UNIVERSITY OF HAWAI'I SYSTEM ANNUAL REPORT

REPORT TO THE 2009 LEGISLATURE

REPORT BY THE COLLEGE OF TROPICAL AGRICULTURE & HUMAN RESOURCES ON THE FEASIBILITY OF CONSTRUCTING A MULTIPURPOSE, MULTI-USER PROCESSING FACILITY IN EWA FOR 2009

House Concurrent Resolution No. 357, H.D. 1 (2008)

November 2008

REPORT TO THE TWENTY-FIFTH STATE LEGISLATURE
REGULAR SESSION OF 2009
STATE OF HAWAII

A STUDY ON THE FEASIBILITY OF CONSTRUCTING A MULTIPURPOSE, MULTI-USER PROCESSING FACILITY ON THE LAND IN THE ʻEWA, CENTRAL OʻAHU AREA BEING OFFERED TO THE HAWAII AGRICULTURE RESEARCH CENTER, FOR THE PRODUCTION OF VALUE-ADDED PRODUCTS THAT MAKE USE OF LOCALLY GROWN AGRICULTURAL PRODUCTS

In Response to House Concurrent Resolution No. 357, H.D. 1
Session Laws of Hawaii 2008

COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES
UNIVERSITY OF HAWAIʻI AT MĀNOA

November 2008

A Report to the Twenty-Fifth Legislature

In Response to HCR 357, H.D. 1

House Concurrent Resolution No. 357, H.D.1, Session Laws of Hawaii 2008, requests that the University of Hawai‘i College of Tropical Agriculture and Human Resources study the feasibility of constructing a multipurpose, multi-user processing facility on the land in the ‘Ewa, Central O‘ahu area being offered to the Hawai‘i Agriculture Research Center, for the production of value-added products that make use of locally-grown agricultural products.

Contributors to this report:

Hawai‘i Farm Bureau Federation
Hawai‘i Food Manufacturers Association
State of Hawai‘i Department of Agriculture
State of Hawai‘i Department of Business, Economic Development and Tourism
Agribusiness Development Corporation
Hawai‘i Agriculture Research Center
College of Tropical Agriculture and Human Resources, University of Hawai‘i at Mānoa
Independent food manufacturers

Editorial responsibility: Wayne Nishijima, CTAHR, 956-8397, waynen@hawaii.edu

Introduction and Background

HCR No. 357 appears to fit nicely with the Master Plan for a Central O‘ahu Agricultural Business Complex involving the former Del Monte pineapple facilities in Kunia and the surrounding lands.

In 2004, the Hawai‘i State Office of Planning (OP) submitted a Comprehensive Economic Development Strategy (CEDS) to the U.S. Department of Commerce, Economic Development Administration (EDA) which identified diversified agriculture as an emerging industry cluster to be supported. In 2006, EDA awarded OP funds to provide planning technical assistance to top-ranked CEDS projects.

In 2007, the Hawaii Agriculture Research Center (HARC) proposed to develop critical infrastructure to support the growth of diversified agriculture on the island of O‘ahu by creating a Central O‘ahu Agriculture Business Complex on the site of the former Del Monte Pineapple Plantation in Kunia. Also in 2007, OP provided a sub-grant out of the EDA grant to HARC to create a master plan for their proposed project (Reference 1, *Central O‘ahu Agricultural Business Complex Master Plan, Final Report, May 2008)*. This infrastructure will be important to the success of agriculture and related businesses on O‘ahu and can serve as a model for other islands.

We took the liberty to adopt the definition of “value-added” to include anything done to produce after harvest that increases their value. Therefore, postharvest handling activities such as washing, sorting, cooling and packing were considered for this feasibility study as well as manufacturing processes utilizing fresh produce as the main ingredient.

This feasibility study does not address specific products because the completed agricultural park and the crops to be grown are still several years from reality. However, there are major agriculture operations in Lower Kunia and North Shore areas where a wide variety of products are being grown that are also potential users of the facilities and could supply produce immediately. By keeping this discussion generic, it keeps all options for crops and value-added products open.

In our discussions, the existence of incubator kitchens where individuals or farmers who want to develop or produce value-added products from fresh products was identified. Although the scope of services varies among the different incubator kitchens, most provide Department of Health food preparation certified facilities and equipment. One particular facility, and perhaps more, also provides professional food technology and developmental assistance and advice on a fee basis. In a brief check, incubator kitchens were found operating in all counties except for Kauaʻi. However, an incubator kitchen on Kauaʻi on Hawaiian Homelands is in the planning stages. These facilities are "incubator" kitchens in the true sense of the word and serve the just starting off and small scale production needs of those that produce value-added products for lunch wagons, farmers markets, craft fairs, food shows, fund raisers, and other similar needs. Examples of these types of kitchens include: Hawaiʻi Food Resource Center in Waipahu, Pacific Gateway Center's Incubator Kitchen in Kalihi, The Hāmākua Incubator Kitchen and Craft in Paʻauilo, The Honokaʻa Ohana Kitchen, and the Lokahi Pacific's Pono Center in Wailuku, among others.

One of the driving forces behind this effort is the difficulty for businesses to lease these kinds of facilities at a reasonable rate and for a long enough periods that justify their investment in the necessary high cost food manufacturing equipment. This facility should provide the necessary post-harvest handling support to future growers in the region, provide value-added manufacturing capabilities for their products, and provide smaller compartmented space for other stand-alone value-added manufacturing businesses. At least one established company has expressed interest in leasing a part of the building for a stand-alone value-added endeavor. We anticipate more requests as word of this project spreads.

