

INCREASED FOOD SECURITY AND FOOD SELF-SUFFICIENCY STRATEGY



***OFFICE OF PLANNING
DEPARTMENT OF BUSINESS ECONOMIC DEVELOPMENT & TOURISM***

***IN COOPERATION WITH THE
DEPARTMENT OF AGRICULTURE
STATE OF HAWAII***

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STRATEGY***

***A STATE STRATEGIC/FUNCTIONAL PLAN
PREPARED IN ACCORDANCE WITH HRS CHAPTER 226
HAWAII STATE PLAN
and the
HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY***

Prepared by

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ABSTRACT

The “Increased Food Security and Food Self-Sufficiency Strategy” sets forth objectives, policies and actions to increase the amount of locally grown food consumed by Hawaii’s residents. The economic impact of food import replacement is significant. Replacing just 10% of the food Hawaii currently imports would amount to approximately \$313 million dollars which would remain in the State. The Strategy recommends actions to market “Buy Local/It Matters” and to brand and label local food products. The Strategy emphasizes increasing production by strengthening agricultural infrastructure i.e. agricultural parks, irrigation systems and distribution systems/facilities. It also recommends actions to provide for food safety, pest prevention and control, workforce training, research and extension services; and policy and organizational support. A critical factor towards successful implementation will be building partnerships with the increasing number of organizations involved in food self-sufficiency/food security.

The Strategy is a living document which provides a first step for continued dialog and the initiation of actions to increase food self-sufficiency and food security in Hawaii.

The Strategy is Vol. I of a three part report. Volume II is entitled *A History of Agriculture in Hawaii and Technical Reference Document*. Volume III entitled *Assessment of Irrigation Systems in Hawaii* is being prepared.

EXECUTIVE SUMMARY

The purpose of the *Increased Food Security and Food Self-Sufficiency Strategy (Strategy)* is to increase the amount of locally grown food consumed by Hawaii residents. This will increase food self-sufficiency which is a component of food security. The *Strategy* is a living document intended as a first step toward continued dialog and implementation.

Hawaii is located approximately 2,506 miles from the continental United States. About 85-90% of Hawaii's food is imported which makes it particularly vulnerable to natural disasters and global event that might disrupt shipping and the food supply.

The economic impact of food import replacement is significant. Replacing just 10% of the food we currently import would amount to approximately \$313 million. Assuming a 30% farm share, \$94 million would be realized at the farm-gate which would generate an economy-wide impact of an additional \$188 million in sales, \$47 million in earnings, \$6 million in state tax revenues, and more than 2,300 jobs.

An investment in programs and projects which support greater food self-sufficiency will result in economic, social and environmental benefits to the State of Hawaii.

Hawaii is self-sufficient in some vegetable and fruit crops but has become less self-sufficient in eggs, milk, livestock, hogs and pigs. In the 1970s, Hawaii was self-sufficient in eggs and milk with 240 egg farms and 120 milk operations. Today there are about 100 egg farms and only two dairies. Livestock and hog and pig production have also declined since the 1970s.

The Strategy has three strategic objectives:

- Increase Demand for and Access to Locally Grown Foods
- Increase Production of Locally Grown Foods
- Provide Policy and Organizational Support to Meet Food Self-Sufficiency Needs

Recommended actions include:

Demand

Expand the "Buy Local/It Matters" marketing campaign as to promote the benefits of buying local foods.

Expand and improve branding and labeling programs and provide consumer education programs to help consumers identify local products at the time of purchase.

Encourage public institutions to purchase locally grown foods. Establish a pilot program in the charter schools.

To address food safety issues, increase the farm food safety coaching program and farm food safety certifiers.

Production

To increase production of locally grown foods, improve agricultural infrastructure including agricultural parks, irrigation systems and distribution systems/facilities.

Support the Agricultural Park Program which provides public lands at reasonable cost and long-term tenure to farmers and complete the transfer of agricultural lands from the Department of Land and Natural Resources (DLNR) to the Department of Agriculture (DOA).

Support Capital Improvement Project (CIP) funding to repair and maintain State irrigation systems since these systems provide water at low cost to farmers.

Encourage a variety of distribution systems to move goods to the market place. Nationally, direct consumer sales, farmers' markets, community-supported agriculture organizations and farm-to-school programs have all increased.

Support multi-functional food hub facilities or food incubator facilities to handle aggregation, processing, treatment and distribution.

To build the agricultural workforce, continue the "Green Jobs Initiative" which provides workforce development services for the agricultural, energy, natural resources and related industries.

Policy and Organizational Support

Restore the Market Analysis and News Branch of DOA to track progress toward food self-sufficiency.

Adopt legislation to establish an Agricultural Development and Food Security Program.

The Strategy also contains recommendations to provide for pest prevention and control, research and extension services, and policy and organizational support. The proposed Agricultural Development and Food Security Program will help to coordinate and direct efforts to address food self-sufficiency

A critical factor towards successful implementation will be building partnerships with the increasing number of organizations involved in food self-sufficiency/food security.

Table of Contents

ABSTRACT..... i

EXECUTIVE SUMMARY ii

I. Foreword..... 1

II. Introduction..... 2

 Purpose..... 2

 Importance of the Strategy..... 2

 Current Conditions of Food Self-Sufficiency..... 3

 What This Strategy Is Not..... 3

 Food Self-Sufficiency As One Component of Food Security 4

 Study Process..... 4

III. State Policy Framework..... 5

 Hawaii State Constitution..... 5

 Hawaii State Plan..... 5

 State Agricultural Functional Plan..... 6

 A New Day Plan..... 6

 Hawaii Comprehensive Economic Development Strategy (CEDS)..... 6

 Department of Agriculture..... 7

 Important Agricultural Lands..... 7

 Respective County General Plans and Community Development Plans..... 8

IV. Governmental and Non-Governmental Activities Supporting Increased Food Security and Food Self-Sufficiency..... 9

 Governmental Activities..... 9

 Non-Governmental Activities..... 12

V. Major Issues/Opportunities..... 16

 Demand and Access..... 16

 Production..... 16

 Policy Support..... 17

VI. Objectives, Policies and Actions..... 18

 OBJECTIVE: INCREASE DEMAND FOR AND ACCESS TO LOCALLY GROWN FOODS 18

 POLICY: Expand the Statewide Buy Local/It Matters Campaign to Increase Demand for Hawaii’s Locally Grown Foods..... 18

 ACTION: Expand the Buy Local/It Matters Marketing Campaign..... 18

 ACTION: Expand and Improve Branding and Labeling Programs to Identify Local Foods and Consumer Education Programs to Help Consumers Know Local Farms and Farmers . 18

ACTION: Support Promotional Campaigns to Publicize Farmers’ Markets	18
POLICY: Encourage Public Institutions to Buy Locally Grown Foods.....	20
ACTION: Establish a Pilot Farm to School Program in Hawaii’s Charter Schools.....	20
ACTION: Continue the Fresh Fruit and Vegetables Program in the Schools	20
ACTION: Develop Good Agricultural Practices (GAP) Standards for School Gardens	21
ACTION: Establish a Policy to Buy Local Produce and Support Local Agriculture and Codify that Policy in HRS Chapter 226, Hawaii State Plan	21
POLICY: Increase Access to Markets by Providing Food Safety Certification Assistance.	21
ACTION: Increase Farm Food Safety Coaching Program	22
ACTION: Increase the Number of Farm Food Safety Certifiers.....	22
ACTION: Augment the Farm Food Safety Coaching Program by Providing for Translation Services.....	22
OBJECTIVE: INCREASE PRODUCTION OF LOCALLY GROWN FOODS.....	23
POLICY: Provide Suitable Public Lands at Reasonable Cost and with Long-Term Tenure for Commercial Agricultural Purposes	23
ACTION: Complete Agricultural Park Projects Presently Committed and Develop Additional Parks.....	24
ACTION: Complete the Transfer of Lands from DLNR to DOA under the Non-Agricultural Parks Program and Actively Manage these Lands	24
ACTION: Inventory State Lands Designated for Agricultural Use.....	24
POLICY: Continue to Provide Input into State and County Planning and Land Use Processes to Assure Sufficient Agricultural Land	24
ACTION: Review and Comment on Land Use Planning and Permitting Related Documents to Ensure the Availability of Agriculturally Suitable Lands and Promote Diversified Agriculture	24
POLICY: Maintain and Repair State Agriculture Irrigation Systems	24
ACTION: Support CIP Funding to Maintain and Repair State Irrigation Systems.....	25
ACTION: Complete the Update of the State Agriculture Water Use and Development Plan	25
POLICY: Integrate Agricultural Infrastructure in Regions with State Agricultural Lands.	25
ACTION: Prepare Regional Agricultural Infrastructure Master Plans In Priority Areas With a Concentration of State Agricultural Lands and Infrastructure. Prioritize Implementation to Maximize Scarce Resources	25
POLICY: Encourage Efficient Distribution Systems to Move Food to the Marketplace....	25
ACTION: Facilitate Farmer Participation in Farmers’ Markets by Working with Non-Profit Organizations such as the Farm Bureau to Help Farmers Meet Food Safety Requirements.	27
ACTION: Encourage and Promote Community-Supported Agriculture (CSA) by Including Information on CSAs in Existing Marketing Activities	27

ACTION: Provide Support for Multi-Functional Food Hub Facilities or Food Incubator Facilities	27
POLICY: Support Pest Prevention, Control and Management	31
ACTION: Support and Seek Stable Dedicated Funding for Programs to Prevent, Control and Manage Pests.....	31
POLICY: Provide an Adequate Supply of Trained Labor for Agricultural Needs.....	31
ACTION: Create Greater Awareness and Improve Public Interest in and Support of the Agriculture and Natural Resource Management Career Fields.	31
ACTION: Develop More Effective Partnerships between Industry and Academia, and Use Those Partnerships to Recruit and Prepare More Students.....	31
ACTION: Improve the Preparedness of Students in Agriculture and Natural Resource Management Programs.	31
ACTION: Improve Articulated Academic Programs for Students Interested in Agriculture and Natural Resource Management Careers.....	31
ACTION: Provide Agricultural Training at the Secondary and Post-Secondary School Levels and Propose Improvements as Needed.....	32
ACTION: Develop a Coordinated Pathway of Agricultural Training at Elementary, Secondary and Post-Secondary School Levels	32
ACTION: Continue to Support the Green Jobs Initiative.....	32
POLICY: Promote Agricultural Research and Extension Services To Improve Agricultural Practices in Hawaii	32
ACTION: Identify Critical Research and Extension Needs and Prioritize the Budgetary and Academic Resources Required to Address these Needs.....	33
ACTION: Generate Research and Dissemination of Information of Use in the Farmer to Consumer Food Chain	33
OBJECTIVE: PROVIDE POLICY AND ORGANIZATIONAL SUPPORT TO MEET FOOD SELF-SUFFICIENCY NEEDS	34
POLICY: Develop an Organizational Structure to Organize and Support Food Self-Sufficiency Activities.....	34
ACTION: Have Legislation Adopted in the 2013 Legislative Session, Fund and Establish the Agricultural Development and Food Security Program	34
POLICY: Provide Market Information and Statistics to Support Production, Marketing, Policy, Planning and Research Functions.....	34
ACTION: Collect Data and Conduct Market Research on In-Shipments and Locally Produced Agricultural Commodities	35
ACTION: Collect and Publish Agricultural Statistical Data through the Publication of Statistics of Hawaii Agriculture.....	35
POLICY: Provide Policy, Legislative and Advocacy Support for Agriculture.....	35

ACTION: Work to Retain Federal Laws, Programs and Collaborative Working Relationships that Benefit Hawaii’s Agricultural Industry.....	35
POLICY: Increase Partnerships to Strengthen the Local Food System	36
ACTION: Pursue Opportunities for Partnerships to Support Food Self-Sufficiency.....	36
References.....	37
End Notes.....	38
APPENDIX 1. Summary Estimated Budget Table.....	40
APPENDIX 2. Definitions of Food Security.....	41
APPENDIX 3. List of Contributors and Stakeholders.....	44
APPENDIX 4. Acronyms.....	46
PHOTOCREDITS.....	47

I. Foreword

The Office of Planning conducts statewide planning and coordination to implement the Hawaii State Planning Act, Hawaii Revised Statutes (HRS) Chapter 226. The Office of Planning is also the lead agency for the preparation of the Hawaii Comprehensive Economic Development Strategy (CEDS). One of the major themes of the 2010 CEDS is increased food security/self-sufficiency. This project has been undertaken to implement the 2010 CEDS by developing a strategy for increased food security/self-sufficiency for Hawaii. The project has been conducted with the assistance of and in cooperation with the Department of Agriculture-- the lead agency for the promotion and development of agriculture in the State.

