

II. Geographically Disadvantaged Farmers and Ranchers: A Case Study of Hawaii

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INFRASTRUCTURE, INFORMATION, AND LOCATION BARRIERS

Transportation Infrastructure and Equipment

Hawaii shippers of agricultural products do not have adequate transportation infrastructure and equipment necessary to be competitive.

Relative to other States in the United States, Hawaii shippers of agricultural products do not have the transportation and storage infrastructure necessary to ship their products to the U.S. mainland (mainland) or to foreign destinations in the best condition, in the quickest time, and at the lowest cost. In some instances refrigerated storage, staging areas, and specialized facilities for holding live product, such as plants and cattle, simply do not exist or are in suboptimal condition. Due in part to the geographic location of Hawaii, the absence of adequate infrastructure can be attributed to some basic economic disadvantages:

- Ports in Hawaii do not compete with each other for business as do ports on the mainland.
- Fewer choices in transportation modes are available to agricultural shippers in Hawaii than on the mainland.
- The State of Hawaii (both the private and public industries) must predominantly support its own airport and seaport infrastructure.
- A relatively low volume of cargo moves in and out of Hawaii.
- Cargo traffic consistently receives low prioritization.

Inadequate facilities hamper shipper attempts to maintain product quality.

To maintain quality while shipping perishable agricultural products, producers and shippers must have refrigerated storage and transportation services available at all times. The entire distribution process must consistently maintain the recommended temperature of the product through proper refrigeration, packaging, and handling, also known as the “cold chain.”²⁵ However, shippers of perishable products in Hawaii currently have limited choices when it comes to arranging refrigerated storage for their cargo at port facilities. They can rent portable refrigerated containers, use a freight forwarder that maintains an off-site cold storage warehouse, or choose between the very few carriers that maintain refrigerated warehouses on airport property. A 2002 Master Plan for Hilo International Airport describes the existing cargo holding space at the airport as “in poor condition” and not configured efficiently.²⁶

Shippers do not have access to shaded or refrigerated staging areas.

Currently, insufficient staging areas are available for staging cargo prior to loading it on the airplanes at any of the Hawaii airports. Though a few airlines offer refrigerated storage at the airport in Honolulu, no other refrigerated storage is available. However, even when properly kept in refrigerated storage, the

²⁵ Products shipped in unrefrigerated air containers or on air cargo pallets require close coordination at the origin and destination airports to protect the products when flights are delayed. “*Cold storage facilities are needed at airports to ensure product quality.* Refrigerated air containers, insulated blankets, or gel pack refrigerants should be used when possible.” Further: “Unloaded products need to be protected from direct sun, condensation, ethylene produced by equipment exhaust and other products, and contamination. *Products needing refrigeration or protection from hot or cold temperatures should be placed in the recommended storage conditions as soon as possible. Otherwise, the efforts of growers, shippers, and carriers to maintain product quality will have been in vain.*” Welby, E. & McGregor, B., *Agricultural Export Transportation Handbook*, USDA, 1997.

²⁶ Wilson Okamoto & Associates, Inc., *Hilo International Airport Master Plan*, July 2002.

product is apparently not kept in storage until just prior to loading. Instead, both agricultural shippers and transportation service providers explain that due to tighter security regulations the cargo is staged for loading on the tarmac near the airplane 1 to 2 hours prior to departure regardless of the weather conditions. With Hawaii's hot days and bright sun, perishable product left on the hot tarmac in a metal container or on an open pallet can be permanently damaged, reducing the value of the product.

During May 2003 interviews conducted in Hawaii by USDA Agricultural Marketing Service (AMS) staff, carriers and service providers were asked why shaded staging areas were not provided. Carriers expressed concern with arranging set staging areas or even providing temporary shading cloths or tents since they often do not have dedicated gates. Adding to the difficulty of providing shaded staging areas is that air cargo facilities are not located in one specific area at Honolulu International Airport. The cargo facilities are located on the North and South Ramps.²⁷

A 2000 report on the facilities at the airports in Hawaii²⁸ states that, "shippers and growers identified sun and rain conditions as a major concern when shipping perishable products via air." As a result, the study provides an entire section on protecting perishable air cargo from weather. The study recommends "providing a covered structure for weather protection in the immediate vicinity of the departing aircraft...for staging containers with perishable agricultural products." Acknowledging the difficulties in developing permanent covered staging facilities, the study recommends specific temporary staging sites that are:

- sized to accommodate dollies with perishable cargo.
- close to the aprons and gates.
- limited in number.
- available to any air carrier.

The study also provides details and specific locations for the proposed covered staging areas for both Hilo and Honolulu airports.

When adequate refrigerated storage is not available, both USDA and the Post-Harvest Research and Information Center at the University of California affirm that a shade cloth or covered area can provide 10-20 degree difference in fruit temperature verses fruit left exposed to the sun.

Facilities are poorly equipped for receiving/holding transshipped cattle at the port of Honolulu.

USDA's guide for shippers of livestock describes the importance of post-transit care of livestock after transportation, including feeding and watering.²⁹ Cattle shippers in Hawaii, also aware of the needs of cattle enduring shipping times of 8 hours or more, are limited by the facilities available and the regulations surrounding the facilities and available labor. The section devoted to the geographical disadvantages for cattle shippers in Hawaii discusses these obstacles in further detail.

Insufficient length of neighbor island runways results in bumped cargo.

For shippers on Maui and Kauai, the biggest concern in terms of transportation seems to be the runway length, which is too short for planes with heavy loads. Local shippers and freight forwarders in Hawaii indicate that planes departing the Kahului airport in Maui are frequently obliged to reduce their cargo volume by as much as 75 percent when weather conditions and crosswinds are unfavorable.

²⁷ Wilson Okamoto & Associates, Inc., Aries Consultants Ltd., "Air Cargo Marshalling Facilities: Kahului Airport, Hilo International Airport, Honolulu International Airport, Final Report" May 2000.

²⁸ Wilson Okamoto & Associates, Inc., Aries Consultants Ltd., "Air Cargo Marshalling Facilities: Kahului Airport, Hilo International Airport, Honolulu International Airport, Final Report" May 2000.

²⁹ "Post-transit feeding, watering, and coordination," *Cattle and Swine Trucking Guide for Exporters*, USDA, 1999.

Though reports have been submitted describing this issue in greater detail and recommendations have been made for lengthening the runway (such as the Air Cargo Marshalling Facilities Study³⁰) there are a variety of environmental and anti-development concerns currently preventing any progress.

Both the Airports Division and the Harbors Division of the Hawaii Department of Transportation (HDOT) are self-supporting and not reliant on the State's General Fund. These divisions use fees and charge rentals to pay the expenses necessary for running the airports and seaports, as well as Federal grant programs.³¹ Therefore, attracting and keeping customers is crucial to locating the monies needed to fund infrastructural developments. However, the inability to attract a larger customer base (such as the mainland shippers outside of Hawaii), due to the geographical disadvantage facing the State, can be a deterrent to any of the facility improvements mentioned above.

Few financial incentives exist to encourage investment in Hawaii's cargo facilities.

Competition between ports is a major factor in prioritizing facility improvements. However, Hawaii air and sea ports do not have the healthy competition that ports on the mainland have. Being a chain of islands, there are no shipping alternatives aside from air and ocean. Therefore, though air and sea ports in Hawaii may compete mildly with one another, they never compete with other modes, such as rail or trucking, as is common on the mainland.

Competition with air and sea ports in other States is also not possible. For example, on the mainland, the Ports of Los Angeles and Long Beach, adjacent to each other, are strong competitors for the same customer base, both importers and exporters. On the East Coast, the Ports of Baltimore in Maryland and Hampton Roads in Virginia, though more than 100 miles apart, compete for many of the same shippers, especially those from inland States, such as West Virginia and Pennsylvania. This competition forces the ports to improve facilities according to shipper needs in an attempt to draw customers away from their competitor.

Further, being separated from the mainland by 2,500 miles of ocean inhibits the ports of Hawaii from attracting business and customers from outside Hawaii. Therefore, HDOT must depend on income from the businesses within the State, unlike mainland States that attract customers from nearby States, especially shippers from inland States and States without port facilities. Further, being a chain of islands means Hawaii must develop a variety of air and sea ports instead of putting resources into one air and one sea facility for the entire State.

Also, since Hawaii is regulated under the Jones Act (U.S. maritime cabotage law³²), the number of existing steamship lines able to conduct domestic shipping to and from Hawaii is limited. See Appendix B. However, during listening sessions and interviews it became evident that repealing the Jones Act or granting an exception would not alone solve the challenges Hawaii's agricultural shippers face. Shippers state that even if Hawaii were granted an exception to cabotage regulations, the amount of cargo available for shipping might not be sufficient to attract more carriers into the Hawaii-mainland trade lanes.