The *Central Oʻahu Agricultural Business Complex Master Plan, Final Report, May 2008* (Reference 1) contains estimates for the renovation of four former Del Monte Corporation buildings (Buildings #1, #5, #6, and #10). However, Campbell Estates, which still holds title to the land and facilities, is actively working with the USDA Wildlife Services, Oils of Aloha, and Sugar Land Farms to renovate and occupy some of the other buildings in the complex. These businesses and federal agency and others have expressed an urgent need for some of these facilities.

The former Del Monte fresh fruit handling facility (Buildings #7 and #8 in Attachment 1) is a large structure consisting of about 66,000 square feet of space including a large cold storage chamber that is only about 2 years old. The supports appear to be in good condition but most of the building is open with no outside walls. The building needs to be renovated by replacing the roof, enclosing the building with walls and ceiling, and installing electrical lines and water lines within the building. The manufacturing portion of the building would require significant upgrades of electrical power, water, and sewer/drainage infrastructure, whereas renovations to storage, classrooms and meeting rooms would be less demanding. A rough estimate for the cost of

renovation of Buildings #7 & #8, based on similar renovation estimates for Building #6 that is proposed, is between $2 million to $4 million. (Note that Buildings #7 & #8 combined is about four times the size of Building #6 and certainly more unique in layout). A renovation will provide needed infrastructure composed of a large building sans equipment but ready to be occupied.

Because of the continuing increase in energy costs and the fact that this facility will be a high energy consumer (i.e., much of the equipment will be producing heat or involve refrigeration), this would be an excellent opportunity for the facility to incorporate alternative energy systems as its primary power source. This would result in less dependency on foreign oil, serve as a model for state-of-the-art technology for alternative energy systems, and serve as an educational tool by serving as a demonstration site for farmers to learn about alternative energy systems for their own farms, and will result in a lower energy costs to operate the facility. During the planning phase, the potential and cost of installing alternative energy systems which utilize such sources as wind, solar, and water should be considered.

Note: Campbell Estates had planned to turn over title to the property to HARC by December 31, 2008 but unfortunately indications are that this will be delayed for at least another year.

Summary

We recommend that the State renovate Buildings #7 & #8 and make them ready to be leased to a lessee or lessees that will provide their own basic and specialized food manufacturing equipment to produce value-added products. We recommend that the facility be developed for use for up to three different but inter-related functions in the following priorities: 1) space for lease to a multi-purpose contract manufacturer of value-added products; 2) a post-harvest handling facility that will accept, sort, wash, pack, chill and distribute produce grown by farmers in the area; and 3) space for lease for independent specialized manufacturing capabilities.

We recommend that a Request for Proposals (RFP) process be used for the establishment, operation, selection and management of these businesses. With the State providing the land and building, lessee(s) will avoid this prohibitively high start-up cost of doing business. The RFP process will provide the opportunity for all interested parties, including existing manufacturers, to submit a proposal. The successful bidder(s) will be expected to purchase or lease necessary equipment for the proposed operation.

The next step is for the Legislature to initiate the planning process by providing at least $150,000 in planning funds to address many of the issues and unknowns and to conduct an in-depth study of the several options to develop a firm concept for the facility.

Tasks requested of CTAHR specified by HCR 357, H.D.1 are:

(1) **Consider *"(t)he feasibility of using a large, multipurpose processing facility that serves multiple users and produces different value-added agricultural products."*** Various proposed uses of the facilities are discussed below.

A. Value-added manufacturing facility

Farming is a tough business, considering that the vast majority of the American public is accustomed to relatively inexpensive food. In today's economy, in order for farmers to survive, they must either grow to a size to take advantage of large scale efficiency or vertically integrate by manufacturing and selling value-added products to fully utilize their off- and lower grades. With the current widespread concern for the environment and food sustainability, consumers are beginning to shift their buying habits and buying more locally produced foods. Farmers markets are very popular and their numbers and popularity among consumers continue to increase. As preferences for fresh products increase and problems with food security issues with imported foods also increase, "buying local" is becoming more and more in style. There is an apparent need for a custom manufacturing capability at the mid- to large-size level of production in the approximate range of half a container to container size volume a week of products such as salad dressing, marinades, salsas, etc. Many lines of products such as Roy's and Sam Choy's are outsourced to manufacturing companies on the U.S. mainland. One private firm in Hawai'i (First Commercial Kitchen on O'ahu) is capable of manufacturing this volume in about a week but many products continue to be outsourced to mainland companies for a number of reasons. These include lower costs of materials and ingredients on the mainland compared to those available from local suppliers, inadequate local manufacturing volume capability, and lower shipping costs and logistics to market because a larger portion of a local company's sales may be on the U.S. mainland.

It should be noted that a number of private companies in Hawai'i manufacture and bottle their own products and are not involved in contract manufacturing for others. Therefore, most businesses interested in producing larger quantities of a product and do not have their own in-house manufacturing capability have to outsource to mainland companies. Many others do not proceed beyond the thinking stage. Outsourcing to mainland companies does not help local farmers because the cost of shipping produce to the mainland would make the product cost prohibitive and less competitive. As a result, mainland produce and ingredients are used which prevents the product from being a true "Hawai'i" product. In most cases, manufacturing costs in Hawai'i are higher than on the mainland.

