)

□ TSUNAMI

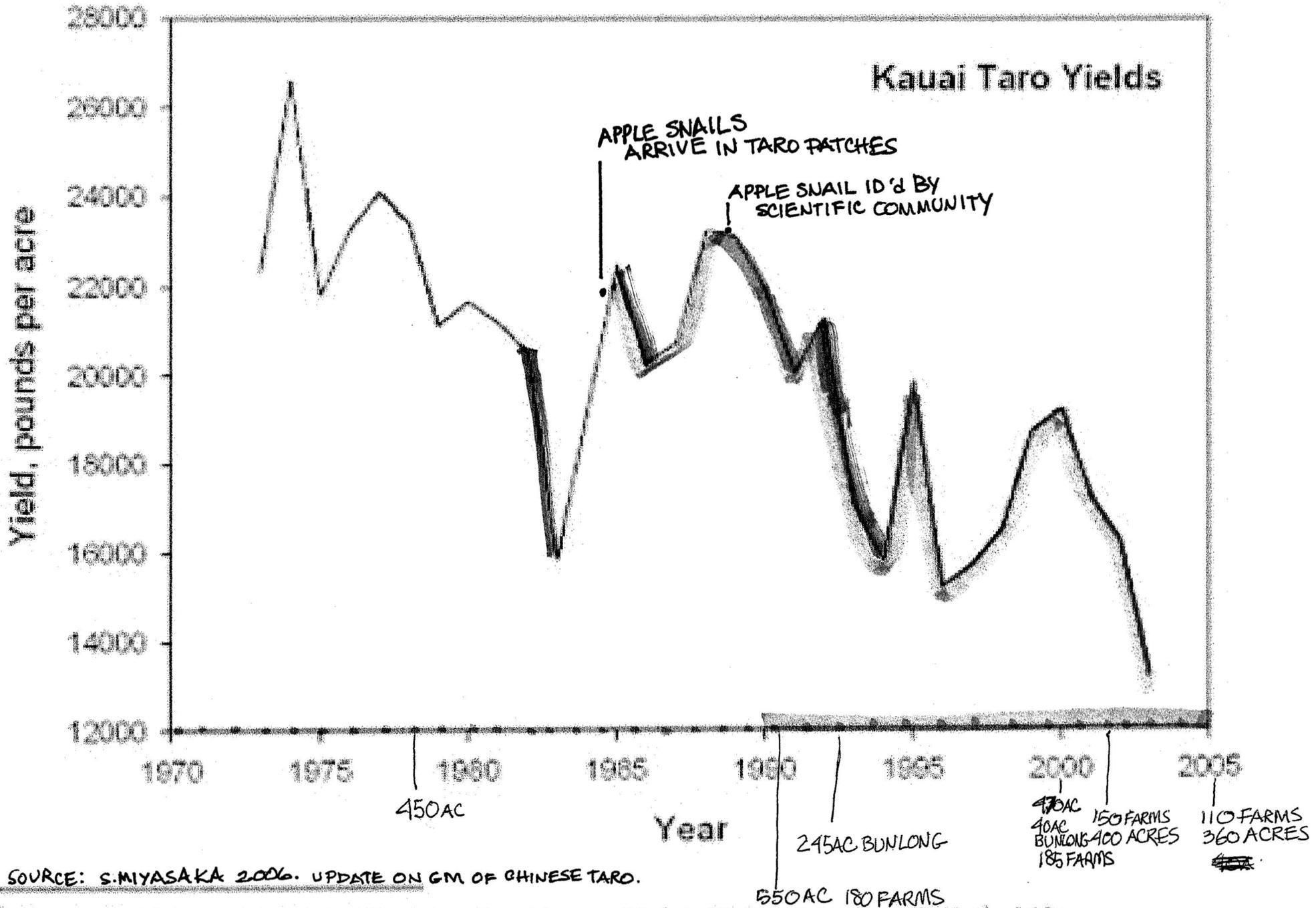
■ DRYLAND PRODUCTION

..... CHEMICAL FERTILIZER

■ HURRICANE

■ APPLE SNAIL

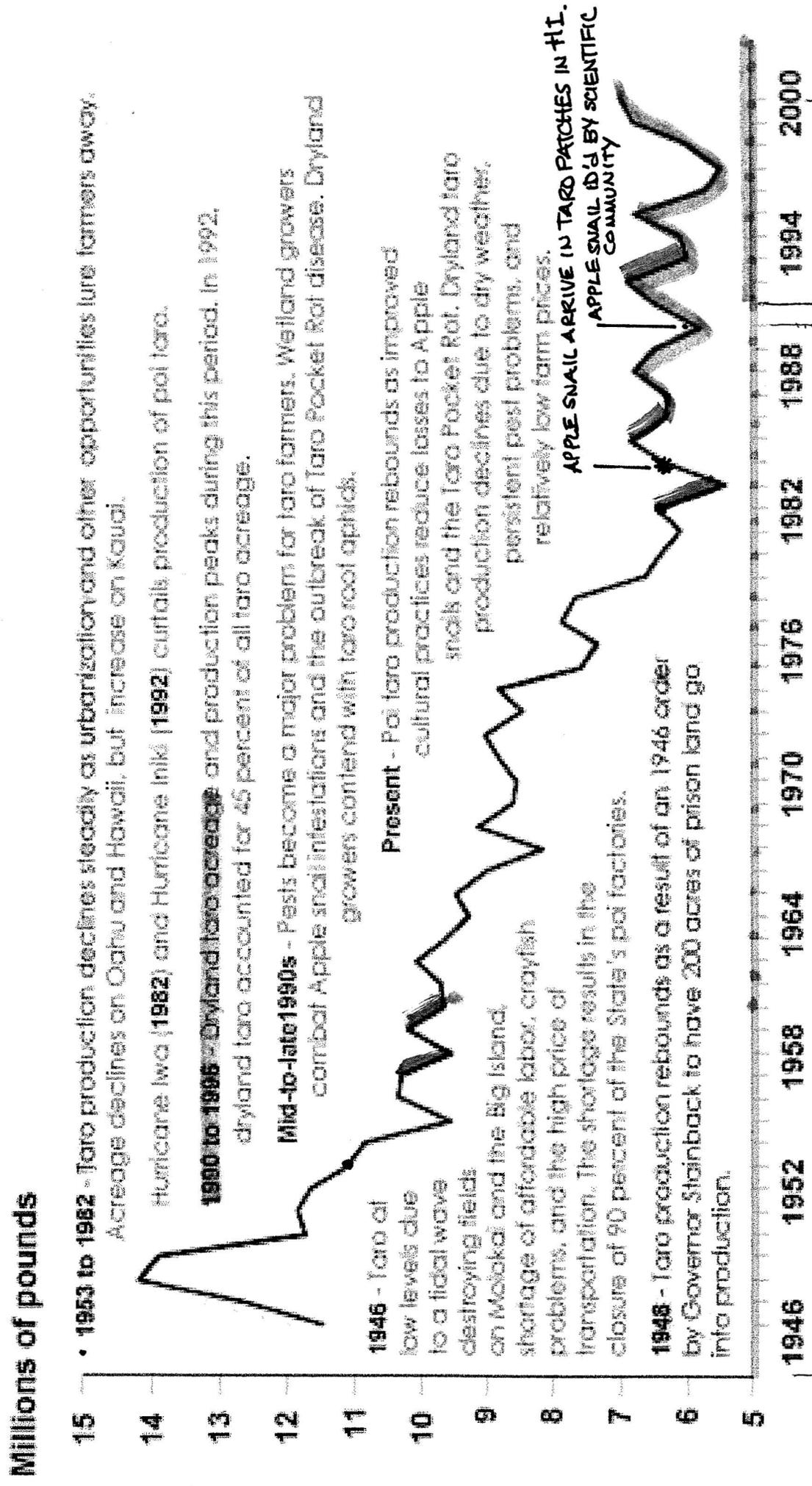
# LATE TESTIMONY



~~U.S. Craighill Handy, 1940, The Hawaiian Planter, Vol. 1, Bishop Museum Bulletin 161~~

TSUNAMI   
  DRYLAND PRODUCTION   
 \* \* \* CHEMICAL FERTILIZER USE  
 HURRICANE   
 APPLE SNAIL

## Hawaii Taro Marketings, 1946-2000



Hawaii Agricultural Statistics Service, 4/2001

APROX. 1250 AC

**Mark Alapaki Luke**  
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**808-973-0975, markluke@hawaii.edu**

# LATE TESTIMONY

## TESTIMONY- IN SUPPORT Ban of Genetically Modified Taro

Aloha Honorable Legislators,

For over 1200 years farmers in Hawai'i have cared for and have protected the most extensive collection of varieties of taro on the planet. In Hawai'i, taro is the plant of the people- it is our living culture and ancient history, native nutrition and ecological tradition. Taro provides a beloved and unique hypoallergenic food, medicine, sustainable agriculture, and industry for Hawai'i. Genetically modifying any variety of *kalo* (taro) is culturally disrespectful and also poses irreversible and irresponsible dangers to our food, health, environment and economy.

Native planters of the *wā kahiko* (old days) were proficient in managing over 300 varieties of *kalo* tailored for different uses, these varieties were acquired through natural propagation and farming. From these *kūpuna* (ancestors and elders) we have been fortunate to receive their *ʻike* (knowledge) and live a lifestyle that is perpetuated with planting *kalo*, researchers and corporations are willing to disrespect this tradition that has been working of many generations. Each variety has qualities suited for different environments and uses, therefore satisfying sustainability and longevity. Other work around the world with genetically engineered crops have unfolded inevitable risks, such as elimination of diverse crops, and risk of famine due to catastrophic loss of crops that are the sole surviving species. These unknown risks are alarming, and at the same time ownership of the only surviving variety of *kalo* will result in a monopolized control of our most valuable source of the Hawaiian culture.

I support sustainable farming & precautionary scientific research that does not expose the taro species to the disrespect and risks of genetic engineering. I ask that the lawmakers actively support farmers/scientists in publicly accepted and safely advanced methods of protecting *kalo* by addressing land & water issues and controlling invasive pests & diseases. I also ask that the legislators pursue other avenues such as more public lands to grow *kalo* and more access to the water for growing *kalo*. I also ask the legislators to really find the truth behind the research in GMO of *kalo*, do they really want to help the farmers, or are there other reasons, what's at stake for these entities, do they enjoy *poi*? Do they have fame and money as their number one priority? Certain entities that are focused on pursuing genetically modification of *kalo* have given reasons that resemble scare tactics, they seem to know what the *kalo* planter needs, even though they aren't the taro farmers in the fields who really understand the real situation. Are they willing to give up their royalties and patents of ownership of our living ancestor, because

they “really” want to help the *kalo* industry and the people who enjoy the poi? Because of the resistance encountered from many people and organizations in recent years, GMO proponents are no longer wishing to genetically modify Hawaiian varieties, now they pursue other non-Hawaiian varieties. As scholars, I would think they know the origin for all taro, which came with the voyagers from the same place, what makes the Hawaiian varieties different from the others? More importantly, if allowed to genetically modify the non-Hawaiian varieties here in Hawai‘i, where are they going to plant these synthetic varieties, here in this ‘āina (land & environment), of Hawai‘i? This wouldn’t be *pono* (proper) and would be very disrespectful to contaminate this ‘āina, and to also be deceptive about their intentions at the same time !

*Kalo* is an incomparably sacred and valuable part of our island community. We join *mahi'ai* (farmers) of Hawai‘i in calling on you and your fellow legislators to protect all of us and Hawai‘i’s unique culture and resources by passing a law to provide a ban on the genetic modification and patenting of taro. As faculty and staff who teach the Hawaiian culture and the importance of the ‘āina which is the source of the culture, how should I explain to my students that the Hawaiian culture is not respected by Hawai‘i’s government? How do I tell them that the very foundation of Hawai‘i’s heritage is being altered by greedy and irresponsible scientific research?

In conclusion, please consider my plea for Hawai‘i to preserve our heritage and the integrity of the *kalo* plant. I am in favor of banning research and growing of GMO taro.

Mālama Pono,

Me ka ha‘aha‘a (with humility),

---

***Mark Alapaki Luke***

University of Hawai‘i at Mānoa  
Kamakakūokalani Center for Hawaiian Studies, Honolulu Community College  
& Ka Papa Lo‘i o Kānewai  
2645 Dole Street  
Honolulu, Hawai‘i 96822

To: State Senate  
State House of Representatives  
Re: Testimony in support of ban on GMO Kalo

## LATE TESTIMONY

From: John Keikiala Aana  
Taro Farmer- 30 yrs.  
Former owner- Makaweli Poi Mill, Inc.  
Former Vice President- Kauai Taro Growers Assoc.  
President- West Kauai Taro Farmers Co-op.  
Member- State Task Force on Taro Security and Purity  
Kanaka Maoli

Aloha,

I am a descendant of the Makuaole family, from Makaweli Valley, formerly known as Olokele Valley. Our family has a history of growing kalo in this area that can be traced back to pre-western contact. Unlike many Kanaka Maoli families, who were dispossessed from their kuleana lands, we have managed to hold on to our land, and continue to this day, to plant kalo, and to care for the very same aina that our ancestors cared for. We, as Kanaka Maoli, are direct descendants of Haloa, and Kalo.