II. Introduction

Purpose

The purpose of this strategic plan is to increase the amount of locally grown food consumed by Hawaii residents. This will increase food self-sufficiency which is a component of food security. The working definition of food self-sufficiency is:

The extent to which Hawaii satisfies its food needs from local production.

The Strategy is directed at State agencies and programs because of their statewide scope and geographic coverage. The importance of federal and county agencies, the private sector and non-governmental organizations is recognized as these entities are increasingly involved in food self-sufficiency. Recommendations for coordinated action with the federal, county and non-governmental sector are identified. However, the focus is on actions that state government can take to support food self-sufficiency and provide a guide for the allocation of resources to implement the strategy.

The Strategy has been prepared in accordance with the guidelines for State Functional Plans under HRS § 226-55 and does the following:

- Identifies major priority concerns regarding food self-sufficiency;
- Defines current strategies for the issue area;
- Provides a guide for the allocation of resources to carry out various State activities; and
- Identifies priority actions that should be undertaken within a two to six year period to coincide with the State Biennial Budget and Capital Improvement Budget cycle.

Importance of the Strategy

The Hawaii State Constitution, the Hawaii State Plan, the New Day Plan, Hawaii Comprehensive Economic Development Strategy and other state policy documents support increasing Hawaii's food self-sufficiency.

Hawaii is located approximately 2,506 miles from the continental United States. Between 85-90% of Hawaii's food is imported which makes it particularly vulnerable to natural disasters and global events that might disrupt shipping and the food supply.¹

The economic impact of food import replacement is significant. Food expenditures of local consumers in 2004-2005 amounted to \$3.7 billion. Assuming that 85% of the food we consume is imported, this translates to \$3.1 billion leaving our state. Replacing just 10% of the food we currently import would amount to approximately \$313 million. Assuming a 30% farm share, \$94 million would be realized at the farm-gate, which would generate an economy-wide impact of an additional \$188 million in sales, \$47 million in earnings, \$6 million in state tax revenues, and more than 2,300 jobs.²

Increasing food self-sufficiency will keep money circulating in Hawaii's economy rather than supporting agribusiness in other states or countries. It will help to diversify Hawaii's economy.

There are also environmental benefits. Consuming and producing more locally grown foods may decrease the “food miles” involved in transporting foods and thus may conserve energy and reduce our carbon footprint.³ It may reduce transportation costs which is a significant factor in the cost of food.

Pursuing this policy will also decrease the risk of introducing harmful invasive pests. These pests could have devastating effects on the island’s agricultural economy and their fragile ecosystems. The unwelcome introduction of fruit flies, miconia trees, coqui frogs, red fire ants and varroa mites have severe consequences beyond agriculture and require millions in public dollars to fund eradication or containment programs.⁴ Food self-sufficiency also promotes healthier lifestyles and good nutrition.⁵

An investment in programs and projects which support greater food self-sufficiency will result in economic, social and environmental benefits to the State of Hawaii.

Current Conditions of Food Self-Sufficiency

In general, Hawaii has become less food self-sufficient over the past thirty years. However, there are certain areas in which Hawaii is more self-sufficient than others.

Vegetables: Hawaii is close to self-sufficiency in production of watercress, Chinese cabbage, mustard cabbage, green onions and Asian vegetables, such as choy sum, Shanghai pak-choi, Shinjuku, malunggay leaves and yard-long beans. Local farmers also supply over 75% of tomatoes, sweet potato, cucumber and sweet corn to the local market. Most lettuce and other vegetables are imported.⁶

Fruit: Hawaii meets much of resident demands for watermelon, papaya, pineapple and banana. There also are healthy seasonal supplies from backyards and small orchards of mango and tropical-exotic fruit such as lychee, rambutan and jack fruit. Much of the local produce is not found in mainstream markets but is sold at farmer’s and ethnic markets. Other types of fruit mostly are imported. Market potential is seen in fruit like blueberries, dragon fruit and pomegranate.⁷

Livestock: Cattle numbers decreased steadily from 1970-2001. They stabilized in 2002, increased slowly from 2002 to 2006 and slightly declined in 2008 and 2009.⁸ A 2007 report estimated that about 150 head of cattle are slaughtered weekly, representing roughly 6 percent of local consumption.⁹

Hogs and Pigs: The number of hogs and pigs decreased steadily from 1970 to 2009.¹⁰ Information on the amount of local demand met by local supply is not readily available.

Egg Farms: In 1970, there were 240 egg farms. Hawaii was self-sufficient in eggs during the 1970s. By 2009, only 100 egg farms were in operation. However, the 2009 number was an increase over the 50 egg farms in existence during 2000-2009.¹¹

Dairy Farms: In 1970, there were 120 milk operations and Hawaii was self-sufficient in milk. In 2009, there were 15 dairies and today there are only two dairies in operation.¹²

What This Strategy Is Not

The Strategy concentrates on food self-sufficiency and does not cover agriculture in general. Further, the strategy does not attempt to set a percentage goal for food self-sufficiency. Instead it articulates an

overall direction towards increased food self-sufficiency. Moreover, this strategy does not address the issue of how much land is necessary for self-sufficiency. Rather it identifies actions and projects which if implemented will provide more land for food commodities.

Food Self-Sufficiency As One Component of Food Security

Food self-sufficiency is part of the larger issue of food security. For purposes of the Strategic Plan, the concept of food self-sufficiency encompasses the extent to which Hawaii can satisfy its food needs from its own domestic production. Definitions of food self-sufficiency and food security are provided in the Appendix.

Study Process

The study involved the following tasks.

- Reviewing existing studies on food self-sufficiency in Hawaii.
- Examining existing planning and policy documents.
- Conducting research on the last fifty years of Hawaii’s agricultural history to examine trends.
- Reviewing definitions of “food security” and “food self-sufficiency” used by several key organizations to evaluate their relevance to the goals and objectives of this project.
- Identifying issues affecting Hawaii’s diversified agricultural industry and roadblocks to food production and marketing in Hawaii.
- Identifying existing “grow local” marketing programs.
- Conducting interviews with government agencies, farmers and experts in the field.
- Holding facilitated meetings with key agencies and a broader group of stakeholders.
- Developing goals, objectives policies and actions to increase food self-sufficiency.

III. State Policy Framework

Hawaii State Constitution

The Hawaii State Constitution is the foundational governing document for the State of Hawaii.

Article XI, Section 3 of the Hawaii State Constitution supports diversified agriculture in Hawaii:

“The state shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands. The legislature shall provide standards and criteria to accomplish the foregoing. Lands identified by the State as important agricultural lands needed to fulfill the purposes above shall not be reclassified by the State or rezoned by its political subdivisions without meeting the standards and criteria established by the legislature and approved by a two-thirds vote of the body responsible for the reclassification or rezoning action”.

To implement this provision of the Hawaii State Constitution, Act 183, Session Laws of Hawaii (SLH) 2005, establishes standards, criteria, and methods to identify important agricultural lands (IAL). Act 233, SLH 2008, established a variety of incentives to meet the requirements of Act 183. These two pieces of IAL legislation, Act 183 and Act 233, will be discussed in a separate section of this chapter.

Hawaii State Plan

The *Hawaii State Plan*, HRS Chapter 226, is a long-range comprehensive plan that establishes the goals, objectives, priorities, policies, and implementation measures for the long-term development of the State of Hawaii. The following objective and policies support diversified agriculture:

§226-7 Objectives and Policies for the economy- agriculture.

Planning for the State’s economy with regard to agricultural shall be directed towards the following objectives:

- ...
- (2) Growth and development of diversified agriculture throughout the State.
- (3) An agricultural industry that constitutes a dynamic and essential component of Hawaii’s strategic, economic, and social well-being.
- ...

To achieve the agricultural objectives, it shall be the policy of this State to:

- ...
- (7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawaii’s producers and consumer markets locally, on the continental United States, and internationally.
- ...
- (13) Promote economically competitive activities that increase Hawaii’s agricultural self-sufficiency.
- (14) Promote and assist in the establishment of sound financial programs for diversified agriculture.
- ...

State Agricultural Functional Plan

State Functional Plans guide the implementation of the Hawaii State Plan by identifying specific strategies and action for implementation. The *State Agricultural Functional Plan* sets forth the policies, programs, and projects for implementing the agricultural and agricultural related objectives policies, and priority guidelines contained in the *Hawaii State Plan*. For food self-sufficiency, the applicable *Hawaii State Plan* objective to be achieved is: Growth and development of diversified agriculture throughout the State.

The following objectives support diversified agricultural:

- ...
- B. Achievement of an orderly agricultural marketing system through product promotion and industry organization.
- ...
- E. Achievement of adequate capital, and knowledge of its proper management, for agricultural development.
- ...
- H. Achievement of productive Agricultural use of lands most suitable and needed for agriculture.
- I. Achievement of efficient and equitable provision of adequate water for agricultural use.
- J. Achievement of maximum degree of public understanding and support of agriculture in Hawaii.
- ...
- M. Achievement of adequate support services and infrastructure to meet agricultural needs.
- ...

A New Day Plan

The *A New Day in Hawaii Plan* by Governor Abercrombie is a comprehensive plan for the State of Hawaii. It calls for an Agricultural Renaissance within the State of Hawaii to produce more of our own food to keep money in the local economy, protect green space, support thriving rural communities, reduce the risk of invasive species, and make us more secure against disruptions to our food supply lines.

The *New Day in Hawaii Plan* supports the State's plans for agricultural self-sufficiency and food security by promoting initiatives to:

- Preserve and start growing on agricultural lands.
- Repair irrigation systems that are underutilized or structurally unsound.
- Develop integrated agricultural, environmental, and cultural education programs.
- Lower the cost of farming for community-based entrepreneurs.
- Raise the supply of local food.
- Raise the demand for local food.
- Support individual participation through storm water recapture and community, school and family gardens

Hawaii Comprehensive Economic Development Strategy (CEDS)

The Hawaii CEDS identifies broad industry clusters to target growth and development. Agriculture is a statewide targeted cluster and was also identified as a targeted cluster by each of the four counties.

General themes throughout the counties included support for food self-sufficiency including support for Farmer's Markets and buy local/eat local campaigns, and for food security. There is also support for improving plantation irrigation systems. The CEDS includes proposed projects/investments in agriculture distribution and processing facilities.

Department of Agriculture

The State Department of Agricultural (DOA) is the lead state agency supporting agriculture within the State of Hawaii. Pursuant to HRS §26-16(c), the DOA is tasked with:

- promoting the conservation, development, and utilization of agricultural resources in the State;
- assisting the farmers of the State and any others engaged in agriculture by research projects, dissemination of information, crop and livestock reporting service, market news service, and any other means of improving the well-being of those engaged in agriculture and increasing the productivity of the lands;
- administering the programs of the State relating to animal husbandry, entomology, farm credit, development and promotion of agricultural products and markets, and
- establishing and enforcing rules on the grading and labeling of agricultural products; and
- administering the aquaculture program under HRS §141-2.5.

Additional duties of the DOA include the formulation and implementation of general and special plans, administering HRS Chapter 166 relating to the agricultural park program, and also administering HRS Chapter 167 relating to the irrigation water development program

Important Agricultural Lands

The passage of Act 183 in 2005 implemented Article XI, Section 3 of the Hawaii State Constitution by establishing standards, criteria, and mechanisms to identify Important Agricultural Lands (IAL) and to develop incentives to promote the retention of IAL for viable agricultural use over the long term.