There appears to be interest in this kind of facility in Hawai'i dedicated to manufacture value-added products using primarily or exclusively locally grown products. These value-added products are often priced at premium levels. (Big Island Candies is an example of a local company that has shown interest in expanding the use of locally produced products for its line of value-added products. Big Island Candies products are sold only in its store in Hilo and on-line which makes availability of their products very exclusive.) Although such a facility, if built, would not have to require that only Hawai'i grown produce is used (as many ingredients still are not produced in Hawai'i), the majority of the ingredients should be locally grown and the product should follow the standards of and participate in the Hawai'i Seal of Quality program. Whatever policy is adopted, it should be flexible.

The Hawai'i Food Manufacturing Association has stated that " . . .*(a) facility to process (fill) products made in Hawai'i into containers is necessary. Currently, there are one or two known places to fill bottles with products but the capacities are very minimal and the costs are too*

high." It was felt by the group that manufacturing in a facility of the size proposed should be sufficient for clients to market at the "next level," beyond the small-scale marketing described earlier. At this level, a product for example, could be sold in multiple supermarket chains, to the public school system, supply bulk retailers such as Costco and Sam's Club, the U.S. military and commissaries, or even exported out of state. This facility could be a stepping stone for successful products to move up to larger scale manufacturing, which should then be a private effort. The experience and track record obtained with the making and marketing of the product in this facility should be evidence to lending institutions for justifying loans for further expansion of their businesses.

We suspect that it may be difficult for current products being manufactured on the mainland to change production to a local manufacturer because of long standing relationships with current manufacturers. Changing to a new manufacturer would be like starting all over and thus it would be unlikely for many of them to change. Many of these products also have greater sales volume on the mainland than in Hawai'i and thus if it were to be made in Hawai'i, their overall transportation costs would be greater. The one advantage for a locally manufactured product is that a majority of the ingredients can be from local produce and a "made in Hawai'i" claim can be made and the Hawai'i Seal of Quality logo can be used which would warrant a higher than standard price.

A facility such as this will need to balance efficiency with size, number and type of equipment to purchase and install in the facility. Without a prior history of manufacturing successful products, or a commitment from potential clients, the lessee would be taking a major risk of having equipment idle during the early months or years of the operation. Consideration may need to be made for future gradual increases in capabilities of the facility to keep up with needs, processes, and technology.

B. Post-harvest handling and treatment facility

A consolidated post-harvest handling and treatment facility operated as a cooperative would be a positive step towards making farming more profitable. The cooperative would be responsible for the washing, sorting, packing, marketing and everything involved with these procedures. This would reduce the duplication and capital investment by the farmer. Packing and marketing, especially, would allow the farmer to focus on growing the crop and allow the cooperative to handle this portion of the business. The cooperative would market the produce under the cooperative label and standardized boxes. With stricter good agricultural practices (GAP) requirements, a consolidated post-harvest packing facility would have significant advantages.

An alternative to the cooperative managing all of the post-harvest handling processes for the grower is a system in which the cooperative maintains, manages the equipment and facilities and rents the equipment by the hour. To keep prices low, growers may prefer to do the procedures themselves. However, scheduling and cleaning between users, having to develop GAP policies and records for the packing operations, etc. may make this option more difficult to make it a viable option. More detailed economic analyses are required to determine whether this system is economically viable and feasible.

The cooperative should consider renting or selling standardized recyclable plastic lugs for harvesting, and delivering to retailers. The cooperative would rent (+ deposit) to growers clean, sanitized lugs of several different sizes and pick them up from stores and supermarkets refunding the deposit or other similar arrangement. This would minimize the re-use of cardboard cartons, which is not in compliance with GAP.

We believe that a post-harvest handling and treatment facility will be an important component and should be a priority for the Central O'ahu Agricultural Plan in order to provide support infrastructure for the area farmers. Among the possible equipment that could be considered are: unloading/loading docks, a cooling facility to efficiently remove "field heat" and reefers for short term storage are recommended. The type of facility (e.g., vacuum cooling, hydro-cooling, chill blaster, hydro-vacuum cooling, or a simpler forced air cooling facility) would depend on the type of crops that will be grown and the amount of funds available. The state-funded Kamuela Vacuum Cooling Facility is an example of a successful cooling facility underwritten by the State. A vacuum cooling facility was selected for Kamuela because of the predominance of leafy vegetables grown in the locale.

Note: Please see Attachment 2 for a more detailed discussion on post-harvest handling facilities.

C. Stand-alone individual units for lease to value-added food manufacturing

The third proposed use for the building is to make available units ranging from approximately 1,000 to 5,000 square feet of leasable space to individual, stand-alone food manufacturing enterprises for long term leases. Reasonably priced long term leases for food manufacturing endeavors are costly and difficult to find on O'ahu. We anticipate a synergy to develop among the different food manufacturing enterprises by being located in the same building. Also, by locating these food manufacturers close to where the produce will be packed, manufacturers will have an easier time knowing what produce will be available and will have easier access to those produce.

At least one long time poultry farmer is looking to expand into producing an added-value food processing facility and is actively looking for options. If the space were available now, this farmer would very likely lease space in this facility.

