

DAVID Y. IGE  
Governor

JOSH GREEN  
Lt. Governor



PHYLLIS SHIMABUKURO-GEISER  
Chairperson, Board of Agriculture

State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
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**TESTIMONY OF PHYLLIS SHIMABUKURO-GEISER  
CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE HOUSE COMMITTEE ON FINANCE**

**MARCH 29, 2019  
2:00 P.M.  
CONFERENCE ROOM 308**

**SENATE BILL NO. 1436 SD2 HD1  
RELATING TO AGRICULTURE**

Chairperson Luke and Members of the Committees:

Thank you for the opportunity to present testimony on Senate Bill 1436 SD2 HD1 that requires the Department of Agriculture to conduct a study on the feasibility of authorizing the Department to establish and designate “ag-tech” zones in the Kalihi-Palama, Kakaako, Moanalua, and the Waianae coast areas. The Department is to request the assistance and resources of the departments of Land and Natural Resources, and Business, Economic Development, and Tourism; the University of Hawaii; the Hawaii Community Development Authority; and the City and County of Honolulu. There is a two-year appropriation and the feasibility study is to be submitted to the 2020 Legislature. The purpose of an “ag-tech” zone is to promote technological innovation in agriculture to increase food production in a more effective and environmentally responsible way that also contributes to State revenues. The Department of Agriculture offers comments.

The Department is concerned about redirecting our very limited departmental resources away from current duties and responsibilities to undertake the many tasks specified in this measure in a comprehensive and realistic manner. The Department supports all forms of agricultural production including small-scale niche operations. The Department supports the development and integration of technology to all agricultural practices to help reduce irrigation needs, increase yields and quality, and to reduce the



need to apply soil supplements and pesticides. While some crop and animal production and businesses prosper in their unique situations in urban Honolulu, the resources that are to be allocated to the endeavor expressed in this bill should reflect its likely contribution to Hawaii's overall food self-sufficiency.

A quick online search on urban farming and agriculture technology in Honolulu shows that MetroGrow in Kakaako grows lettuce and micro greens for restaurants and organic food retailers. The Institute for Human Services in Iwilei has a rooftop aquaponics and hydroponics operation that produces 100 pounds of leafy vegetables per month and about 50 pounds of tilapia every two months. Most of their product is made into meals for their clients. Smart Yields is a technology startup that seeks to improve small to medium sized indoor farms increase productivity by combining field environmental sensors with real-time data monitoring, and digital record-keeping to correlate crop performance with environmental conditions.

Relevant to the purpose of this bill and its application in the targeted areas on Oahu is a 2016 report from the Center for a Livable Future at Johns Hopkins University. The report concluded that growing food in cities has benefits, and urban farming plays a role in community health and development, but it is insufficient as a unique tool to address food insecurity and dietary quality.

Thank you for the opportunity to testify on this measure.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Testimony Presented Before the  
House Committee on Finance  
Friday, March 29, 2019 at 2:00 p.m.

By  
Nicholas Comerford  
Dean, College of Tropical Agriculture and Human Resources  
And  
Michael Bruno  
Interim Vice Chancellor for Academic Affairs  
Vice Chancellor for Research  
University of Hawai'i at Mānoa

### SB 1436 SD2 HD1 – RELATING TO AGRICULTURE

Chair Luke, Vice Chair Cullen and members of the House Committee on Finance:

Thank you for the opportunity to testify on SB 1436 SD2 HD1 relating to agriculture that requires the Department of Agriculture (DOA) to conduct a feasibility study on the establishment of agricultural technology zones, or ag-tech zones, within the City and County of Honolulu and appropriates funds to conduct the feasibility study. The University of Hawai'i at Mānoa, College of Tropical Agriculture and Human Resources (CTAHR) supports the intent of this bill and we respectfully provide the following information to substantiate our position.

CTAHR is in agreement with the legislature that protected agriculture should be a strong future vision for Hawai'i. Some of the benefits of growing food under controlled conditions include the following:

- increased biosecurity and reduced danger from diseases and insects result in a reduced need for pesticides, but understand that it does not remove the need for pesticides;
- reduced use of water;
- increased production per square foot of land as there are examples of vertical farming that produce as much as 400 times more than a square foot of farm land;
- the ability to control the entire agroecosystem;
- the ability to reduce labor, yet increase the skill of those working in these operations with the need for degree programs that plan for this eventuality; and,
- increased ease of meeting both Good Agricultural Practices certification and the U.S. Department of Agriculture Food Safety Modernization Act laws.