There is conventional wisdom that foreign flag vessels offer lower rates, since foreign labor and ship building costs are typically lower than in the United States. However, sample rates for shipping from Hawaii to the mainland and foreign shipping show little evidence of a significant difference in costs.

³⁰ Wilson Okamoto & Associates, Inc., Aries Consultants Ltd., Air Cargo Marshalling Facilities: Kahului Airport, Hilo International Airport, Honolulu International Airport, Final Report" May 2000.

³¹ State of Hawaii Department of Transportation-Harbors Division and Airports Division; <http://www.hawaii.gov/dot>.

³² The Jones Act (Section 27 of the Merchant Marine Act of 1920) requires that cargo moving between U.S. ports be carried in ships which are U.S.-owned, U.S.-built and U.S.-crewed.

Further, the international trade lanes of Hawaii, such as to and from Asia, which are not regulated by cabotage law, have only two main ocean carriers (MaerskSeaLand and NYK Lines) whereas more than 30 ocean carrier companies are active in the mainland United States-Asia trade lanes. As a result of these economic disadvantages, the Port of Honolulu is ranked number 29 for all U.S. ports, in terms of traffic.³³

The following examples demonstrate the relative geographic disadvantage facing ports in Hawaii:

- The State of Delaware is similar to Hawaii in terms of gross State product. However, its port, the Port of Wilmington, is ranked eighteenth of all U.S. ports.³⁴ The port can take advantage of cargo to and from nearby States to support its port infrastructure. The Port of Wilmington is successful also in part due to competition with nearby ports, such as the Port of Baltimore (ranked number thirteen³⁵), causing the port to consistently improve its facilities.
- Rhode Island, a State similar to, but smaller than, Hawaii in terms of population, gross State product (including gross State product for agriculture and farming³⁶) and water access, has not had to develop its own cargo transportation facilities. Instead importers and exporters use facilities in nearby States for ocean shipments.
- Miami International Airport, small in terms of physical size and limited in terms of expansion due to geographical boundaries, has become the third largest U.S. airport by developing a niche in handling perishables for the Nation, handling 65 percent of all fish imports, 42 percent of all fresh produce imports, and 85 percent of all Latin America flower imports shipped by air.³⁷

Opportunities such as pulling cargo from other States, depending on ports in other States, or developing a national niche market are not available to the State of Hawaii.

Shippers are also hindered due to the imbalance of trade between the mainland and Hawaii and the intra-island Hawaii trade that results in equipment, such as containers, often not being where it is needed most. For example, air containers are readily available in Honolulu where air traffic from the mainland and other islands arrives. However, the empty containers are needed by horticultural shippers on the Big Island of Hawaii, who must wait for the airlines to reposition the empty container. Unfortunately, moving empty containers offers no income for airlines and is therefore given less priority than mail, passengers, luggage, or full containers being imported.

Inadequate space at seaports causes conflict between passenger and freight traffic.

Because other modes of transportation devoted to cargo, such as rail and truck, are not an option for shipping domestically and within the islands of Hawaii, Hawaii shippers of agricultural products are more dependent on domestic air and water transportation than are shippers in mainland States. However, cargo most often is not given priority in terms of available space on the airplane or at an ocean dock where space is limited.

During May 2003 listening sessions, moderated by USDA/AMS staff and University of Hawaii personnel, the sugar industry reported that they have been required to move vessels from the dock, including vessels that are undergoing maintenance or being loaded, so that passenger cruise ships can dock. However, this is apparently a familiar occurrence at many docks around the United States where dock space is limited.

³³ DOT/Maritime Administration; http://www.marad.dot.gov/MARAD_statistics/.

³⁴ DOT/Maritime Administration; http://www.marad.dot.gov/MARAD_statistics/.

³⁵ DOT/Maritime Administration; http://www.marad.dot.gov/MARAD_statistics/.

³⁶ DOC/Bureau of Economic Analysis; Regional Accounts Data; Gross State Product Data; <http://www.bea.gov/bea/regional/gsp/>.

³⁷ Kulisch, Eric; "Rich niche: Miami International is air cargo's perishable capital," American Shipper; June 2003.

Transportation service providers added that there is simply not adequate room to maneuver at any of the docks in Hawaii.

Air industry considers cargo only as “filler.”

Many perishable products cannot withstand the 5-10 day transit times from Hawaii to the mainland, requiring the shipper to use air transportation instead. However, there are very few cargo-specific airlines available to Hawaii shippers and since shipping on passenger-focused airlines offers more frequent voyages and often more economical rates, Hawaii shippers frequently use passenger flights to move their cargo. The problem for shippers is these airlines favor passengers over cargo, since cargo accounts for only 8 percent of their volume. Cargo is therefore considered only as “filler.” As a result, improving facilities and equipment for cargo is rarely a priority for airlines.

In response to changes in passenger traffic and the economic difficulties facing the entire airline industry, airlines servicing Hawaii have recently modified the equipment they are using. Though wide-body planes such as the DC3 and 747 were more prevalent in the U.S.-Hawaii traffic, airlines have moved to the narrower 767 and 757. As a result, the larger air container typically used by shippers in the past, such as the LD3 with a 152 cubic feet internal volume, is not suitable for use in the smaller equipment. Instead, shippers must use the LD2 and LD1 with capacities of 120 cubic feet and 100 cubic feet respectively.

Shippers are now only able to get about three-quarters of the amount of cargo into the containers. In some instances, airplanes are being replaced by very narrow-body planes with no cargo space at all. Modifying the shipping method not only affects the way the shipper does business, but also necessitates changes in business agreements with the buyer of the product, who is used to receiving a certain configuration and amount of cargo at an agreed upon price.

Due to encouragement from the horticultural industry, Federal Express (FedEx) has begun offering a service to the mainland direct from Hilo on the Big Island of Hawaii five days a week. Federal Express offers the use of the AMF air container, with a volume of 516 cubic feet, which is necessary for shipping tall plants, such as palms. However, to keep this service active, Federal Express must receive enough support and cargo from the shippers on the Big Island of Hawaii.

Other concerns voiced during the listening sessions were:

- Cargo is often “bumped” in favor of passengers and luggage when flights are overbooked and weight limits are exceeded.
- Further, airlines are required to prioritize U.S. mail over cargo, if they do not, they will be fined. This is especially a problem during the holiday season when there is a higher demand for shipping agricultural products and the quantity of mail increases substantially.
- Freight forwarders and airline representatives reported that some airlines are beginning to contract out the work related to air cargo instead of keeping it “in-house,” causing shippers to be concerned about the service and dependability of contracted employees.

Recommendations/Potential Action Steps:

- **Establish public-private partnerships.** According to the Hawaii Statewide Transportation Plan (HSTP), one of the HDOT’s missions is “to provide for the safe, economic, efficient and convenient

movement of people and goods.”³⁸ The establishment of public-private partnerships (for example, between the industry and HDOT) could help the State understand the specific needs of the agricultural shipping industry and find win-win solutions while fulfilling its mission.

- **Implement recommended improvements from facility studies.** In light of recent reports such as the one submitted to the State of Hawaii Department of Transportation, by Wilson Okamoto & Associates, Inc., Aries Consultants Ltd., titled “Air Cargo Marshalling Facilities: Kahului Airport, Hilo International Airport, Honolulu International Airport,” and the “Hilo International Airport Master Plan,” serious consideration should be made to implement the various changes in existing facilities and the addition of new facilities to accommodate cargo shippers. Since Hawaii needs transportation facilities disproportionate to its ability to economically support such facilities, outside support, perhaps from Federal or other governmental sources, may need to be considered.
- **Support existing efforts to improve transportation facilities.** In an attempt to create a cargo hub in the Pacific, the State has developed plans to construct a hold cargo building at Hilo International Airport.³⁹ Matson and Horizon steamship lines are improving their facilities and should be supported by the State government and the industry in these efforts.
 - Matson is adding new ships to replace older ships in the existing fleet.
 - Horizon is adding new cranes to their docks at Honolulu.
 - Horizon also hopes to introduce controlled atmosphere (not just temperature regulated) containers to the Hawaii trade lanes for better handling of perishable products.
- **Provide training on properly selecting service providers.** Training on how to properly select the transportation service provider, including freight forwarder and airline, to receive the best service for their product and trade route, should be provided. Service providers experienced with the product and destination can suggest infrastructure alternatives for better handling and lowering costs.⁴⁰
- **Facilitate communication between shippers and service providers.** More education and facilitated communication between shippers and service providers is needed to better promote a understanding of each others’ needs and obstacles, such as staging cargo prior to loading on the airplane and locating specialized equipment. Says a representative of the Air Forwarders Association: “The communication between the shipper/forwarder and the carrier is vital to eliminate surprises.”

Information and Data Needs

The Hawaii agricultural shipping industry needs the information and data necessary for making successful transportation decisions.

