Report to the 31st Legislature 2022
Regular Session

REPORT OF THE WORKING GROUP CONVENED IN RESPONSE TO SENATE CONCURRENT RESOLUTION 246, HOUSE DRAFT 1

Prepared by the

State of Hawai‘i Department of Hawaiian Home Lands

December 2021

REPORT TO THE LEGISLATURE

REPORT CONTENTS

I. PURPOSE

The purpose of Senate Concurrent Resolution 246, House Draft 1 of Hawai'i's 2021 Legislative Session (SCR 246, HD1) is to convene a working group to develop recommendations for implementing the Revitalizing Economy and Agriculture Leadership Initiative. The major elements of SCR246 can be summarized as follows:

1. Timely and coordinated actions in farming
2. Provide market connections and attract capital assets to Hawai'i
3. Provide jobs for skilled agriculture technology workers
4. Empower self-sustaining for-profit businesses with local production and access to local and export off-taker markets
5. Facilitate access to sustainable food supply and feedstock
6. Stabilize small farming businesses through community and industry partner actions
7. Create new businesses with industry partners
8. Resiliency through the promotion of clean energy, restorative & precision agriculture and environmental conservation
9. Provide practicable pathways for farmer profitability and success in expansion markets

II. RESOLUTION REQUIREMENTS

SCR 246, HD1 requests that the Chair of the Hawaiian Homes Commission or the Chair's designee convene and serve as the Chair of the Revitalizing Economy and Agriculture Leadership working group composed of the following members or their designees:

1. The Administrator of the United States Small Business Administration
2. The Chairperson of the Board of Agriculture
3. The Chairperson of the Board of Land and Natural Resources
4. The Director of Business, Economic Development, and Tourism

5. The Chairperson of the Board of Directors of the Agribusiness Development Corporation
6. The Dean and Director of Research and Cooperative Extension at the University of Hawai‘i College of Tropical Agriculture and Human Resources
7. The Mayor of each of the Counties or if the Mayor declines the Chairperson of the respective County Council
8. The Chairperson of the Board of Trustees of Kamehameha Schools
9. The President of the Hawai‘i Agriculture Research Center
10. The Chairperson of the Sovereign Council of Hawaiian Homestead Associations (SCHHA)
11. A representative for agricultural homesteaders not represented by the SCHHA, selected by the Chair of the Hawaiian Homes Commission
12. Representatives of energy, food, and restaurant industry organizations invited by the Chair
13. Other stakeholders invited by the Chair of the Hawaiian Homes Commission

III. WORKING GROUP FORMATION

Outreach was made to the working group members identified in the resolution. After invitations were accepted and delegated, the working group members consisted of the following:

1. Tyler Iokepa Gomes, Deputy to the Chair of the Hawaiian Homes Commission
2. T. Mark Spain, District Director for SBA Hawai‘i – Pacific Islands District Office
3. Phyllis Shimabukuro-Geiser, Chairperson of the Board of Agriculture
4. M. Kaleo Manuel, Deputy Director for Water Resource Management
5. Chung Chang, Deputy Director of the Department of Business, Economic Development & Tourism
6. Frederick Lau, Chairperson of the Board of Directors of the Agribusiness Development Corporation
7. Nicholas Comerford, Dean and Director of Research and Cooperative Extension at the University of Hawai‘i College of Tropical Agriculture and Human Resources
8. Douglass Adams, Director of Research and Development Management of the County of Hawai‘i
9. Dexter Kishida, Food Security & Sustainability Program Manager of the Office of Climate Change, Sustainability and Resiliency of the City and County of Honolulu
10. Nalani Brun, Director of the Office of Economic Development of the County of Kaua‘i
11. Stacy Crivello, Community Liaison of the Office of the Mayor of the County of Maui
12. Kaeo Duarte, Vice President of Community and ʻĀina Resiliency of Kamehameha Schools
13. Dana Sato, Hawai‘i Agriculture Research Center Board of Director
14. Robin Danner, Executive Director of the Sovereign Council of Hawaiian Homestead Associations
15. Mike Hodson, Vice Chairman of the Sovereign Council of Hawaiian Homestead Associations
16. Keani Rawlins-Fernandez, Agricultural homesteader not represented by the SCHHA
17. Glenn Teves, Agricultural homesteader not represented by the SCHHA,

18. Harmonee Williams, Executive Director of the Hawai'i Good Food Alliance
19. Cameron Kruse, Engineering and Technology Manager of the Kaua'i Island Utility Cooperative

A Working Group virtual meeting was held on November 8, 2021. During the meeting each group member was asked to identify three recommendations to support the REAL Initiative.