D. The Made in Hawai'i Foods Center

This is a novel opportunity that warrants further exploration.

There was a suggestion for creating a facility that would be designed and operated as a center modeled after the Artisans Center of Virginia (ACV), which was established in 1994. This center showcases artisans in their working environment and through the process of entrepreneurship, research, and exhibitions, members support and promote their local culture. This center would provide a venue to promote agriculture and the variety of value-added products in a

unique way. Further information on the ACV can be found at http://www.artisanscenterofvirginia.org/newsletter.shtml.

This center can be organized as a public-private partnership that would feature "Made in Hawai‘i" products where visitors and residents alike will be able to observe how quality Hawai‘i products are manufactured. The Made in Hawai‘i Foods Center will feature food processors/manufacturers in their working environment (studios) preparing food products using traditional or emerging technologies and offering their finished products for sale on site. By regarding their studios as theaters and themselves as artists, food manufacturers will be educating visitors about the many aspects involved in the food processing/manufacturing of Hawai‘i products in an entertaining way without being showy. This entertainment value is important in creating first-time and repeat customers and would lead eventually to the financial sustainability of the Made in Hawai‘i Foods Center.

The one criterion that all food manufacturers in the Center would be required to meet is to prepare products that have earned the Hawai‘i Seal of Quality (SOQ), a program developed by the Hawai‘i Department of Agriculture and focused on product quality. Studios in the Center will be leased to manufacturers that meet specifications set by an appointed board or group. The Made in Hawai‘i Foods Center could be easily accessible with transportation from the airport being provided by another private enterprise to enhance the Center as a visitor attraction. The Center will also provide the food manufacturers support services commonly found in business incubators, such as clerical work, shipping and receiving, ordering, and other services that will be financially supported by the entrepreneurs at a use basis. Through research and development of their Made in Hawai‘i food products, entrepreneurship, food demonstrations, and education of the public, Hawai‘i food manufacturers will support and promote the culture and community of Hawai‘i.

Products made in Hawai‘i exude a mystique that is envied by many. Hawai‘i products are sought-after as high-quality products for consumption or for *omiyage* or gifts. They are treasured. When Hawai‘i products bear the stamp of quality, the SOQ, Hawai‘i products will have an increased value for marketing not only in the United States but also around the world.

Conclusions. There definitely is a need for a value-added manufacturing facility to produce mid- to large quantities in Hawai‘i based on the many products currently being outsourced to mainland manufacturing companies. An in-depth analysis of whether such a facility would be economically feasible was not possible to conduct under the auspices of this resolution. However, there generally was consensus that the cost of manufacturing in a local facility like this would likely be higher than if manufactured on the mainland. This is due to the higher costs of ingredients, containers, energy, labor, and other aspects of manufacturing. However, there was agreement that the products can be competitive if the key ingredient(s) is or are grown in Hawai‘i, the major market for the product is in Hawai‘i, and if the products are marketed as a premium product especially if they meet the standards of the Hawai‘i Seal of Quality program. We also need to consider the economic multiplier effect of manufacturing value-added products locally as compared to mainland outsourcing. Local manufacturing creates jobs, requires local supplies, transportation, promotes additional tax revenues, and generally keeps money in the State rather than sending money out of the State.

(2) Consider *"(t)he type of owner-operator that would be appropriate for the facility, whether public, private, or a combination thereof."*

The group felt that the value-added manufacturing facility should not be operated by a public agency. Instead, it should be operated and managed by either a private or a non-profit entity. By not involving the State in its operation much of the cumbersome bureaucracy and requirements of state government would be avoided. The extent of the State's involvement is proposed to be in the upgrade and renovation of the existing Building Nos. 7 and 8, by replacing the roof, building walls, dividing into compartments, rooms, or sections that could be designated for different types of processing equipment or be subleased to producers for their own products. Funding through grants from USDA Rural Development and other Federal agencies, and private sources can also be sought. In addition to the above, the advantage of a private operator/lessee would be a more efficient business-oriented operation. The disadvantage would be that it might take five years or more before the business actually makes a profit. The lease rate agreement for a private company may include a clause with a no or very low lease rate for the first five years or so or based on income generated. The advantage of a non-profit agency being the operator/lessee is that they would have access to grants involving work force development, could employ disadvantaged or disable individuals, and since profit is not the primary objective, they would be able to successfully provide the necessary services.

A public-private operation is also a possibility through the Agribusiness Development Corporation (ADC), a branch of the State of Hawai‘i Department of Agriculture. However, although ADC is allowed to enter into public-private partnerships, it has not yet entered into this type of arrangement with a private company since its creation. Because of this, the learning curve will be steep, but this option is definitely available for consideration.

The operation would be operated as a contract manufacturer where the operators would serve as a contract manufacturer of value-added products from fresh produce grown not only in the adjacent Kunia agricultural lands but also island specific and statewide. The operator would retain on its staff, people with expertise in food processing and technology, bulk manufacturing, packaging, and other related functions. The operator/lessee will comply with all local, state, and federal laws in the preparation, manufacture, and sale of food that is safe and wholesome. The facility will be expected to have its own Hazard Analysis Critical Control Point Plan(s) and have access to food safety procedures and certification, label design, and a laboratory to do food safety testing and assist with nutrition information development. These experts could be in-house staff or the services could be outsourced to private service providers that specialize in these services (e.g., packaging, processing, label design, and others). This expertise may be identified as common needs and the operator should seek ways to provide the services at a fee-for-service cost.