Hawaii’s distinctive geographical situation demands unique transportation market news information not available through existing Federal and local reports. Currently available to producers are national and local pricing market news for agricultural products at terminal markets, as well as technical information

³⁸ “Setting the Course: Hawaii State Transportation Plan,” State of Hawaii Department of Transportation, September 2002, <http://www.state.hi.us/dot/stp/hstsp.htm>.

³⁹ “Hilo International Airport Hold Cargo Facilities (State Project No. AH 1061-13), FACD Round Two Executive Summary.”

⁴⁰ Information about selecting service providers is available to Hawaii shippers in the “Air Cargo Source Guide” available from the University of Hawaii.

on marketing and properly transporting Hawaii products.⁴¹ However, agricultural shippers in Hawaii still have little, if any, access to information from public sources on the actual costs of shipping agricultural products to domestic and foreign markets, or information discussing potential changes in freight cost and availability.

Facts are needed to dispel industry myths.

During the listening sessions, shippers voiced frustrations over the assumption that Hawaii shippers of agricultural products always pay more to ship their cargo to the mainland than competitors in foreign countries, such as Costa Rica and New Zealand. Shippers argue transportation subsidies and the use of foreign-flag vessels make Hawaii shipping uncompetitive, citing specific examples. However, anecdotal rate evidence provided during the listening sessions showed otherwise. For example, when public rate information was provided, the shippers were surprised to learn that shipments from countries such as Costa Rica can cost twice as much per ocean container of pineapples to the mainland than shipments from Hawaii (Appendix B). This is an area of constant confusion and frustration for Hawaii agricultural shippers. For this reason, facts about transportation rates, both for ocean and air shipments, are needed. Producers nationwide struggle with international competitiveness in terms of transportation costs. Nonetheless, ensuring regular access to information on rates could be an extremely useful tool in helping to dispel popular myths and to focus attention and resources on authentic transportation challenges affecting Hawaii's agricultural industry.

The right information provides opportunities for making profitable decisions.

In particular, shippers, policy makers, and transportation service providers need information from three basic categories to make successful, cost-effective decisions.

- *Capacity and equipment availability:* By providing real-time information about current transportation capacity and equipment availability, agricultural shippers can take advantage of reduced rates available during slow seasons and special backhaul rates without depending on a service provider contacting them directly about the opportunity. Understanding changes in capacity can help shippers change shipping seasons (when possible) to access lower rates and will reduce the chances of having their cargo “bumped” from a flight.
- *Rates:* Experienced shippers will use rate information to determine if they are paying fair, market rates for the shipping services. New shippers considering entering the exporting business (domestically or internationally) can use the information to help determine if they are financially ready for the new venture.
- *Volume:* Reports on what cargo is currently being shipped and what is expected to be shipped can help the shipper determine availability of capacity and existing demand for transportation services. Transportation service providers can use industry volume data for determining how to properly adjust their available capacity to expected changes in cargo volumes.

Recommendations/Potential Action Steps:

- **Create a cooperative relationship between Hawaii's Department of Agriculture (HDOA) and USDA's Agricultural Marketing Service.** As the USDA authority on transporting agricultural products to market, the Transportation Services Branch (TSB) of AMS informs, represents, and

⁴¹ Examples include: Hawaii Agricultural Market News Reports, <http://www.hawaiiag.org/news/index.htm>, *Hawaiian Islands Air Cargo Resource Book 1999-2000*, College of Tropical Agriculture and Human Resources, University of Hawaii, and the *Tropical Products Transport Handbook*, July 1999, U.S. Department of Agriculture.

assists agricultural shippers.⁴² TSB can work with HDOA on locating key shipping information and disseminating it to the industry, through market reporting and economic analysis. A majority of the information needed to complete a semi-annual report is available publicly. Further, the Federal-State Marketing Improvement Program (FSMIP) of AMS offers funds to encourage research and innovation aimed at improving the efficiency of the marketing system.⁴³

- **Locate funding to implement Air Cargo Data Collection System.** In an effort to provide a basis to support additional lift capacity to destination markets, HDOT agreed to fund a data collection demonstration. In 1999, representatives from the air industry, both public and private, cooperated to develop the Air Cargo Data Collection System. A 60-day test was conducted for 8 of Hawaii's airports for both inbound and outbound cargo, covering over 100 destinations and 32 commodity categories. Information provided from such a data collection could provide a critical service in helping the industry demonstrate their capacity needs and should be supported. This collaborative effort is also an example of a successful private-public partnership that may be modeled in future projects. Details about this study are available in the Air Cargo Marshalling Facilities Final Report.⁴⁴
- **Study comparative transportation rates.** An in-depth, impartial study is needed to determine how shipping costs to and from Hawaii compete internationally. Anecdotal evidence suggests that in some instances rates are competitive and in others relatively expensive. The results of such a study are essential for helping the industry determine what transportation challenges are real and, as a result, should be made a priority.

Neighbor Island Issues

Neighbor island location accentuates the transportation disadvantages experienced by Hawaii's agricultural producers and shippers.

Producers and shippers of agricultural products on neighbor islands in Hawaii face considerably greater challenges than their counterparts on Oahu in delivering merchandise in a timely, cost-effective manner to customers on the mainland. To move cargo by ocean transport from Hawaii to the mainland, agricultural shippers on neighbor islands must first send their cargo to Oahu by barge (either in containers or pallets), adding substantially to the transit time, and sometimes, the cost required to move product from origin to destination. In the case of airborne cargo shipments, the availability of direct air cargo service to the mainland is far less extensive on the neighbor islands than it is on Oahu and is frequently restricted to premium door-to-door transportation service rather than less expensive service on passenger airlines. Obtaining access to needed transportation equipment for both ocean and air-based shipments is also said to be a constant challenge for neighbor islands, unlike Oahu, because of the limited volume of cargo traffic destined for neighbor island locations and the low priority often given to repositioning empty containers from Oahu to needed areas.

As a result of these transportation challenges, says one shipping line representative, "people are steadily dropping out of farming on the neighbor islands," while some segments of Hawaii's farm economy, notably the melon and leafy vegetable sectors, have begun to migrate to former sugar lands in Oahu.⁴⁵ Not only does a location on Oahu give production and agricultural shippers much greater geographic proximity to the Honolulu market, which currently represents approximately 72 percent of Hawaii's

⁴² Transportation Services Branch website, <http://www.ams.usda.gov/tmd/tsb>.

⁴³ Federal-State Marketing Improvement Program website, <http://www.ams.usda.gov/tmd/fsmip.htm>.

⁴⁴ Wilson Okamoto & Associates, Inc., Aries Consultants Ltd., "Air Cargo Marshalling Facilities: Kahului Airport, Hilo International Airport, Honolulu International Airport, Final Report" May 2000.

⁴⁵ Information obtained during personal interview with USDA/AMS personnel in Honolulu, HI, May 2003.

residents, it provides a much more advantageous platform from which to ship perishable products to mainland markets, for the following reasons.⁴⁶

Refrigerated containers are in short supply on many neighbor islands.

While agricultural shippers in Hawaii report overall satisfaction with the number of refrigerated air and sea containers available to industry users on a statewide basis, they also report abundant frustration with access to containers on many neighbor islands. Agricultural shippers from the Big Island of Hawaii, Kauai, and Maui who participated in USDA/UH listening sessions noted frequent shortfalls in the number of available containers for outbound cargo movements compared to local demand for freight services, often resulting in inordinate shipment delays and additional transportation expenses for the shipper (to the extent that such delays require the shipper to pay overtime wages). As described in greater depth in the “Transportation Infrastructure and Equipment” section, the problems with equipment availability on neighbor islands primarily result from the fact that so little cargo, especially air cargo, typically gets shipped from Honolulu to neighbor islands. Indeed, one local air freight carrier interviewed estimates that flights headed to the Big Island of Hawaii generally carry only about 20 percent of their cargo capacity. Consequently, to satisfy the transportation needs of agricultural shippers on neighbor islands, air and ocean carriers must bear the cost of repositioning empty containers to neighbor island locations, a function that often gets low priority compared to more profitable, revenue-generating activity.

Transshipment requirements for ocean-borne cargo add to the logistical burden experienced by neighbor island shippers.

Unlike their counterparts on Oahu, agricultural shippers on neighbor islands that use ocean transport to move products cannot send their cargo directly to mainland markets, but must use an inter-island barge service to send their cargo to the port of Honolulu, so that it can be transloaded onto an ocean vessel and transported to mainland ports. Direct ocean service from neighbor islands to the U.S. mainland for most containerized agricultural products probably is not feasible because existing harbor facilities on neighbor islands are not large enough to accommodate a large container ship and it is highly unlikely that there would be enough cargo tonnage available from neighbor island ports to fill the vessel. At present, even current inter-island barges usually operate well below capacity; local transportation service providers indicate that a typical barge shipment volume from neighbor islands to Honolulu consists of about 150 containers, compared to a total cargo capacity of about 1,000-1,200 containers.⁴⁷

The extra layer of distribution required for cargo deliveries to the mainland puts agricultural producers/shippers from neighbor islands at an immediate economic disadvantage against Oahu-based producers/shippers. Not only are producers/shippers from neighbor islands hindered by the fact that total transit times from neighbor islands to the mainland are typically double the length of transit times from Oahu, making it more challenging to respond quickly to customer requirements, but they are sometimes obliged to bear the additional cost of inter-island barge services, adding significantly to their overall transportation expenses.