However, there are difficulties that will have to be overcome:

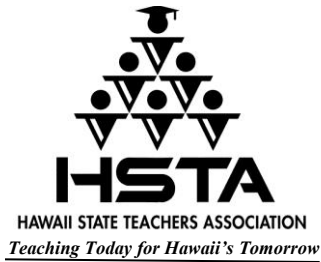
- the high cost of land/rent in Hawai'i;
- the high cost of energy;
- the necessary capital investment; and,
- knowing the appropriate scale and break-even point to generate a profit.

A feasibility study is the most appropriate approach at this time, particularly due to the challenges mentioned above. CTAHR would be one of those University of Hawai'i units that could possibly be involved by providing input to DOA on pest management and horticultural inputs.

Such a study is needed to better understand the current status of individual food imports, which at this time is only an estimate. This will be necessary since a feasibility study would want to understand what crops are to be grown; as this affects the cost of inputs.

It also needs to be recognized that such a study, when done right, can be expensive as it requires significant labor and expertise.

Thank you for the opportunity to submit testimony in support of SB 1436 SD2 HD1. However, we defer to the testimony of DOA as to the feasibility of this bill relative to their manpower and proposed funding to accomplish the task.



Corey Rosenlee  
President  
Osa Tui, Jr.  
Vice President  
Logan Okita  
Secretary-Treasurer  
Wilbert Holck  
Executive Director

## TESTIMONY BEFORE THE HOUSE COMMITTEE ON FINANCE

RE: SB 1436, SD2, HD1 - RELATING TO AGRICULTURE.

FRIDAY, MARCH 29, 2019

COREY ROSENLEE, PRESIDENT  
HAWAII STATE TEACHERS ASSOCIATION

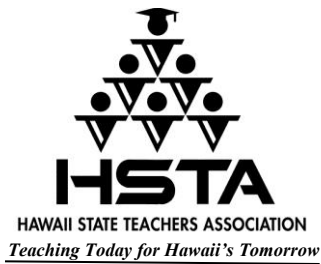
Chair Luke, and Members of the Committee:

The Hawaii State Teachers Association **supports SB 1436, SD2, HD1**, relating to agriculture.

This purpose of this Act would be to require the Department of Agriculture to conduct a feasibility study on the establishment of ag-tech zones within the City and County of Honolulu and appropriate funds for conducting the feasibility study. It also would also protect and expand Hawaii's agricultural production for in-state consumption and export; create a new industry that recognizes and responds to the challenges of the future of food production in context of population growth, recruit and train Hawaii's youth for the new agricultural economy, and promote vertical farming techniques that reduce the use of water and pesticides. These goals are for our future. **Our students are our future and exploring the feasibility of ag-tech in Hawaii will help us expand the agricultural careers in our state that will be available for our students when they become adults.**

**With limited land in our state, we need to study the feasibility of vertical farming**, such as AeroFarms in New Jersey, with its sixty-nine thousand square foot facility, has demonstrated the potential of vertical farming to grow healthy fruits and vegetables and to spur economic activity at the same time. According to Cornell University and the University of California, "Every year, AeroFarms has the potential to produce up to thirty harvests and yield two million pounds of greens. In comparison, a traditional outdoor farm in New York state produces about three lettuce harvests in a good year."

We need to restore the balance in our public educational system in Hawaii. **Hawaii's Career and Technical Education programs need to be expanded to provide greater opportunity to prepare young people to design their own futures.** The agriculture workforce needs have changed over time, and



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expanding our ag-tech industry, and exploring the feasibility of vertical farming, is ideal for our islands as it incorporates sustainability in agriculture that will help Hawaii. According to the Hawaii Agriculture Skill Panel Report from the Workforce Development Council, the average age of Hawaii's commercial farmers is over 60 years old. Interest in agriculture is waning in our youth and this is worrisome to the industry and to the economy and self-sustainability of our state.

There is a common misconception that farming is a low-paying, low-skilled trade. Our youth need to understand that there are a variety of careers within the agricultural industry that need to be filled. They need more workers that are not only technical in nature, but also those who will help to solve the problems listed in the report such as developing new technology and developing ideas for innovation that are critical components to the growth and expansion of the agricultural industry in Hawaii, especially in the areas of sustainability.

Passage of this bill would help provide our youth with opportunities to gain the knowledge they need to promote ag-tech career paths as a possible career choice.

Hawaii, like most states, is working toward the goal of getting their students 'college-and career-ready,' but CTE experts are concerned that what we mean by 'career-ready' is not always clear, and the supply of quality career-technical education programs has not kept pace with demand. Students must have several options available to them in order to explore a variety of career options, one of them being in innovation in agriculture. This bill supports these efforts.