For example, the client (person with a recipe or product that they would like to have manufactured) may have his own recipes for small scale production but typically, when moving from small to medium or large batches, some modification in procedures (and recipes) may be required. Currently, mainland manufacturers charge about $4,000 to contract a consultant to convert a home recipe into a bulk quantity recipe that could be given to a manufacturer. (Note: The existing First Commercial Kitchen in Hawai‘i provides this service for free.)

One concern with a strictly contract manufacturing facility is that the demand for a facility of this size is not known and may result in significant downtime. One individual in the custom manufacturing business indicated that he knows of 10 products that went directly to the mainland for production. The HFMA's position is that this kind of facility is needed in Hawai‘i. We know that there is a demand as evidenced by many products developed by people here in Hawai‘i but manufactured on the mainland and shipped back and to other markets. We do not know how much the current demand will utilize the facility. This facility would need to provide something of benefit (e.g., incentives such as lower costs, faster turnaround, satisfaction that most of the ingredients are locally grown, better rapport with manufacturer, etc.) to convince those that are outsourcing to mainland companies to switch from their current mainland manufacturer to this proposed facility.

Although there are individuals and companies that have expressed interest in leasing and operating a facility like this, details on the specific requirements, costs, would need to be known before anyone would be willing to make a commitment. One concern is that even if this facility is built, there may not be anyone willing to lease the facility and provide custom manufacturing services because of the high costs and complexity of this type of business. The issues that need to be addressed include: conflicts of interest, assessing potential demand for these services with sales projections and guarantees, efforts to publicize and make the industry aware of the services available, addressing the organization and legal structure of the operation, cost and availability of insurance for the structure and contents, and other factors. These concerns can be addressed in the planning stage.

The lease rent may have to be initially a token rate until the company becomes established. To reduce overall operational costs, the lessee may need to apply for grants such as rural development programs, work force development, disabled worker programs, RETA-H, and others. Support in grant-writing should be provided or available. Interestingly, many of the successful small incubator kitchens on O‘ahu and Hawai‘i are operated by nonprofit organizations such as the Hawai‘i County Economic Opportunity Council on the Big Island and Pacific Gateway Center on O‘ahu. It is essential that the major benefactors of this effort should be the farming community, manufacturing community, and the people of Hawai‘i.

Another option is for the operator to be one that is already in the food manufacturing business with its own line of products. However, this operator would be required to provide contract manufacturing services to clients. This arrangement would make the long term success of the facility more viable because there will be a known usage of the facility. There may be concerns of competition if the products of the operator and a client are very similar or identical, but this could be worked out by including language in the lease to prevent or deal with this situation. There may be very few situations where products would directly compete against each other. The operator would be required to impartially provide contract product development, manufacturing, and marketing services for farmers and other interested individuals. There is also the concern, in this arrangement, for the operator to "steal" recipes, processes, procedures from the client and incorporate that into their own products. This could be minimized by including language in contracts, etc. In this arrangement, the operator will not have to totally rely on clientele to make the operation successful.

There is concern about unfair competition for existing companies because this facility would be subsidized by public funds if the State were to renovate the facilities. This may be a concern for existing companies (e.g., for The First Commercial Kitchen) that provide similar services. As indicated above, there may be an overlap in production volume at the lower end of the proposed facility to the higher end volume of The First Commercial Kitchen. Despite these concerns, the Hawai‘i Food Manufacturing Association is in favor of this project. In the selection process for the operator/lessee it will be imperative that the assessment is fair, unbiased, and structured to eliminate the sense of unfair competition to any individual or company.

Although not an integral part of the feasibility study, consideration must be made to the relationship of the food production function to the business functions (e.g., distribution, purchasing, storage, security, legal requirements, etc.) and to the technical support functions (e.g., QA, R&D). As discussed earlier, the lessee/operator needs to provide all functions, or perhaps a better economic model is to contract specialized functions, especially when conflicts of interest issues may be involved. The operator may be assigned by the selection jury to choose its own business and technical staff, and may be allowed to contract for other services. Many contract manufacturing companies on the mainland operate in this manner.

The College of Tropical Agriculture and Human Resources (CTAHR) plans to relocate its Agribusiness Incubator Program to the Kunia Agricultural Complex and will be available to assist with business and marketing issues. Other CTAHR resources that are planned to be located at the Kunia complex can also be a source of advice and assistance. Other agencies that plan on relocating to the Kunia Complex are the NRCS, HACD, HFBF, USDA Wildlife Services, Hawai‘i Agricultural Leadership Foundation, and possibly others.

The operator/lessee should also provide or use contract services minimally for:

- Product development and feasibility evaluation of recipes;
- Advice on marketing, warehousing, and distribution;
- Container and label design, food nutrition information, and links to local printing sources;
- Assistance with locating ingredient suppliers, distributors and any other support service;
- Product liability issues and other legal matters.

Further in-depth surveys or studies on potential demand is recommended as part of the planning process.

The recommended type of lessee for this facility is for a private company or a nonprofit agency, and if no interest is shown for this type of arrangement, then a public-private partnership with added incentives should be sought.