While transportation rates for transshipped cargo in the “backhaul” Honolulu-U.S. West Coast trade lane are generally consistent from most Hawaii ports, including many neighbor island ports, agricultural shippers located on less-populated islands such as Molokai and Lanai can be subject to expensive arbitrary charges when shipping goods to mainland markets.⁴⁸ Consequently, in the most extreme cases,

⁴⁶ Population figures based on 2000 U.S. Census population statistics, cited at the following web sites: www.co.honolulu.hi.us/csd/publiccom/faqs.htm and www.areaconnect.population.htm.

⁴⁷ Overall freight traffic involving food and farm product cargo (both receipts and shipments) in neighbor island harbors totaled approximately 998 short tons in 2000. These statistics are published in The State of Hawaii Data Book 2001, available at <http://www.state.hi.us/dbedt/db01>.

⁴⁸For example, articles moving by ocean barge from the port of Kaunakakai, Molokai or any origin on Lanai for transshipment to the mainland using Matson are subject to arbitrary charges of \$500 per 20 or 24-foot containers and

the cost of shipping produce by refrigerated container between some of the smaller neighbor island ports and Oahu can cost nearly as much as shipping the container from Oahu to California.⁴⁹

More generally, the need to transship ocean-borne freight from neighbor islands through the port of Honolulu can also double the amount of time required to move products from origin to destination. Barges that carry transshipment cargo often make multiple harbor stops, which can extend inter-island transit times significantly. On the Big Island of Hawaii, for example, cattle shippers that ship cargo from Kawaihae Harbor using Matson's inter-island barge service for containerized cargo can typically expect to wait 32 hours before their cargo arrives at the port of Honolulu, because of the time required to unload and load additional cargo at Hilo Harbor.⁵⁰ In contrast, direct service by barge between Kawaihae Harbor and the port of Honolulu is estimated to take only 16 hours. Moreover, once the cargo arrives at the port of Honolulu, it frequently takes as much as 3 additional days to complete the entire transshipment process, involving the unloading, repositioning, and reloading of cargo. Therefore, an agricultural shipper that transports cargo to mainland markets by ocean container from a neighbor island port can usually expect 8 to 10 days to elapse before his or her cargo arrives at the port of Oakland or Long Beach, compared to a typical wait of 4 or 5 days between cargo departure and arrival for an Oahu-based shipper.

Aside from the burden of greatly prolonged transit times for cargo, the transportation disadvantage experienced by agricultural shippers on neighbor islands is exacerbated by the fact that they are more vulnerable to interruption and delays in transportation service than Oahu-based shippers. In the words of a Maui-based produce grower and shipper, "anytime you have to use a transfer station, you increase the probability of things going wrong."⁵¹ Since agricultural shippers on neighbor islands must use indirect methods to ship their cargo to destination markets, they are more vulnerable to any problems that may arise at various stages of the supply chain. These problems can include unexpected delays in barge service, which lead shippers to miss their connections with long-distance sailing vessels, and limited port capacity at some neighbor island harbors, such as Hilo Harbor, where traffic from passenger ships often makes it difficult for barges to find space at berths. (The impact of growing passenger traffic on efficient cargo movements is discussed in greater detail in the "Transportation Infrastructure and Equipment" section.)

Air cargo service from neighbor islands to the mainland is limited and vulnerable to cutbacks.

Agricultural shippers on neighbor islands are also hampered by the fact that direct air cargo service from neighbor islands to the mainland tends to be much less frequent—and more expensive—than direct air cargo service from Oahu, making it more difficult for them to deliver highly perishable farm products to mainland customers in a timely and cost-effective manner. For example, agricultural shippers on the Big Island of Hawaii, where most of Hawaii's farms are located, are currently limited to using one of two premium-priced express delivery services, FedEx or United Parcel Service (UPS), to ship products directly to the mainland by air.⁵² Until March 2003, when FedEx introduced 5 day a week service to the mainland on a trial basis, available lift from the Big Island of Hawaii consisted of only two weekly dedicated cargo flights, a UPS flight from Kona to Ontario, CA, and a weekly FedEx flight from Hilo to Los Angeles. In contrast, at the Honolulu International Airport, 29 air carriers (12 domestic and 17

\$725 per 40-foot container, in addition to any other applicable charges. Available from Matson Navigation Company's web site at www.matson.com.

⁴⁹ Based on available preferential transportation rate as low as \$770 for 40-foot refrigerated container shipments of fresh or frozen pineapple between Oahu and Oakland, CA. Rate quotes based on public tariff filings with the Surface Transportation Board as of early June 2003.

⁵⁰ Estimated transit times obtained from Hawaii Cattle Producers Cooperative Association.

⁵¹ Mentioned during listening session conducted in May 2003 in Honolulu, HI, by USDA/AMS and University of Hawaii personnel.

⁵² Alternatively, they may transship their cargo through Oahu by barge or inter-island air carrier, extending the transit time involved in delivering their products to their final destination. Passenger airlines eliminated their direct air service from the Big Island of Hawaii to the U.S. mainland in the 1980's.

foreign airline companies) compete for business in transpacific routes, and offer more than 300 non-stop flights to destinations on the mainland each week, providing Oahu-based agricultural shippers with access to an extensive range of air carrier and flight options.⁵³

Moreover, without a substantial near-term improvement in air cargo usage by the agricultural industry, recent improvements in service availability on the Big Island of Hawaii are at risk of being eliminated within the next few months. In response to demand by local agricultural shippers for more freight lift out of the Big Island of Hawaii, FedEx introduced a new direct flight service in March 2003 between Hilo and Los Angeles 5 days per week on a temporary trial basis, using MD11 aircraft. To accommodate the unusual dimensional requirements of the local nursery product industry, FedEx uses one of the largest air containers available on this route, the AMJ, which is 96 inches high and has 3 straight sides. Despite this explicit attempt to satisfy the transportation needs of local horticultural shippers, these cargo flights were still said to be operating at a small fraction of their capacity as of early May 2003, carrying about 5 containers a week, compared to a total capacity of about 20 containers *per day*.⁵⁴ Unless FedEx receives a greater volume of agricultural cargo from local shippers, and can justify the additional lift on economic grounds, the airline could cut its current level of service in Hilo within a few months.

Recommendations/Potential Action Steps:

- **Adjust inter-island barge sailing schedules where possible to minimize transit times for cargo between neighbor islands and Oahu.** In cases where inter-island barges customarily make more than one harbor stop on an island, determine whether it might be economically feasible to offer express barge service between individual harbors on neighbor islands and the port of Honolulu during peak demand periods for agricultural cargo movements.
- **Investigate possibilities for sharing ocean and air containers across company lines when available supplies of equipment on neighbor islands are limited.**
- **Identify opportunities for taking better advantage of existing freight lift capacity on the Big Island of Hawaii.** To the extent that local agricultural commodity organizations can more effectively identify the air cargo transportation requirements of their members and better coordinate the timing of cargo deliveries with transportation service providers, this would likely improve the chances of preserving current access to lift.

⁵³ “Non-Stop Flights to Depart Honolulu International Airport, By Destination, July 2001,” The State of Hawaii Data Book 2001, produced by the Hawaii Department of Business, Economic Development and Tourism, and available from www.state.hi.us/dbedt/db01/18/184201.pdf.

⁵⁴ Information obtained from local FedEx representative in Hilo, HI, May 2003. Few agricultural items are said to be moving by air from Hilo to the mainland via FedEx aside from cut flowers and miscellaneous gift boxes.

MOVEMENT OF INPUTS AND COMMODITIES

Inputs

Geographic distance and limited transportation options inflate input costs for Hawaii farmers and ranchers.

As a chain of islands, Hawaii has a geographic barrier which significantly inhibits how it receives and stores inputs for production. Costs of shipping products *from* the mainland are significantly higher than shipping products *to* the mainland due mainly to a low demand for space on eastbound ships. Since Hawaii imports 80 percent of its required products and inputs mostly from the mainland,⁵⁵ these costs have a significant effect on production. Given that storage space is limited and in high demand, the resulting high costs are prohibitive for many small-scale producers. Due to higher transportation and storage costs as well as limited alternative shipping methods, many Hawaii producers find that costs of inputs for production increase their expenses, resulting in a competitive disadvantage.

Shipping costs of inputs are high for Hawaii producers.