We, as the indigenous people of this land, have had our lands stolen illegally, have been made to be second class citizens in our own land, and now are being attacked at the very essence of our spirit. Would we think of going to Japan or China, or any other country, and tell those people that we want to Genetically Modify their ancestors? Would the people of those countries allow that? I don't think so. But that is exactly what they are trying to do to us. This is no longer just a taro farmer issue. This is a Kanaka Maoli issue.

The Kanaka Maoli were conservationists. They practiced sustainability. They understood that what we do today will directly affect the generations to come. That is why they practiced kapu sytem, to guarantee the sustainability of their resources. They took only what they needed to sustain themselves, and left the rest to restore and replenish that resource. By doing that, they guaranteed their own survival and existence into the future.

As a commercial taro farmer for the past 30+ years, and as a poi miller for 15 yrs., I understand the economics of taro and poi production. I have seen the results of leaf blight and pocket rot, and the devastation caused by apple snails. I have seen poor quality soil and taro, resulting in decreasing yields of both taro and poi. But at the same time, I have also seen beautiful, solid taro, with no pocket rot. I have seen promising results with some hybrid taro, with old Hawaiian varieties, and with wild varieties taken from the mountains of Kauai. I know from my own experience that we can grow strong, healthy taro without genetically modifying it. GMO taro is not the answer to our problems. There are other scientific methods to develop disease resistant varieties. We as farmers, need to rotate and fallow our patches, and take the time to replenish the soil organically. If the soil is healthy, the taro will grow healthy and high yields.

But this is the problem. Large commercial farmers only grow one variety of taro and do not fallow their patches. They do not take the time to rest and replenish the land. They have kept on planting large areas just to force profits, but now they are getting more disease, snails and lower yields. There are those that think that a GMO taro is the answer to their problems, so that they can continue high intensive, mono-cropping practices, which are unsustainable into the future. Allowing GMO taro to be produced would be the beginning of the end of the taro industry. Plus, the apple snail can still eat 50% of a GMO taro. Get rid of the apple snail and production will increase by 50%. Think about it.

No one knows what the future will bring, but I hope that we can learn from the practices of our ancestors. We Hawaiians, farmers and non-farmers, know what is pono in our hearts. It is not a future based on GMOs. It is a future based on sustainability and conservation. We need to put a kapu on GMOs. We humbly ask you to support the ban on GMO research on kalo.

Mahalo for your Kokua,

*John Keikiala Aana*

Testimony transmitted by email 17 Feb 2009 from:

Penny Levin  
224 Ainahou Place  
Wailuku, Maui 96793

## LATE TESTIMONY

**TO:** Committee on Hawaiian Affairs, Rm 329, February 18<sup>th</sup>, 9:10am

**RE:** *Testimony for HB1663 Relating to Taro Security*

Aloha Honorable Committee members;

Regarding HB1662 *Relating to Taro Security*, I support the proposed legislation to protect taro in the State of Hawaii from genetic engineering.

Taro farmers have been coming out of the lo'i and traveling to the legislature for three years to lay this threat to their crop, their food, their livelihood and their culture to rest. Last year, over 7,000 people testified in support of similar legislation including taro farmers, Hawaiians, three County Councils, consumers, organic farmers, scientists, health practitioners and specialists, and other supporters from across the state. In November 2008, the County of Hawai'i passed an ordinance banning the genetic engineering of taro.

As a taro farmer with a background in science and biodiversity conservation, I have weighed the benefits and risks of genetically engineered taro carefully and found it to be too great a risk to the integrity of the plant as a traditional food crop, the environment, taro biodiversity, fragile taro markets, and consumer health. It is also inappropriate in the context of the significance of taro in Hawaiian culture.

For every proposed benefit, there are serious questions that remain in the highest standards of the science regarding the safety of transgenic crops for human consumption and the natural environment, as well as its true productivity and economic impact. The National Academy of Science, the highest regarded scientific organization in the US, along with the International Assessment of Agricultural Science and Technology for Development [IAASTD] project, the UN/Food and Agriculture Organization (FAO) and World Health Organization (WHO) support this conclusion. In 2008, IAASTD produced a rigorous 2,500 page report after a four year study involving more than 400 scientists worldwide which concluded that organic agriculture and improving access to markets would have a far greater impact than GE crops towards shifting world hunger. The study was supported by more than 30 governments and global funders, including the US, England, other European nations, the World Bank, UN/FAO, WHO and the biotech industry, who pulled out of the project because they did not agree with the recommendations of the report.

The State of California, recognizing the uncontrollable persistence and irreversibility of gmo plants that hybridize non-gmo crops or escape into adjacent fields (whether they hybridize or not), passed into law this year landmark legislation (AB541) protecting farmers from crippling lawsuits by the biotech industry over cross-contamination. The companies do not compensate farmers for contaminating their fields even when organic certification is

destroyed; rather, they consider cross-pollination or escape into other farmers' fields which can occur by wind, birds or insects to be theft of property rights. This says a great deal about who these companies really are and where their concerns lay.

But more important for taro in Hawai'i are three clear facts;

First, there are many problems that face taro that cannot be resolved by genetically modifying the plant. I have spent the last six years documenting the impacts and researching solutions with taro farmers to control the invasive apple snail, which is responsible for the highest percentage of crop and huli loss annually (Levin 2006; Hawaii Agricultural Statistics Service, multiple years). The apple snail is a major vector for other diseases that attack the taro; its razor sharp mouth creates a wound through which fungi and parasites can enter the corm, setting the stage for many forms of root rot. We know from experience and observation that solving the apple snail problem; improving soil organics, fallow durations and cultivar diversity; and restoring water to lo'i kalo will significantly reduce pests and disease occurrence and increase crop productivity. Removing the apple snails alone will eliminate an 18-25% crop loss and increase the available time a farmer has to care for his farm and his family by 50%. Proposed yield increases and disease resistance for GMO taro are hypothetical and untested; the apple snail will eat it anyway. There is no need or demand to grow GMO taro from local taro farmers or consumers. Indeed, even those few farmers who support continued gmo taro research, will not plant it in their fields. Better and safer options exist.

Second, taro will survive without genetic engineering long into the future if we attend to the sources of the problem. Taro is one of the oldest human-managed food crops in the world; its use dates back more than 50,000 years by some accounts, but it's regular cultivation can be documented to 7,000 -10,000 years ago in South and Southeast Asia. For an estimated 1,200 years, taro in Hawai'i has survived volcanic fallout, floods, droughts, pests and disease. The presence of the word, *kakane* (a leaf blight on plants) in the Hawaiian language illustrates that taro leaf blight has been around a very long time. Agricultural records show that several taro disease events occurred from the mid-1800s to the mid-1900s; but, this was *not* the primary reason for the decline of taro in Hawai'i as some would suggest. Only since the apple snail reached critical destructive mass (1990s), has the confluence of lack of cold water and poor soil quality created a corresponding persistence in disease occurrence in taro. A close look at data presented by HASS (2001) and UH CTAHR Cooperative Extension Services (Feb 2007) actually supports this understanding.

By the 1900s, many Hawaiians had lost access to both land and water. Many others died from disease, taking with them the knowledge of best growing practices and the taro varieties. In the 1930s, Chinese and Japanese farmers dominated commercial cultivation of taro, changing planting, mulching and fallow practices and cycles. Part of the decline in taro production can be attributed to changes in the market and in society. The demand for poi during the war declined significantly. A new era after WWII saw farming families urging their children to become doctors, lawyers and teachers rather than farmers; by the 1950s many people, including Hawaiians, preferred rice to poi. At the same time, farmers shifted

away from organic mulching methods to chemical fertilizer applications initiating a long, slow decline in soil quality that persists today. The number of natural disasters during that same period severely impacted the productivity of taro-growing lands. Of the 50 tsunamis reported in Hawaii since the 1800s, seven inflicted major damage. The tsunamis of 1868, 1946, 1960 and 1975 and the hurricanes of 1957, 1959, 1982, 1986 and 1992 wiped out significant portions of low-lying taro lands, including those of Waipio and Pololu, Hawai'i; Halawa, Molokai; Keanae and Wailuanui, Maui; and Hanalei, Kauai (USGS and SOEST records). Major flooding events also took their toll, such as the rains of Feb-March, 2006.

Archival records dating back to the early 1800s indicate it was attention to the soil and the water that kept the taro robust. Queen Emma herself grew taro whose corms averaged 22 inches around and documented the careful management of the soil and the plants by which she achieved this standard; something very few taro farmers still practice. She writes; *"the size of the roots depend upon the depth of loose soil, and the care bestowed on its cultivation. I have produced kalo which averaged twenty-two inches in length and the same in circumference when it was cultivated under my own eye, but far less in the same locality when the cultivation was somewhat neglected by my konohiki"* (HEN Vol. Arch. Collection, pp 76-83; undated manuscript, Bishop Museum; Queen Emma collection 71, nd, pg8).

Third, protecting the biodiversity of taro is critical to future survival and food security. Hawai'i retains many of the ancient Hawaiian taro varieties, some of which are extremely rare, along with extensive ex-situ collections of taro from throughout the Pacific, and Asia. A ban on genetically engineered taro in Hawai'i provides a buffer of protection not just from cross-pollination but more importantly from simply the inability to visually distinguish between a gmo taro and a non-gmo taro in the field. The ban would protect not just the Hawaiian varieties, but all taro cultivars found in the state, an important resource for continuing to build leaf blight resistance using conventional hand-pollination techniques - or restoring traditional varieties back to their original islands throughout the region.

What we are asking for is a return to ethics in agriculture in Hawai'i - one where the researchers, institutions, agencies and industries who *say* they wish to help farmers are actually engaged in what farmers really need and ask for rather than the pursuit of patents; where researchers also understand and take responsibility for the risks and burdens they place on us and our markets when they follow a path of their own making.

The State of Hawai'i made a commitment to taro by designating it as the State Plant and by establishing the Taro Security and Purity Task Force to address non-gmo issues for farmers in 2008. I urge the members of the Committee on Hawaiian Affairs to further this commitment by passing in full support HB1663.

Mahalo nui loa.  
Respectfully,

Penny Levin  
Taro Farmer and conservation planner, Maui

TESTIMONY IN SUPPORT OF TARO FARMERS REGARDING

HB 1663 RELATING TO TARO SECURITY

**LATE TESTIMONY**

**Hearing date, time and place:**

**Wednesday, February 18, 2009 9:10 a.m. Conf. Rm. 329**

Aloha Chairperson Carroll, Vice-Chair Shimabukuro and Members of the House Committee on Hawaiian Affairs, as well as Chairperson Tsuji, Vice-Chair Wooley and House Committee on Agriculture. Thank you for this opportunity to testify on House Bill 1663, which prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawai`i.

`Imi Hale – Native Hawaiian Cancer Network, is one of 25 Community Network Programs funded by the National Cancer Institute's Center to Reduce Cancer Health Disparities to address the cancer health disparities among Native Hawaiians. `Imi Hale is a program of Papa Ola Lōkahi, a federally recognized community-based organization focused on improving the health and well-being of Native Hawaiians. Operating on the principles of community-based participatory research, `Imi Hale emphasizes community involvement, capacity building, and respect for cultural values with tangible benefits to the community.

`Imi Hale and Papa Ola Lōkahi support taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to taro. This position is supported by cultural protocol, scientific evidence and ethical reasoning, and calls for sanctions against bioprospecting, misappropriation of natural resources, and the development or patenting of Native Hawaiian genetic material, including taro.

The Paoakalani Declaration, written by kanaka maoli, the indigenous people of the Hawaiian archipelago, as an expression of their collective right to self-determination in the perpetuation of their culture, under threat of theft and commercialization of traditional knowledge states:

*"In Hawai`i, bioprospecting and biotechnology institutions and industries are imposing western intellectual property rights over traditional, cultural land-based resources. This converts our (kanaka maoli) collective cultural property into individual property for purchase, sale and development. The biogenetic materials of our peoples, taken for medical research for breast cancer and other diseases attributable to western impact have been obtained through misrepresentation, and without the free, prior, or informed consent of our people. We view these activities as biopiracy and condemn these acts as biocolonialism."*

Moreover, the Association of Hawaiian Civic Clubs, a confederation of fifty-two (52) Hawaiian Civic Clubs throughout the States of Hawai`i, Alaska, California, Colorado, Illinois, Nevada, Utah, Virginia and Washington State passed Resolution 2005-23 on October 5, 2005, which resolved that the legislature of the State of Hawai`i and the University of Hawai`i impose policies to safeguard and protect Hawai`i's public trust resources from genetically engineered and bioprospecting threats, in consultation with Native Hawaiian organizations.