(3) Consider *“(t)he types of packaged or finished value-added products that may be processed by the facility.”*

The types of products packaged or processed as finished value-added products processed will also determine what type of equipment will be needed. The potential lessee should include in his business plan a needs assessment and obtain input from potential users on types and quantity of products they are proposing to make. This information would then be used for the acquisition of specific equipment. However, based on what is already being produced in the lower Kunia and North Shore areas, discussions with various organizations and people, products that have been successfully produced in the smaller incubator kitchens, we believe that the following list is just a sampling of some of the types of products that could be produced:

- Minimally processed fresh fruits and vegetables packaged conventional and organic fresh fruits and vegetables
- Convenience food products: cooked, ready to eat
- IQF frozen fruits
- Blanched and frozen vegetables
- Sherbets/sorbets using tropical fruits
- Pickles, other preserved vegetables and fruits
- Chopped/minced local ginger, and other herbs, flavored salts, and spices
- Fresh salsas, chutneys
- Bottled tropical fruit juices and purees (frozen or aseptic processing)
- Dried fruits and fruit leathers
- Dried/freeze dried vegetables, herbs and spices
- Essential oils, essences, and nutraceuticals
- Poi
- Sea foods including clams and abalone
  Taro flour
- Baked goods
- Vegetable (taro, sweet potato, ulu, etc.) chips
- Dressings, marinades, spreads, sauces
- Bottled beverages: Hawaiian Herbal teas, tea, coffee roasting, cacao

As mentioned in the introduction, it is difficult to identify specific products at this time, and the type of products or manufacturing capability should be left flexible. A list of equipment that would be required to support the types of products listed above is included below. This list is included for information purposes only as we recommend that the lessee be responsible for the purchasing and maintenance of the equipment.

Consideration should also be given towards manufacturing organic foods. The organic food industry is growing by leaps and bounds and organic products have price premiums. However, there are concerns of "cross contact" of organic and conventional foods if the same equipment is used for both types of products. Extra cleaning steps (with organic cleaning products) must be implemented or alternatively, the facility could have certain areas and equipment designated for organic foods only. However this latter option will result in added costs.

List of potential equipment/manufacturing capabilities for the value added manufacturing facility:

- Certified commercial kitchen for making a variety of value added products with commercial size equipment: Stoves, ovens, pressure cookers, mixers, slicers, grinders, peeler, etc.
- Bottle/jar making machine (blow mold PET)
- Bottle/jar filling equipment
- Juicer, continuous flash pasteurizing system
- Individual Quick Frozen equipment (IQF)
- Freeze dryer
- Flash freezer
- Dehydrator
- Packaging, bagging, vacuum packaging machines
- Labeling machines
- Scales
- Ice cream/sherbert maker
- Aseptic packaging
- Washing station
- Cold storage room
- Retort equipment
- Boiler
- Forklift
- Conveyor units

(4) Consider *"(t)he local, national, and international markets that may be targeted for products of the processing facility."*

Many of Hawai'i's products are already being enjoyed world-wide. In order to supply an international market on a regular basis, production capacity would have to be quite large, and most likely beyond the capabilities of the facility we propose. However, products developed in this facility could be test marketed in mainland and international markets and this facility could be the basis for a client to expand and build his own facility.

We envision that the bulk of the products produced will be for local sales in local markets and by on-line sales. However, as mentioned above, marketing of products on the U.S. mainland, Japan, China, and other countries are a definite possibility. Potential markets include:

- All local markets targeting residents and visitors
- U.S. Mainland
- Japan
- China
- Korea
- Other Asian countries
- Other countries
- On-line sales

(5) Consider *"(t)he latest emerging technologies that may be used in processing and marketing Hawai'i agricultural products."*

Using the "latest emerging technologies" should not be the focus of this facility. Most products are still made with technologies that are old and time tested. It is recommended that this facility consider all technologies and use the most appropriate ones for specific products to provide the best product produced with the most cost efficient methods. Some of these are:

- IQF
- Freeze drying
- Aseptic processing/retort pouches
- Nutraceuticals and extraction of essences and flavors

Because a facility like this will be a large user of energy due to cooling and cooking processes, serious consideration should be made to incorporate energy savings systems and to consider installing alternate energy production such as solar, wind, hydro and others. The facility if so equipped could be a showplace and an educational component for alternative energy systems for the farming community and others. By setting an example for others to see what is possible, more farms and related industries will see positive results of such systems and will be motivated to install alternate energy production systems. This is becoming more a necessity instead of a good to do for the long-term survival of farming in Hawai'i.

(6) Consider *"(a)ny information that may be provided by the National Council of State Legislatures as to whether other states have experienced a similar phenomenon of the demise of large, plantation-style agricultural industries over a relatively short period of time, leaving much of the plantation lands fallow and the supporting infrastructure unused and decaying."*

A search of the NCSL's web site did not yield any information applicable to this issue.

Reference:

1. Central Oahu Agricultural Business Complex Master Plan, May 2008, Hawai'i State Office of Planning, DBEDT, State of Hawai'i

Attachments:

1. Photos of the current condition of Buildings #7 & #8
2. Background information on postharvest handling and treatment facility

Attachment 1. Complex and Building Photos

Bldg #	Description
1	Administration
2	Truck/tractor shed
3	Only a slab now
4	Warehouse
5	Machine shop
6	Juice building
7/8	Cleaning/packaging/distribution building - focus of this report
9	Warehouse
10	Former Store

Attachment 2. Background information on postharvest handling and treatment facility.