A new section in HRS Chapter 205 was established to set forth policies and procedures for the identification of IAL, including:

- Policies to assure the conservation and availability of IAL for long-term agricultural use;
- Standards and criteria for the identification of IAL;
- Standards and criteria for the reclassification and rezoning of lands identified as IAL;
- Policies for incentives for the long-term retention of IAL for agricultural use; and
- Providing a process to develop proposals for state and county incentives to promote agricultural viability, sustained growth of the agricultural industry, and the long-term use and protection of IAL for agricultural use.

Designation of IAL and adoption of maps by the State Land Use Commission (LUC) could commence once legislation was adopted establishing incentives for IAL. The required incentives for IAL were adopted with the passage of Act 233 in 2008.

Act 233 also amended HRS Chapter 205 by adding a new section providing for the identification of public lands by DOA and Department of Land and Natural Resources (DLNR) for IAL designation. Identified public lands managed by DLNR and designated as IAL are to be transferred to the DOA for management.

The standards and criteria to identify IAL within HRS Chapter 205 were amended by providing for the combined designation of IAL and reclassification to other land use districts by declaratory order of the LUC.

Finally, Act 233 amended components of the State Agricultural Water Use and Development Plan to:

- Identify sources of water used by agricultural operations and particularly those on lands identified and designated as IAL under Part III of HRS Chapter 205; and
- Identify current and future water needs for agricultural operations and particularly those on lands under Part III of HRS Chapter 205.

Respective County General Plans and Community Development Plans

Each of the counties has adopted a general plan that meets the requirements of HRS Chapter 226. Within each general plan and supporting county documents, each county can further implement State of Hawaii laws and policies relating to agriculture.

IV. Governmental and Non-Governmental Activities Supporting Increased Food Security and Food Self-Sufficiency

Governmental Activities

Department of Agriculture

The State of Hawaii Department of Agriculture (DOA) provides statewide support for the promotion, conservation, development, and utilization of agricultural resources in the State of Hawaii. Existing promotional activities include the Buy Local, It Matters and Hawaii Seals of Quality campaigns. The Buy Local, It Matters campaign is a partnership between DOA, University of Hawaii at Manoa College of Tropical Agricultural and Human Resources (CTAHR), Hawaii Farm Bureau, and the Economic Development Alliance of Hawaii encouraging residents to support Hawaii's farmers by purchasing locally grown produce. Launched in 2006, the Seals of Quality program aims to protect the value and integrity of Hawaii branded products. Hawaii products labeled with this seal are guaranteed by the State of Hawaii to meet strict, enforceable standards.

Agribusiness Development Corporation

The Agribusiness Development Corporation (ADC) is tasked with coordinating and facilitating Hawaii's agricultural industry transition from a dual-crop (sugar and pineapple) industry to a diversified, multi-crop and animal industry. This transition is focused on utilizing existing large tracts of arable sugar and pineapple lands as well as infrastructure for use in diversified agricultural. Additionally, ADC directs research into areas that will lead to the development of new crops, markets, and lower production costs. ADC is an attached agency of DOA.

University of Hawaii at Manoa: College of Tropical Agriculture and Human Resources

The College of Tropical Agricultural and Human Resources trains students for future employment in the agricultural industry. CTAHR conducts research to improve crop production, develops new techniques and technologies, and provides agricultural extension services.

Department of Hawaiian Home Lands

The Department of Hawaiian Home Lands (DHHL) is the State agency tasked with governing the Hawaiian Homes Land Trust (Trust) established through the Hawaiian Homes Commission Act of 1920. These Trust lands are provided to native Hawaiian beneficiaries for homesteading purposes through housing, farms and ranches. Trust lands not encumbered for homesteading are leased for agricultural, pastoral, commercial, and industrial uses to generate income.

Department of Land and Natural Resources

The Department of Land and Natural Resources (DLNR) provides state wide support to enhance, protect, conserve, and manage Hawaii's unique and limited cultural and historic resources held in public trust. DLNR has jurisdiction over State owned lands that are not set aside for use by other State agencies. Pursuant to Act 90 SLH 2003, DLNR is tasked with transferring certain public lands to DOA to implement the non-agricultural parks program. These land transfers are ongoing.

Department of Labor and Industrial Relations

The Department of Labor and Industrial Relations (DLIR) administers programs to improve job opportunities with job training and placement programs that both benefit employees and employers; protect the employment rights of workers; assure workers of a safe and healthy working environment; and ease the economic hardship of workers during disability or temporary unemployment. DLIR is implementing the Hawaii Green Jobs Initiative (HGJI). Green jobs include agricultural jobs. The HGJI portal www.greenjobs.hawaii.org provides a centralized and localized green jobs bank to assist both job seekers and employers. DLIR worked with DOA, Hawaii Farm Bureau, University of Hawaii, community colleges and county governments to conduct Sustainable Agriculture Skills panels on Oahu and in East Hawaii. Additional panels are planned for other areas throughout the state. These panels are part of a statewide effort to meet the current and future workforce needs of the agriculture industry.

Department of Education

The State Department of Education (DOE) School Food Services Program manages the National School Lunch Program (NSLP) in the public schools. NSLP is a federally assisted meal program administered by the United State Department of Agriculture (USDA) that provides low-cost or free lunches to children meeting income criteria. A component of the NSLP is the Fresh Fruit and Vegetables Program (FFVP) which aims to increase the amount of fresh fruits and vegetable served in elementary schools. DOE receives between \$600,000 to \$1.7 million dollars per year for FFVP to purchase locally grown fruits and vegetables.

Office of Planning

With grant funds provided by the Economic Development Administration and matching funds provided by partner organizations, the Office of Planning (OP) supported the preparation of two agriculture master plans. The "Hoea Master Plan" (http://hawaii.gov/dbedt/op/projects/Hoea_Master_Plan.pdf) is a master plan for an agricultural processing facility in North Kohala. Hawaii County Office of Research and Development, Hawaii Future Farmers of America Foundation and Kaua Pa'a Mua Inc. provided the match. The "Master Plan for Central Oahu Agricultural Business Complex" was prepared by the Hawaii Agricultural Research Center (HARC) which also provided matching funds for the plan.

City and County of Honolulu Office of Economic Development

The City and County of Honolulu Office of Economic Development (OED) works in partnership with Oahu's businesses, non-profit groups and communities to support economic growth and enhance the quality of life in the City and County of Honolulu. The Oahu component of the Hawaii Statewide CEDS 2010 identifies agriculture as a targeted industry cluster.

Hawaii County Office of Research and Development

Hawaii County supported the preparation of the Hawaii County Food Self-Sufficiency Baseline Study 2012 (http://geodata.sdal.hilo.hawaii.edu/GEODATA/COH_Ag_Project.html). The study identifies and describes agricultural activity occurring on Hawaii County. It serves as a baseline for monitoring future trends in agricultural land use and regional differences for County food self-sufficiency.

The Health Impact Assessment of the 2010 Hawai'i County Agriculture Development Plan examines the potential health effects of increasing local food production, increasing the institutional purchase of local food, and of promoting home food production. (<http://kohalacenter.org/research.html>)

The Hawaii Homegrown Food Network is a project which involves individuals, farms, businesses, and organizations dedicated to building the Big Island's local and sustainable food economy. The project is sponsored by Hawai'i County Resource Center, a program of the County of Hawai'i Department of Research and Development, the Hawaii Agricultural Development Program in partnership with the Big Island RC&D Council, the Hawai'i People's Fund, and the Hawai'i Community Foundation. Since early 2009 the network has produced a monthly newsletter chronicling events, providing website resources, reports about island groups' activities, and announcements related to our local food sustainability and security. Membership in the Hawai'i Homegrown Food Network and subscription to the monthly newsletter are free.

The North Kohala Eat Locally Grown campaign promotes the community goal of "promoting diversified agriculture" and "producing 50% of the food we consume (North Kohala Community Development Plan)." The campaign is a project of the North Kohala Community Resource Center and is funded by the County of Hawaii- Office of Research and Development under a grant from Kaiser Permanente. The campaign supports the North Kohala Community Development Plan by increasing the market for local food in the North Kohala community, reducing dependence on imported foods, and building local community capacity by training leaders in the local food movement. In addition, a partnership between the North Kohala Eat Locally Grown Campaign and Kanu Hawaii has been established.

Kauai County Office of Economic Development

The Kauai Office of Economic Development (KOED) provides agriculture support to increase income and opportunities on Kauai. Kauai Made is a program created by the County of Kauai to officially represent the products made on Kauai, by Kauai people, using Kauai materials. Each company has been reviewed and qualified to carry the Kauai Made logo under County ordinance, based on their authenticity and quality as a local product. Kauai Made will be supported by a marketing program to inform visitors about Kauai Made products and drive to point of purchase. A wide range of categories are represented by the Kauai Made logo such as food, beauty, crafts, apparel, music, art jewelry, gifts and others. The KOED provides administrative support and oversight for the Sunshine Markets on Kauai. The Kauai Agriculture Advisory Committee provides input to the Office to enhance agriculture in the county. KOED is also involved in exploration of a range-fed beef program on Kauai.

Maui County Office of Economic Development

The Maui County Office of Economic Development promotes economic development in Maui County by supporting local businesses and their relationships with the community. The Maui County Office of Economic Development works in the agriculture industry as well, creating partnerships with agricultural

organizations including the Maui Cattlemen Association, Maui Onion Growers Association, Maui Aloha `Aina (organic based farming association), the Maui Coffee Association, the Maui seed crop industry, the Hawaiian Commercial & Sugar Company, and the Maui Pineapple Company. The Maui County Office of Economic Development continues its partnerships with both the Maui County Farm Bureau (MCFB) and the Maui Flower Grower's Associations. In addition, the Maui County Office of Economic Development promotes "Got Choice... Think Local" which encourages resident purchase and consumption of locally made and grown products.

Non-Governmental Activities

There are a number of non-governmental organizations which conduct activities which support increased food security and food self-sufficiency. This listing is not intended to be comprehensive but covers large-to-medium size organizations.

County Economic Development Boards

The county economic development boards (EDBs)—Kauai Economic Development Board, Enterprise Honolulu, Maui Economic Development Board, and Hawaii Island Economic Development Boards conduct activities to promote agriculture. The EDBs participated with the DOA, CTAHR, Economic Development Alliance of Hawaii (EDAH), and county economic development agencies in the preparation of the publication "Common Ground: Advancing Agriculture in Hawaii," 2012. The EDBs and EDAH assist with the county Comprehensive Economic Development Strategy (CEDs) documents. A common theme which resonates throughout these documents is food self-sufficiency and food security.

Grown on Maui (Buy Local)

The Maui County Farm Bureau (MCFB) is a non-profit organization of farms and ranch families, agricultural industries, and associated organizations dedicated to supporting agriculture in Maui County. MCFB is affiliated with both the statewide Hawaii Farm Bureau Federation and the American Farm Bureau. They currently operate a Grown on Maui (Buy Local) campaign, a joint effort between Maui County Office of Economic Development and Maui County Farm Bureau. It seeks to expand the market share of local farmers. They also operate the Localicious, Dine Out Maui program that promotes restaurants on Maui that serve local products.

Hawaii Farm Bureau Federation

The Hawaii Farm Bureau Federation (HFBF) is a statewide non-profit organization comprised of ten county organizations that represent, protect, and advance the social, economic, and education interests of Hawaii's farmers.

Hawaii Farm to School and School Garden Hui

The Hawaii Farm to School and School Garden Hui (HFSSGH) www.kohalacenter.org/HISGN/hui.html is a statewide collaboration of agencies and non-profit organizations working together to build school garden programs and promote school purchase of fresh, local foods. The purpose of Pre K-12 school garden programs is to renew the relationship that children and youth have to their food and to the land and its productive potential; to improve students' understanding of nutrition and health, and to increase the amount of locally grown foods eaten by students. A strategic plan has been created to collaborate

in the following areas: funding opportunities, shared professional development, yearly statewide conference, connections with local resources, volunteer development, media and outreach, capacity building, policy and advocacy, and evaluation and research. A State School Garden Task Force is currently working in four of these areas to further develop and coordinate support and capacity for garden programs. A statewide baseline survey and report of the current status of Hawaii school gardens is underway.