The significant trade imbalance between Hawaii and the mainland creates large discrepancies between shipping rates for inbound and outbound cargo. Ships arrive in Honolulu full with prepared foods, every day necessities, and inputs for production (Appendix B). Matson Navigational Company, Hawaii's main ocean carrier for transportation to and from the mainland, reports ships returning to the mainland only 25-30 percent full with Hawaii products. Return shipments to the mainland, or "backhaul," are considerably cheaper due to the fact that carriers want more cargo but there is little volume available.⁵⁶ As a result, mainland to Hawaii ocean transportation rates can be as much as 2.5 times more expensive than backhaul rates.

Other factors that are reported to increase input costs for Hawaii farmers and shippers include:

- *Fuel prices.* Hawaii fuel prices are 18 percent higher than in California where the highest fuel costs on the mainland are found.⁵⁷ These higher prices result in high costs of production for the farmer since farmers need fuel to run equipment and move inputs to their facilities.
- *Replacement equipment.* Shipping special replacement equipment, such as tractors, steel, construction materials, and irrigation equipment, is a challenge for transportation providers in Hawaii because of cargo weight limitations between islands. Additionally, transporting an item such as a tractor part can take as much as 2 weeks according to one neighbor island producer. Inflated handling costs and the need for quick delivery add costs to the farmer's bottom line.
- *Import inspections.* The hours USDA/Animal and Plant Health Inspection Service (APHIS) inspectors are available for conducting inspections are not always synchronized with shipment arrivals. As a result, imports of plant stocks from Asia are often held up at the port waiting for an inspector, sometimes for several days. This results in longer transit times allowing for potential damage to the plants along with additional costs for storage at the port of entry until inspectors are available.

⁵⁵ Hawaii Department of Transportation, Ports and Harbors Division.

⁵⁶ Backhaul or Back load: Load which enables a vehicle to return loaded to the place or country from where its previous load came. Dictionary of Shipping Terms, Second Edition, P. Brodie.

⁵⁷ Daily Fuel Gauge Report, www.fuelgauge.com.

In some cases, higher shipping costs can affect the quality of Hawaii products. During a listening session some nursery stock producers expressed concerns about high shipping costs for inputs, such as plant nutrients and chemicals. For many small producers, these cost-prohibitive rates have resulted in the use of fewer inputs and therefore lower quality local agricultural production.

Cost effective and timely transportation options for inputs are not available for Hawaii producers.

Limited and expensive storage facilities make it difficult for producers to store necessary supplies and resources for production. As an alternative to storage, mainland shippers often provide “just-in-time” delivery or JIT. JIT allows producers to receive inputs as needed, requiring little storage. However, in the case of Hawaii, shippers are dependent on the availability of reliable transportation to facilitate JIT delivery. Producers are limited by the relatively infrequent voyages of the carriers and are forced to arrange their business around the carriers’ schedules. Many times producers have to make arrangements as much as 6 months in advance to have the shipment arrive when needed. The extra time and resources used by producers to make these arrangements are costly.

Increased storage costs also prevent shippers from purchasing inputs in bulk quantities at volume discounts. Farmers and ranchers on the mainland use this option frequently to effectively leverage their costs. This option is not used or considered by most producers in Hawaii due to the high storage costs.

Livestock feed is a good example of an input that would ideally be shipped in bulk or using JIT. On the mainland, ranchers have more space to store the quantity of feed they need, but may also take advantage of JIT deliveries to avoid the extra cost of storage. Mainland farmers have alternative transportation options, such as truck and rail, to which Hawaii ranchers do not have access. These alternatives make JIT deliveries a more reliable option for mainland ranchers. Additionally, livestock feed is less expensive for the rancher on the mainland than in Hawaii, due significantly to transportation costs. A cattleman in Hawaii pays as much as 36 percent more for feed than a mainland cattleman.⁵⁸ See Appendix C for comparative feed transportation costs.

Consolidating inputs to Hawaii offers unique challenges.

Consolidation of cargo allows shippers to leverage their costs when small shipments of a particular input are needed. Consolidation allows shippers to share space in a given container (typically an ocean container) with similar products. To consolidate a shipment of goods, these would need to be compatible for shipping. For example, chemicals for plants and animal feed would not be a compatible shipment. See section titled “Diversified Crops.”

Many Hawaii agricultural inputs, such as veterinary supplies and plant nutrients, are needed in small quantities. Since Matson does not offer reduced rates for less-than-container loads, shippers pay the price of a full container load. Consolidation would allow shippers to have the volume needed for a full container load. However, consolidation requires compatibility of products. In addition, Hawaii inputs originate in diverse locations on the mainland and at different times of the year, making consolidation difficult.

In an effort to promote consolidation, a study on the feasibility of having a consolidation center located on the mainland specifically for cargo moving to Hawaii has been proposed. This center would facilitate the collection of Hawaii cargo, therefore allowing shippers to find compatible products going to similar destination islands. The proposal has yet to be acted upon.

Hawaii relies on mainland port stability to receive inputs for production.

⁵⁸ Feed Grains Data Delivery System, Economic Research Service, USDA, www.ers.usda.gov.

Though industries throughout the entire Nation felt the impact of the West Coast port shut downs in October of 2002 and the temporary closure of airports and seaports after the terrorist attacks on 9/11/01, Hawaii producers felt a more significant impact since air and ocean transportation are Hawaii's sole venues for receiving inputs. During these events Hawaii was left vulnerable with no way of receiving goods from the mainland.

The West Coast port disruption posed a significant problem for Hawaii as virtually all ocean cargo traveling to and from the mainland transits through the West Coast ports. Some products are imported from other countries; however, Hawaii relies heavily on domestic companies for their needs. People in Hawaii were unable to receive vital necessities as well as inputs they needed for production such as feed and veterinary supplies for livestock, fuel, and nursery stock.

When mainland ocean ports are closed, shipping by air is not a reasonable alternative for Hawaii as the extra expense of air shipping is not economically feasible for most Hawaii producers. Additionally, existing air capacity is less than sufficient to transfer all ocean cargo to air equipment; air capacity could simply not hold the displaced cargo.

Recommendations/Potential Action Steps:

- **Perform study on the Hawaii agricultural community's vulnerability to transportation disruptions.** Recent port closures and increased terrorist threats have amplified the need for alternatives and assistance when long-term air and sea port shut downs are expected. This is a critical area of vulnerability that merits more detailed attention and examination.
- **Examine feasibility of mainland consolidation centers.** Inexpensive mainland storage facilities would permit local consolidation for shipments to Hawaii. A mainland facility would allow shipments from all over the mainland to arrive in one location for consolidation for movement to Hawaii.
- **Explore cooperative shipping alternatives.** Cooperative shipping offers shippers increased volume to leverage negotiating power with transportation providers. Cooperative opportunities are available if producers are willing and are assured their business will not be adversely affected. Further technical training could be done with industry groups to emphasize the importance and benefits of cooperative shipping of inputs.

Diversified Crops

The changing face of Hawaii's agriculture is not fully reflected in access to transportation services.

During the past 20 years, there has been a dramatic transformation in the composition of Hawaii's agricultural sector, as historically dominant crops have been supplanted in large part by a diverse array of horticultural products. Between 1980 and 2001, Hawaii's production of diversified agriculture nearly doubled from \$182 to \$357 million in farmgate value, and currently accounts for nearly 70 percent of the State's total value of farm production. As a result, more than 50 percent of the value of Hawaii's diversified agriculture is currently represented by three rapidly growing product categories: flowers and nursery products, vegetables and melons, and seed crops. Nevertheless, the growing significance of new agricultural products in Hawaii's economy has not always translated into increased leverage over transportation rates for growers and shippers of these commodities. Producers and shippers of historically important agricultural commodities in Hawaii, such as pineapple and papaya, still appear more likely to benefit from preferential freight rates than producers and shippers of agricultural crops that have less of

an historic presence in the islands. This may reflect the fact that the diversified agricultural sector in Hawaii is dominated by very small-scale agricultural operations, making it difficult for individual growers and shippers in this sector to exert leverage over transportation rates outside of cooperative shipping arrangements. According to the latest USDA Census of Agriculture in 1997, more than 63 percent of Hawaii's farms ranged between 1 and 9 acres in size, compared to 8 percent of farms in this category throughout the United States as a whole.

Adding to the transportation difficulties faced by producers and shippers of more newly introduced agricultural commodities in Hawaii is the fact that many air and maritime carriers have stopped offering consolidation services for shippers with less-than-container load volumes in recent years. This development has made it more difficult for smaller agricultural producers and shippers in Hawaii to develop direct business relationships with transportation service providers or to take advantage of available rate incentives on full-container load volumes. Consequently, many producers and shippers in Hawaii's growing diversified agricultural sector are at risk of being saddled with more expensive transportation freight rates than other agricultural producers in Hawaii if they do not have strong industry representation, or they do not make effective use of freight forwarding services. The following paragraphs explore the apparent relationship between organizational affiliation and transportation bargaining power, and examine some of the options available to producers of more recently introduced agricultural crops, and/or smaller producers, to improve their negotiating leverage.