We ask that you support taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to taro by passing HB 1663 out of committee.

Testimony of Leslie Yee Hoy, Taro Farmer, Halawa Valley- Molokai

In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou,

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

**-Taro Deserves the Best Available Science-**

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

**-Health and Environmental Safety Concerns about GMO-Taro-**

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the worlds only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

**-Community and Ethical Concerns about GMO-Taro-**

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes an unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama 'Aina,

Leslie YEE hoy  
Halawa Valley  
Molokai, HI 96734

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# Kaloman

February 17, 2009

LATE TESTIMONY

Governor Linda Lingle  
Lt. Governor Duke Aiona  
House of Representatives  
Senate Representatives

Re: Legislative Bills on Taro and Water

Aloha,

As one of the few Hawaiian Taro farmers, 7<sup>th</sup> generation mahi`ai and lawai`a, I appeal to you to support our cause to maintain the purity of the Hawaiian taro, increase water access, provide more land and provide financial assistance and disaster insurance.

What we need is to become more sustainable, as were our kupuna of days of old. What we need today is for leaders such as yourselves to be bold, to stand up for what you know is pono and not yield to compromise that will undermine the life of our lands. For Ke Akua says, do not commit blasphemy against the land, for this will be an abomination.

Support our cause to maintain the purity of the Hawaiian taro and kalo lifestyle.  
Support the increase of water access in favor of the mahi`ai.  
Support the provision of more lands for farming.  
Support financial assistance and disaster insurance in favcor of the mahi`ai.

Our Ali`i knew that their success was dependant on the foundation of its people, for indeed the *"life of the land is perpetuated in righteousness"*. Thus the Hawaii State Constitution placed the kuleana of the lands above all things. Doing pono and making pono for all things upon the land increased the prosperity of its people. As Kumu John Kaimikaua stated so well, "when the land flourishes, so does it's people".

On May 1, 1959 our state motto was adopted by Joint Resolution No.4 of the 30<sup>th</sup> Territorial Legislature.

Today in this 2009 Legislature you are the centennials that stand watch upon the land and its people. Do not let us be ambushed. Stand firm upon the aina, with and for its people.

Ua mau ke ea o ka aina I ka pono ...The life of the land is perpetuated in righteousness.

George Keoki Ruisuki Fukumitsu  
Mahi`ai a me Lawai`a  
Hakipu`u Ahupua`a  
Ko`olaupoko ~ Oahu Island

# LATE TESTIMONY



KĪPAHULU 'ŌHANA

## Kīpahulu 'Ōhana

PO Box 454, Hana, HI 96713

[www.kipahulu.org](http://www.kipahulu.org)

Hawaii State Legislature

February 18, 2009

Aloha,

I am writing on behalf of the Kīpahulu Ōhana to urge your support of a ban on the genetic modification of kalo in Hawai'i.

Kīpahulu Ōhana is a nonprofit organization founded in 1995 by descendents of the Kīpahulu moku in East Maui in order to promote the practice of traditional ahupua'a management, restoration and education. Since 1995, through a Cooperative Agreement with the National Park Service, we have operated Kapahu Living Farm within the Kīpahulu section of Haleakala National Park where we farm over three acres of ancient kalo lo'i that has been restored to active production.

Kapahu Living Farm is managed by our Project Director and traditional konohiki John Lind. Through the knowledge passed down to him and his personal experience, Lind has identified several varieties of Hawaiian kalo that he chooses to cultivate, because they are hearty and make high quality poi.

Our production is completely organic—we use no chemical fertilizers or pesticides. While we do have minor challenges with some diseases, Lind has found that these challenges can be adequately addressed by ensuring a plentiful flow of cold water around and through the lo'i, using green manure (weeds) buried in the lo'i to feed the kalo plants along with other natural fertilizers, and other traditional techniques.

From a practical standpoint, we have no interest or need for genetically modified varieties of kalo. From a cultural and spiritual standpoint, we want to emphasize the deep connection Hawaiians have with Haloa, and strongly oppose the genetic modification of this plant that is the single most important plant in the Hawaiian culture, considered as the elder brother of the Hawaiian people.

We ask that you support measures to prohibit the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawaii.

Mahalo,

A handwritten signature in black ink, appearing to read "Scott Crawford", written in a cursive style.

Scott Crawford  
Executive Director

Support for Ban on GMO-Taro  
From Joan Lander (Taro Grower)

## LATE TESTIMONY

Aloha mai,

We live in Ka'u on Hawai'i island and plant taro in our yard.

We are very happy that our county council listened to the voices of taro growers and consumers and passed a ban on GMO taro on our island.

Now this ban needs to be extended to all islands.

This food plant is too important to our health to be interfered with.

We all need to consume taro in its pure form.

If you allow people to tinker with taro's genetics, we can never again be sure that the taro we eat is safe.

Growers will not exchange huli anymore for fear of planting taro that is unsafe, thus breaking down a centuries-old tradition of sharing huli.

Why would you want to destroy the solidarity of our taro-growing communities and introduce fear and anxiety into the most important agricultural activity in Hawai'i?

You as lawmakers must act on behalf of the people, not the few determined to manipulate the basic foods we eat, no matter the cost.

Do the right thing and protect, at the very least, this plant that is the heart and soul of Hawai'i.

Joan Lander  
PO Box 29  
Na'alehu, Hawai'i 96772-0029

# LATE TESTIMONY

In Support of Ban on GMO-Taro

Daniel Bishop & 'Ohana- Taro Farmers

My name is Daniel Bishop and, together with my wife, four sons, and their families, are Kalo farmers in Waiahole valley. We have also been members of Onipaa Na Hui Kalo since it's beginning. I am writing this letter to voice our support for a ban on any type of research which has to do with genetically modifying any Kalo .

Respectfully submitted;

Daniel Bishop

February 9, 2009  
To: Hawaii Legislators  
From: Walter Andrade, Farmer

# LATE TESTIMONY

RE: SUPPORT GMO Legislation in State of Hawaii.

For once can we just use common sense in making long terms decisions that affect the health and welfare of our people. As publicly elected officials you have a responsibility to protect the people of Hawaii. Caution is strongly advised on allowing GMO to taint our food supply.

Unfortunately, pollinating GMO strains become invasive when released into the environment. By their virulent nature GMO strains infect and dominate the gene pool forever. You CAN NOT recall a GMO strain once introduced. Case in point is the accidental release of GMO rice after Hurricane Katrina destroyed the GMO testing facility, cross pollination of soybean in Canada, accidental mishandling and release of GMO corn seed to Central American countries and the list goes on. The fact remains that you CAN NOT recall a GMO strain once introduced.

It is all too common that a well meaning scientific community together with profit oriented corporations makes hasty decisions with disastrous consequences. Case in point, DDT, Pesticides, CFC's, Cigarettes and Hydrogenated Oils, all market driven profit centers for large corporations and allowed without through study or applying the Precautionary Principle. Twenty years from now if we find that trans-genetic organisms in the food supply cause cancer, birth defects, immune deficiencies or worse, we would struggle to mitigate the consequences because we CAN NOT recall those GMO strains from the gene pool.

Please apply the Precautionary Principle... it is there for a reason... it's just common sense. [http://en.wikipedia.org/wiki/Precautionary\\_principle](http://en.wikipedia.org/wiki/Precautionary_principle)

I understand the pressures you have in making this decision as evidenced by the number of Bills being generated to address the GMO issue... You are not the first to be faced with applying the Precautionary Principle to this GMO dilemma. <http://www.i-sis.org.uk/prec.php> and you are not alone on this issue, 68 nations, 828 scientists from 38 countries support rethinking of GMO testing and propose a 5 year moratorium on GMO testing until further study can be done. <http://www.i-sis.org.uk/list.php#list>. Please review the white paper from The Bio Safety Protocol and the UN Convention on Biological Diversity <http://philosophy.wisc.edu/streiffer/CourseFolders/HOM565S01Folder/Biosafety%20Position%20Paper.pdf>

Just because multinational corporations have top down political clout and influence through established financing mechanisms at the university and land grant colleges with the support of federal and international regulatory agencies, doesn't make GMO a wise course to follow... Sometimes being cautious and saying no to money interests is the right answer.

My opinion, as a coffee and vegetables farmer, is the GMO approach to solving our agricultural challenges is extremely risky, not well thought out, is seriously under studied, and controversial for many valid reasons...

My position, as a coffee and vegetables farmer is simple. GMO strains released accidentally or intentionally take away my freedom of choice to consume, grow, market and sell non GMO food products. Any GMO introduction will destroy my market for specialty Kona Coffee. My coffee sold at commodity grade prices \$3.00 lb will force me into bankruptcy as well as other growers involved in meeting the expanding markets for non GMO or Organic Foods. There is no current way to contain pollen drift and consequently no way for Non GMO and Organic farming to coexist GMO farming.

Agriculture is really pretty simple as understood and practiced for thousands of years by large sophisticated cultures. It starts with the soil... A healthy, fertile soil is a dynamic organism, full of microbial and fungal life that transforms organic matter into humus. Humus is a stable byproduct that provides all the nutrients, trace minerals and gases necessary for sustained vegetative outputs. If you acknowledge that fact and support soil fertility in your agricultural practices, food production becomes sustainable and profitable. Healthy soils produce healthy plants, which when consumed produce healthy people and animals. On the other hand, a sick unbalanced soil produces disease, first in the soil, then in the plants and then in the animals and people who consume them.

Until we get back to applying this knowledge in agriculture we will be chasing the problems, we created, with back end solutions like GMO and oil based chemical fertilizers, pesticides and herbicides. Sick plants from sick soils are stressed and attract pests, who by the way are only doing their job of eliminating weakness in the natural ecosystem.

- Amory Lovins, CEO of Rocky Mountain Institute, "If we don't understand how things are connected, often solutions become the problem".

While the Biotech Industry has made significant contributions in medical research, and I am not saying there isn't a place for them or the "tools" they develop in Agriculture, I just don't believe that GMO in our food supply is a good idea, especially when the testing has not been done and the consumer is not given the choice. The potential risks far outweigh the potential benefits. Caution is strongly recommended. The UH can and will find other agricultural problems to study and make meaningful, less risky contributions to our ag economy until the GMO issue can be worked out.

Even though I do not support GMO in agriculture... If you folks enact laws that allow Hawaii to continue with GMO research, testing and field trials, we must demand, through legislation, that GMO research, testing and field trials follow the established Control Group Protocol used in all valid experiential testing. [http://en.wikipedia.org/wiki/Control\\_group](http://en.wikipedia.org/wiki/Control_group)

Due to the invasive nature and permanence of GMO strains in the food chain it would be prudent to establish the entire Big Island as the Control Group for any ongoing GMO research, testing, and field trials. Being upwind of the other Hawaiian Islands may give us some measure of protection against pollen drift cross contamination and physical isolation from experiments gone wrong. This way the Big Island can make a significant contribution to Hawaii's food security and agricultural research at the same time.

- We must establish the Big Island as a GMO Free Zone for all research, testing and field trials related to human and animal food and or seed production.
- Exemption to the law would be allowed for non-food related agricultural industries like orchids and other cut flowers as well as for the Papaya industry, because GMO strains have already been released and are found widely in the wild plant population.

If you folks don't demonstrate respect for GMO risks to public health and safety, the cultural aspects of taro and the economic aspects of non GMO related farming, you may be committing political suicide. Basically you can piss off a few multi national companies and UH researchers or you can piss off a whole lot of voters...

Just follow the Precautionary Principle and you can put the responsibility back on the GMO companies where it belongs and protect yourselves, your kids, your grand kids and neighbors from eating questionable foods.

Aloha nui,  
Walter Andrade  
Kona and Kalopa Farmer  
P.O. Box 586  
Holualoa, HI 96725

Attention: State of Hawai'i Legislators  
STRONG SUPPORT FOR BAN ON GMO-TARO

## LATE TESTIMONY

From: Robert Kealohapumehana Domingo (Kalo Planter)  
O O'ahu Kakuhihewa ka mokupuni  
O Ko'olauloa ka moku  
O Ka'a'awa ke 'ahupua'a

Aloha mai kakou,

O wau o Robert Kealohapumehana Domingo and I am writing to strongly encourage all legislators and lawmakers to support and pass SB709 moratorium on developing, testing, propagating, cultivating, growing and raising genetically engineered taro in the state of Hawai'i.