HFSSGH members and supporting organizations and institutions are; Kauai School Garden Network – Malama Kauai, Farm to Keiki Network – Kauai, Maui School Garden Network – Communities Putting Prevention to Work (CPPW), Molokai School Garden Network – Sustainable Molokai, Oahu School Garden Network and Grow Hawaii – Hawaii Association of Independent Schools, ‘Aina in Schools – Kokua Hawaii Foundation, Hawaii Island School Garden Network – The Kohala Center, Mao Organic Farms – Waianae, Hoa ‘Aina O Makaha – Makaha, Healthy Hawaii Initiative – Department of Health, School Food Supervisor – Department of Education, and CTAHR UH Manoa Master Gardeners.

Hawaii Food Industry Association

The Hawaii Food Industry Association (HFIA) is a trade organization comprised of food retailers, wholesalers, manufacturers, and brokers that actively promotes the interests of Hawaii’s food and beverage retailers and suppliers. HFIA produces the annual Made in Hawaii Festival, a non-profit incubator that supports locally made products.

Hawaii Organic Farmers Association

Hawaii Organic Farmers Association (HOFA) is a non-profit membership organization that promotes organic and sustainable agriculture through research, and education. It was formed in September 1993 in response to the federally mandated Organic Food Production Act (OFPA) of 1990. Additionally, HOFA collaborates with farmers and researchers on projects pertaining to organic and sustainable tropical agriculture.

Hawaii Public Seed Initiative

The Hawaii Public Seed Initiative (HPSI) www.kohalacenter.org/publicseedinitiative/about.html is a partnership between UH Manoa CTAHR Extension and The Kohala Center to create educational opportunities for farmers and gardeners to learn about growing, selecting, improving and saving agricultural seed varieties. Currently, UH Manoa has the only locally produced seed for sale to the agricultural industry. In 2011-2012, two-day Seed Workshops and on-going variety trials were conducted on five islands. The 2013 Seed School will focus on “Train the Trainers Workshops” for furthering the reemergence of on-farm seed trials and production. The work is supported by the Ceres Trust.

Hawaii Slow Food

Hawaii Slow Food (HSF) is a campaign against fast food products in favor of healthier, locally grown food self-sufficiency. HSF is the local chapter to the nationally based Slow Food non-profit corporation which was founded in 1986. The HSF has produced a web-based guide illustrating local farms, markets, restaurants, food brands and types, and Community Supported agriculture projects throughout the State of Hawaii.

Kanu Hawaii

Kanu Hawaii sponsors the annual "Eat Local Challenge," which promotes agricultural education and the consumption of local foods in restaurants, schools, and lunch trucks. Kanu Hawaii is a social network throughout the State of Hawaii working toward environmentally sustainable, compassionate, and economically resilient communities. They have partnered with many local restaurants and businesses throughout the state. Kanu Hawaii utilizes a combination of custom-built web tools, social media, and a be-the-change message to engage people in personal change and group actions.

Kauai Grown

Kauai Grown is a cooperative project between Kauai County Farm Bureau supported by County of Kauai Office of Economic Development to create a branded marketing program for promotion of Kauai Grown products. This program provides marketing support and tools for farmers & ranchers, value added product producers who work with Kauai Grown ingredients, as well as the retailers who carry these products and the restaurants who serve them. The goal is to help identify Kauai Grown products and experiences to the consumer with a Kauai Grown directory and point of sale materials. Program participation includes Kauai farmers, manufacturers of value added products featuring over 50% Kauai grown ingredients, retailers featuring Kauai Grown products at point of sale, restaurants and chefs actively using and promoting Kauai Grown ingredients.

The Kohala Center

The Kohala Center (Center) is an independent, not-for-profit, community based center for research, conservation, and education. It promotes energy self-reliance, food self-reliance, and ecosystem health. Currently, the Center operates the Hawaii Island School Garden Network and houses the Laulima Center which supports cooperative business ventures.

Kokua Hawaii Foundation

Launched in 2006, the Kokua Hawaii Foundation's 'AINA in Schools is aimed at connecting children to their land, waters and food in order to grow a healthier future for Hawai'i. Its mission is to "Actively Integrate Nutrition and Agriculture In Schools. The program does this through promotion of healthy school lunches featuring locally grown produce, nutrition education in the classroom, garden-based learning, agricultural field trips, waste reduction and management, and community outreach.

Made In Hawaii Association

The Made In Hawaii Association was created by the HFIA as a means of providing better control and assurance that products sold at the Annual Made In Hawaii Festival are in compliance with Hawaii's Made In Hawaii laws. The festival is produced by the Hawaii Food Industry Association and sponsored by First Hawaiian Bank.

Think Local First

The Think Local First campaign has been developed by the Hawaii Alliance for a Local Economy (HALE) to develop the Big Island's local economy and encourage local spending to promote island-wide revenue

growth. HALE is an emerging alliance of local businesses, non-profits, government, community leaders and residents. HALE is the Big Island's name for the local chapter of BALLE (Business Alliance for Local Living Economies) a 10-year-old national network of socially responsible businesses dedicated to producing healthy, self-sufficient communities. Currently, the Think Local First campaign is recruiting local businesses to develop a Think Local First campaign action plan. In addition to the Think Local First campaign, HALE is establishing a local sustainable business directory, a green map program, and a carbon footprint reduction program. These programs are in the early stages of development.

Ulupono Initiative

The Ulupono Initiative (Ulupono) invests in organizations and companies with creative ideas and business models that provide a pathway to sustainability in the areas of local food production, renewable resources, and waste reduction. Ulupono is working to expand Hawaii's supply of locally grown food by providing grants and matching funds to local organizations to promote the growth and consumption of locally grown food. Additionally Ulupono operates Kapalua Farms, a 158-acre organic farm and agricultural research facility in West Maui.

V. Major Issues/Opportunities

Project research and interviews identified major issues associated with increasing food self-sufficiency which are documented in more detail in Volume II of this study. Major issues fall under the categories of increasing demand for local foods, increasing the production of local foods and policy support needed for increased food self-sufficiency.

Demand and Access

Public Awareness: There is a wide spectrum of benefits from buying local food-- from positive economic benefits to the State to the quality of the product itself (freshness, taste, selection/variety). Many Hawaii consumers are not aware of these benefits. Moreover, many consumers have difficulty identifying locally grown food vs. mainland/foreign grown products. Increased marketing and strengthening of Hawaii branding programs will help to address these issues.

Access: While the number and variety of venues where consumers can obtain local food products have increased (e.g. farmers' markets and community supported agriculture), there are still areas where access and convenience can be improved.

Production

Land: Farmers have difficulty obtaining long term leases and reasonable lease rents. There is pressure on the use of important agricultural land for higher value purposes. State agricultural park programs help to provide land to farmers at reasonable lease rents.

Water: Irrigation systems are aging and deteriorating. There is a need to rehabilitate these systems and plan and develop new systems. Improvements to state irrigation systems will help ensure access to reliable, consistent and affordable water for agriculture.

Energy: Rising transportation, fertilizer, fuel, electricity, feed and other input costs need to be addressed.

Labor: Agricultural labor availability and agricultural worker housing are multi-faceted and complex issues. Skilled and trained workers will be in demand as business and financial management skills will be necessary to augment crop and livestock production. Moreover, the agricultural workforce is aging. The average age of the Hawaii farmer is 59 years. A coordinated agricultural education program K-16 including a secondary level agricultural career pathway and increased internships, apprenticeships and young farmer training programs are potential ways to address workforce issues.

Research: Research to improve production, processing, and post-harvest handling; increase efficiency and yield; decrease inputs; and manage diseases and pests is essential for the industry to move forward. Ongoing programs at the College of Tropical Agriculture and Human Resources and Department of Agriculture are working to find innovative solutions to these problems.

Distribution: Efficient distribution systems are needed to move food to the marketplace including cost-effective transportation.

Food Safety: Food safety regulations were invariably raised as an issue by farmers and industry experts. There is a great deal of uncertainty and apprehension with regard to pending new rules and regulations.

Coaching programs will help facilitate acceptance of food safety practices throughout the food chain. An increased number of food safety certifiers will also help farmers meet food safety requirements.

Pest Control: Potentially harmful insects, mites, weeds and plant diseases can quickly become established in Hawaii and threaten agricultural crops. Pest prevention, control and management is necessary.

Policy Support

National Budget Issues: With Federal deficit issues, the budgets of Federal programs are under close scrutiny. Hawaii must remain vigilant and its officials will need to continue to work to maintain programs and collaborative partnerships which have benefitted the State.

Organizational Structure: Institutional organizational structures and funding mechanisms should be examined and adapted to meet critical existing and emerging needs.

Basic Support Programs: During prior budget reductions, essential support services were lost. Restoration of basic statistical and market information programs such as *Statistics of Hawaii Agriculture* and *Hawaii Agriculture and Market News* is needed to track agricultural information.

VI. Objectives, Policies and Actions

Objectives, policies and actions are identified to address major issues and opportunities. Although state agencies are listed as implementing organizations, the implementation of this strategy also depends on county and federal agencies, non-governmental organizations, the private sector and community groups. While not separately listed, the intent is that these organizations are included in many of the actions. Budget identification numbers are also identified, for example, AGR171 refers to a DOA budget identification number.

OBJECTIVE: INCREASE DEMAND FOR AND ACCESS TO LOCALLY GROWN FOODS

POLICY: Expand the Statewide Buy Local/It Matters Campaign to Increase Demand for Hawaii's Locally Grown Foods

Marketing is critical to increasing the demand for and consumption of Hawaii's locally produced agricultural commodities and products. The DOA operates the **Buy Local/ It Matters** campaign that encourages residents to support Hawaii farmers by buying locally grown produce. The campaign is supported by funds from the USDA specialty crop assistance program and other grants. The program produces and distributes marketing material such as bags, bumper stickers, pencils, magnets and fans. Informational handouts featuring local farmers, their products and recipes were also prepared. These marketing tools are often used in conjunction with local food events and promotions. Additional state general funds will enable the program to increase the amount and types of marketing materials and to expand the venues for distribution of promotional material, such as in-store promotions.

A recent study showed that Hawaii residents are willing to pay more for locally grown produce but that they have difficulty in identifying such products in the market.¹³ Expansion of branding and labeling programs such as the Hawaii Seal of Quality will help to identify locally grown foods for consumers.

Farmers' markets are an important venue for local farmers and increase access to locally grown foods. In particular, farmers' markets help to introduce new farms and new products to potential customers. Information as to the location and dates/times of farmers' markets could be added into existing promotional campaigns to help support these markets.

ACTION: Expand the Buy Local/It Matters Marketing Campaign

Lead/Assisting Organizations: DOA/Buy Local It Matters Committee

Budget Estimate: FY13-15/\$500,000 annually (DOA) (AGR171BE)

ACTION: Expand and Improve Branding and Labeling Programs to Identify Local Foods and Consumer Education Programs to Help Consumers Know Local Farms and Farmers

Lead organization: DOA

Total Budget Estimate: FY13-15/\$500,000 annually (DOA) (AGR 171BE)

ACTION: Support Promotional Campaigns to Publicize Farmers' Markets

Lead organization: DOA

Total Budget Estimate: FY13-15/\$50,000 annually (DOA) (AGR 171BE)

SNAPSHOT: MARKETING—BUY LOCAL/IT MATTERS AND HAWAII SEAL OF QUALITY

The Buy Local, It Matters campaign aims to encourage residents to support Hawaii farmers by making conscious decisions to purchase locally grown produce.

The Hawai'i Seal of Quality aims to protect the integrity and value of the "HAWAII" marketing cachet for products grown or manufactured in Hawai'i. Under the Seal of Quality (SoQ) program, there are three qualifying components - Hawaii Origin, Hawaii Content, and Quality. The program has enforcement features with prescribed penalties for non-compliance.¹⁴

Opportunities

- Promotes purchase and consumption of local food products.
- Branding helps consumers identify local products.