Organizational affiliation exerts significant influence on transportation rates.

Several of the transportation service providers and agricultural shippers interviewed reported that representatives of commodity associations in Hawaii often work directly with maritime and dedicated air cargo carriers to negotiate preferential freight rates for specific agricultural commodities. Most of these transportation service providers in Hawaii indicate that they welcome the opportunity to negotiate freight rates with agricultural commodity groups because they perceive that such agreements are ultimately beneficial to their business operations. In return for offering a lower transportation rate to targeted groups of agricultural shippers, they are able to boost the volume of agricultural cargo that they handle, enjoy more consistent demand for agricultural cargo services throughout the year, and more effectively coordinate their distribution logistics.

The enhanced leverage provided by affiliation with commodity organizations in negotiating favorable freight rates is borne out by comparing some of the preferential freight rates on specific agricultural commodities to the standard public tariff rate offered to individual shippers of similar commodities by the same carrier. While Hawaii's shippers pay as little as \$770 to transport a 40-foot refrigerated container of pineapple by ocean between Oahu and California ports, based on negotiated agreements between the pineapple industry and U.S. carriers, shippers of limes, oranges, and watermelons using the same maritime carriers can expect to pay approximately \$2,268 for the same service, nearly three times the price.⁵⁹

Although freight rates for specific commodities are typically negotiated between shipping lines and industry groups based on anticipated freight usage, individual shippers are not generally required to meet a minimum container volume to benefit from these commodity rates. Additionally, depending on the terms of agreement between the shipping line and industry representatives, shippers may not be required to be members of a particular industry organization to take advantage of a shipping line's preferential rate. For example, Matson's preferential rate on pineapple and papaya shipments is open to any agricultural shipper that transports at least a container load of pineapple. Consequently, it would behoove agricultural shippers to fully inform themselves about available freight rates for their commodities, whether or not they are officially affiliated with existing commodity groups. In the case of the regulated maritime shipping industry, any preferential ocean freight rates that individual carriers negotiate with commodity

⁵⁹ Rate quotes based on public tariff filings with the Surface Transportation Board effective as of early June 2003.

groups for the Hawaii-West Coast trade lane (or any other domestic trade lane) are required by law to be published and filed with the U.S. Department of Transportation's Surface Transportation Board, and made available by the carriers for public inspection.

For shippers with less than a full container load of merchandise to transport, such industry agreements provide little, if any, financial relief. The ability to consolidate merchandise into container-load volumes has become increasingly important in recent years, as most maritime carriers and passenger airlines in Hawaii have stopped accepting less-than-container load volumes of cargo, obliging many agricultural shippers to use freight forwarders for load consolidation, or use a relatively more expensive door-to-door delivery service such as FedEx or UPS to transport their products rather than passenger airlines. This change in practice is said to have had a significant impact on transportation costs. According to a number of small food manufacturers in Hawaii interviewed in May 2003, their transportation costs to the mainland have increased from 20 to 40 percent of their final landed product cost in recent years because they currently need to use an intermediary to handle all of their ocean-based shipments.

Anecdotal evidence suggests that substantial work has yet to be done in establishing industry-wide transportation agreements—or potential transportation agreements that cut across industry boundaries—that provide opportunities for small agricultural producers/shippers in Hawaii to share container space, consolidate their shipment volumes, and take advantage of full-container transportation rates. One freight forwarder interviewed, who is currently evaluating the feasibility of developing an industry-wide consolidation program with members of the Hawaii Export Nursery Product Association, estimates that the implementation of such a program could potentially slash by half the current transportation costs paid by individual nursery product shippers to reach interior markets in the mainland.

Passenger airlines are less open to rate negotiation than other transportation sectors.

The flexibility and sense of mutual goodwill that seems to characterize most business relationships between the agricultural shipping community and transportation service providers in Hawaii is notably absent in the passenger airline sector. Air cargo rates for passenger airlines in Hawaii are more typically negotiated directly between airline companies and individual agricultural firms (typically large-scale agricultural shippers) or indirect shippers (such as freight forwarders). The terms of each contract differ based on the agricultural commodity in question; some contracts are only in effect on a brief seasonal basis, while other contracts, such as those involving pineapple movements, may be in effect for as long as 6 months before they are renegotiated.

The apparent reluctance of passenger airlines to engage in direct rate negotiations with agricultural commodity groups may well reflect their lack of interest in soliciting air cargo business in general. Although air cargo is said to be a major profit center for airlines, accounting for approximately 8 percent of volume, and 40 percent of profit, on average, representatives of passenger airlines generally concede that air cargo business is regarded as “filler” rather than an important contributor to company revenue; their strategic business decisions are driven almost exclusively by passenger load and traffic volume considerations.

Security measures implemented since 9/11/01 at airport facilities have further interfered with the ability of smaller agricultural shippers to cultivate direct business relationships with passenger airlines. Under current Federal Aviation Administration (FAA) regulations, passenger airlines operating in the United States can no longer accept “walk-up” customers, and are restricted to transporting cargo from shippers that have previously been certified as “known shippers.” (Non-passenger carriers, such as Federal Express or UPS, are exempt from these regulations.) A “known shipper” is defined as a shipper who has shipped product 24 times since September 1, 1999, using the same transportation service provider (either directly or through an intermediary cargo handler, such as a freight forwarder). Agricultural shippers who do not meet this strict requirement are not permitted to ship their goods on a passenger airline until they arrange for a personal inspection of their place of business by a representative of that airline, or by a

designated intermediary, such as a freight forwarder, that would be responsible for handling the cargo prior to boarding. If a shipper wishes to use more than one passenger airline for cargo services, he/she must arrange individual inspections at his/her place of business with representatives of each airline (or relevant intermediary); the “known shipper” designation is not transferable across company lines.

In addition to requiring on-site inspection of shipper operations before accepting new air cargo customers, passenger airlines in Hawaii have also responded to the imposition of more stringent security measures by eliminating some of their previous services. Unlike a few years ago, shippers can no longer approach passenger airlines directly with less-than-container load volumes and arrange to pay breakdown and consolidation surcharges. Consequently, to gain access to air cargo services, agricultural shippers in Hawaii that are interested in shipping less-than-container load volumes are now required to use the services of a dedicated freight carrier, or to work with a freight forwarder to move their product on a passenger airline.

Freight forwarders play an important role in addressing freight rate imbalances.

While agricultural shippers often view freight forwarding services as more of a financial burden than a marketing asset, a good freight forwarding company can provide critical technical advice and information to the agricultural shipper, especially the smaller or less experienced shipper, which can result in substantial transportation savings. Agricultural shippers that insist upon “going it alone” or accept the first price quote from a forwarding company without “shopping around” may find themselves saddled with unnecessary and excessive charges. During interviews with several air freight forwarders in Honolulu, HI, in May 2003, for example, USDA/AMS personnel learned that, in one recent case, a shipper of nursery products from Hawaii to the mainland ended up paying twice what he should have paid for air freight because he received poor instructions on how to minimize his dimensional weight through proper packing of merchandise and proper container selection. If he had used another freight forwarder, he could have saved \$5,000 in transportation costs on just five airbills alone.

Given their heavy usage of air cargo services during the year with a variety of passenger and cargo carriers, freight forwarders also have additional opportunities to negotiate “below-market” cargo fares for their clients on relatively empty flights and during slack traffic periods. Several freight forwarders indicated during interviews that some carriers will sell space on afternoon flights to the West Coast for less than the equivalent amount of space on other flights, because most shippers do not want to deliver their products in the middle of the day.

At present, a considerably smaller percentage of agricultural shippers in Hawaii are believed to use freight forwarders than in the United States in general. While a recent national survey conducted by USDA/AMS, USDA/Foreign Agricultural Service, and Cornell University indicates that approximately 88 percent of agricultural shippers nationwide use freight forwarders to some extent, anecdotal evidence gathered from freight forwarders and agricultural shippers in Hawaii in May 2003 suggest that the percentage of agricultural shippers in Hawaii who use freight forwarding services may currently be closer to 70 percent. To the extent that there are doubts as to the value of service that freight forwarders provide, and a lack of knowledge about the potential benefits of freight forwarder usage, this may impede the ability of Hawaii’s agricultural shippers to take full advantage of their available transportation options. Freight forwarders have the ability to search for the best rates on a consistent basis, which growers and agricultural shippers do not always have the time, ability, and inclination to do.

Recommendations/Potential Action Steps:

- **Encourage agricultural shippers in Hawaii to affiliate with existing industry organizations, or create new organizations where needed.** Greater organizational affiliation should help smaller

producers, as well as those in emerging agricultural sectors, acquire the institutional capacity to negotiate directly with transportation service providers for preferential rates.