1. Background. Most produce for the fresh market are hand-harvested. Many vegetables (broccoli, cauliflower, head lettuce, celery, and cabbages) are field packed in cartons, palletized, and brought to a cooling facility. Field packing requires less handling and input and results in less damage and longer shelf life. Field packed produce should still be cooled as quickly as possible to retain freshness and shelf life.

2. General. Automated washing, sorting, weighing, packing lines. Can be used for produce such as: tomatoes, round egg plants, papayas, mango, citrus, other "round" fruits and vegetables, etc. Units can be custom built to specifications provided. However, these tend to be more costly than off the shelf systems. If a variety of produce are processed, which would probably be the case, then the packing line could be separated into different processes. The major operations for postharvest handling of fresh fruits and vegetables include: unloading, pre-sort (culling) washing and drying, sorting and weighing, and packaging.

a. Unloading, presorting. Produce are placed into field lugs or bins and brought to the packing plant where it must first be "dumped" or unloaded. Field lugs can be stacked on trucks or trailers and can be handled by workers, whereas, bins require forklifts or other equipment to offload and unload. Lugs, because of the smaller size would be better for produce that bruise easily. Unloading of bins should be done gently using a water system or dry system (padded sloped ramps, or conveyor belts to minimize damage. Presorting usually follows to remove damaged or diseased produce that would otherwise waste resources. From there the produce is cleaned using dry brushes or water washes depending on the produce. To deal with this problem, make the equipment applicable to the cooperative can direct what type of field containers will be accepted or better yet, these lugs and bins are provided to or made available for purchase by the farmer.

b. Washing and Drying. A single generic conveyer washing, sanitizing and drying system could be used for the facility that could handle a variety of produce. The size of the system in terms of number of pounds it would be able to wash would determine the cost. These lines can also apply a food grade wax to reduce water loss during handling and marketing.

A washing system that can accommodate leafy vegetables and similar types of crops for washing and sanitizing that the conveyor system would not be feasible. A centrifuge dryer or equivalent would also be required to eliminate excess wash water.

c. Sorting, weighing, packing. At least two different systems would be required. A system for the "round" fruits and vegetables and a second that can handle leafy vegetables and other irregular shaped vegetables and herbs will be required. Sorting by size is preferred if certain sizes are priced differently or for ease of packing. It can be done manually or by machine.

An automated conveyor system where individual fruits or vegetables are sorted automatically by size, weight, color, or by quality are available. Each additional sorting criteria would add an additional layer of complexity, cost, and product specificity. The number of lanes is determined by the number of sizes required. Then, the produce can be packed by hand or bulk

filled into cartons. Fruit that are sensitive to bruising and damage should be hand packed and packed into cartons lined with plastic wells or separators.

Automation of the packing of leafy vegetables and herbs are a little more complicated because of the wide variety of shapes and sizes to be packed mechanically and thus may need to be done manually.

3. Cooling Facilities: Vacuum cooling (leafy vegetables) or hydrocooling (more bulky/dense materials) facility. A cooling facility is important for most fruits and vegetables and especially so for broccoli, cauliflowers, sweet corn, herbs, to remove the field heat to ensure a reasonable shelf life. Forced air cooling is suitable for tropical fruits where cooling isn't as critical. Although properly designed forced air cooing systems are most efficient, existing reefers can be modified for forced air cooling.

Chill rooms and refrigerated storage facilities. Ideally, need: 1) forced air cooling, and refrigerated storage for temperatures around 35 F and others around 50F (many tropical fruits should not be stored below 50F).

4. Box assembly facility, loading dock, etc.

5. Two management options are possible:

a. A Cooperative where produce is delivered to the facility and are washed, sorted, packed, etc. and marketed and under the cooperative (or custom) label. The farmer gets paid according to quantity and quality. This would allow farmers to focus on farming and allow the cooperative to handle the marketing and distribution. Recent developments have added additional record keeping and other requirements to address new food safety and food security issues. A food safety certified packing facility would be especially useful to most farmers.