Challenges

- There are a number of other marketing slogans and logos used throughout the State which may dilute the strength of the message. Difficult to unite under a single statewide logo.
- Education is needed since sometimes the slogan and logo are not used correctly.
- Continued Federal funding for the marketing campaign is not guaranteed.

POLICY: Encourage Public Institutions to Buy Locally Grown Foods

There has been interest in establishing a Farm to School Program in Hawaii. Such a program would provide a new large and stable market for local produce. However, it has been difficult to establish such a program for a variety of reasons. For example, because of requirements for equitable access to food, there is a need to supply the entire food service system encompassing 256 schools. Farmers would have to provide sufficient volumes of product consistently over the school year. There hasn't been sufficient capacity among Hawaii farmers to meet the needs of the statewide school system. On the other hand, Hawaii's charter schools have flexibility and are designed to be more locally and community-based. The charter schools provide a good platform to pilot or demonstrate a Hawaii Farm to School Program.

The Fresh Fruit and Vegetable Program (FFVP), a nationwide school lunch program administered in Hawaii by the DOE, also provides a market for local produce. The FFVP objectives are to provide student access to nutritious meals in elementary schools. The program is funded by the Federal Food, Conservation, and Energy Act of 2008 through the U.S. Department of Agriculture (USDA). The FY11-12 operating budget for this program was \$1.9 million. However, many of the issues affecting the Farm to School initiatives in Hawaii also affect DOE's implementation of the FFVP at a statewide level. These issues include a lack of food safety certification of many local farms, requirements for farm liability insurance and the inability of local farms to meet the required supply for Hawaii's statewide school district. Vendors are not able to meet requirements to supply DOE contracts. As a result, DOE returns approximately half the FFVP funding at the end of the year. However, the FFVP should continue to be supported.

Many of the above-mentioned issues were discussed by a DOA convened working group and are discussed in the *Report to the 2012 Legislature Examining the Federal 2008 Farm Bill Amendment to the Richard B. Russell National School Lunch Act*.¹⁵

While school gardens comprise only a small component of locally grown produce, they are part of an effort to connect people with farms and farming. Currently, food grown in school gardens can't be used in school cafeterias because there are no food safety standards for these gardens. DOA can support school gardens by developing food safety standards for school gardens.

Moreover, a general statement of State policy expressed in the Hawaii State Plan, HRS Chapter 226, will help to encourage schools, hospitals and correctional institutions as well as residents and visitors to buy local produce and support local farmers.

ACTION: Establish a Pilot Farm to School Program in Hawaii's Charter Schools

Lead Organizations: DOE Charter Schools, DOA

Total Budget Estimate: FY13-14/\$70,000-FY14-15/\$100,000 (DOE EDN 600)

ACTION: Continue the Fresh Fruit and Vegetables Program in the Schools

Lead Organization: DOE

Budget Estimate: \$1.7 million annually, Federal funds

ACTION: Develop Good Agricultural Practices (GAP) Standards for School Gardens

Lead Organization: DOA, DOE

Budget Estimate: FY12-14/\$50,000 FY14-15/\$50,000 (DOA) (AGR192)

ACTION: Establish a Policy to Buy Local Produce and Support Local Agriculture and Codify that Policy in HRS Chapter 226, Hawaii State Plan

Lead Organization: DOA

Budget Estimate: NA

POLICY: Increase Access to Markets by Providing Food Safety Certification Assistance

The passage of the Food Safety and Modernization Act (FSMA) by Congress in 2010 is anticipated to impact food safety certification as FSMA's requires a comprehensive approach to the prevention of contamination that spans across the food supply. However, it is difficult to determine how to address anticipated changes as the Federal Food and Drug Administration (FDA) has not released Administrative Rules to implement FSMA. This comprehensive approach is anticipated to require a close working relationship between the FDA as the lead agency and the U.S. Department of Agriculture (USDA). In Hawaii, it is anticipated that the State Department of Health (DOH) will have the lead role in implementing FSMA requirements. Should the DOH be the lead to implement FSMA, it is expected that DOA will continue to address on farm issues while DOH will address the processing and transporting of items.

There is a need to expand Hawaii's Good Agriculture Practices (GAP) programs. Although GAP certification through State sponsored programs is not expensive (approximately \$250 annually for small farms), many smaller farms do not utilize State programs because they do not wish to change established farming practices. Further, many food vendors require GAP certification for market entry, yet many small-scale farms (unlike many of the larger farms in Hawaii) do not have GAP certification. Without GAP certification market access is limited and without markets, many small-scale and diversified farms may close operations.

The College of Tropical Agriculture and Human Resources (CTAHR) at the University of Hawaii offers a free-of-charge food safety coaching program for local food production operations. The coaching program operates on a grant-funded annual budget of approximately \$200,000 through the University of Hawaii. It is conducted by professionals who have industry standard training. The coaching program prepares fruit and vegetable producers for GAP certification through the State of Hawaii. To meet GAP certification, the coaching program involves an initial on-site audit followed by recommendations and further audits. In addition, the coaching program prepares other food producers (such as livestock, fish, poultry, and egg producers, as well as farmers markets, wholesalers, retailers, and other farms) for third party food safety audits. CTAHR's coaching program enables food producers to meet GAP certification or other food safety audit standards required by food retailers and restaurants. Additionally, these food producers will be able to continue to sell to existing vendors e.g. farmers' markets when these vendors require that food safety standards be met.

Presently, only 65 of 1,200+ produce farms have current food safety certifications as administered by a third party auditor. Additional funding would provide for coaching for 50 farms per year.

The CTAHR “coaches” work hand in hand with the DOA food safety certifiers. Once the food producer has received training and is prepared for the for the food safety audits, DOA conducts the food safety audits. To meet food safety requirements, funding for food safety certifiers should be provided in tandem with funding for coaching.

Language has been identified as a barrier to the adoption of food safety practices. Translation services such as those provided by Pacific Gateway Center for immigrant farmers should be an integral part of the coaching programs.

ACTION: Increase Farm Food Safety Coaching Program

Lead Organization: CTAHR

Total Budget Estimate: FY13-14/\$236,689 FY14-15/\$238,780, (CTAHR UOH 100)

ACTION: Increase the Number of Farm Food Safety Certifiers

Lead Organization: DOA

Total Budget Estimate: FY13-14/\$500,000 FY14-15/\$500,000, (DOA) AGR)

ACTION: Augment the Farm Food Safety Coaching Program by Providing for Translation Services

Lead Organization: CTAHR

Total Budget Estimate: To be determined.

OBJECTIVE: INCREASE PRODUCTION OF LOCALLY GROWN FOODS

Increased food self-sufficiency in Hawaii requires a sustainable agricultural industry. The following identifies policies and implementing actions to address some of the elements necessary to increase agricultural production. The actions below address issues which specifically pertain to food self-sufficiency and which state government programs are suited to address. The State Agricultural Parks Program and State irrigation systems are emphasized because these programs provide land and water at reasonable cost to farmers. For example, one study found that privately-run county board of water supply systems irrigation water rates run from five to eight times as much as the DOA systems.¹⁶

POLICY: Provide Suitable Public Lands at Reasonable Cost and with Long-Term Tenure for Commercial Agricultural Purposes

One of the fundamental problems affecting farmers is the lack of access to land with long-term leases. Further, there are underlying urbanization pressures which cause the “impermanence syndrome” affecting agricultural lands. The impermanence syndrome describes the accelerated agricultural decline near urban areas due to farmers’ disinvestment in their farm operations in anticipation of development. Disinvestment begins long before farmers actually exit farming and involves non-renewal of farm infrastructure, and lack of investment in production efficiency, labor use, marketing and value-added activities. The impermanence syndrome becomes a self-fulfilling prophecy.¹⁷

One way to address this is to make more public land available for agriculture. Both the Agricultural Parks Program and the Non-Agricultural Parks Program under the Department of Agriculture accomplish this. Under the State Agricultural Parks Program, lands are acquired, developed and leased to farmers. The purpose of the program is to encourage the continuation or initiation of agricultural operations. The program makes land with long-term tenure available to small farmers at a reasonable cost.

The Agricultural Parks Program utilizes a thorough qualification process to ensure potential lessees will undertake substantial agricultural activity. Uses and activities not directly related to agricultural production are strictly controlled. The majority of the total annual income of lessees is required to come from agricultural activities. This program provides a stable land tenure that is not subject to reclassification or rezoning, further subdivision, lack of monitoring of activities, and introduction on non-agricultural uses.

There are twelve Agricultural Parks managed by DOA and the Agribusiness Development Corporation (ADC) on Kauai, Oahu, Molokai and Hawaii. Lease rents in agricultural parks are lower than privately owned lands.

The ADC preserves agricultural lands and infrastructure abandoned by former plantations for current and future use. The Department of Hawaiian Home Lands (DHHL) manages thousands of acres for the benefit of native Hawaiians. The DHHL has increased its efforts to provide lands and support for farming including subsistence farming.

Act 90 SLH 2003 established the non-agricultural park lands program which provides for the transfer of certain public lands from the Department of Land Natural Resources to the Department of Agriculture. These lands are to be used for the purposes of Article XI, Section 10 of the State Constitution which states in part that “public lands shall be used for the development of farm and homeownership on as widespread a basis as possible.” This program increases the availability of agricultural lands throughout

the State. The Board of Land and Natural Resources (BLNR) approved 5,186.843 acres for transfer and the transfer of 4,072.783 acres has been completed.¹⁸

The need for an accurate and up-to-date inventory of State lands designated for agriculture has been identified. This inventory would provide a database for decision-making and provide information as to where these lands are and what may be hindering their development for agricultural use.

ACTION: Complete Agricultural Park Projects Presently Committed and Develop Additional Parks

Lead Organization: DOA, ADC, DLNR

Total Budget Estimate: FY13-14/CIP, FY14-15/CIP (DOA) (AGR) (DLNR)

ACTION: Complete the Transfer of Lands from DLNR to DOA under the Non-Agricultural Parks Program and Actively Manage these Lands

Lead organization: DOA, ADC, DLNR

Budget Estimate: FY13-14/CIP, FY14-15/CIP (DOA) (AGR) (DLNR)

ACTION: Inventory State Lands Designated for Agricultural Use

Lead organization: DOA, ADC, DLNR, DHHL

Budget Estimate: TBD

POLICY: Continue to Provide Input into State and County Planning and Land Use Processes to Assure Sufficient Agricultural Land

There are many competing uses for agricultural land including not limited to residential, resort commercial and energy uses. DOA's Planning Office reviews and comments on proposals for state land use district boundary amendments, county general and development/community plan amendments and other land use proposals. The Office plays a key role in assuring that agricultural objectives and interests are addressed.

The Office also reviews, comments, and monitors proposals before the LUC to designate lands as IAL. To date approximately 89,859 acres of land have received IAL designation by the LUC.

ACTION: Review and Comment on Land Use Planning and Permitting Related Documents to Ensure the Availability of Agriculturally Suitable Lands and Promote Diversified Agriculture

Lead Organization: DOA

Budget Estimate: Ongoing funding. AGR 192

POLICY: Maintain and Repair State Agriculture Irrigation Systems

The state operates eleven irrigation systems throughout the state. By maintaining and operating these abandoned plantation irrigation systems, the state supports and encourages the development and expansion of diversified agriculture on former mono-crop plantation lands. Many of the irrigation systems are decades old and it is important to maintain and upgrade them and keep them in service to Hawaii's farmers, growers and ranchers, now and for the future. In addition, there is a need to repair and upgrade the plantation agriculture irrigation infrastructure to better serve existing needs. The

water delivery needs for diversified agriculture are different than those for plantation agriculture. For example, the plantations irrigated crops with sheet flow while diversified crops need targeted delivery systems. There is also a need to incorporate improvements, such as hydroelectric facilities, that would help reduce farm expenses.