It is well known and documented within the Hawaiian genealogy chant or Kumulipo, that taro, kalo, or colocasia esculenta, honored Kupuna Haloa Nakalaukapalili is said to be the elder brother of Kanaka or mankind. As a Kanaka Maoli or native Hawaiian, Hawaiian cultural practitioner, head of household, husband, father of three children, haumana mahi'ai kalo, traditional style poi maker or ku'i 'ai practitioner, kalo grower and consumer, supporter and parent of the Hawaiian language immersion schools, taxpayer and voter, I must make my voice and mana'o or opinion heard loud and clear: *Genetic modification of kalo is DISRESPECTFUL !! GMO taro is NOT PONO! It is not necessary and not wanted. Genetic engineering of Hawaiian kalo should not be allowed within these islands or anywhere else for that matter.*

Kalo, not only a spiritual center or piko of Hawaiian culture, a traditional symbol of the 'ohana structure, has been the staple food of Hawaiians since the beginning of time, and for many other cultures in more recent years. We the Kanaka Maoli for well over a thousand years have been growing and have been sustained and nourished by kalo planted in the traditional methods. Especially in the form of poi, kalo was eaten by all branches of the 'ohana from the oldest kupuna perhaps in their deathbed to the newest of infants still upon their mother's breast. Poi was widely known by the po'e kahiko or people of the past, to have many benefits: tremendous nutritional value, ease of digestion (complex carbohydrate), it is also hypoallergenic thus eliminating the concern for allergic reaction. It would be disastrous to allow such an extremely valuable and irreplaceable resource to become contaminated, mutated and exposed to the risk altering its proven "super-food" qualities. Genetic modification is commonly known to inherently introduce undesirable properties including possible allergens and antibiotic resistant genes. Keep kalo pure! Altering taro is unsafe and is BAD SCIENCE!

The po'e kahiko were extremely knowledgeable of the 'aina and of our fragile yet bountiful environment. They knew how to properly utilize the resources and viewed the land as a sacred. "Ua mau ke 'ea o ka 'aina i ka pono: the life of the land is perpetuated in righteousness" If we disturb the pono or balance of the 'aina, we are destined to suffer the consequences. It has been documented that the kanaka maoli once had upwards of 300 varieties of kalo developed naturally through generations of a natural conventional hybrid process. Today there is said to be only approximately 80 varieties remaining. The modern colonized ideals of profit, ownership, convenience, overdevelopment, misuse of land, water and other natural resources, overall short sightedness and a lack of due care has begun to outweigh our traditional values and has taken a toll on our 'aina and ultimately our beloved Kalo. Lo'i kalo or traditional wetland taro patches, once had thriving veins of cold water fed by a clean and well maintained kahawai or stream. Today, our streams are reduced, many to a trickle, some have gone dry. Mahi'ai kalo once had enough acreage to allow them to let their patches lay fallow after harvest in order to replenish natural nutrients, rather than immediately replanting time and time again in depleted soil compensated with large amounts

of fertilizers and chemicals, a common practice today due to limited access to lands suitable for taro farming.

Another particularly interesting part of traditional methods of planting has actually been under review again in recent times, diversification. Planting many taro varieties with different characteristics that may adapt to various conditions such as higher salinity in lower elevations closer to the ocean, heat and drought resistant varieties, varieties that could be left without being harvested for extended periods of time. Another poor practice common in taro farming today is known as mono-cropping, of course the exact opposite of the traditional theories of diversification, single or limited varieties planted to fit commercial guidelines are forcing farmers to plant crops not ideal for their individual farm environments and conditions thus limiting proper growth and reducing crop volume and quality. These factors contribute to many of the struggles faced by taro farmers today. The poor practices of misuse and neglecting the 'aina need to be modified, not our kalo! GMO kalo is UNECESSARY!!

Our kupuna were truly the greatest scientists. They had hundreds of names for different winds, they studied thousands of different native plants and had thousands of different uses, they navigated the Pacific using the winds, stars and currents, in hand crafted vessels with hand made tools, they could build homes, fishponds, great altars and dry stacked stone walls that stood firm for centuries, they knew that in order to survive, they had to use what the 'aina had to offer, and that they did. It's time that we look to the past to learn for the future.

In closing, I have discussed only a few of the many reasons to protect our beloved elder brother Haloa Nakalaukapalili, the taro. I strongly feel that a BAN on GMO taro as described in SB709 is imperative. Let us remember that the 'aina is a limited resource and our decisions today will have great impacts for the generations of tomorrow. Keep our kalo pure and preserve it for generations to come. I sincerely hope that you, the elected lawmakers of this state, will heed my recommendation. It is time that we the people of Hawai'i heed the advice of our Kupuna. "He ali'i ka 'aina, he kauwa ke kanaka; The land is the chief and we the kanaka are the servants"

Malama 'aina, Malama Haloa Nakalaukapalili!  
Robert Kealohapumehana Domingo

Testimony of Chris Kobayashi- Organic Taro Farmer  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou,

We want a ban on GMO-taro for all varieties of taro in Hawaii.  
Contamination is forever. Coexistence is impossible.

There are those who say they simply want the research to continue just in case. And they also claim they would never plant it. Do you really believe that? Do you think that this research and technology would stay "safely" in the lab? For the safety of all of us who kanu taro, who cherish it as a family member because it provides and feeds us, for our aina - the land and water- which supports the growing of our food. It is time to stop and think what we are doing to all that is real and all that matters to us as human beings on this planet. Money and the drive to own and control does not make for anything healthy.

Malama Haloa. Malama kalo. Malama `aina.  
One earth, one land, one air, one people.  
Mahalo ke akua.

chris kobayashi  
p.o.box 135  
hanalei, HI 96714

Testimony of Demetri Rivera- Organic Taro Farmer  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou,

Ban GMO taro research and growing in Hawaii.  
Contamination is real.  
Contaminate one, you contaminate all.  
Just look at the papaya industry.

I am an organic kalo farmer and this is my livelihood.  
We cannot coexist with GMOs.

Malama Haloa  
Malama `aina  
Mahalo

Demetri Rivera  
P.O.Box 114  
Kilauea, HI 96754

Testimony of Mark S. Alapaki Luke (kalo planter in Kahana Valley)  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou,

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

### -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

### -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes a unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama 'Aina,

Mark S. Alapaki Luke (kalo planter in Kahana Valley)

Kumu (Teacher)

University of Hawaii at Manoa (Hawaiian Studies) & Honolulu Community College (Hawaiian Studies & Geography)

Mark Alapaki Luke

P.O. Box 11085

103A

Honolulu, HI 96828

Testimony of Ed Wendt, East Maui Taro Farmer

In Support of House Bill 1663

Dear Committee Members:

## LATE TESTIMONY

Please support House Bill 1663, that would impose a moratorium on all testing, propagating, cultivating, growing and raising genetically engineered taro in Hawai`i, and apply to genetically-modified plants brought in from outside Hawai`i as well. Passage of this bill will ensure the safety and perpetuation of our native kalo, and I urge your support.

Our `ohana have been full-time kalo farmers in Wailuanui, East Maui for many generations. My sons and grandchildren work lo`i kalo alongside me and my brother. The species of kalo that we farm have been cultivated in our village families for many generations. The kalo is strong, nutritious and although our `ohana has encountered many challenges (various diseases, foreign snail infestations, lack of water), we have preserved and continue to grow kalo for our families. Allowing GMO kalo would put our lo`i kalo at great risk and adulterate Hawaiian kalo species that our families have been cultivating for many generations. There is data which suggests there is no way to secure existing species from contamination once GMO experimentation is permitted.

We urge your support of H.B. 1663 in order that we can continue to perpetuate, practice and honor our Hawaiian traditions and culture.

Mahalo for this opportunity to testify.

Ed Wendt  
P.O. Box 961  
Haiku, Hawai`i 96708

Support for Ban on GMO-Taro

Hanalei Fergstrom  
Moku o Keawe

## LATE TESTIMONY

Re: Haloa

Aloha,  
In the foundation of the Gods, Lono is the third to appear.  
He Lono  
He Lono  
He Ulu ta mea ai O te po'e honua

You, Lono are responsible for the staff of life for all the people of the earth.

That is the relation of Lono and Haloa.

It is therefore a matter of religious covenant between the Hawaiian People and their Gods.

# LATE TESTIMONY

TESTIMONY IN SUPPORT OF TARO FARMERS REGARDING

## HB 1663 RELATING TO TARO SECURITY

**Hearing date, time and place:**

**Wednesday, February 18, 2009 9:10 a.m. Conf. Rm. 329**

Aloha Chairperson Carroll, Vice-Chair Shimabukuro and Members of the House Committee on Hawaiian Affairs, as well as Chairperson Tsuji, Vice-Chair Wooley and House Committee on Agriculture. Thank you for this opportunity to testify on House Bill 1663, which prohibits the development, testing, propagation, release, importation, planting, or growing of genetically modified taro in the State of Hawai`i.

ʻImi Hale – Native Hawaiian Cancer Network, is one of 25 Community Network Programs funded by the National Cancer Institute’s Center to Reduce Cancer Health Disparities to address the cancer health disparities among Native Hawaiians. ʻImi Hale is a program of Papa Ola Lōkahi, a federally recognized community-based organization focused on improving the health and well-being of Native Hawaiians. Operating on the principles of community-based participatory research, ʻImi Hale emphasizes community involvement, capacity building, and respect for cultural values with tangible benefits to the community.

ʻImi Hale and Papa Ola Lōkahi support taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to taro. This position is supported by cultural protocol, scientific evidence and ethical reasoning, and calls for sanctions against bioprospecting, misappropriation of natural resources, and the development or patenting of Native Hawaiian genetic material, including taro.

The Paoakalani Declaration, written by kanaka maoli, the indigenous people of the Hawaiian archipelago, as an expression of their collective right to self-determination in the perpetuation of their culture, under threat of theft and commercialization of traditional knowledge states:

*“In Hawai`i, bioprospecting and biotechnology institutions and industries are imposing western intellectual property rights over traditional, cultural land-based resources. This converts our (kanaka maoli) collective cultural property into individual property for purchase, sale and development. The biogenetic materials of our peoples, taken for medical research for breast cancer and other diseases attributable to western impact have been obtained through misrepresentation, and without the free, prior, or informed consent of our people. We view these activities as biopiracy and condemn these acts as biocolonialism.”*

Moreover, the Association of Hawaiian Civic Clubs, a confederation of fifty-two (52) Hawaiian Civic Clubs throughout the States of Hawai`i, Alaska, California, Colorado, Illinois, Nevada, Utah, Virginia and Washington State passed Resolution 2005-23 on October 5, 2005, which resolved that the legislature of the State of Hawai`i and the University of Hawai`i impose

policies to safeguard and protect Hawai`i's public trust resources from genetically engineered and bioprospecting threats, in consultation with Native Hawaiian organizations.

We ask that you support taro farmers in their efforts to protect and preserve Native Hawaiian traditional cultural practices as it relates to taro by passing HB 1663 out of committee.

# LATE TESTIMONY

Aloha Environmental Management Committee,

Please support all bills to ban the genetic modification of (GMO) taro in Hawai'i. As someone who eats organically grown food, the importance of these bills is loud and clear. Protect crops like kalo before they are altered.

Once someone like UH maps the genome and is successful at doing a genetic cross, another company will come along and purchase their work and make it round up ready and patent it. Let's call these GM companies what they are "the world's largest producer of herbicides and pesticides." They already control 1/3 of the global commercial seed market. Do you know that the United States has not banned a chemical in 17 years?

Protecting Kalo from falling into the category of a controlled use plant is the right thing to do. Right now there is nothing to protect them from being patented. If they were allowed to experiment on our islands, the federally granted permits from APHIS would not give you a county or state right to the disclosure of where, what or when these test were happening.

The 2050 sustainability plan stresses the critical nature of preserving Hawaiian culture and resources. Protecting kalo, protecting Haloa is our kuleana. As we embrace the importance of food security, let's protect the interest of the Hawaiian people.

The precautionary principle says that when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established. We enact the essence of precaution when (#1) we have reasonable suspicion of harm and (#2) scientific uncertainty about cause and effect, then (#3) we have a duty to take action to prevent harm.

We do not have to prove harm, we are obligated to act when safety is unknown.

This is especially important here on Kaua'i, as we have so many acres in taro. We look to Hawai'i to lead the way in passing this legislation, so Kalo will be protected on all of the Hawaiian Islands.

Sincerely,  
Tara White  
P.O. Box 1696  
Hanalei, HI 96714

Caitlin Ross Odom  
Kaua'i resident artist  
Kilauea, HI 96754  
[caitlinrossodom@mac.com](mailto:caitlinrossodom@mac.com)

## LATE TESTIMONY

Aloha Legislators,

I am in support the 10 year moratorium on the genetic modification of taro and wish this sacred food never to be gmoed in our environment. We have already been threatened for years with the unknown effects of gmo testing in Hawai'i and the use dangerous chemicals that goes along with these big agribusiness practices. I say enough is enough! When are the legislators of Hawai'i going to do what is best for the health and culture of Hawai'i and not big business? Recognize this is a sacred plant and show respect for the people of this land. Support sustainable farming practices in Hawai'i and stop using the land for freaky experiments which the damaging effects are still not known.