The following report based on Working Group's recommendations. This report includes:

1. **Revitalization of Agriculture Overview**
2. **Working Group Meeting Summary and Outcomes**
3. **Summary of Proposed Legislation**
4. **Additional Recommendations for consideration**

IV. REVITALIZING AGRICULTURE IN HAWAI'I OVERVIEW

Since Governor Ige's pledge at the 2016 IUCN World Conservation Congress held in Honolulu, the state has been pursuing aggressive Aloha + Challenge goals of doubling local food production by 2030. With nearly 2 million acres of the state's 4.1 million acres zoned for agriculture (crops, pasture and conservation) and little growing happening, the urgency to revitalize agriculture in Hawai'i is not a new topic. Hawai'i remains largely dependent on imported foods with more than 85% of what residents and tourists eat coming from abroad. Recent environmental and COVID-19 crises have revealed serious shortcomings of such significant reliance on imports and food and biosecurity challenges ahead for Hawai'i should this course be maintained. Land use baselines show productive and active agricultural lands continuing to decrease from 350,830 acres in 1980 to 151,830 acres in 2015. This is primarily due to the reduction of large-scale, plantation farming and numerous farm closures. However, recent land use reductions also signal positive eco-system trends in smaller-scale, smart-farm modernization and production efficiencies resulting in higher yields and lower land and resource input costs.

Revitalizing the agriculture industry requires a convergence of partners across the entire ecosystem and supply chain to tackle barriers and harness new efficiencies that generate multiple returns on investments – profit, modern infrastructure, quality jobs, food security and self-sufficiency. Collaborative actions that curb the expense of farming (including transportation, mechanization, processing workforce housing, training, inputs, regulatory compliance) and can create stackable and scalable profit margins for Hawai'i's agriculture growers, need to be promoted. The legislature, industry, landowners, and government agencies have been discussing and researching how to revitalize this industry for the last 40 years. SCR246 challenges stakeholders in 'āina stewardship roles to rally and advance farmer-led REAL initiatives that can transform Hawai'i's linear agriculture into more a resilient circular agribusiness model backed by culture, environmentally sustainable practices, science and data.

Self-sufficiency is a goal of the Hawai'i Constitution. Article XI, Section 3 of the **Hawai'i Constitution** states that "The **State** shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural **self-sufficiency** and assure the availability of agriculturally suitable lands." The focus on the farmer and their needs is the first step in expanding agriculture. Constraints are many and include land, water, capital, technical assistance, access to markets, and getting top price for their product, among others. Access to affordable land with fair tenure, coupled with a reliable agricultural water source remain major challenges, especially for new farmers. State agricultural parks are focused primarily on accommodating farmers on five to 10 acre lots and providing assistance to increase scale of

production thereby increasing food security by marketing local fresh, processing value-added local products and contributing to import replacement. The existing State agriculture parks do not typically address the needs of new farmers (i.e. those transitioning into farming) nor farmers on lots smaller than five acres. The Go Farm Beginning Farmer program housed in CTAHR has graduated 430 aspiring new farmers and many struggle to find affordable land with fair tenure and access to reliable water. Presently state agricultural parks and also state water systems are managed by two distinct entities housed within the State Department of Agriculture, the Resource Management Branch and the Agribusiness Development Corporation. This duplication of services may need to be addressed while allowing one department to focus on agricultural policy and addressing many of the bottlenecks contained within this report while another can focus on managing and expanding agricultural parks and upgrading agricultural water systems. While the average age of farmers is 60, the age of the overall work force is 42 and more emphasis needs to be put into creating opportunities for new farmers to start new farms or train-for-succession under existing farmers to continue existing farms. With land tied up in the hands of a few, and exorbitant prices to purchase land, the ability to purchase farm land remains out of reach for many new and young farmers.

Access to capital remains a major bottleneck preventing many from starting a farm. Without a long term lease, farmers cannot gain access to conventional loans. For example, Hawaiian Homesteaders have limited access to loans since land is used for collateral in most farm loans nationally. However, homesteaders lease the land for 99 years and it cannot be used as collateral. New for-profit farming models and financial mechanisms (e.g. loans/grants, contract-to-grow farming)are required to kick start agriculture. For example, contract-to-grow farming introduced in REAL initiatives provides mutual benefits for producers and buyers with known compensation and market timing of in demand products. Such mechanisms also provide wrap-around supports including market supported cost-sharing of specialized equipment for processing, workforce training and maintenance programs. Alignment of special public-private start-up funding in the form of loans and grants can help attract new markets to Hawai‘i and de-risk farmers’ willingness to diversify and experiment growing new crops. Diversified markets and performance incentives ensure competitive market space while modernizing farming, creating workforce pipeline and opportunities to scale. After completion of farm business and production training, graduates gain access to special funds. An example would be the 50:50 grant:loan program previously offered by University of Hawai‘i’s agriculture extension program. After completion of farm business and production training, graduates gained access to special funds allowing the farmer to secure a loan with matching with a grant funds.