ACTION: Support CIP Funding to Maintain and Repair State Irrigation Systems

Lead/Assisting Organizations: DOA, ADC, DLNR, DHHL

Budget Estimate: DOA CIP, ADC CIP, DLNR CIP

ACTION: Complete the Update of the State Agriculture Water Use and Development Plan

Lead/Assisting Organizations: DOA/CWRM

Total Budget Estimate: \$1,000,000 in funding allocated and released

POLICY: Integrate Agricultural Infrastructure in Regions with State Agricultural Lands

The agricultural lands and irrigation system action recommendations are inter-related and inter-dependent. These relationships are difficult to describe at the broad policy level and are better examined at a regional scale.

The actions presented in this strategy need to be coordinated and synchronized in order to be effective. These actions include the identification of state lands to be transferred to DOA, renovation and maintenance of agricultural irrigation systems, and development of food distribution facilities, food hubs/food incubators. Regions should be prioritized for maximum use of resources and master plans prepared for high priority areas.

ACTION: Prepare Regional Agricultural Infrastructure Master Plans In Priority Areas With a Concentration of State Agricultural Lands and Infrastructure. Prioritize Implementation to Maximize Scarce Resources

Lead/Assisting Organizations: DOA, ADC, DLNR/CWRM

Total Budget Estimate: To be determined.

POLICY: Encourage Efficient Distribution Systems to Move Food to the Marketplace

There is no consensus on a definition of “local” or “local food systems” in terms of the geographic distance between production and consumption. However, defining “local food systems” is based on marketing arrangements such as farmers’ selling directly to consumers at regional farmers’ markets or to schools is well-recognized. Local food markets account for a small but growing share of total U.S. agricultural sales. Nationally, direct consumer sales, farmers’ markets, community-supported agriculture organizations and farm-to-school programs have all increased.¹⁹ In Hawaii, most farm products reach the market through food wholesale companies. A number of these companies purchase from local farmers and distribute to local groceries and stores. Farmers’ markets, community-supported

agriculture organizations have increased in Hawaii as well. There is also significant interest in farm-to-school programs.

One area which has been cited as a significant challenge on the Neighbor Islands is the lack of distribution infrastructure for small farmers on the Neighbor Islands. Currently, most Neighbor Island small farmers have to take their own produce to grocery stores, negotiate sales, and/or spend mornings at farmers markets to sell food. This can be an insurmountable barrier in terms of time, willingness, and cost of fuel for distribution.²⁰

Particularly on the Neighbor Islands, small, dispersed farmers cannot take the time to market and distribute their products on their own, and buyers cannot deal with dozens of individual suppliers. Improving market channel infrastructure is important and can take several forms. Different market channels can operate simultaneously and be mutually beneficial.²¹ These include:

- Distribution service that collects produce from small farmers and aggregates and delivers the produce to large end-users, such as restaurants and grocery stores;
- Cold storage facility so that sellers and buyers have a one- or two-day supply margin;
- Direct farmer-to-consumer channel, by which farmers are matched with families who agree to buy their produce, along the lines of community-supported agriculture (CSA);
- Larger-scale direct produce delivery service, which aggregates produce from several farmers to give consumers more of a variety than a typical CSA;
- Development of existing farmer's markets, including making them available to a larger number of people, and on more days per week;
- Clearinghouse/Information exchange whereby farmers publish their available produce so consumers can see what is or will be available; and
- Negotiation with grocery stores to make shelf space for local produce more affordable.²²

Another issue for Neighbor Island farmers is distribution to the Oahu market and the need for cargo facilities at ports of entry has been raised.

Innovative distribution systems can be developed. An example of an innovative niche distribution business is Adaptations. This business organizes a number of small farmers to produce a certain array of organic, high-quality vegetables and distributes them to high-end restaurants. The market for high-end and organic produce is by no means saturated, and the market for conventional produce is limited to big distributors.²³

The State can assist farmer's markets by helping farmers meet requirements for entry/participation such as food safety certification.

Community-supported agriculture (CSA) is a form of direct marketing. It allows people to have direct access to high quality, fresh produce grown locally. When you become a member of a CSA, you are purchasing a "share" of produce from a local farmer. The farmer will deliver that share of produce to a convenient drop-off location where it can be picked up by the consumer. The Department of Agriculture can encourage and promote community-supported agriculture by including information on the benefits of CSAs in their promotional and marketing material.

Food Hubs

“Food hubs” are enterprises that link local producers and consumers. The USDA’s working definition of food hub is “a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products.”²⁴

In Hawaii, a similar concept called a “food incubator” has been proposed. These incubators would be facilities that handle aggregation, processing, treatment and distribution. They could be located either near farms (e.g. Kunia) or near harbors or airports. These multi-functional facilities facilitate integration of several key components of the food system. In Hawaii, the facilities would also address storage issues resulting from homeland security measures which do not allow agricultural storage sheds on piers.

ACTION: Facilitate Farmer Participation in Farmers’ Markets by Working with Non-Profit Organizations such as the Farm Bureau to Help Farmers Meet Food Safety Requirements.

Lead organization: DOA, CTAHR, DOH

Total Budget Estimate: FY13-14/To be determined, FY14-15/To be determined (DOA) (AGR)

ACTION: Encourage and Promote Community-Supported Agriculture (CSA) by Including Information on CSAs in Existing Marketing Activities

Lead organization: DOA

Total Budget Estimate: Incorporate in existing marketing program (DOA) (AGR 171B)

ACTION: Provide Support for Multi-Functional Food Hub Facilities or Food Incubator Facilities

Lead organization: DOA, ADC

Total Budget Estimate: FY13-14/CIP, FY14-15/ CIP (DOA) (AGR)

SNAPSHOT: DISTRIBUTION SYSTEMS: FOOD WHOLESALERS

Ninety-nine percent of agricultural products consumed in the U.S. are purchased through wholesale channels. (Martinez, et.al.,2010) Similarly, most of Hawaii's commercially grown produce is distributed by several large food wholesale companies. These food wholesalers bring produce from the farmers to the retailers. They provide storage and transportation to retailers. One of the largest food produce wholesalers, Armstrong Produce, has 125 to 130 local producers statewide which represent 25% of the produce they supply to consumers. ([Hawaii Retail Grover,2011](#))



Credit: Hawaii Retail Grocer

Opportunities/Innovations

- Food wholesalers can provide infrastructure that individual farmers can't afford.
- Examples:
 - Cutting edge, enclosed , temperature controlled facilities.
 - Armstrong Produce banana ripening facility
- Food wholesalers take care of food safety issues while food is in their possession.
- Food wholesalers can invest in and move to new technologies.
 - Radio frequency identification.

Challenges

- Although national food safety regulations have not been enacted, many retail customers require that produce be food safety certified.
- There are not enough growers to consistently meet demand.

Building stable relationships, linkages and connections between supply and the market helps to strengthen the local food system.

The Mountain Apple Brand began as a way to support an agricultural community in transition. KTA Superstores operates six stores on the island of Hawaii. In the 1970s and 1980s, Hawaii's sugar industry, including Hamakua Sugar Co. on the Big Island were slowly succumbing to international competition. In the late 1980's, KTA's president instructed his staff, " When the sugar companies go under, it's your responsibility to help (the farmers). As a result of that charge, the Mountain Apple Brand was launched.

(www.ktasuperstores.com/mountainapplebrand, and Hawaii Retail Grocer, May 2011)



SNAPSHOT: DISTRIBUTION SYSTEMS: INNOVATOR IN PRODUCT AGGREGATION

Products grown, processed or manufactured in Hawaii through KTA Superstores are marketed under the Mountain Apple Brand. The first Mountain Apple product was fresh island milk.



Approximately 80 local vendors supply 285 food products at KTA Super Stores including fresh milk and eggs, range-fed beef, lamb, fresh breads, coffee and desserts. Produce includes bananas, Waimea vegetables, bean sprouts, and a variety of pre-cut salads and vacuum-packed vegetables. At these stores, 95% of leafy vegetables and 35% of meats are local. The company has also helped to create value-added products.

Opportunities/Innovations

- By aggregating product, sometimes sourced from multiple growers, some of the economic and logistical efficiencies of larger food distribution systems are achieved.²⁵
- Partnerships are formed between the farmers and retailer facilitating reliability and consistency in the supply chain.
 - Brand represents high quality which promotes customer purchase and loyalty.
 - Moving toward value-added products can increase crop value/farm profitability which in turn increases the viability of local farms.

Challenges

- Since a long-term relationship with the farmer is desirable, retailer/farmer relationship should be maintained through ups and downs of natural disasters, poor weather, blight, and crop failure.

SNAPSHOT: DIRECT DISTRIBUTION--COMMUNITY SUPPORTED AGRICULTURE (CSA)

Local food markets including Community Supported Agriculture organizations (CSAs) are growing. In 2005, there were 1,144 community-supported agriculture organizations (CSAs) in operation in the U.S., up from 400 in 2001 and 2 in 1986. In early 2010, estimates exceeded 1,400, but the number could be much larger.

(USDA, Local Food Systems). The Local Harvest website lists 18 CSAs in Hawaii.

Community Supported Agriculture (CSA) offers a way for consumers to buy local seasonal food directly from a farmer. The farmer offers a number of “shares” to the public. The share typically consists of a basket of vegetables or fruit. Interested consumers purchase a share (membership or subscription) and in return receive a basket of produce for a specified time period. (www.localharvest.org)

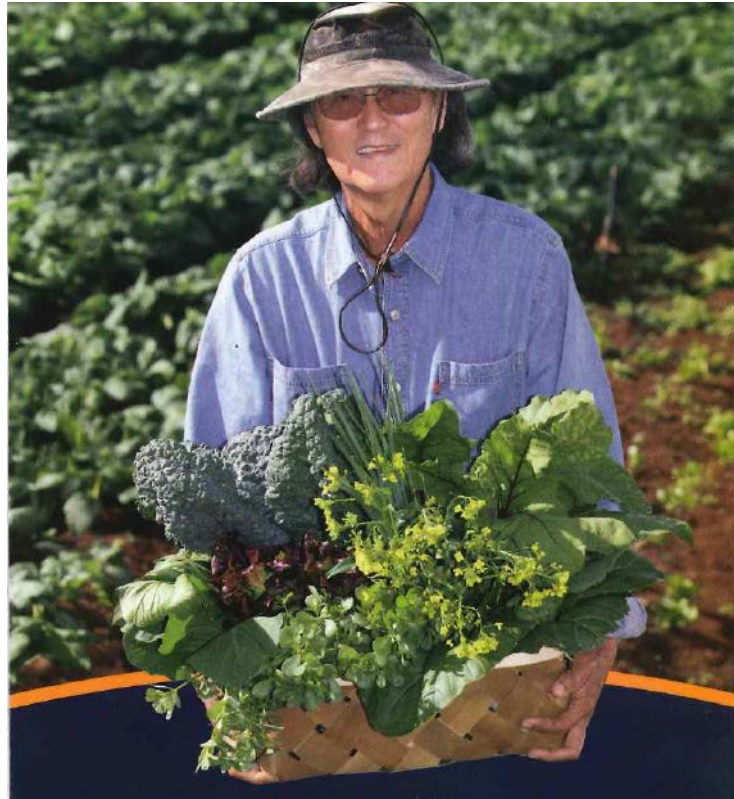


Photo Credit: Department of Agriculture, “Buy Local/It Matters”

CSA programs are offered by Otsuji Farm, Oahu Fresh and many other farms.²⁶ MA’O Farms is another CSA and incorporates programs for out-of-school youth and Hawaiian culture onto its operations.²⁷

Opportunities/Innovations

- Builds a reliable steady customer base.
- Farmer receives payment early/helps cash flow.
- Promotes “Know Your Farmer”.

Challenges

- Members share in the risks of farming.
- Smaller harvests may result in reduced allotments.
- Can involve detailed decision-making process on which crops to grow and how to get enough crops to satisfy customers.²⁸
- Packing and delivery takes up farmer’s time.