I join the mahi'ai of Hawai'i in calling on you and your fellow legislators to protect all of us and Hawaii's unique culture and resources by voting 'ae! for the 10 year moratorium on the genetic modification and patenting of all varieties of the taro plant species.

malama haloa! malama pono,

Caitlin Ross Odom

In Support of Ban on GMO-Taro

## LATE TESTIMONY

Dr. Lorrin Pang

State Legislators,

Thank you for the chance to be heard.

Some in support of Industry's position on genetic engineering (GE or GMO's) have claimed that they do not believe in the Precautionary Principle. For the rest of us who practice it and realize that there is no viable alternative to this principle, I would like to argue for a halt to the genetic engineering of Kalo. The Precautionary Principle says that we do not expose the public to products until we know and agree upon the hazards and the benefits. This is especially true if the product, like genetically engineered crops cannot be easily "recalled" or contained. There was recent widespread, costly contamination in the US with GE long grain rice. After lengthy investigation we still do not know how contamination occurred in this 1.2 billion dollar mistake.

It is curious that those who oppose a Kalo ban now propose an alternative "study group". This is an admission that hazards/benefits have not yet been determined. This is a general concern of GE crops cited during a recent international meeting reported in 29 Sept 2008 of Newsweek " (Biotech companies withdrew from the project in protest.) The problem? Yields for GM varieties...are unpredictable and often lower...patent protected, cost more...". If data is inadequate enough to warrant a study group then, according to the Precautionary Principle, a ban should be put in place until the group's work is completed and reviewed.

While it is true that I have worked on and endorse GE pharmaceuticals it must be pointed out that the GE bacterial/yeast involved are contained in laboratories. It is the products of the bacteria, not the life forms themselves which leave the laboratory. In general these products are: not alive, tested in human studies prior to marketing, labeled, targeted to only those with medical indications, tracked after marketing often with additional warnings notices, and sometimes recalled. Contrast this to what has happened in Hawaii with GE crops.

Proponents of GE crops feel that enough is "known" to allow at least laboratory research with the concession that more might be needed prior to field studies and marketing. What is the basis for this position? Regarding health issues they cite the position of the FDA, the federal agency with ultimate responsibility and liability. Yet in November of 2007 a scientific review of the FDA by its own scientists (on the internet, FDA: Science and Mission at Risk, Nov 2007) showed long standing problems with the FDA's science and lack of a scientific approach. Specifically there needs to be more emphasis on the "....." science of safety...although there are many needs... in all Centers and programs, ...none is as time sensitive and critical as surveillance and risk management". It would be one thing if the FDA had required data which could be re-examined but FDA's position regarding GMO's has been based on their misguided opinions.

Ethical review committees which have exempted or approved of GE products need to reconsider their positions (and liability) in light of the FDA report. This is typical of pharmaceuticals. If new hazards are found or one finds that there is no grounds for previous assurances of safety – all exposed must be notified. Was bad science done out of ignorance or was there an underlying agenda? Since 2005 before a US Senate investigation committee testimony by FDA insiders point out the widespread problem of conflict of interest (summary article in Reader's Digest April 2008).

There needs to be a halt on GE products (including Kalo ) until definitive studies are complete. But who will determine the adequacy of the studies? In light of previous reports of poor science and conflict of interest in our lead regulatory agency for health, the public can only ask for transparency and rigorously policing for conflict of interest. In a normal regulatory processes financial “stakeholder” status is synonymous with conflict of interest. Those in this position must be removed from major decisions or influence peddling. I have heard that there will be an effort at the State level to again preempt County/home rule input on GMO's in Hawaii. This misguided effort simply recreates all the pitfalls playing out in our federal regulatory agencies, including our FDA – lack of transparency, bad science and conflict of interest. Unfortunately it is now the local regulators at the state level and most recently the Big Island county council which have to enforce precautionary policing. Grassroots, environmental activism/science are an emerging American phenomenon as communities are force to “look out for themselves” – Discover, August 2008 pages 68-71.

You have my scientific and health credentials. I have no conflict of interest. Those who continue to support my presence at these meetings and who continue to question my absence at special “study groups” will continue to express our concerns in public, transparent venues....legislative and court hearings. But why do conflicted testifiers get to speak? The New England Journal of Medicine has shown that in spite of denial, those with conflict of interest cannot put theirs aside.

Again, thanks for bringing this important issue to the table.

As private Citizen  
Lorrin Pang, MD, MPH  
America's Best Doctors List 2007-9  
Retired Army Medical Corp  
Consultant to the World Health Organization

## Testimony

### In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

#### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

#### -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

#### -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes a unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any informed community consent, raising serious ethical science concerns. Businesses and researchers

in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Donna Fischer  
po box 1770  
Pahoa, HI 96778

Testimony  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

Please do not support genetic testing on Taro in Hawaii. We already have contamination of organic crops by these biogenetic species in this state, and many studies show the harmful effects of genetic testing.

Sincerely,  
Andrea Baer  
Maui

Andrea Baer  
Mapu Place  
Mapu Place  
Kihei, HI 96753

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

### -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

### -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes a unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any

informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Evern Williams  
3220 Esther Street  
Honolulu, HI 96815

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. As a cancer survivor I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers. As a very small, backyard farmer I raise my own food crops in order to avoid GMO foods at the market. Please don't tamper with my ability to keep myself healthy.

### -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

### -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes an unique genealogical connection between taro and the Hawaiian people. The wisdom of such

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**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Annette Kaohelauliii  
45-403 Koa Kahiko Street  
45-403 Koa Kahiko Street  
Kaneohe, HI 96744

235-5431

Testimony  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

## -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

## -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

## -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes an unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any

informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Faye Wallace  
P.O. Box 935  
Kaunakakai, HI 96748

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

It is unacceptable that the State puts in meager resources into biosecurity --- protecting Hawaii from alien plants, animals, and pathogens --- and as a consequence has new plant diseases that attack endemic, Polynesian, and agricultural plants and animals. The response should not be genetic engineering of the plants, which is a radical alteration of the genomes and population genetics of the species, with unknown consequences.

Growing studies show that GMO genes are impossible to contain, and spread out of control into populations where consent for the presence has not been given.

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

### -Health and Environmental Safety Concerns about GMO-Taro-

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**-Community and Ethical Concerns about GMO-Taro-**

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes an unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

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**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Lee Altenberg

2605 Lioholo Place  
2605 Lioholo Place  
Kihei, HI 96753

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

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**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Cathy Robinson  
774 Willow Springs Drive  
Mobile, AL 36695

Testimony  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

## -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

## -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the world's only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

## -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes a unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any

informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Judith Waters  
211 N. Makaleha Pl.  
Makawao, HI 96768

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

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informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Napua Leong  
PO Box 73  
Kaunakakai, HI 96748

Testimony

In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

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Malama Aina,

Elin Sand  
HCR 3 Box 10056  
Kea'au, HI 96749

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Barbara Best  
280 Hauoli  
Wailuku, HI 96793

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Robert Frutos  
po box 1214  
Volcano, HI 96785

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

Aloha, my name is Walter Ritte and I am in strong support of protecting Kalo (Haloa) from GMO. I am speaking as a Hawaiian who grows and eats Kalo, and a Hawaiian who has a serious kuleana to protect my eldest brother Haloa, the first born of our people.

Our culture, geneology and traditions have been ignored by the University of Hawaii and the Biotec Industry. Our first born has been genetically modified and patented by the University of Hawaii with out the consent of the Hawaiian people.

We demand protection, Hawaiians and taro farmers want legislative protection for Haloa, we have petitions with over 6,000 signatures.

This issue has become an embaressment to this state as the health, safety and culture of the people is being jeopardized to protect the Biotec Industry.

To not place rules, protections and guidelines for a new industry breeds mistrust.

Hawaiians like my self will not go away, we have been here for thousands of years. We will not accept industries that threaten our lands, our families our existence.

We demand and we will not stop demanding until Haloa is protected by law. Walter Ritte

walter ritte  
po box 486  
kaunakakai, HI 96748

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I write to oppose genetic modification of all taro varieties.

My opposition is based on the unknown health risks, irreversible consequences to ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible genetic mutations that could not occur naturally. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii.

Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Given that safer methods are available, there is no need or demand for experimental GMO-taro.

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the worlds only hypo-allergenic, or allergy-free, carbohydrate.

GMO-taro is not the same. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

Taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity.

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

The biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii.

I do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

John Schinnerer  
HC2 Box 6482  
Kea'au, HI 96749

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

Mahalo for the opportunity to declare my support for a ban of any genetic modification of taro in the state of Hawai'i. The mere rumor of genetically modified taro on Kaua'i has tainted the perception of all taro on our island. Farmers, growers and consumers, have begun questioning where huli is coming from. Since you cannot tell by looking and DNA testing is not an option without knowing which genetic construct has been forcefully inserted, people are beginning to steer away from sharing planting material. As we grow into sustainable food security, we do not want to create future roadblocks for farmers and growers by having to contend with a living pollution such as GE plants.

This technology has placed a burden onto growers to protect their crops from contamination, instead of the purveyors of this plant modified with unrelated species to be contained by the patent holder. We have seen with GMO papaya that markets are lost, seed banks are contaminated and pollen travels to organic farms.

Never before in the history of mankind have we crossed plants with unrelated plant DNA, or plants with animal DNA, and even plants with human DNA. This science is in question in many countries around the globe. To allow GM food into our food supply and onto store shelves without labeling, goes against consumers trust.

We are what we eat, and eating healthy is our first line of health insurance. For mothers with children who have food allergies, taro is a safe and nutritious food that they can depend on.

It is more important for us to fallow and feed the soil with green manures, and keep taro healthy and productive in our state. Alternatives to chemical farming do exist and are healthier for the land and the people

Farmers don't want genetically engineered huli, Hawaiians do not want their ancestor's DNA altered by forceful gene manipulation, and consumers don't want to eat it. Changing the genetics of a hypo allergenic food is a very bad choice. I cannot name another food that is hypo allergenic, can you?

We are seeing an increase in food allergies related to the crops that have been genetically manipulated in the lab, like corn, soy, canola and wheat. There is something inherently dangerous about inserting gene randomly with attached viral promoters that turn on all coded traits, some traits are certainly better left off in the case of dormant disease genes.

Please protect all varieties of taro in our state of Hawai'i for future generations. This crop has a large market, and genetic engineering would only hurt us economically, as well as culturally and environmentally.

Please malama Haloa, so that Haloa can malama us.

Malama Aina,

Jeri Di Pietro  
PO Box 338  
Koloa, HI 96756

# LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

## -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

## -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the worlds only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

## -Community and Ethical Concerns about GMO-Taro-

Cultivated throughout centuries to be abundantly grown on Hawaii's diverse agricultural lands, taro is the sacred foundation of our unique local agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes an unique genealogical connection between taro and the Hawaiian people. The wisdom of such healthy community values must be encouraged, not disrespected or desecrated. Despite the unique and utmost importance of this plant to our community, GMO-taro has been developed without any

informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

David Johnston  
PO Box 388  
Puuhene, HI 96784

573-3250

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

GMO Free Kaua`i is a group of over 3000 people concerned about the lack of science and regulation regarding genetically engineered food crops and the patenting of seed.

As we work towards meaningful ways to achieve food sovereignty, genetically engineered test fields are limiting our choices and steering jobs away from our island.

We support a ban of any genetic modification of taro in the state of Hawai`i.

Since you cannot tell a genetically engineered plant by looking, and DNA testing is not an option without knowing which genetic construct has been forcefully inserted, people are beginning to steer away from sharing planting material.

As we grow into sustainable food security, we do not want to create future roadblocks for farmers and growers by having to contend with a living pollution such as GE plants.

This technology has placed a burden onto growers to protect their crops from contamination, instead of the purveyors of this plant modified with unrelated species to be contained by the patent holder.

We have seen with GMO papaya that markets are lost, seed banks are contaminated and pollen travels to organic farms.

Never before in the history of mankind have we crossed plants with unrelated plant DNA, or plants with animal DNA, and even plants with human DNA. This science is in question in many countries around the globe. To allow GM food into our food supply and onto store shelves without labeling, goes against consumers trust.

It is more important for us to fallow and feed the soil with green manures, and keep taro healthy and productive in our state. Alternatives to chemical farming do exist and are healthier for the land and the people and wildlife.

Farmers don't want genetically engineered huli, Hawaiians do not want their ancestor's DNA altered by forceful gene manipulation, and consumers don't want to eat it. Changing the genetics of a hypoallergenic food is a very bad choice.