Farmers require constant technical assistance for growing, identifying new techniques and exploring new market options especially when starting a farm operation. Extension agents employed by the University of Hawaii, a land-grant university, have served in that capacity helping farmers across the islands. The number of agricultural extension agents continues to shrink as some retire and their positions are not filled due to the current hiring freeze and cost constraints. For example, one extension agent is expected to provide technical assistance to farmers growing edible crops, including fruits, vegetables, and herbs from Honoka‘a to Ka‘ū, an area spanning over 85 miles containing several hundred farms. Farmers large and small, old and new required technical assistance to refine their production system, address pest issues, and fine tune their soil management, among other concerns. Understanding costs of production is integral to the success of small farms to reaching a level of profitability that may involve replacing a crop with one that’s more profitable and in higher demand on the market. Farmers need to understand competitive advantages and what their location and climate, and well as distance from the marketplace adds or subtracts from the equation. Today, an increasing pool of ESG (environmental, social and

governance) conscious for-profit and non-profit organizations with farmer connections and talent interest is emerging and may also be leveraged to support and expand outreach working with dedicated extension agents. Federal SBA, USDA resources and conservation groups have programs to support small farm businesses and need REAL partners to help bridge relationships to reach farmers.

For agriculture to grow and thrive, a systematic analysis of the entire agriculture infrastructure is required to identify strengths and weaknesses in the system and what pieces are required to link the entire system together to create a vibrant, growing industry. The Law of the Minimum prevails in that one missing piece in the system renders the other parts non-functional or operating at a less than desired level of productivity. Transportation costs are an example that hurts both the cost of production from the input side as well as the output side in getting products to market. For example, neighbor island farmers are at a distinct disadvantage compared to Oahu farmers due to high costs of imported farm inputs including fertilizers and amendments that increases production costs while the cost of shipping products from the neighbor island to Oahu lessens the ability of neighbor island farmers to compete in the Honolulu marketplace.

The lack of small farm technology, such as planting, weed control, and harvesting aids have been identified as major limiting factors that could decrease labor costs and modernize the system. Small farm technology developed in China, Korea, and Japan have the ability to take farm production to another level, but are very difficult for Hawai‘i farmers to access. Much of the technology and machinery developed in the US are focused on very large farms with flat terrain, and few farms in Hawai‘i are of this size, so small farmers are not able to access machinery that fits Hawai‘i’s scale of farming. Small farm technology could provide a needed edge for Hawai‘i farmers competing with California farmers for the local market since wholesale prices paid to Hawai‘i farmers are based on ‘California prices plus freight’. Access to new technology is critical if Hawai‘i farmers are to compete in the local market place as well as on a national level

Housing has been identified as another important area to stimulate agriculture. Farmers need to protect their investment at a time of increased agricultural theft. Developing new models in agricultural parks whereby farmers can be allowed to construct a simple structure would greatly improve productivity and security. Some farmers travel relatively far distances to farm. This issue has never been addressed, but discussed many times with no resolution. The mechanics behind this radical idea would need to be worked out in detail to prevent individuals from building a home but not farming their land. In some areas of the state, farm land is the only land available for an affordable residence. Worker housing is one idea that could address the labor shortage. With competition for labor from the construction and hotel industries, farmers are hard pressed to find labor, and one idea is developing worker housing in major farm production areas or allowing farmer to construct worker housing as a carrot to lure workers.

What has changed from all these previous actions is the collective understanding that everything humans do to the environment, including agriculture is connected to the global crisis, climate change. When climate change is discussed, agriculture is not the first thing mentioned. The discussion focuses on reduction of fossil fuel use without discussing what created the fuel source, plants. Climate change is pretty simple when you get down to it. Humans through the use of fossil fuels are releasing carbon into the atmosphere that was sequestered hundreds of million years ago. While the transition away from fossil fuels is important, removing carbon from the atmosphere is equally as important. As such the need to revitalize agriculture in Hawai‘i becomes critical not just for jobs and food security but also as a tool for removing carbon through the plant growth. The revitalization of the agriculture sector in State of

Hawai‘i has the ability to create greater diversity in the economy, opportunities for the small and large farmer, have an impact on carbon sequestration through increased agriculture production while synergistically linking various industries across the state. A revitalized agriculture sector is achievable if we are willing to keep what has worked, establish partnerships and cooperatives rather than rivalries, and be willing to try new things.

V. WORKING GROUP MEETING SUMMARY AND OUTCOMES

Working Group Meeting Summary:
The focus of this meeting was to (1) introduce the working group members to one another, (2) ground the group with an understanding of the framework that resulted in the development of the REAL resolution, (SCR246, HD1), (3) discuss recommendations to revitalize agriculture and (4) evaluate how working group members/organizations can support REAL through programs, policies, etc., already in place. This summary focuses just the recommendations for revitalization (3) and how members/organization can support REAL (4).