- **Foster the continued development of direct negotiations between individual maritime/air carriers and commodity associations.** Such “win-win” agreements can provide more favorable freight rates for industry members, while enabling transportation service providers to enjoy more consistent cargo volumes.
- **Evaluate options for establishing consolidation facilities for agricultural growers and shippers.** Members of commodity groups (and/or other agricultural shippers) might be able to reduce their dependence on intermediaries to the extent that they have access to a collection facility where they could share equipment, consolidate loads, and take advantage of preferential freight rates for full-container shipments.
- **Encourage agricultural shippers in Hawaii to work with receivers at destination to enhance negotiation leverage.** In some cases, it might be possible for individual agricultural shippers to work with consignees in destination markets to negotiate a more favorable service contract for transportation (in cases where the consignee may receive products from several locations using the same transportation service provider and may qualify for a volume discount).
- **Consider developing relevant technical materials targeted specifically at the Hawaii agribusiness community.** These might include such materials as a directory of local consolidators and their services, designed to help Hawaii’s agricultural shippers better understand their transportation options, and enhance their ability to make more informed transportation decisions, or a central web location that reports current freight rates offered by local transportation service providers. One potential source of matching funds for such technical assistance projects is USDA’s Federal-State Marketing Improvement Program, administered by AMS, that allocates funds to State agencies for research and technical assistance initiatives aimed at improving the efficiency of the agricultural marketing system.
- **Take better advantage of available training materials from State, regional and Federal government sources that provide guidance on agricultural transport, distribution, and packaging alternatives for small and medium-sized agricultural shippers.** For example, USDA/AMS’s Transportation Services Program offers a variety of technical training materials and resources for free on its web site, located at www.ams.usda.gov/tmd/tsb.

Cattle

Transportation issues pose a unique challenge to Hawaii’s cattle industry.

Transportation can truly be considered the lifeblood of Hawaii’s cattle industry. Unlike other sectors of the agricultural economy in Hawaii, the cattle industry is obligated to transport nearly all of its output to mainland and other North American markets as part of its standard production cycle. Following the closure of most of Hawaii’s remaining feedlots on Maui and the Big Island of Hawaii in the early 1990’s, cattle producers began shipping nearly all of their calves to the mainland or Canada for further grazing, finishing, and slaughter.⁶⁰ The steep cost of imported feed—currently three times the price of comparable feed on the mainland—has made the operation of most local feedlots prohibitively expensive.⁶¹

⁶⁰ A small number of culled animals, uneconomical to export, are used to manufacture specialty meat products, such as jerky and sausage, for the local market. Further information on local processing initiatives are available from “Facing Forward: Hawaiian cattle co-op find new life by responding to marketing crisis”, Rural Cooperatives magazine, March 1998, available at www.rurdev.usda.gov/rbs/pub/mar98/facefwd.html.

⁶¹ Approximately 7 pounds of feed are required to produce one pound of beef.

Consequently, Hawaii's cattle producers must use long-distance transportation to ship virtually all of their production that requires further grazing and finishing to mainland or other North American markets. The following paragraphs describe some of the specific infrastructural and service challenges that face Hawaii's cattle producers, and identify some of the positive measures and recommendations that have been taken or proposed by cattle industry members, shipping lines, and air carriers to develop more efficient, reasonably-priced, and well-managed transportation services for livestock.

Producers have limited transportation options.

At present, cattle producers in Hawaii that wish to ship their live animals to mainland markets by ocean freight have only two options at their disposal: they may use Matson Navigation Company to move live animals by container to the U.S. West Coast, via Honolulu, or they may use a dedicated livestock cargo ship to a non-U.S. port such as Vancouver, Canada, and arrange for transshipment to the United States once the animals arrive at destination. (There are no U.S. flag vessels dedicated to livestock cargo currently in operation, and the only other U.S. flag carrier operating in the Hawaii-U.S. West Coast trade lane—Horizon Lines—does not currently handle live cattle movements by container.⁶² Representatives of Horizon Lines indicated that the company had no intention to compete for live cattle cargo business in the near future at current freight rate levels.⁶³)

Shipping cattle by ocean container presents special challenges.

From the start, the use of ocean containers to ship live cargo directly to the mainland market puts Hawaii's cattle producers at a financial disadvantage against other users of containerized ocean freight services in Hawaii. In contrast to most shippers of containerized agricultural cargo, the cattle industry is obliged to purchase its own specialized ocean containers for the transport of live animals, which contain windows and provide access to fresh air, water, and feed. Each of these aluminum containers typically costs about \$50,000; attempts to use less expensive steel containers have largely fallen by the wayside because they corrode so quickly in Hawaii's salt air conditions.⁶⁴ To ensure that the animals have proper access to water and feed in-transit, and that an acceptable level of cleanliness is maintained, members of the cattle industry are also obliged to hire a stocktender, who accompanies the cargo on inter-island and interstate voyages and oversees the feeding and watering of the animals aboard ship. Therefore, not only are Hawaii's cattle producers more dependent on long-distance transportation for market access than most agricultural producers in the State, but they have far greater transportation expenses to bear than most shippers of containerized farm products.

Drawbacks associated with using containers for the shipment of live cattle extend beyond the additional expenses associated with specialized handling requirements. Cattle that are shipped by ocean container are widely reported by cattle industry members to be more vulnerable to motion sickness than cattle shipped on dedicated livestock ships (where space is more plentiful and air circulation is superior) or cattle shipped by air (where transit times from Oahu to the U.S. West Coast take only 5-6 hours, compared to 4-5 days by ocean transport). Consequently, the dependence on containerized shipping methods to transport live cattle to mainland markets makes it more difficult for Hawaii's cattle shippers to maintain their animals in optimal health throughout the transportation process.

Another disadvantage associated with the use of ocean containers for shipping live cattle is the fact that most of these ocean containers (as well as air containers) need to be transhipped through the port of Honolulu, unlike dedicated livestock ships, which are able to sail directly to destination ports. Since the vast majority of Hawaii's cattle production takes place on neighbor islands, primarily the Big Island of

⁶² Domestic cabotage laws current prevent a foreign maritime carrier from picking up cargo in Hawaii and delivering cargo to a mainland U.S. port.

⁶³ Information obtained during personal interview with Horizon Lines representatives, Honolulu, HI, 5/02/03.

⁶⁴ Change in container materials cited in "Cattle Call", Hawaii Ocean Industry and Shipping News, February 1999.

Hawaii and Maui, the process of shipping live cattle to destination markets by container typically involves shipping the container by barge from a neighbor island to Matson's facility at the port of Honolulu on Sand Island, transferring the animals to and from a temporary holding station, and reloading the container onto a Matson ocean vessel for shipment to a West Coast port. The need for transshipment adds significantly to the expense—and the risk of product damage or loss—faced by Hawaii's cattle shippers, ranging from difficulties associated with accommodating live animals at the port of Honolulu, to problems associated with enforcing proper handling practices for live cargo by dockworkers.

Unlike cattle that are being shipped on a dedicated livestock ship, cattle that have been shipped in ocean containers via barge from neighbor islands usually require a 1- or 2-day rest period before being shipped to destination ports. As there is no adequate place on or near the Sand Island facility to hold the livestock overnight, cattle shippers are required to pay drayage fees to have their animals hauled back and forth from a temporary holding station in Halawa, about 5 miles away from Sand Island, adding further to their overall transportation costs. Beyond the added expense of drayage, cattle shippers are faced with the difficulty of caring properly for their animals in a temporary holding station that was originally designed to handle veterinary quarantine of household pets, not commercial shipment of live animals. Both transportation service providers and cattle shippers observe that the Halawa holding station is inadequate to handle the volume of animals that moves through the facility, leading to problems such as excessive heat exposure (because of insufficient access to shade) and sewage overflow.

Adding to the potential for in-transit product damage and loss is the fact that cattle containers are not always handled by port personnel in a manner that promotes animal health and welfare, an issue that cattle producers fear may increasingly attract the attention of animal rights activists. Despite good faith efforts between Matson Navigation Company and various cattle shippers to encourage special handling procedures for live cattle, industry representatives observe that such preferred handling methods are not always followed uniformly in each work area, making it difficult to keep animals in good condition during their temporary stopover in Oahu. Listed below are some of the specific problems that cattle shippers have experienced with container handling practices at the port of Honolulu:

- While a “last on, first off” policy is supposed to be followed when loading and unloading cattle containers, industry members report that *“it doesn't always work that way,”* adding to the stress experienced by the cattle, and occasionally resulting in animal deaths from asphyxiation.
- The movement of containers can be impeded at times by the reluctance of longshoremen to handle “unpleasant” cargo.
- Longshoremen are not always concerned about placing cattle containers near access to plumbing, which makes it difficult to keep the animals adequately hydrated when the container sits on the dock.
- Instead of lifting cattle containers on straddlers, which leave 2 to 3 feet between each container, containers are now routinely placed on wheeled truck chassis and parked flush against each other, leaving less air circulation around the container and often making it difficult to get water to the animals. While agreements between cattle shippers and shipping lines call for the insertion of flat racks between cattle containers to ensure proper air circulation, this procedure is not always followed.
- The placement of cattle containers in a ship's hold is often said to be dictated by convenience or efficiency, rather than by more appropriate factors, such as expected air circulation or weather conditions. Placing a container on one side of a ship or another, based on expected wind direction, can dramatically affect an animal's ability to comfortably withstand a long-distance ocean voyage.