We are seeing an increase in food allergies related to the crops that have been genetically manipulated in the lab, like corn, soy, canola and wheat. There is something inherently dangerous about inserting a gene randomly with attached viral promoters that turn on all coded traits, some traits are certainly better left off in the case of dormant disease genes.

Please protect all varieties of taro in our state of Hawai`i for future generations. This crop has a large

market, and genetic engineering would only hurt us economically, as well as culturally and environmentally.

Please malama Haloa the taro.

Friends of GMO Free Kaua'i  
PO Box 343  
Koloa, HI 96756

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

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**-Help Taro, Don't Hurt Taro!-**

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

dinda Evans  
POB 178695  
San Diego, CA 92177

## Testimony

### In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Donald Cooke  
47-146 APulama Rd  
Kaneohe, HI 96744

Testimony  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

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Malama Aina,

Noyita Saravia  
56-154 Puuluana Pl. #53  
Kahuku, HI 96731

293-1871

Testimony

In Support of Ban on GMO-Taro

# LATE TESTIMONY

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Malama Aina,

aerie WATERS  
star route 4  
hana, HI 96713

Testimony  
In Support of Ban on GMO-Taro

## LATE TESTIMONY

Aloha mai kakou

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

You must realize, that there is no way, as Hawaiians, that we will allow you to touch, change, or shake up the gene of the Taro!

Cultivated throughout centuries to be abundantly grown, taro is the sacred foundation of our agriculture, society, traditions and family structure. Genetic modification of taro is an affront to the sacred Hawaiian tradition that respects the taro plant as a family member, an older brother to humanity. This family tradition is rooted in honoring the relationship of mankind with the very plants we depend on for healthy nourishment, and establishes a unique genealogical connection between taro and the Hawaiian people.

If you so boldly disrespect or desecrate Taro, you will have to face the out come.

Donna Morgan

Donna Morgan  
P.O. Box 72  
Maunaloa, HI 96770

Aloha mai kakou

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#### -Taro Deserves the Best Available Science-

GMO-taro is claimed to potentially reduce one type of taro disease in one variety of taro by creating irreversible, unnatural genetic mutations whose safety to consumers and the environment is not scientifically proven. GMO-taro has no proven benefits to taro farmers or consumers and is not the best available science needed to safely perpetuate taro farming and protect consumers in Hawaii. Better and safer options exist. Long-term scientific studies and farming practices throughout the Pacific have resulted in proven scientific techniques to expand the local taro industry, protect unique Hawaiian taro varieties, farmlands and watersheds-- without GMOs. These community-accepted practices include: organically improving soil health, establishing appropriate water-flow standards to prevent disease and pests, stopping imports of diseased taro and pests into Hawaii, and growing many traditional varieties of natural taro with different natural disease resistance. Being that safer science exists, there is no need or demand for experimental GMO-taro from local taro farmers or consumers.

#### -Health and Environmental Safety Concerns about GMO-Taro-

Taro is a nutritious food crop, especially cherished as a baby food and staple dish in Hawaii for centuries; and around the world as an important medicinal food for diabetes, cancer, autism and serious food allergies. Taro is the worlds only hypo-allergenic, or allergy-free, carbohydrate. GMO-taro, on the other hand, is not the same as natural taro. GMO-taro has never been in the human food supply before, and has NOT been scientifically tested on humans to prove that it is safe to eat. Moreover, the unnatural genetic mutations of GMO-taro can never be guaranteed to be hypo-allergenic, thus threatening consumers of this uniquely important medicinal food source. In fact, numerous scientific studies on laboratory animals show that GMOs can cause toxic, allergic, and even deadly reactions. Unnatural gene mutations introduced through GMO-taro may harm insects, birds, fish, and soil health. Risks and damages to Hawaii's people and lands could be irreversible.

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informed community consent, raising serious ethical science concerns. Businesses and researchers in Hawaii should encourage informed community consent and review, not avoid oversight and involvement from the very communities most effected by their activities.

**-Economic and Bioprospecting Concerns about GMO-Taro-**

The right to grow taro naturally and traditionally belongs to the public, and should never be owned by a corporation or university. Private patents and control of our public food resources would cripple our food security, taro economy and violate our inherent public rights. GMO-taro experiments and patents cannot help taro farmers with the real problems that they face and will only endanger the valuable traditional biodiversity of taro in Hawaii.

**-Legal and Governance Concerns about Preemption Legislation-**

In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Alison Miller  
140 Uwapo St bldg 32-204  
Kihei, HI 96753

Aloha mai kakou

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Malama Aina,

Ken Ng  
3557 Butler Ave,  
Los Angeles, CA 90066

Testimony

In Support of Ban on GMO-Taro

## LATE TESTIMONY

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Kawika Estrella  
PO Box 482239  
Kaunakakai, HI 96748

## Testimony

### In Support of Ban on GMO-Taro

# LATE TESTIMONY

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As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Ikaika Pestana  
3828 Diamond Head Rd.  
Honolulu, HI 96816

Testimony  
In Support of Ban on GMO-Taro

# LATE TESTIMONY

Aloha mai kakou

As a frequent visitor to Hawaii, I would like to point out that I NEVER buy anything I know to be genetically modified.

At some point soon, people the world over are going to notice that nature must be honored if we are to survive. Genetic Modification is not only a profanity, it serves no one but corporations like Monsanto.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

Richard Welker  
1303 Luana Street

Santa Fe, NM 87505

# LATE TESTIMONY

Aloha mai kakou

Because I believe in the precautionary principle and that unintended consequences are usually impossible to correct,

I join communities across Hawaii in rejecting the genetic modification of all taro varieties, by supporting a ban on GMO-taro. I am deeply concerned about the unknown health risks, irreversible threats to native ecosystems, cultural disrespect, patenting and bioprospecting of Hawaii's natural resources and potential harms to our local farming economy that are associated with GMO-taro.

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Malama Aina,

Saran Kirschbaum  
1710 Bagley Ave.  
Los Angeles, CA 90035-4110

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In "exchange" for a ban on GMO-taro, the biotech/GMO industry may attempt to turn our community's intentions to protect taro into unfair "preemption" legislation which would prohibit state or county oversight, and public notice of all other GMOs and biotech activities in Hawaii. We do not support any such attempts to preempt legitimate local government regulations to protect public health. Preempting local efforts to protect public health raises serious legal, ethical, and scientific concerns-- our public and environmental safety, as well as our local-governance authority, must be prioritized over private investment concerns and high-risk experiments.

**-Help Taro, Don't Hurt Taro!-**

Agricultural science has proven that the taro will be as healthy as the land in which it is grown and the care with which it is shown. There is no actual need to permanently change the taro plant's natural genetic structure nor patent the plant for private profit in order to protect the local taro industry. Rather, farmers, scientists and decision makers must work to solve the broad resource management problems that face taro farming. Lack of meaningful support to address the drastically increasing challenges from invasive diseases, pests, excessive and illegal diversions of water, and operating costs, has led to a decrease in taro farming and a taro shortage in Hawaii. With appropriate political, scientific and community support, taro will once again be a primary resource for Hawaii's food security, contributing significantly to a healthy local diet and economy. GMO-taro and patents, however, could destroy the safety and sanctity of natural taro as an important allergy-free food, cultural resource and local agricultural industry in Hawaii.

As a strong supporter of taro farming in Hawaii, I ask you to protect the security of the health of natural taro and the local taro industry by establishing a ban on GMO-taro.

Malama Aina,

normand dufresne  
p.o. box 587  
pahoa, HI 96778

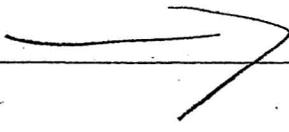


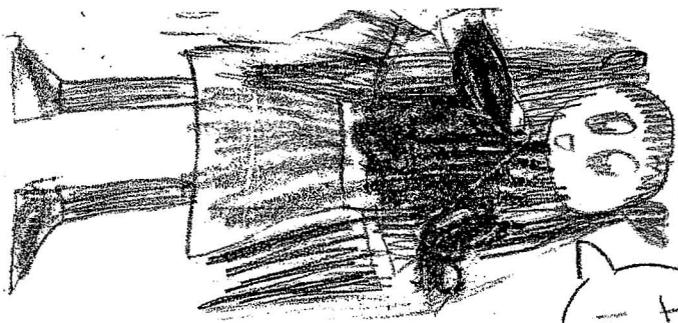
Dear Law makers, We are trying to help Kalo. other  
People want to make Kalo a Super Plant but God thinks  
its perfect. It is the only Food that will  
not die; People like it. But People are making  
it worse. that's why we need to protect it from Gmo.  
Pretty soon there won't be any Kalo left for  
the people of Hawaii. Gmo is not  
good for the Kalo and it can kill it. We are trying  
to stop Gmo but the people won't  
listen to us at all. We are running out of  
Kalo. soon there won't be any Kalo at all.  
We need to protect Kalo and not let them  
hurt them. Lets help the Kalo.

### LATE TESTIMONY

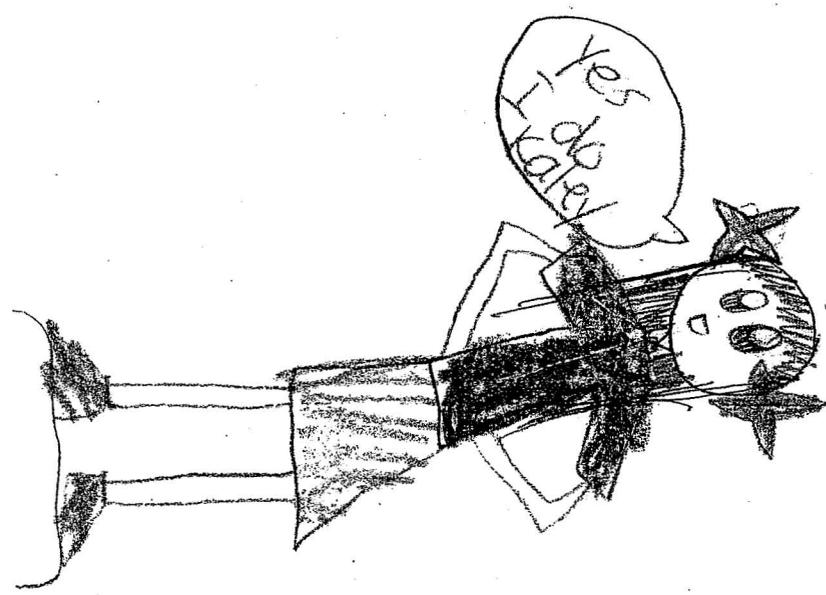
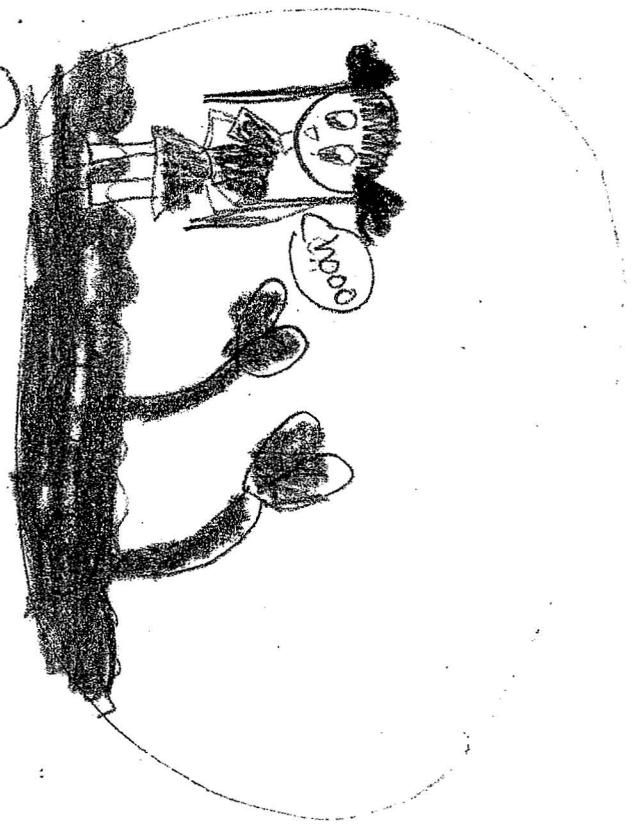
Love,  
Bronson

Dear senators and Law makers,  
we support law SB 709. we should  
protect Kalo because Kalo is a very  
good plant because it feeds people and  
they take care of Hāloa. Hāloa is my  
favorite food because it is really healthy  
for me. Hāloa is a Gift from God. We Don't  
need to change it because it's already  
Perfect, Pure, and Safe. So we need you to take  
care of Hāloa then he will take care of you.  
Then we will be strong and we like to take  
care of Hāloa, and it is a work out for us.  
It helps us to do more things. Hāloa is very  
Special because he is food and we need  
to pass laws so Hāloa is safe. Please save  
the āina-food and please don't put Gmo inside  
Kalo. Hāloa needs you to not make a Super  
Kalo or plant. So we can keep the āina  
safe. My name is Kaleh<sup>ua</sup> my School is  
Kawaihewa Church School and I 7 years old  
by Kaleh.