Recommendations for Revitalizing Agriculture:
The working group members evaluated the concept of revitalizing agriculture through the lens of their organization or personal experiences. The team represented multiple economic sectors, government agencies/program administrators, non-governmental organizations, native Hawaiians, and farmers. The recommendations were organized into nine categories based on the subject-matter committees at the Legislature. Within each of the categories various opportunities to revitalize agriculture were identified. Opportunities that multiple group members thought were important are annotated. This is *not* comprehensive plan, rather a starting point to engage discussions about agriculture, its impacts, and opportunities across multiple legislative subject-matter committees during future sessions at the Legislature.

1. AGRICULTURE
    a. *Aggregation/ Agriculture Efficiencies*[1]
        i. Promote/Support Food Distribution Systems
            1. Promote, Support, Expand Food Hubs (7)[2]
            2. Promote, Support, Expand Farmers Markets
            3. *Expand availability and Access to Warehousing (4)*
            4. Expand availability and Access to Processing Facilities (food safety/consolidation/packaging)
            5. Improve Marketing
                a. Improve community/consumer support
                b. Feedback- Support from consumers
            6. Expand Mobile Markets (getting produce from farmers to consumer)
            7. Negotiate Services and Rates
        ii. Develop and Promote Shared Resources (12)
            1. *Expand Access to Slaughter Houses on Each Island*
            2. Expand Cold Storage Capacity (2)
            3. Develop and Promote Shared Equipment (2)
            4. *Expand availability and Access to Warehousing (4)*
            5. Promote Development of Service Facilities &/or Service Providers for Small Farmers (managed services) (3)
            6. *Develop and Promote Accessible Business support Centers for Farmers ()*
        iii. Develop and Promote Agricultural Parks (4)
            Create agricultural parks focused on new farmers
            Allow houses or workers quarters to be constructed on agricultural parks.
        iv. Support Collaboration by Production Services Hui and/or Hubs (6)
            1. *Support Collaborative Efforts to Obtain Capital*
            2. *Support Development of Integrated Pest Management Programs for Adjacent Farms*
            3. Work with Homestead Organizations and Leadership
        v. *Combine Water-Energy-Agriculture as Nexus for Development.*
    b. Livestock
        i. Secure more USDA inspector positions embedded on each island
        ii. Turn Axis Deer from Liability to an Opportunity
        iii. Expand Access to Slaughter Houses on Each Island
        iv. Create More Local Feed Stock
        v. Develop Programs to Increase Security
        vi. Expand Market for Local Meat and Dairy
        vii. Improve Access and Cost for Transportation for all Islands
        viii. Develop appropriate Solutions for Ranch and Farming Needs
    c. Security
        i. Develop Fencing Programs for Farm Asset Protection from

[1] Italicized text identifies topics that are cross-referenced in multiple categories.
[2] Parenthetical numbers denote the number of working group members/appointees that recommended a particular topic.

Wildlife[3]*

ii. Security from theft

1. Support Farmer and farm-worker housing agriculture lands

2. HOUSING
    a. Increase Available Affordable Housing*
        i. *Increase Availability and Improve Access to Farm Worker Housing* (can provide competitive advantage in labor market)
        ii. Increase Opportunities for Farm housing
    b. Address Competition from other Sectors for Workers
    c. Refine Regulatory Requirements Relating to Housing on Agriculture Land and Agriculture Parks

3. HAWAIIAN AFFAIRS
    a. Promote Self-sustaining Farming Communities by Building Community Resilience with many Small Farmers
    b. Focus on the family
    c. Encourage and Support Kuleana to the Land
    d. Focus on Hawai‘i’s Host Culture and native Hawaiian Beneficiaries
    e. Promote Leadership Development
    f. Support health, wellness and connection to cultural identity through food production
    g. Work with Homestead Organizations and Leadership
    h. Reduce Farmer Shortage through Community Centered Support and *Training of First Farmers.*
    i. Promote community and landowner success through Farmer Success
    j. Support Keiki to Kupuna Training

4. EDUCATION/HIGHER EDUCATION
    a. Develop and Provide Training on New/Novel Technology
    b. Provide New Farmer Training (grow more first farmers) on Each Island
    c. Provide Assistance with Agriculture Scaling
    d. Conduct Certification Programs/Classes (for access to DOA, FSA, etc. loans)
    e. Provide Farm Business Management training (low- and high-tech options)
    f. Provide Business & Production Training
    g. Develop, Promote and Operate Demonstration/Research Farms
    h. Support, Provide Mentorship/Internship Programs
    i. Promote Leadership Development
        i. Work with homestead organizations and leadership
    j. Obtain Commitment from Government Agencies, Non-governmental Organizations, and Farmers to Revitalize in a Sustainable Way (business and environmental sustainability)
    k. Develop and Promote Accessible Business Centers for Farmers (embedded

[3] * Denotes recommendation that was identified as a possible short-term achievable goal.

in libraries?)