According to a national study, *The Shocking Truth About The Skills Gap* (2015), only 25 percent of polled job seekers reported receiving career path in high school, and 41 percent said they wished they had received more guidance.

Because a robust education involves developing all aspects of learning for our ever-changing world including the changes in agriculture, the Hawaii State Teachers Association asks your committee to **support** this bill.



Testimony of  
**MetroGrow Hawaii**  
Kerry Kakazu, Ph.D., President

To the  
**House Committee on Finance**  
Rep. Sylvia Luke, Chair  
Re. Ty J.K. Cullen, Vice Chair

DATE: Friday, March 29, 2019  
TIME: 2:00 p.m.  
PLACE: Conference Room 308  
State Capitol  
415 South Beretania Street

Chair Luke and Members of the Committees:

**Measure:** S.B. No. 1436 SD2 HD1

**Title:** RELATING TO AGRICULTURE

**Description:** Requires the department of agriculture to conduct a feasibility study on the establishment of ag-tech zones within the city and county of Honolulu. Appropriates funds to conduct the feasibility study.

**Position:** MetroGrow Hawaii is in strong support of this measure.

**Testimony:** Thank you for consideration of S.B. 1436 to authorize and fund a feasibility study for ag-tech zone development in Honolulu. I am the owner and president of MetroGrow Hawaii, the first indoor hydroponic vegetable farm in Hawaii and am in full support of this measure. As the measure recognizes, vertical farms are able to produce vegetables in a fraction of the space and with approximately 5 - 10% of the water required for traditional agriculture. The enclosed environment of vertical farms allows them to control light, temperature, humidity and other variables to optimize the growing conditions for crops and thereby maximize productivity and quality. The controlled environment also negates unpredictable weather conditions, minimizes pest and disease problems and the need to use pesticides, and prevents contamination from chemical or biological agents.

Decreases in arable land, changing climate, reduction of fresh water availability and the tremendous pest pressures in Hawai'i necessitate research and development of alternative forms of agriculture. Vertical farming and other forms of protected agriculture that incorporate technological innovation can supplement traditional growing systems to increase local food production. Technology driven growing operations are capital and energy intensive so government support to encourage and incentivize these

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<http://metrogrowthawaii.com>

businesses are essential to their success. The establishment of ag-tech zones is an important step to provide that support.

Our state's goal of food self-sufficiency is laudable and I look forward to increased funding for our existing agricultural infrastructure to support current and future traditional farming. However, new technologies to increase agricultural productivity in a sustainable fashion have to be incorporated into our food systems in order to succeed. It will require "out of the box" thinking and innovative new companies to rapidly move our food production systems forward. I appreciate that funding for new initiatives is difficult when existing programs need additional resources, but diversification of the agricultural production system cannot be ignored. The investment suggested by this measure is a small, but critical step toward our future food production goals.

I applaud the legislature for their recognition of the benefit that new agricultural paradigms can provide to our state and strongly encourage that this development continues with the passage of S.B. 1436. MetroGrow Hawaii will be happy to provide any assistance to these efforts. Thank you very much.



**SB-1436-HD-1**

Submitted on: 3/28/2019 11:03:32 AM

Testimony for FIN on 3/29/2019 2:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
NANCY JONES	Hydroponics Alternatives - Wai`anae	Support	No

Comments:

Good afternoon Chair Luke, Vice-Chair Cullen, and Honorable House Finance Committee Members:

We are pleased to submit this testimony in SUPPORT of SB 1436/SD 2/HD 1 – with proper funding -- which requests the Department of Agriculture (DOA) to conduct a feasibility study relative to establishing and designating agricultural technology zones in the City & County of Honolulu -- namely, in Kalihi-Palama, Kakaako, Moanalua, and Waianae coast areas and reports those findings to the Legislature prior to the 2020 Regular Session.

We have been in the hydroponics production and project development business in Florida, Hawai`i and worldwide since the 1970s. When combined, our family member's hydroponics production and greenhouse experience totals more than 100 years. We returned home to Hawai`i in 2012 from a hydroponics project in Lebanon due to political instability and to create a new operation on the Leeward Coast. Currently, we operate a small farm in Wai`anae, which has an ideal micro-climate for growing an array of crops.

With respect to the proposed feasibility study, we believe that:

1. This should be spearheaded by growers with actual, production-based growing experience in addition to DOA and academic representatives. Local farmers engaged in commercial production can provide the best perspective on what types of crops would work commercially in the proposed agricultural technology zones.
2. The study should NOT be limited exclusively to urban core vertical farming, which is limited to leafy greens and herb production in stacked systems and can prove more expensive than hydroponics greenhouse production. The feasibility study should also reconfirm areas for Ag. Technology zone designation – in the City & County of Honolulu – and also current farmers that can turn their current means of production into something more productive in terms of hydroponics and controlled environment greenhouses.
3. The study should also focus on expanding agricultural production into greenhouses and poly-tunnels on non-traditional farm lands that could also incorporate solar and wind power generation. This is presently occurring in the

Wai`anae Agricultural Park. However, non-traditional farm lands could include rocky areas and lava fields.