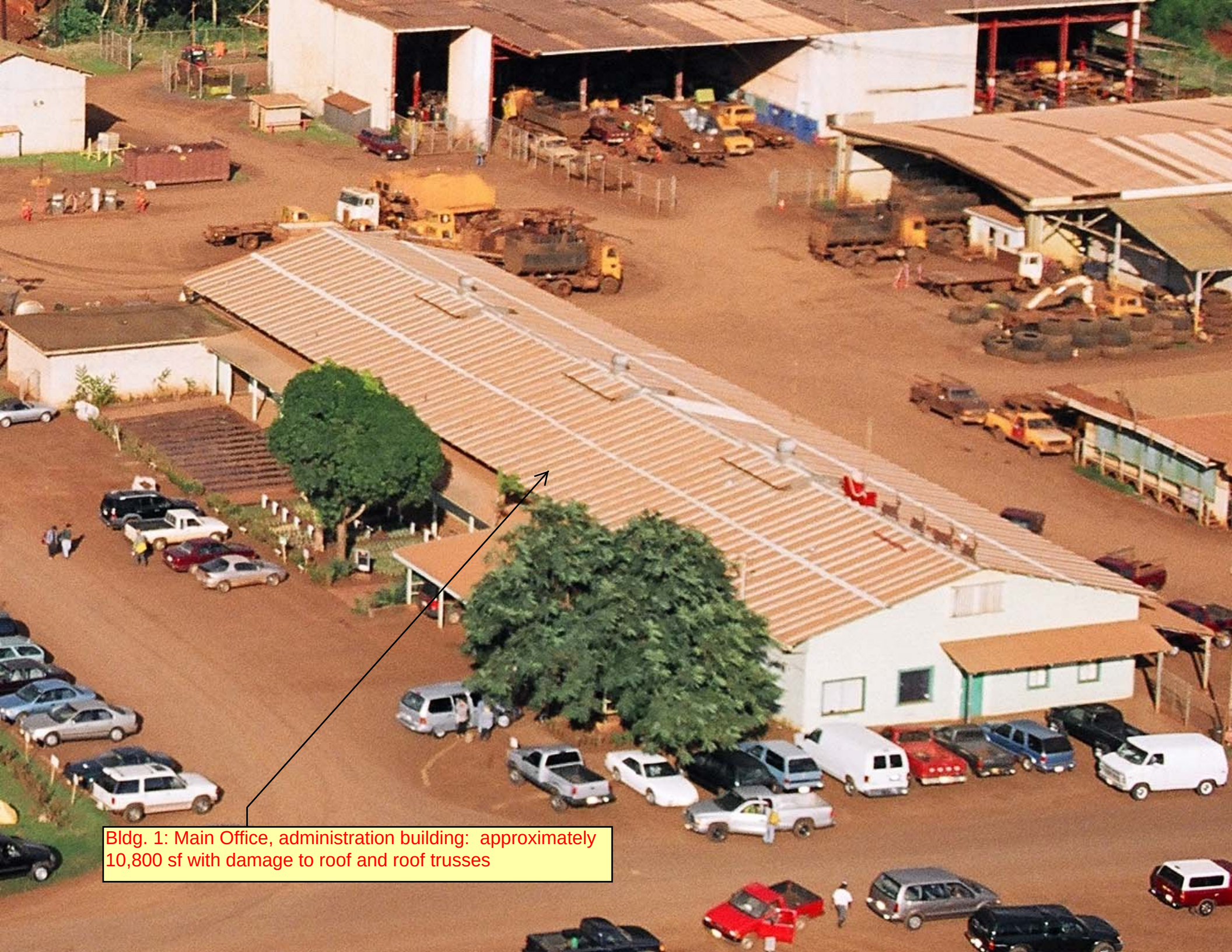
b. The second option was a custom processing/packing service to farmers where product is returned to the grower after cleaned, sorted, boxed, and farmer does own marketing. Although there are merits to this method, the complexity of handling produce and packing under different labels would make the operation difficult and time consuming for the operator. This would require stopping, cleaning and bringing the packing operations between farms and would create a large amount of downtime and require the operator to pass the high costs to the farmer to remain in business.

6. Miscellaneous: The facility should follow good agricultural practices (GAP)and pass a third party food safety audit, need manager and permanent staff that operates, maintains, cleans facility, and responsible for all aspects of the operation of the facility.

Recommendation: The Committee felt that these types of postharvest handling and treatment facilities are an important component of the value added manufacturing facility. A larger washing, sorting, and packing line that can accommodate a variety of crops or several smaller systems, each to handle specific types of crops should be considered.. There is ample space available in this large facility and this phase should be considered. In this document keep ALL options open. We

don’t know nor can we predict what will happen.) Small farmers will not be able to do the handling stuff necessary to be able to get their products into the retail stores.

Central Oahu Agricultural Cluster:
Commercial building description


Bldg. 1: Main Office, administration building: approximately 10,800 sf with damage to roof and roof trusses

Bldg.1 Main Office looking northwest

Bldg. 2: Truck Shed, 7,000sf with dirt floor. Needs pavement, cleaning, priming and painting


Bldg. 3 to be demolished by others
Bldg 4: Housing warehouse approximately 7,000sf 2-story. Needs paint and cleaning, electrical work

Bldg 4: Housing Warehouse looking and the northeast corner

Bldg. 5: Machine Shop. Approximately 20,000 sf. 2-story. Exterior sheathing and roof are very corroded

Bldg 5: Machine Shop looking north at the west end of the bldg.

Bldg. 6: Juice Plant looking west from Kunia Road

Bldg. 6: Juice Plant Approximately 15,000 sf back wall missing (see next), electrical system vandalized, contains cold stroage facilities, offices, and processing floor

Bldg. 6: Juice Plant Rear Wall (west) missing from boiler removal


Bldg. 7: Packing Shed:
approximately 30,000 SF 2-story.
All machinery is now removed

Bldg. 8: Fresh Fruit shipping and storage building, Approximately 40,000 sf. Some areas 2-story, contains very large cold storage area. Most electrical system has been stolen some areas of roof are heavily corroded.

Building 8: Fresh fruit cold storage area

Bldg. 9: Fresh fruit warehouse and shop. approximately 16,000 sf. Needs roof patches, repair 10 roll-up doors, painting and sealing rear portion that is buried.

Bldg. 9: looking at the northwest corner of the Fresh Fruit Warehouse

Bldg. 10: Former Kunia Store building. Now used as the local post office. Approximately 4,000 sf. No sanitary facilities, roof needs patch and seal

Bldg. 10: Interior of the former Kunia Store showing cold storage area on the west end. Drop ceiling should be removed.