l. Support Keiki to Kupuna Training

m. Develop Breeding Programs for Disease Resistance, Heat Tolerance, and Drought Resistance

5. ENERGY
    a. Create and Support Opportunities for Energy Cost Reduction to Improve Farming Viability
    b. Support New, Novel, Advanced Solutions that Address Local and Global Problems
    c. Combine Water-Energy-Agriculture as Nexus for Development.
    d. Promote and Support the Use of Biomass By-products for Energy

6. ENVIRONMENT
    a. Support Climate Change Management Programs
        i. Support Deployment of Shade houses
        ii. Develop Breeding Programs for Disease Resistance, Heat Tolerance, and Drought Resistance of Hawai'i crops
    b. Promote Sustainability
        i. Support Self-Sustaining Communities
        ii. Support Pest Management Programs (invasive species impacting farming and ranching)
        iii. Support Development and Use of Disease Resistant Crops
        iv. Support Soil Restoration
        v. Develop State-Wide Wildlife Management Plan
        vi. Create Tax Credits for Agriculture Shipping of Alternatives to Petro-Fertilizers
        vii. Kuleana is to the land
    c. *Support New, Novel, Advanced Solutions that Address Local and Global Problems -Combine Water-Energy-Agriculture as Nexus for Development.*
        i. Develop/Promote use of local waste streams for farm inputs. Support solutions to access water, reduce infrastructure costs. Integrate Energy, Water and Agriculture resources
        ii. Support Development of Locally Grown Feedstock
            1. Increase Agriculture carbon sequestration
            2. Reduce Petro-chemical Agriculture Inputs to Soil
            3. Reduce Agriculture Input Costs
            4. Create Finishing Feed for Cattle
                a. Eliminate need for Transportation to/from Mainland
                b. Create New Jobs (*Economic Development)*
        iii. Invest in Projects Combining Water and Energy
            1. Invest in Pump-Energy Storage Systems Where Appropriate (Base-Loaded Energy Storage and Water Storage)

7. ECONOMIC DEVELOPMENT
    a. Reduce Costs
        i. Capital
            1. Improve Access to Capital (6)
                a. Develop Trainings-On How to Obtain Capital
                b. Support Workarounds for Farmers on Leased Land Including DHHL Lessees to Gain Access to Capital
                c. Support Hui/hubs working Collaboratively to Obtain Capital
            2. Support Long-term Private Investment
            3. Support Investment into Small Communities
            4. Support Investment in Research
            5. Support through Funding Initiatives
            6. Increase Federal Funding opportunities *(Develop Wildlife Management Plan)*
            7. Startup funding/equipment
        ii. Cost reductions
            1. Create Tax Credits
                a. Shipping of Petro-fertilizer Alternatives
                b. Shipping of agriculture products
            2. Leverage Existing Programs
            3. *Aggregate Agriculture and Improve Efficiencies*
            4. Reduce Water Cost
                a. Utilize Technology for Water Management
                    i. Upgrade Old Water Systems Statewide
        iii. Scale
            1. Transition from plantation to other farms systems
                a. (water distribution, housing)
            2. Assist farmers interested in scaling up
            3. Equitable assistance regardless of farm size/production output/method (organic/conventional) (3)
            4. Coordinated outreach regarding funding opportunities for farmers
            5. Internalize Statewide Benefit Realized through Subsistence Farming on Food Security
            6. Start with pilot projects then work to scale
            7. Success of many small farmers reduces the impact of sector wide risk of one-large farmer/employer failing
            8. Establish definitions for small farms and subsistence farming
        iv. Connectivity/Access (*ED)*
            1. Statewide access to broad-band service
        v. Technology (*ED)*
            1. Use relevant data for economically viable crops
            2. Improve ease of access to soil-analysis with valid recommendations
            3. Agriculture technology to improve economic viability
            4. Thoughtful use of digital technologies/precision farming

        a. Statewide broadband access in rural areas
        b. Reduction of conventional farming inputs
    5. Modernize irrigation systems
    6. Support Research and Development
        a. link climate change with agriculture solutions
            i. Local feed stock (reduction in greenhouse gas emissions from transportation costs, and carbon sequestration
        b. Reduce risk from introduction of new/novel technologies
        c. Support mitigation measures for of invasive species impacting agriculture and livestock

8. TRANSPORTATION
    a. Develop, Support More Transit Options
    b. Utilize Federal interstate funding for development of inter-island transportation
    c. Increase Options and Improve Efficiencies in Getting Produce to Markets (both to and from Honolulu/Mainland)
    d. Reduce Cost
    e. Reduce Reliance on Transportation through Development of On-island, In-state Agriculture Inputs
        i. Invest in locally grown feedstock to provide soil amendments and finishing feed for cattle
    f. Work with Young Brothers on Cost and Operational Efficiencies
    g. Develop Tax credits for agriculture shipping of alternatives to Petro-fertilizers
    h. Develop Tax credit for shipping of agriculture products