LOOK IN  
THE BACK 



I love  
Kalo-Hana

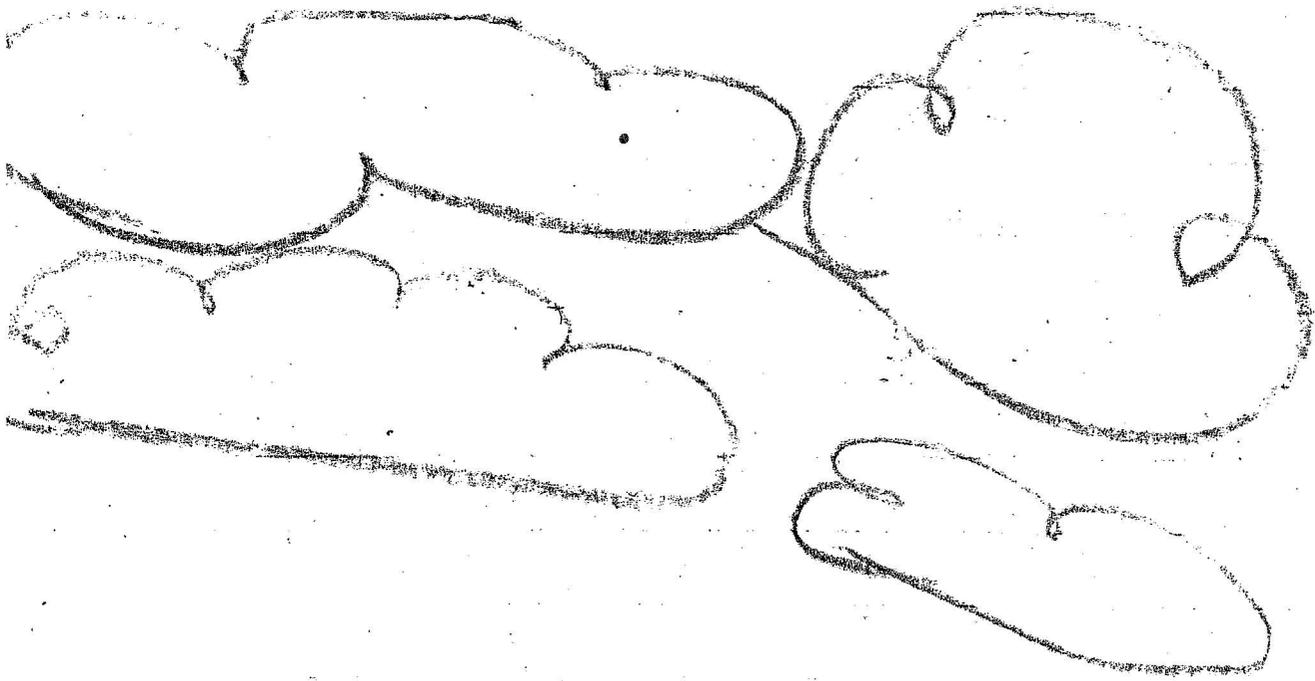


Yes  
I do  
Kaley



Dear Lawmakers, we Support SB  
709. Dear Lawmaker my name is Kamaila  
and I want to protect kalo which is  
haloa because I understand  
how important it is. one reason  
is some people can not eat  
some kinds of food but all  
people can eat kalo. second  
if you don't take care of it it  
will not take care of you and  
people are wanting to put other  
things in it this is called GMO.  
please take care of kalo and keep  
it pure.

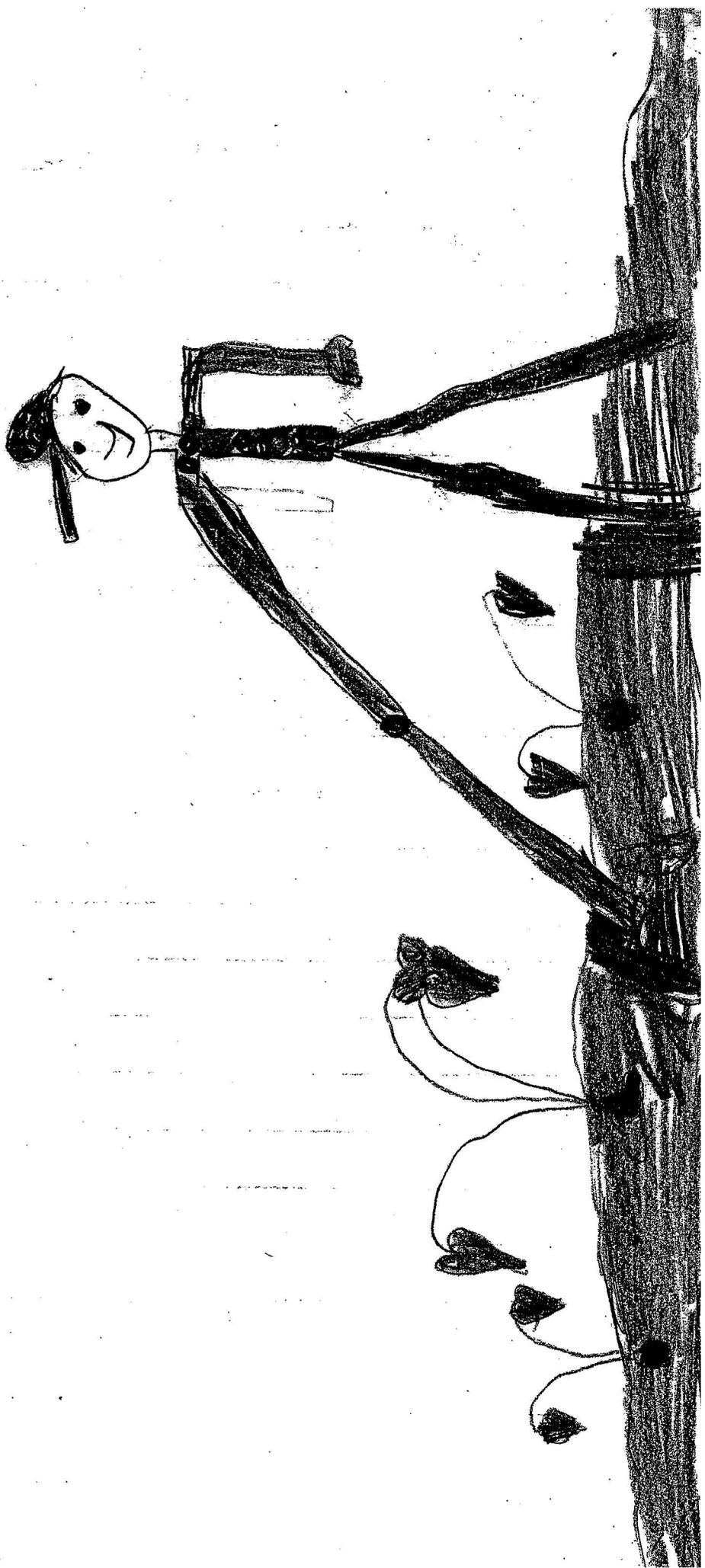
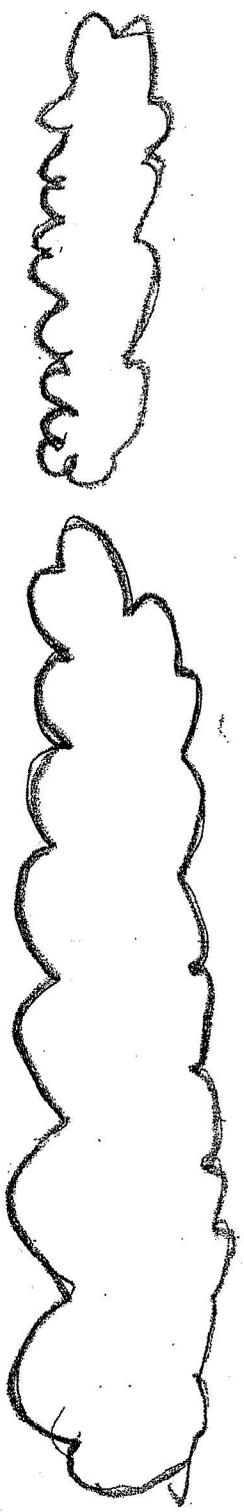
Kamaila

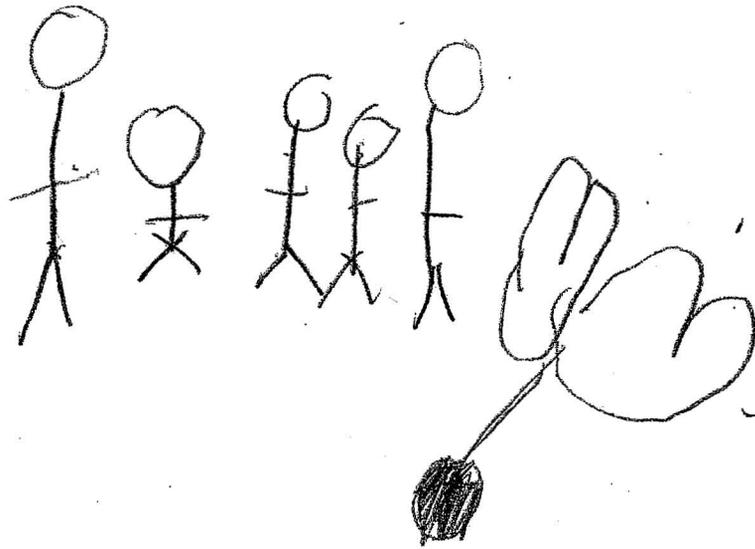


Dear Law Makers,

1) We need to help Kalo grow. 2) We need to protect Kalo because people keep putting stuff into it with gumbo. People are getting sick from it. 3) If people keep on putting ingredients into the Kalo, it won't be safe then the people who can eat Kalo safely now will get sick. 4) God made it special for us for it. 5) Kalo is special because it is a pure food and it feeds us. 6) Kalo is the only food that nobody is allergic to. That's why we need to keep it pure, safe, and natural.

Tanner Heim





Dear law makers

su pua! SB 709 ka lo needs  
to be safe.

It needs to be protected.

we like Haloa naka leu

Kapa lili. ka lo is natural.

Haloa is strong because

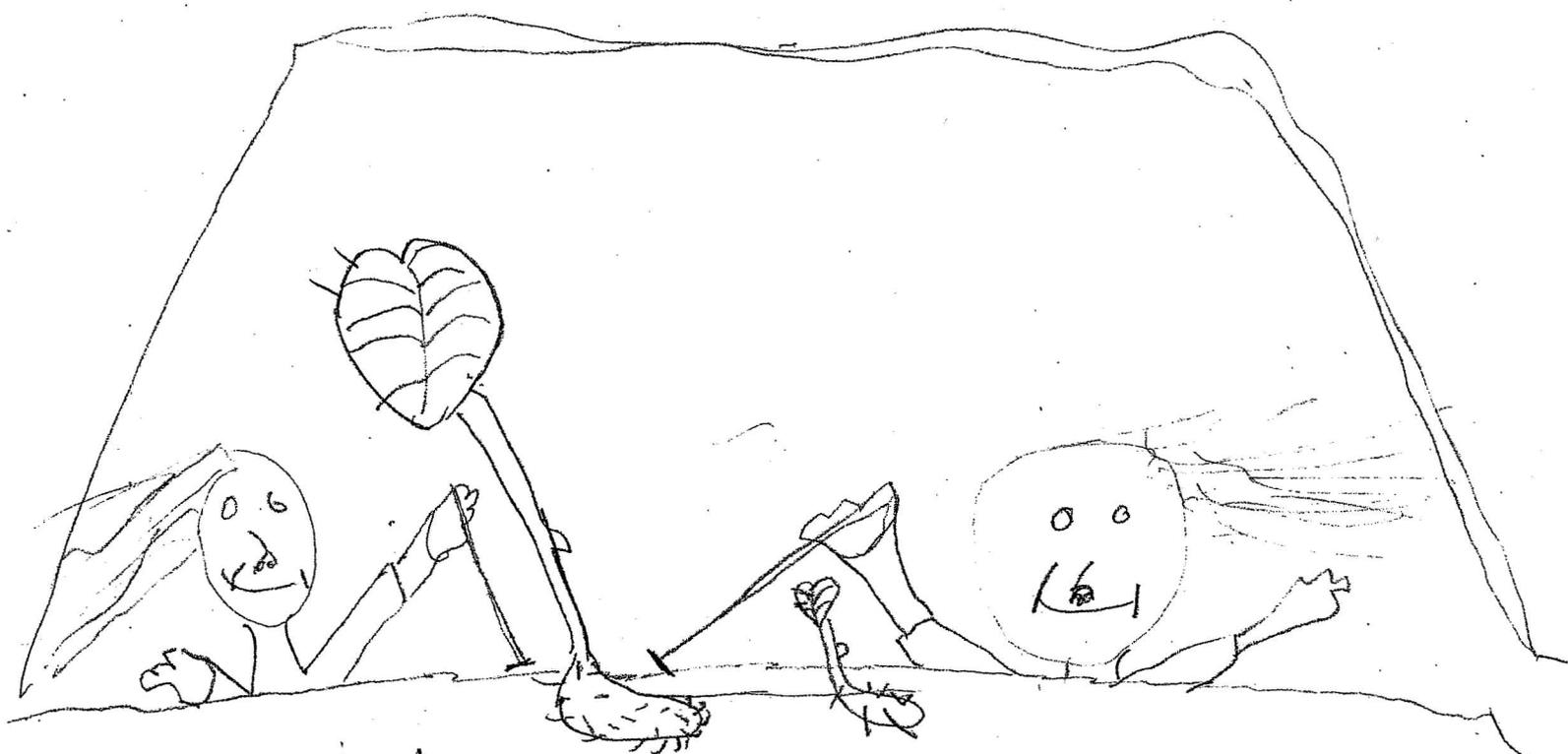
God gave to us. He made it perfect

pure and sacred. If you add

any stuff, without

God you will get sick.