POLICY: Support Pest Prevention, Control and Management

Pests can adversely affect the agricultural industry. For example, the multi-million dollar honey, queen bee and pollination industry in Hawaii was threatened by the varroa mite. With Hawaii's year round mild climate and wide selection of available hosts, insects, mites, weeds and plant diseases such as fire ants, banana bunchy top virus and nettle caterpillar, can quickly become established. DOA's pest control, plant quarantine and other bio-security programs work to prevent, control and manage these pests. Stable funding support is needed for their researchers, technicians and inspectors. The Hawaii Invasive Species Council under DLNR and island invasive species committees also work to control harmful invasive species infestations and prevent the introduction of potentially harmful invasive species.

ACTION: Support and Seek Stable Dedicated Funding for Programs to Prevent, Control and Manage Pests.

Lead organization DOA, DLNR

Total Budget Estimate: To be determined.

POLICY: Provide an Adequate Supply of Trained Labor for Agricultural Needs

A strategic plan prepared by CTAHR identifies four initiatives to strengthen agricultural programs in higher education in Hawaii. These initiatives are the first four actions listed below. CTAHR found that there are ample educational opportunities in agriculture. Seven community colleges and two four-year institutions in the University of Hawaii system have programs in agriculture and food. However, one of the major reasons for the agricultural labor shortage is insufficient interest in youth to enter agriculture and natural resource management fields of study. In addition, farming today requires the ability to market products, deal with regulations and to run operations as a business in addition to crop and livestock production.²⁹ The fifth action listed supports ongoing agricultural training at the secondary and post-secondary levels. Programs at lower school levels should also be explored.

DLIR's Green Jobs Initiative was described earlier and should be continued. In addition, internships, apprenticeships and young farmer programs should be expanded since these "hands-on" methods of learning provide effective and relevant training mechanisms.

ACTION: Create Greater Awareness and Improve Public Interest in and Support of the Agriculture and Natural Resource Management Career Fields.***ACTION: Develop More Effective Partnerships between Industry and Academia, and Use Those Partnerships to Recruit and Prepare More Students.******ACTION: Improve the Preparedness of Students in Agriculture and Natural Resource Management Programs.******ACTION: Improve Articulated Academic Programs for Students Interested in Agriculture and Natural Resource Management Careers.***

ACTION: Provide Agricultural Training at the Secondary and Post-Secondary School Levels and Propose Improvements as Needed.

ACTION: Develop a Coordinated Pathway of Agricultural Training at Elementary, Secondary and Post-Secondary School Levels

ACTION: Continue to Support the Green Jobs Initiative.

Lead organization: DOE, UH, Community Colleges, DLIR

Total Budget Estimate: FY13-14/To be determined. FY14-15/To be determined (DOE, UOH) (UOH101, EDN105, DLIR)

POLICY: Promote Agricultural Research and Extension Services To Improve Agricultural Practices in Hawaii

High costs related to land, labor, and energy; conflicting needs for fresh water; and frequent pest invasions all put pressure on Hawaii's food supply. The pressure will intensify in the future, due to the anticipated growth in population; decreasing supply of prime agricultural land; increasing energy costs; and impacts of global climate change, which will result in higher temperatures, increasingly arid conditions, and potential flooding of coastal regions. As the only college in the U.S. that focuses on tropical and subtropical food and agriculture operating under the small-farm conditions characteristic of Hawai'i, where 64% of farms are 10 acres or less, the College of Tropical Agriculture and Human Resources (CTAHR) is a valuable resource for ensuring the state's food security and self-sufficiency.

Current CTAHR research ranges from investigations at the molecular level necessary for understanding plant physiology to the use of both traditional breeding and advanced technologies to develop new crop varieties that will thrive under more arid conditions, be resistant to pests, and/or offer increased yields per acre. It includes the improvement of soil fertility and crop yield through sustainable agronomic practices; the detection and mitigation of invasive pests through the integration of genetic methods of pest identification with environmentally benign pest-management strategies; the enhancement of beef stock and production; and the exploration of how weather, agricultural practices, climate change, and human and animal habitation affect Hawaii's watersheds and the forest plant communities associated with them. CTAHR's extension programs promote and support safe food production and post-harvest processing, including hands-on training for food processors, an active coaching program in food safety practices for farmers, and training in safe and legal pesticide use for new and immigrant farmers. These programs are supported and complemented by research efforts to develop rapid and field-based techniques for the detection of food-borne and environmental pathogens. These farm-to-fork initiatives also extend to research on the nutritional composition of foods and the prevention of diet-related diseases, such as obesity, as well as community outreach to educate people on healthy diets and lifestyles.

CTAHR's effects on Hawaii's food security and self-sufficiency are significant and extensive. The college educates and prepares the next generation of employees and entrepreneurs needed to replace the graying population of farmers, technicians, and scientists. Its research and extension programs must continue to support commercial producers, small farmers, and home gardeners and are needed to prevent and mitigate present and future threats to the state's food supply. Although priorities must be identified in light of limited resources and budget constraints, there are areas where increased attention is warranted, such as the detection and control of invasive pests and food-borne pathogens, protection of water quality and watersheds, ensuring the safety of foods, and increasing the quantity and quality of foods produced in Hawai'i.

ACTION: Identify Critical Research and Extension Needs and Prioritize the Budgetary and Academic Resources Required to Address these Needs

Lead organization: CTAHR, DOA

Total Budget Estimate: FY13-14/To be determined, FY14-15/To be determined. (CTAHR) (UH)

ACTION: Generate Research and Dissemination of Information of Use in the Farmer to Consumer Food Chain

Lead organization: CTAHR, DOA

Total Budget Estimate: FY13-14/To be determined, FY14-15/To be determined. (CTAHR) (UH)

OBJECTIVE: PROVIDE POLICY AND ORGANIZATIONAL SUPPORT TO MEET FOOD SELF-SUFFICIENCY NEEDS

POLICY: Develop an Organizational Structure to Organize and Support Food Self-Sufficiency Activities

The DOA and the Hawaii Economic Development Task Force believe that a coordinated effort is necessary to effectively address contemporary agricultural issues including food self-sufficiency. The proposed Agricultural Development and Food Security Program within DOA will establish an overall direction in a number of areas to promote the development of agriculture and food security within the State. It is intended to encompass all aspects of agriculture in the continuum from farm to market. The program will provide administration; coordinate with public and private agencies and organizations; and generate revenue development and funding to develop Hawaii's agricultural industry to compete in today's complex and integrated environment.³⁰

ACTION: Have Legislation Adopted in the 2013 Legislative Session, Fund and Establish the Agricultural Development and Food Security Program

Lead/Assisting Organizations: DOA

Funding: Evaluate the feasibility of alternative sources of funding, such as the Environmental Response, Energy and Food Security Tax (Barrel Tax)

Total Budget Estimate: FY13-14/\$3.17 million, FY14-15/\$4.0 million

POLICY: Provide Market Information and Statistics to Support Production, Marketing, Policy, Planning and Research Functions

There is a need for statistical and market data to monitor and describe trends in Hawaii's agricultural industry in order to track whether food self-sufficiency is increasing or decreasing. In 2009 all positions in the Market Analysis and News (MAN) Branch of the DOA were eliminated. MAN conducted economic, market, and business feasibility research on fruits, vegetables, and shell egg shipments, as well as supply and wholesale prices. They produced weekly reports called the *Hawaii Agricultural Market and News Report* in collaboration with the U.S. Department of Agriculture's Market News Service. MAN published over 500 *Hawaii Agricultural Market and News Reports* annually. Readily available information on market prices and supply from these reports reduces the risks to farmers and increases local food consumption by allowing farmers to know what crops are in immediate demand and what crops are being imported and exported in the State. The *Hawaii Agricultural Market and News Report* also allowed farmers to develop immediate price-points for their commodities when going to market. Funds of \$179,164 annually are required in FB 2013 – 2015 for three new support positions and needed equipment to perform the required market research and reports.

The *Statistics of Hawaii Agriculture* publication was eliminated in 2009 and reinstated in 2010. This annual publication has been used for business research and policy making since statehood and draws off of the *Hawaii Agricultural Market and News Report* for local production figures and establishing market share for fruits and vegetables. The *Statistics of Hawaii Agriculture* publication compiles data on a broader variety of agricultural commodities for the State of Hawaii than the *Hawaii Agricultural Market and News Report*. It illustrates in tabular format statistical data on what commodities are produced in Hawaii and data on a limited number of imported commodities allowing for long-term agricultural

trends to be identified. Annual data on local demand for agricultural products and in-shipments compiled from the *Statistics of Hawaii Agriculture* publications are essential to measure progress in achieving long-term food security and food self-sufficiency. Funds of \$400,815 are required in FB 2013 – 2015 for six new support positions and equipment to perform the required data gathering.

ACTION: Collect Data and Conduct Market Research on In-Shipments and Locally Produced Agricultural Commodities

Lead/Assisting Organizations: DOA/CTAHR

Total Budget Estimate: FY13-14/\$179,164, FY14-15/\$179,164 (DOA) (AGR 171 BD)

ACTION: Collect and Publish Agricultural Statistical Data through the Publication of Statistics of Hawaii Agriculture

Lead/Assisting Organizations: DOA/CTAHR

Total Budget Estimate: FY13-14/\$400,815, FY14-15/\$400,815 (DOA) (AGR 171 BC)

* Budget estimates are based upon 2009 numbers adjusted upward for inflation into year 2011.

POLICY: Provide Policy, Legislative and Advocacy Support for Agriculture

Hawaii agriculture is supported by a number of Federal laws and programs. For example, the USDA specialty crop assistance program under the U.S. Farm Bill has provided funding of approximately \$250,000 per year for five years to increase the competitiveness of specialty crops such as papaya and lilikoi in Hawaii.

Hawaii's agricultural programs also benefit from a strong collaborative working relationship with a number of Federal programs including but not limited to the National Agricultural Statistical Service, Farm Service Agency, Rural Development Agency and other USDA programs. Communication with Federal agencies and policy makers will help to insure the continuation of programs that benefit Hawaii agriculture.

The USDA Pacific Basin Agricultural Research Center (PBARC) in Hilo, Hawaii conducts research for the development of sustainable agricultural systems and pest management programs in support of Hawaii, the Pacific Basin, and U.S. agriculture.

Administrative support is also needed in particular to expedite recruitment and hiring of staff.

ACTION: Work to Retain Federal Laws, Programs and Collaborative Working Relationships that Benefit Hawaii's Agricultural Industry

Lead Organization: DOA

Total Budget Estimate: Ongoing. DOA

POLICY: Increase Partnerships to Strengthen the Local Food System

Partnerships can help support all aspects of the local food system. The Hawaii Farm Bureau Federation works with the Department of Agriculture in many ways to support agriculture including sponsoring a number of farmers' markets. The Kokua Hawaii Foundation's 'AINA In Schools program is another example. The program encourages healthy eating habits including fresh fruits and vegetables and helps students connect to where their food comes from. The Ulupono Initiative has assisted with efforts to develop a sustainable dairy industry in Hawaii, study the development of a large scale grass-fed beef operation, and develop livestock feed in-state. Opportunities to develop and expand public-private partnerships exist in many areas including but not limited to the following:

- Rehabilitation and ongoing maintenance and management of irrigation systems;
- Acquisition and management of agricultural lands;
- Distribution facilities;
- Marketing of local food products;
- Internships and training; and
- Discussion of metrics to measure Hawaii food self-sufficiency.

ACTION: Pursue Opportunities for Partnerships to Support Food Self-Sufficiency

Lead Organization: DOA

Total Budget Estimate: Ongoing. DOA

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End Notes

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² *Ibid.* p. 6.

³ *Ibid.* p.1.

⁴ *Ibid.* p. 1.

⁵ DOA, *Food Self-Sufficiency in Hawaii*, 2008, p. 1.

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⁷ Lee. *Op cit.* p. 3.

⁸ DOA. *Statistics of Hawaiian Agriculture*, annual.

⁹ Lee, *Op. cit.* p. 3

¹⁰ *Ibid.*

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¹⁴ *Ibid.*

¹⁵ DOA, *Report to the 2012 Legislature-Report Examining the Federal 2008 Farm Bill Amendment to the Richard B. Russell National School Lunch Act*, December 2011.