9. WATER/LAND
    a. *Combine Water-Energy-Agriculture as Nexus for Development.*
    b. Improve Access to Water for Smaller Farmers (5)
    c. Modernize Irrigation Systems (2)
    d. Implement Agriculture Water Plans
    e. Invest in Pump-Energy Storage Systems Where Appropriate
    f. Reduce Infrastructure Costs
    g. Re-evaluate Water Conservation and Protection Process (conservation of water resources should occur at the beginning of the process, not only at the end when stream alteration, or well is required)
    h. Evaluate Options to Reduce Cost (it's all about cost)

Agriculture is at a pivotal point. This initial report from the working group did not translate into specific legislative recommendations. However, it provides a framework for various legislative subject matter committees to see how agriculture issues may touch their respective committees and make them aware of potential actionable ideas to move agriculture forward within the context of their subject-matter committee.. For instance, legislative committees could consider discussions on sustainably expanding agriculture grounded in the State's host culture, while also addressing some of the current obstacles in

the areas of climate change, water, wastewater, energy, housing, economic development, and transportation. A revitalization of agriculture will require the willingness to try something new; support large and small farmers; and re-evaluate past programs, methodology, and plans to optimize and if necessary, eliminate. At its core, the revitalization of agriculture, needs to be focused on the farmer and their needs. This is possible through the collaboration of the legislative committees, members of the working group, farmers/lessees on the land, investors, leaders in multiple industries, and technological innovators.

VI. ADDITIONAL RECOMMENDATIONS IDENTIFIED BY DHHL AND HOMESTEAD WORKING GROUP PARTICIPANTS

While DHHL was called upon by the Legislature to Chair a working group of diverse perspectives and interests, it should be noted that DHHL's primary mission is to serve its beneficiaries and ensure the long-term perpetuity of the Hawaiian Home Lands Trust. As such, DHHL felt it necessary to call attention to the specific feedback it received from working group participants that represented beneficiary perspectives. Like the previous section, The DHHL recommendations are organized into seven categories based on the Legislative subject-matter committees of Agriculture, Hawaiian Affairs, Education/Higher Education, Environment, Economic Development, Transportation and Water.

1. AGRICULTURE COMMITTEE
    a. Aggregation/ Agriculture Efficiencies
        i. Promote/Support Food Distribution Systems
            1. Promote, Support, Expand Farmers Markets
            2. Expand availability and Access to Processing Facilities (food safety/consolidation/packaging)
        ii. Develop and Promote Shared Resources
            1. Develop and Promote Shared Equipment within each DHHL Community
            2. Develop and Promote Composting Equipment
            3. Develop and Promote Accessible Business Centers for Farmers within each community (With a transition away from print sources, there may be an opportunity to expand library services in areas without business centers)
    b. Livestock
        i. Expand Markets for Local Meat and Dairy
        ii. Develop appropriate Solutions for Homestead Ranch and Farming Needs

2. HAWAIIAN AFFAIRS
    a. Promote Self-sustaining Farming Communities by Building Community Resilience with many Small Farmers
        i. Expand community gardens and other farm programs in residential homestead communities
    b. Promote and Support Programs for Collaboration within the Homestead Community not Competition
    c. Promote Interdependence & Connectivity (luau ethic)
    d. Focus on Hawai‘i's Host Culture and native Hawaiian Beneficiaries

e. Promote Leadership Development
f. Work with Homestead Organizations and Leadership
g. Reduce Farmer Shortage through Community Centered Support and Training of First Farmers.

3. EDUCATION/HIGHER EDUCATION
    a. Develop and Provide Training on New/Novel Technology
    b. Provide New Farmer Training (grow more first farmers) on Each Island and/or homestead community
    c. Promote Leadership Development
        i. Work with homestead organizations and leadership to increase agriculture capacity
    d. Create Agriculture Staff Positions at DHHL

4. ENVIRONMENT
    a. *Support New, Novel, Advanced Solutions that Address Local and Global Problems - Combine Water-Energy-Agriculture as Nexus for Development.*
        i. Develop/Promote use of local waste streams for farm inputs. Support solutions to access water, reduce infrastructure costs. Integrate Energy, Water and Agriculture resources
            1. Increase use WWTP ocean outfalls/injection well water to ag water (improve water quality at plant, or pre-treatment prior to connection to irrigation system
            2. Promote, Support Refinery by-product conversion to fertilizer and agriculture carbon sequestration
            3. Support Cesspool Conversion (HI needs to convert 80,000 cesspools, mostly located in rural areas) to local irrigation water source where Appropriate
            4. Support and Promote Utilization of Food Waste and Composting for Farm Inputs (plant & animal)
        ii. Invest in Projects Combining Water and Energy
            1. Invest in Pump-Energy Storage Systems Where Appropriate (Base-Loaded Energy Storage and Water Storage)