If this type of any type of protected agricultural production is not profitable for growers, then farmers and even agricultural students will not even consider adopting this type of technology. As so many other testifiers have pointed out – protected agriculture’s initial cost outlays can indeed prove expensive, but the revenue potential can be high given our ability to produce year round and Hawai`i’s “captive” market. These two factors will quickly generate a return on investment within an average of five (5) years.

Such a feasibility study should not become a marketing study – most information on Hawai`i’s reliance on produce imports is readily available by contacting Hawai`i’s produce wholesalers and supermarkets to obtain a basic overview of the types of produce they import to meet local demand. For example, a cursory review of most Hawai`i supermarkets will reveal that Hawai`i relies heavily on tomatoes imported from Mexico.

In our estimation, the study should not require more than a couple of months to complete with a team of up to 2 people. We know this because in 2000, two (2) of us completed a detailed study for the U.S. Agency for International Development (USAID) of 15 processed food products in 5 GCC [Persian] Gulf Cooperating Council countries in a 60-day period. And in today’s age of enhanced computer technology, so much more information is available online. Given the DOA’s budget and staffing limitations, if they were to contract this feasibility study out to a third party, in our estimation, such a study should cost no more than \$75,000.

For all of the above reasons, we urge your honorable committee members to please support SB 1436, SD 2, HD 1 and provide appropriate funding to the Department of Agriculture to conduct the proposed feasibility study either: a) in-house; or b) by contracting with a third party organization.

HOUSE OF REPRESENTATIVES  
THE THIRTIETH LEGISLATURE  
REGULAR SESSION OF 2019

COMMITTEE ON FINANCE  
Rep. Sylvia Luke, Chair  
Rep. Ty J.K. Cullen, Vice Chair

DATE: Friday, March 29, 2019  
TIME: 2:00 P.M.  
PLACE: Conference Room 308  
State Capitol 415 South Beretania Street

HEARING

**SB1436 SD2,HD2**

**POSITION: STRONG SUPPORT SB1436 SD2, HD1 with proposed amendments**

Thank you for the opportunity to provide written testimony on House SB1436 SD2. I am strongly in favor of SB1436 SD2. Hawaii needs to look for more innovative ways toward food production without forgetting about our long history of protecting agricultural workers from decisions that provide benefits in the short term only to heap cost on the future. I feel this bill moves in the right direction striking a balance between integrating technology while supporting current and future agricultural workers.

This bill also addresses the need for Hawai'i to protect its food production since the onset of Rat Lung Worm Disease and other outside influences which has the potential to damage the reputation of Hawaii produced goods as well as diminish our domestic food supply.

Furthermore, this bill will seek to bring in the youth to see working in agriculture as a viable career pathway for youth that would like to pursue careers that are CTE through the innovative ways of using technology toward agricultural development.

In closing one of the most powerful reason to support this bill is it's potential to massively increase food production in urban Honolulu. This is right step toward building up our states food reliance and, possibly grow an export market which highlight made in Hawaii goods in which a new industry can be created, this bill is vital to our food security here in Hawai'i.

Suggested Amendments:

Paragraph 2 of Section 1 to be amend as read:

The legislature further finds that ~~large conventional farming operations use pesticides that damage the State's fragile ecosystem. The pesticides enter the water and land resources of the State and find their way into the ocean.~~ the State's food security is also compromised by ~~other~~ factors, such as the rat lungworm, which is a disease-causing nematode that may result in long-term disability and consequently diminish an affected person's ability to earn a living.

Insert new paragraph under current Section 1 paragraph 3 to be amend as read:

The legislature additionally finds that the State must explore more effective and environmentally responsible ways to increase food production to feed its residents. Agricultural technology, or ag-tech, should be at the forefront of the effort to revitalize the agricultural sector of the State and develop that industry's potential to be a major contributor to state revenue.

The legislature finds that Hawai'i has had a vibrant agricultural past. In concert with labor movements the agricultural industry has expanded the Hawai'i middle-class by growing and exporting fruits and other food items throughout the world. Hawaii can be once again at the forefront of innovation through modern technology.

Thank you for reading this testimony and please consider these amendments to strengthen this bills intent.

Mahalo,

Ken Farm