Aloha kea! Da Go-rvin



Dear lawmakers, we support SB 709.  
Leave kalo the way God made it.  
Some people can only  
eat kalo. It's pure and good. If we  
add things into it, it  
may make you sick.  
Kaikea Ahuna



# Dear law makers

to keep kalo pure and safe  
kalo can grow strong and green  
and big so it can be healthy  
so if people eat it  
they can be really healthy  
so they can have energy to plant  
and to do other stuff and if the  
kalo wont die and make people sick  
and die so protect the kalo and  
if you take care of the kalo it will  
take care of you and if you give it  
bad stuff the kalo might die and  
give the kalo lots of water or  
if you dont the kalo will  
dry up so give them water every  
day so the kalo can be healthy  
and strong. from  
Seth Drake Williams

am n



Dear law make fsc we s u apart  
 B B 700. Protect The Plant Kalo  
 and the ai ha If you take care  
 of Kalo He will take care of you  
 So don't give the Kalo G. m. o. IF you  
 doht give Kalo Gamoo Then it is go  
 ing to be fine. Love kam q w o n g

doing  
STOP ~~doing~~ BAD THINGS

SO KALO CAN GROW.

IF YOU DONT STOP KALO  
WOHT GROW.

IF YOU DO  
KALO WILL GROW

IF WE DO  
AND KEEP DOING  
IT ALL OVER THE WORLD.

KALO WOHT GROW BECAUSE

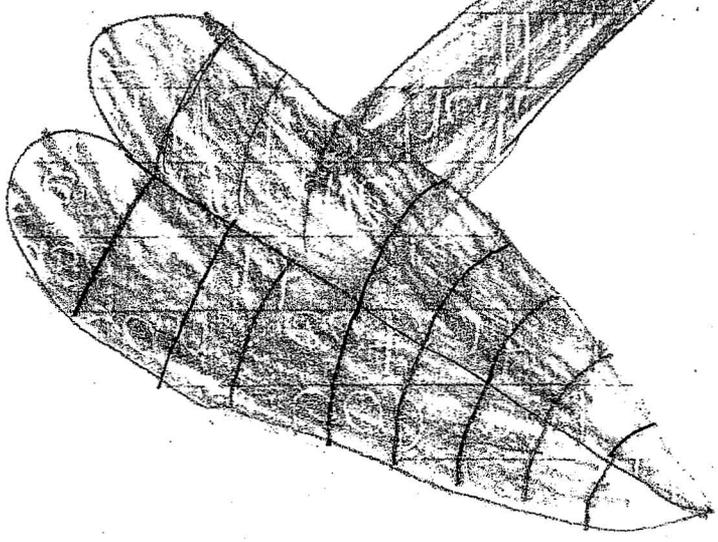
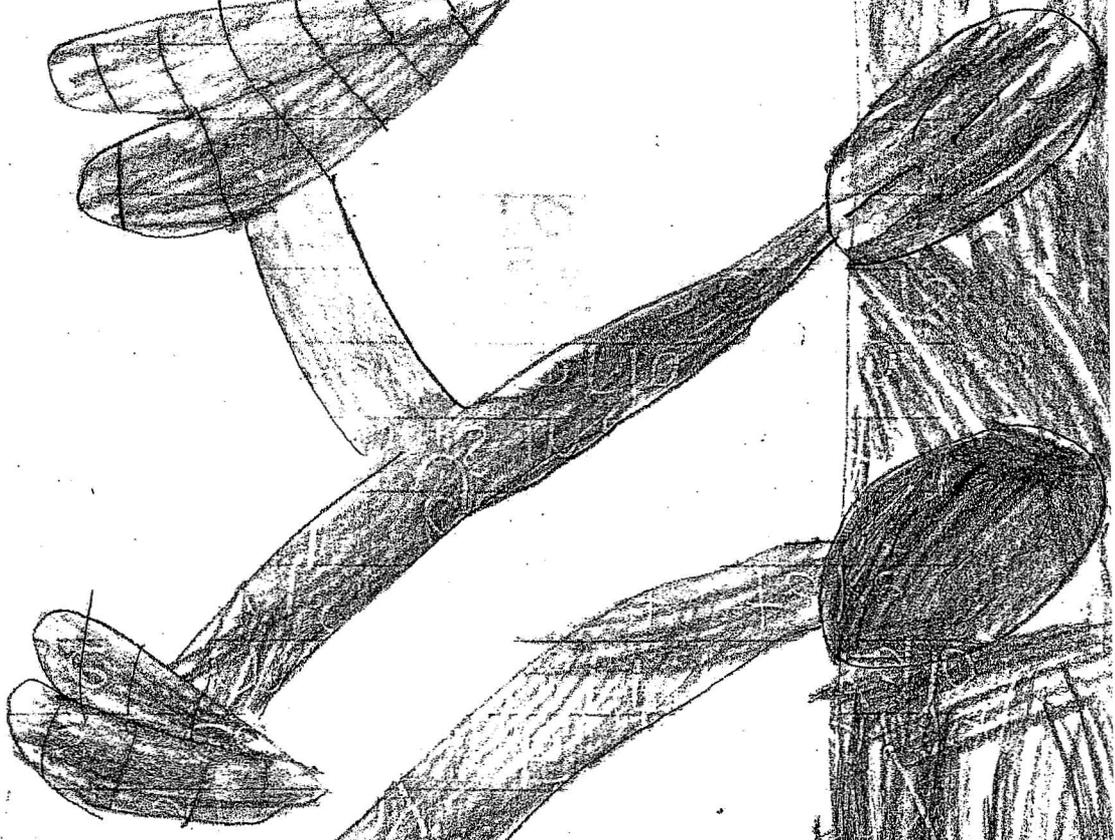
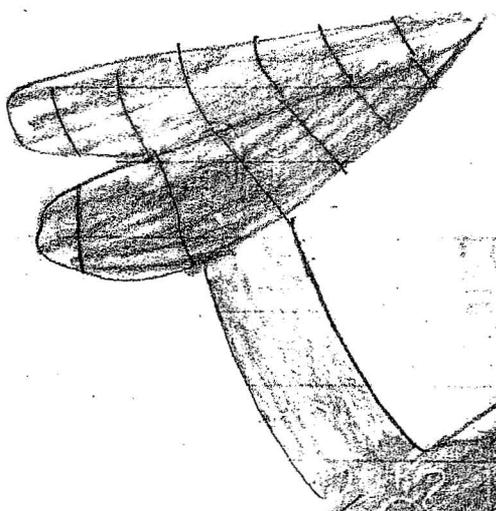
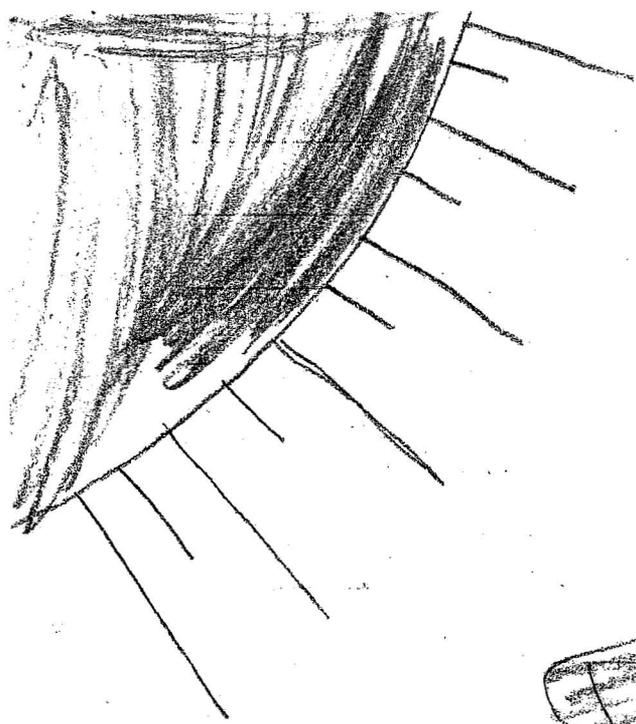
THEY DIERING SO DONT ~~do~~<sup>do</sup>  
BAD THINGS FOR KALO  
WILL DIER SO MY

CLASSE IS TRYING TO NOT DO THAT  
AND SKALO IS THE ONLY FOOD  
THAT FOR ONE IS LOGIC TO  
SO THAT IS WHY WE  
SHOULD KEEP KALO SAFE

LOVE MOHA

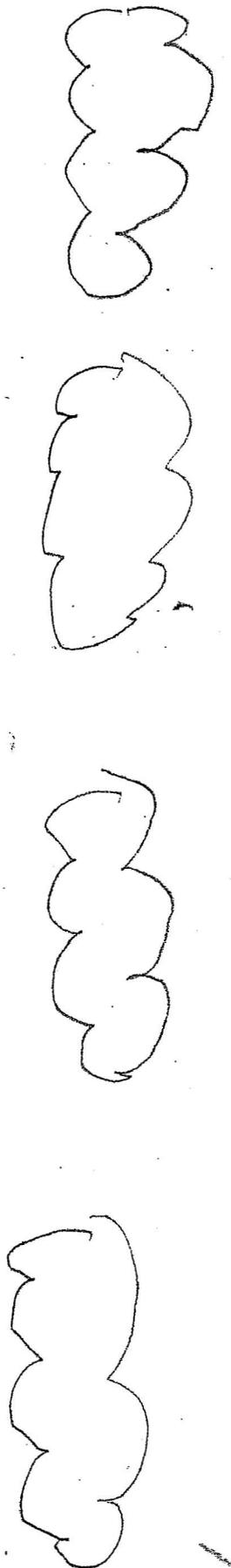
Dear law makers, Please make  
Hāloa Safe. GOD made Hāloa so every  
body can eat it. Kalo is good  
because it is a medicine too.  
Please keep Hāloa Pūā and  
Please keep Hāloa healthy. My  
Dad is Kai Poi Kelling. He has a  
Kalo Patch at my house. My  
Dad takes care of the āina.  
There are many different Kalo.  
God gave us Kalo to take  
care of it and God gave us  
Kalo to eat. Kalo is important to  
every<sup>one</sup> in the world. Kalo  
is healthy for you. So let's  
keep it this way forever. Let's  
never put GMO in Kalo  
ever.

Love A'ali'i



Dear lawmakers, please make a law that will stop the people that are putting stuff in kalo. Kalo is the purest food. + If people are allergic to stuff they can still eat kalo. If you put stuff in the kalo, when <sup>these</sup> people eat kalo they will get sick. And you don't need to change God's food that he made for us because it is perfect and made for us to eat and you don't need to make God's food better than he made it. pure, safe and healthy.

Aloha: wailani wong



maker  
parLout  
Kalo Lish good Food  
Daha its a the 1th Food  
We should protect ALL  
the different kind of  
Kalo we need to keep Kalo  
natural and pure Lets  
make sure we keep Kalo  
safe and good for everyone.  
Kainon Kani i and  
ALL

Dear, Senators and Law makers,  
Me and my class would like to  
save Hāloa and not use fertilizer  
and G.M.O. for plants just to make  
a super plant. Kawaihae's School wants  
to save Hāloa. If we don't take  
care of Hāloa he won't take care  
of us. Then when we eat it will make  
us sick. Then people will die, and the  
amount of people will shrink and  
shrink. Please help us save Hāloa.  
God gave us Hāloa as a gift. We are  
going to have to respect God's gift.

To: Law makers  
From: Kacobi Gonsaves