5. ECONOMIC DEVELOPMENT
    a. Reduce Costs
        i. Capital
            1. Improve Access to Capital
                a. Develop Trainings-On How to Obtain Capital
                b. Support Workarounds for DHHL Lessees to Gain Access to Capital
            2. Develop Wildlife Management Plan to address Axis Deer issue
            3. Startup funding/equipment
            4. Develop Economic Incentives for New Farmer Success
                a. Create Cost Sharing Opportunities
                b. Develop and Support Mini grants
        ii. Cost reductions

1. Reduce Water Cost
    a. Utilize Technology for Water Management
        i. SCADA
        ii. Upgrade Old Water Systems Statewide

iii. Scale
1. Internalize Statewide benefit realized through subsistence farming on food security
2. Start with pilot projects then work to scale

iv. Technology
1. Thoughtful use of digital technologies/precision farming
    a. Statewide broadband access in rural areas
    b. Reduction of conventional farming inputs
2. Support Research and Development
    a. Develop climate change solutions with agriculture solutions
        i. Support Local Refinery Waste Conversion to Food Grade CO2 Agriculture Input
        ii. Expand use wastewater effluent as ag-water (R-1, & R-2) rather than using off-shore outfalls and injection wells
    b. Mitigate of invasive species impacting lessee farmers and ranchers

6. TRANSPORTATION
    a. Reduce Reliance on Transportation through Development of On-island, In-state Agriculture Inputs
        i. Invest in the use of locally derived waste streams for farm inputs

7. WATER
    a. Modernize Irrigation Systems
    b. Complete MIS (and/or Transfer To HHL)
    c. Improve access to wet water
    d. Invest in Pump-Energy Storage Systems Where Appropriate (Base-Loaded Energy Storage and Water Storage)
    e. Reduce Infrastructure Costs for better utilization of Trust Resources
    f. Evaluate Options to Reduce Cost for lessees

VII. ADDITIONAL RECOMMENDATIONS BY KAMEHAMEHA SCHOOLS FOR TIMELY AND CATALYTIC ACTION

Farmers play a keystone role in society, providing food and caretaking the lands. Language in SCR246 (2021 Session) acknowledges that for Hawaii to achieve food and energy security and maintain economic resilience, "timely and catalytic actions must be taken" by those with ʻāina stewardship roles to help effectively champion and connect ʻāina-based resources to growers and growers to income, markets and stable sector wrap-around services as part of a resilient food system and supply chain. To address challenges today, these actions must be real, practical and profitable enabling farmers and producers, large and small, to be self-sustaining, thriving, for-profit businesses with engaged contributors and prosumers in transforming to a more restorative and circular economy. As such,

SCR246 called for convening of a core stakeholder group from the state to local community with deep knowledge of ʻāina and Hawaiʻi agriculture sector issues and stewardship roles that can lead to change and forward pathways.

Over the past years, Kamehameha Schools has been actively engaging with our farming communities to enhance, invest and better connect leaders on our ʻāina to resources so they in turn can provide for their communities. Efforts are cross-cutting and drive toward outcomes that fall under multiple Legislative subject-matter committees. Examples and comments below are provided in support of SCR246 and the creation of Revitalizing Economy and Agriculture Leadership (REAL) initiatives to converge actions and rally governmental regulatory agencies together with landowners and industry under a common context of REAL actions that support our core, the farmers. Examples highlight ways KS is contributing to REAL initiatives and simultaneously encouraging collective actions through creative partnerships and advancement of education and land stewardship missions.

1. Action - Strengthening Food Systems: Partnering for impact, Kamehameha Schools created a new $10 million Food Systems Fund to invest in local businesses and strengthen the economic resiliency of Hawaiʻi across the food system sector.
    a. Agriculture Opportunities & Growth Solutions: Fund focused on investments within Hawaiʻi to support food production, distribution and aggregation, processing, purchasing, consumption, and solving food waste challenges.
        i. Fund looks to invest in compelling businesses – and their leaders – who will accelerate the revitalization and diversification of food systems, including non-KS and KS portfolio of ʻāina and tenants.
        ii. First investee, the Hawaiʻi ʻUlu Cooperative (Co-op), is a farmer-owned business working to revitalize ʻulu or breadfruit as a viable crop and dietary staple by empowering farmers as change-makers in Hawaiʻi's food systems. Aggregation and processing of other crops such as taro, pumpkin and sweet potatoes to follow.
    b. Economy & Jobs:
        i. The fund, which sits within KS' Hawaiʻi Targeted Investment Fund, targets both financial returns on investment as well as broader impacts to local jobs and career pathways
        ii. Co-op supports over 100 member-farms on Hawaiʻi Island, Maui, and Oʻahu. The co-op also utilizes KS' post-harvest processing facility on KS lands in ʻAlae on Hawaiʻi Island as a central location for farmers to process their crops for market.
        iii. Co-op desires to scale to becoming an economically-profitable business able to give back to our farmers, the community and investors.
    c. Co-Benefits & Impacts:
        i. Aim to provide healthy and accessible food to feed Hawaiʻi and beyond
        ii. Demonstrate viable food aggregation models, reinvesting dollars into building local capacity and workforce
        iii. Providing an economic multiplier effects on community with viable businesses and models