¹⁶ DOA, *Economic Impact of the Waiahole Irrigation System*, December 30, 2002. Accessed August 14, 2012. <http://hawaii.gov/hdoa/adc/>

¹⁷ Rabin, Jack. *Sustaining Farming on the Urban Fringe*. Rutgers University. <http://njsustainingfarms.rutgers.edu/farmlandissues.html>.

¹⁸ Communication with DLNR August 31, 2012.

¹⁹ Martinez, Steve, *et.al.*, *Local Food Systems, Concepts, Impacts and Issues*, Research Report No. 97, USDA, Economic Research Service, May 2010, p. iii.

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- ²¹ *Ibid.*
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- ²⁷ <http://maoorganicfarms.org/> Accessed on July 3, 2012.
- ²⁸ Maryland Cooperative Extension Service, *Community-Supported Agriculture in Maryland Fact Sheet 765*. www.extension.umd.edu/publications/pdfs/fs765.pdf
- ²⁹ *Common Ground, Advancing Agriculture in Hawaii*, *Hawaii Business Magazine Special Report*, 2012, p. 17-18.
- ³⁰ DBEDT. *Hawaii Economic Development Task Force Report*, December 29, 2011, Appendix G, pgs. G-60-G-61.

APPENDIX 1. Summary Estimated Budget Table

The budget figures are preliminary estimates. The relevant agencies should be consulted for cost information.

STATE GENERAL FUNDS

	PROGRAM/PROJECT	AGENCY	ID	FY14	FY15
1	Buy Local/It Matters Marketing Campaign	DOA	AGR171BE	500,000	500,000
2	Branding Programs i.e. Hawaii Seal of Quality	DOA	AGR171BE	500,000	500,000
3	Publicize Farmers' Markets	DOA	AGR171BE	50,000	50,000
4	Pilot Farm to School Program in Charter Schools	DOE	EDN600	70,000	100,000
5.	Develop Good Agricultural Practices for School Gardens	DOA	AGR192	50,000	50,000
6	Farm Food Safety Coaching Program	CTAHR	UOH100	236,689	238,780
7	Farm Food Safety Certifiers	DOA	AGR	500,000	500,000
8	Regional Ag Infrastructure Master Plans	DOA	AGR	TBD	TBD
9	Restore Inspectors, etc. Pest Control, Bio-Security	DOA	AGR	TBD	TBD
10	Manpower Training/Education	UH,CC,DOE		TBD	TBD
11	Research and Extension	UH	UH	TBD	TBD
12	Market Research to Track Locally Grown/ In-shipments : Restore Positions	DOA	AGR171BC	179,164	174,164
13	Agricultural Statistics: Restore Positions	DOA	AGR171BC	400,815	400,815
	Total			2,736,668	2,769,668

STATE GENERAL FUNDS OR ALTERNATIVE SOURCES OF FINANCING

1	Ag Development and Security Program	DOA		3.17m	4.0m
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STATE CIP FUNDS

	PROJECT	AGENCY	ID	FY14	FY15
1	Agricultural Parks Program	DOA/ADC/DLNR		TBD	TBD
2	Transfer of Lands from DLNR to DOA	DOA/ADC/DLNR		TBD	TBD
3	Agricultural Irrigation Systems	DOA/ADC/DLNR		TBD	TBD

FEDERAL FUNDS

	PROGRAM/PROJECT	AGENCY	ID	FY14	FY15
1	Fresh Fruit and Vegetable Program	DOE		1.7m	1.7m

TBD: To be determined.

APPENDIX 2. *Hawaii Food Self- Sufficiency Strategy Definitions*

FOOD SECURITY	
Definition and Publication	Original Source
<p>The term food security encompasses three major elements: availability, access, and utilization. Food availability refers to the overall supply of food from domestic production and net food imports. Food access refers to the household’s ability to get food from its own production, in the marketplace or from other sources such as barter or gifts. Access depends largely on household purchasing power. Food utilization is determined by food safety and quality, how much a person eats and how well a person converts food to energy, all of which affect proper biological use of food, nutritional status and growth.</p> <p>Department of Agriculture. <i>Food Self-Sufficiency in Hawaii, A Hawai`i Department of Agriculture White Paper</i>. December 16, 2008.</p>	<p><i>Food and Nutrition Security in the United States-Affiliated Pacific Islands</i> George Kent, University of Hawaii, Draft of November 13, 2008. http://www2.hawaii.edu/~kent/fnsusapi.doc</p>
<p>According to the Food and Agriculture Organization of the United Nations, “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO 1996, para 1)”. It is comprised of three major elements, availability, access, and utilization. Food <i>availability</i> refers to the household’s ability to get food from its own production, in the marketplace or from some other sources such as barter or gifts. Access depends largely on household purchasing power. Food <i>utilization</i> is determined by food safety and quality, how much a person eats and how well a person converts food to energy, all of which affect proper biological use of food, nutritional status and growth.</p> <p>George Kent. <i>Food and Nutrition Security in the United States-Affiliated Pacific Islands</i>. University of Hawaii: Draft November 13, 2008. http://www2.hawaii.edu/~kent/fnsusapi.doc</p>	<p><i>FAO (Food and Agricultural Organization of the United Nation) 1996. Rome Declaration on World Food Security and World Food Summit Plan of Action. Rome: FAO.</i></p>
<p>The Rome Declaration on World Food Security and the World Food Summit Plan of Action lay the foundations for diverse paths to a common objective – food security, at the individual, household, national, regional and global levels. Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. In this regard, concerted action at all levels is required. Each nation must adopt a strategy consistent with its resources and capabilities to achieve its individual goals and, at the same time, cooperate regionally and internationally in order to organize collective solutions to global issues of food security. In a world of increasingly interlinked institutions, societies and economies, coordinated efforts and shared responsibilities are essential.</p> <p>FAO (Food and Agricultural Organization of the United Nations). <i>Rome Declaration on World Food Security and World Food Summit Plan of Action</i>. 1996.</p>	<p>NA</p>

FOOD SELF-SUFFICIENCY

Definition and Publication	Original Source
<p>The proportion of domestic effective demand for a good that is met by domestic production is commonly referred to as the “self-sufficiency ratio”.</p> <p><i>Staatz, John M. “Conceptual Issues in Analyzing the Economics of Agricultural and Food Self-Sufficiency”. <u>National and Regional Self-Sufficiency Goals: Implications for International Agriculture</u>. Ed. Ruppel, Fred J, and Earl D. Kellog. Boulder & London, Lynne Reiner Publishers. 1991</i></p>	<p>NA</p>
<p>The Concept of food self-sufficiency is generally taken to mean the extent to which a country can satisfy its food needs from its own domestic production. It is sometimes thought that the best way to increase a country’s food security level is to increase its level of self-sufficiency, and this idea has a certain intuitive appeal. It may seem that a country has more control over its food supply if it not dependent on international markets, where food imports may come from countries which could be politically hostile. Also, there is a perception that developing countries may be exploited on international markets.</p> <p>Self-sufficiency is usually measured by the self-sufficiency ratio (SSR), the share of domestic production in total domestic use, excluding stock changes. Self-sufficiency in food as a development objective constitutes one of the main points of strategy adopted by the African countries in the Lagos Plan of Action in 1980, though this has never been fully implemented. A number of African countries have, however, declared food self-sufficiency as a priority objective in their national plans.</p> <p>The concepts of food self-sufficiency and food security differ on two fundamental points:</p> <p>Food self-sufficiency looks only at national production as the sole source of supply, while food security takes into account commercial imports and food aid as possible sources of commodity supply: food self-sufficiency refers only to domestically-produced food availability at the national level, food security brings in elements of stability of supply and access to food by the population. In other words, food self-sufficiency is linked to an overall perspective on development which emphasizes the need for self-reliance, an auto-centric approach, whereas food security is consistent with a view of development which incorporates international specialization and comparative advantage.</p> <p><i>Implications of Economic Policy for Food Security-A Training Manual</i></p>	<p><i>FAO (Food and Agricultural Organization of the United Nation)</i></p>

SUSTAINABLE AGRICULTRE

Definition and Publication	Source
<ul style="list-style-type: none">• Providing a profitable farm income based on a productive enterprise;• Promoting environmental stewardship by protecting and improving soil quality, reducing dependence on non-renewable resources, such as fuel and synthetic fertilizers and pesticides, and minimizing adverse impacts on food safety, wildlife, water quality, and other environmental resources• Promoting stable thriving farm families and communities <p>Jody Smith and Samir A. El-Swaify, eds. <i>Towards Sustainable Agriculture: A Guide for Hawaii's Farmers</i>. 2006</p>	<p><i>Exploring Sustainability in Agriculture. Bulletin, Sustainable Agriculture Research and Education.</i> www.sare.org/publications/exploring.htm</p>
<p>Sustainable agriculture was addressed by Congress in the 1990 Farm Bill [Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), Public Law 101-624, Title XVI, Subtitle A, Section 1603 (Government Printing Office, Washington, DC, 1990) NAL Call # KF1692.A31 1990]. Under that law, "the term sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that will, over the long term:</p> <ul style="list-style-type: none">• satisfy human food and fiber needs• enhance environmental quality and the natural resource base upon which the agricultural economy depends• make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls• sustain the economic viability of farm operations• enhance the quality of life for farmers and society as a whole." <p><i>USDA Alternative Farming Information Systems web site</i></p>	<p>http://www.nal.usda.gov/afsic/pubs/agnic/susag.shtml</p>

APPENDIX 3. Acknowledgements and List of Contributors

The following were members of the steering committee for this project: Jesse Souki, Director, Office of Planning; Russell Kokubun, Director, Department of Agriculture and Sylvia Yuen, Special Assistant to the President, University of Hawaii at Manoa; and Jeanne Shultz Afuvai, Executive Vice-President, Hawaii Institute for Public Affairs and provided guidance and insights to the process. We acknowledge the contributions of the following contributors and stakeholders who provided their expertise and valuable information without which this report could not have been prepared. We apologize in advance for any omissions in this list. We appreciate the assistance of the Economic Development Administration, Department of Commerce, in providing funding for this project. We are also grateful for the ongoing guidance and support of Gail Fujita, Economic Development Representative for Hawaii and Outer Pacific, EDA.

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APPENDIX 4. Acronyms

ADC	Agribusiness Development Corporation
AWUDP	Agriculture and Water Use Development Plan
BALLE	Business Alliance for Local Living Economies
CC	Community College
CEDS	Comprehensive Economic Development Strategy
CTAHR	College of Tropical Agriculture and Human Resources
CSA	Community Supported Agriculture
DOA	Department of Agriculture
DOE	Department of Education
DHHL	Department of Hawaiian Home Lands
DHRD	Department of Human Resources
DLIR	Department of Labor and Industrial Resources
DLNR	Department of Land and Natural Resources
EDAH	Economic Development Alliance of Hawaii
EDBs	Economic Development Boards
FAO	Food and Agriculture Organization of the United Nations
FACTA	Food, Agriculture, Conservation, and Trade Act of 1990
FFVP	Fresh Fruits and Vegetable Program
GAP	Good Agricultural Practices
HARC	Hawaii Agricultural Research Center
HALE	Hawaii Alliance for a Local Economy
HFBF	Hawaii Farm Bureau Federation
HFSSGH	Hawaii Farm to School and School Garden Hui
HFIA	Hawaii Food Industry Association
HOFA	Hawaii Organic Farmers Association
HPSI	Hawaii Public Seeds Initiative
HSF	Hawaii Slow Food
HRS	Hawaii Revised Statutes
IAL	Important Agricultural Lands
KEDB	Kauai Economic Development Board
KOED	Kauai Office of Economic Development
LUC	Land Use Commission
MCFB	Maui County Farm Bureau
MAN	Market Analysis and News Branch
NSLP	National School Lunch Program
OED	Office of Economic Development
OP	Office of Planning
OFPA	Organic Food Production Act
PBARC	Pacific Basin Agricultural Research Center
SLH	Session Laws of Hawaii
SSR	Self-Sufficiency Ratio
USDA	United States Department of Agriculture

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