2. REAL Action – Scaling Agribusinesses & New Market Development:
Demand for grass products is increasing as a result of climate change and severe weather impacting production and transport of food and animal feed crops. As a result, the feedstock industry, a $345 billon dollar industry, is shifting from more resource intensive corn and alfalfa to faster growing, more drought tolerant, non-invasive and nutritionally comparable grasses as an

alternative. Annual and perennial grass cultivars (non-GMO) offer biodiversity and comparable nutritional value for livestock at higher yields requiring three to five times less water. Hawai‘i’s temperate conditions and year-round growing makes conditions ideal for multiple growing cycles of fast rotation crops and provide opportunities for development of a new seed and feed market around a suite of grasses. Local grass feedstock helps reduce total feed imports to Hawai‘i and creates a new revenue stream and investments to upskill workforce, mechanize and put fallow agriculture lands back into production through precision agriculture, grass cover crop and pasture management.

Empowering community leadership and local job creation, Kamehameha Schools has been supporting a team of Native Hawaiian homestead farmers on the island of Molokai become self-sustaining, for-profit businesses. REAL efforts focus on revitalizing fallow lands and increasing growing capacity by developing new markets around increasing local food productivity, grass feedstock (seed and silage), pasture and conservation land management and scaling to future biofuels as part of a more comprehensive and connected agribusiness sector plan.

a. Agriculture Opportunities & Growth Solutions:
    i. Sustainable, for-profit market opportunity aimed at keeping dollars and talent local, upskilling workforce, equipment modernization and providing new living wage jobs for their next generation
    ii. Establish profitable agribusinesses and connection to local and global market off-takers in a multi-billion dollar industry; aim to scale access to healthy, affordable food and feed in Hawai‘i and beyond
    iii. Align farmers, ranchers, hunters and conservationists to team and revitalize fallow agriculture lands
    iv. Tackle invasive deer species and restore land and water to fallow lands
    v. Facilitates low cost restoration of agriculture land and feedstock for ranching
    vi. Opportunities to grow local, achieve economies of scale working across the 3-sectors of food-feed-fuel vs individually
b. Economy & Jobs:
    i. Creation of entrepreneurial businesses with industry and research partners; leverage market connections to attract capital assets to Hawaii; attract and develop new core agribusiness workforce with international and local trade programs
    ii. Creation of living wage jobs in agriculture; broader impacts to local jobs technical training and career pathways; connections to university and community college workforce and industry training programs
    iii. Promotes jobs in clean energy, restorative and precision agriculture, environmental conservation and future-proof with cross-sector skills
    iv. Creation of new cross-cutting sector jobs that help converge future food-feed-fuel industries with diverse workforce
    v. Extend creative-arts and wrap around industries as part of new extended agribusiness workforce; maintain new equipment, marketing using digital technologies and optimize planting and growing (e.g. digital monitoring tools eCommerce and data analytics)
c. Co-Benefits & Impacts:
    i. Reduce spending on imports for food, feed and fuel and reinvest dollars into building local capacity

ii. Provide economic multiplier effects building partners in community with viable businesses and models. Community and industry partners team to stabilize Hawaii's small farming businesses impacted by the coronavirus disease 2019 (COVID-19) pandemic
iii. Diverse suite of grasses provides dual economic value, wind screens and cover crop for farmers to revitalize fallow lands, conserve water and increasing resources for food production
iv. Grasses provide low-cost land and water management and environmental conservation. Other eco-friendly characteristics (non-GMO, not invasive or propagative, low-water needs, drought tolerant, soil amending characteristics)
v. Keep investments local. Nexus to rally and grow Core agribusiness with dual local and export markets and wrap-around supports
vi. Viable opportunity to bring together farmers, ranchers, hunters and conservationists to collectively address invasive deer problems and land management challenges.

Managing and forging new connections to markets are critical for economic resilience and stability, considering socio-economic and pandemic stressors affecting the islands. This group of stakeholders has kuleana in propelling the industry like the canoe with its mast, outriggers and paddlers, all working toward a common and shared goal of successful REAL initiatives. Recommendations, discussions and feedback gathered at the Working Group (draft) affirm and shed light on real farmer struggles, highlight growing needs and existing program/process or regulatory disconnects that hinder Hawaii agriculture scale up including access to capital, growing resources and competing in markets. REAL initiatives offer rallying points to regroup and focus around farmer needs, bridging to capital and scalable markets, connecting wrap-around services, training workforce and building a more resilient agribusiness pipeline for Hawai‘i.