The logistical challenges of transferring and handling live cattle at the port of Honolulu are said to have a significant impact on the overall transportation costs faced by industry members. Several representatives of the cattle industry interviewed indicated that the ability to eliminate transshipments through the port of

Honolulu in favor of direct shipments to mainland markets could subtract as much 1-1.5 cents from every 25 cents of transport costs per animal pound for containerized cattle shipments. Moreover, these cost figures do not include the additional expenses involved in hauling the animals back and forth to the Halawa quarantine facility and boarding/caring for the animals overnight. Also, it should be noted that the estimated financial burden of transshipments does not reflect any potential decline in animal market value at destination resulting from poor handling practices and increased stress.

Use of air transport by cattle shippers remains sporadic because of service availability and expense.

While air transportation is technically available as a transportation alternative for cattle shippers, weight restrictions, cost, and limited service availability from neighbor islands tend to restrict its widespread use by industry members. At present, the only air carrier that routinely sends live cattle to mainland markets is a dedicated air freight carrier, Pacific Air Cargo, which only services the Honolulu-Los Angeles route. Cattle that are being moved by air to mainland markets by Pacific Air Cargo are typically sent by barge to Honolulu and transported to the Halawa holding facility, where they are held between 1 and 3 days before the scheduled flight date.⁶⁵ While the use of air transport for the last leg of the journey tends to keep cattle in healthier condition than other modes of transport, and dramatically reduces overall transit time (a Honolulu-Los Angeles flight takes 5-6 hours, compared to 5 days for a typical ocean shipment between Honolulu and Long Beach), the cost of using a barge/air combination to move live cattle to mainland markets is predictably more expensive than relying on ocean transport for the entire distribution process. Consequently, air transport tends to be used judiciously by the cattle industry and is primarily used to ship animals during period of low inventory/peak pricing, or to ship particularly valuable animals (such as breeding bulls).

Recent attempts to introduce more direct air cargo service from neighbor islands to the mainland do not appear to have provided new economically feasible transportation options for the cattle industry. In March 2003, Federal Express introduced a new direct flight service between Hilo and Los Angeles 5 days per week and has expressed interest in carrying live cattle cargo. However, Federal Express is currently limited to handling 30-35,000 pounds per shipment, below the minimum volume required to fill containers at destination and enable industry members to obtain favorable truck transportation rates (estimated by local cattle industry representatives to be about 50,000 pounds).

Recommendations/Potential Action Steps:

- **Evaluate feasibility of providing direct service for cattle shipments between neighbor island and mainland ports.** Direct service would alleviate the need to transship cattle containers through Oahu, and thereby reduce transport costs and transit times. Access to direct service would be especially important during seasonal demand peaks (fall and winter).
- **Consider adjusting barge schedules to reduce existing transit times and transportation costs between neighbor island and mainland markets.** At present, barge and vessel sailing schedules often require that producers on the Big Island of Hawaii truck their cattle 75 miles to Hilo for shipment, rather than to Kawaihae harbor, which is less than 10 miles from major cattle producing regions.
- **Investigate what barriers, if any, exist to developing an appropriate shaded holding area for livestock at the port of Honolulu.** To the extent that transshipment of cattle containers through Oahu remains an important distribution channel for Hawaii's cattle industry, improvements in and

⁶⁵ "Guidelines for Interstate Shipment of Cattle," Animal Welfare Committee and Transportation Committee, Hawaii Cattlemen's Council, available from www.hicattle.org/shipping.htm.

greater proximity to cattle holding facilities for cattle could be expected to reduce overall transportation costs and maintain animals in better condition.

- **Arrange for greater oversight/enforcement of handling measures for cattle containers at the port of Honolulu.** This might include creating a mechanism that would allow cattle industry representatives to have greater input in the positioning of cattle containers on sailing vessels.
- **Promote continued expansion of cooperative shipping to reduce financial burden on individual cattle shippers.** One highly successful model of cooperative shipping involves the Hawaii Cattle Producers Cooperative Association (HCPA), an organization that currently helps its 44 members reduce their transportation costs to the mainland through cooperative shipping, for volumes ranging from 11,000-15,000 head per year.
- **Consider options for defraying the cost of specialized containers/transportation equipment required by the cattle industry.**

Bees

Bee shippers are disadvantaged by changes in the air transportation industry.

The entire U.S. live bee industry was impacted when the U.S. Postal Service contracted with Federal Express for priority mail services. FedEx will not carry queens or package bees, so using express mail service became Hawaii bee shippers' only U.S. Postal Service option—and at twice the price.⁶⁶ In response, a variety of efforts are underway nationwide to encourage FedEx to handle bees and similar cargo, such as live baby chicks. Unlike mainland bee producers, Hawaii shippers transporting bees to other States do not have the option of using truck transportation.

Recently, Air Canada mandated that air cargo would not be permitted on the daily passenger flight from Honolulu to Vancouver. This flight is imperative to the bee industry for delivering to markets in Canada on weekdays. Shortly after this announcement, Air Canada made an exception for bees, but with a 28-percent rate hike. If shippers from the mainland were faced with a similar change in service, trucking to another airport or access to other flights to Canada would be an option. Hawaii shippers are dependent on only one airport with limited flights to Canada.

Fast, reliable service is becoming less available.

The bee industry in Hawaii reports that nearly 15 percent of all deliveries arrive late. Further, as of April 2002, 2-day deliveries for shipments beginning on Fridays are no longer guaranteed from Hawaii. Though UPS offers a more reliable service, it does not accept liability for poorly handled cargo. One shipper reported an actual case where UPS mishandled their shipment, killing more than 600 queen bees at a loss of \$5,500 and the shipping fees.

Recommendations/Potential Action Steps:

- **Assist industry in joining existing national efforts.** Hawaii bee shippers and key local governmental representatives should join existing efforts in the bee and similar industries encouraging FedEx to take animals. For example, Bird Shippers of America has been successful in getting the attention of members of Congress and managers in U.S. Postal Service, though the issue

⁶⁶ \$14.05 for priority mail and \$34.75 for express service; quote from bee shipper attending Hilo listening session.

has not yet been resolved.⁶⁷ In the past, Bird Shippers of America has offered to work with shippers of other live animals who have similar problems with the U.S. Postal Service and FedEx.

⁶⁷ <http://www.birdshippers.org/>.

Appendix B. Food and Agricultural Ocean Shipping Between Hawaii and Mainland

Commodities Shipped from Hawaii to U.S. Mainland & Canada

Commodity	3 Year Average 1999-2001	Market Share
Sugars, beet or cane	274,012	48%
Fruit, preserved & fruit prepared	136,850	24%
Molasses	108,649	19%
Other food preparations	10,045	2%
Live animals	8,567	2%
Other	30,249	5%
Total	568,372	100%

Commodities Shipped from the U.S. Mainland & Canada to Hawaii

Commodity	3 Year Average 1999-2001	Market Share
Other food preparations	186,971	22%
Alcoholic beverages	137,871	16%
Groceries	92,976	11%
Vegetables and mixtures of vegetables	78,741	9%
Meat & edible offal, fresh, chilled or frozen	75,810	9%
Other	274,296	32%
Total	846,665	100%

Shipping Lines Moving Hawaiian Products to Mainland and Canada

Shipping Lines	3 Year Average 1999-2001	Market Share
Matson	562,167	99%
Horizon	4,459	1%
Canadian	1,320	0%
Maritrans	561	0%
Total	568,507	100%

Shipping Lines Moving Cargo from the Mainland and Canada to Hawaii

Shipping Lines	3 Year Average 1999-2001	Market Share
Matson	779,978	92%
Horizon	49,231	6%
Canadian	14,676	2%
Sause Brothers	1,118	0%
Total	845,002	100%

Percent Agricultural Cargo of Total Cargo Shipped Between the Mainland and Hawaii

Year	Percent of Agricultural Cargo
1999	11%
2000	9%
2001	9%

Source: Institute for Water Resources, Navigation Data Center, U.S. Army Corps of Engineers, 1999-2001

Appendix C: Rate Comparisons for Selected Commodities

Pineapple	Base Rate (per 40 ft. refrigerated container)	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Honolulu to Oakland	\$770	5	2094	\$0.36
Oakland to Honolulu	\$4,608	5	2094	\$2.20
Puerto Limon, Costa Rica to Florida	\$2,550	7	4235	\$0.60
Mazatlan, Mexico to Los Angeles	\$2,940*	4	1004	\$2.92

*Rate is for mango fruit

Papaya	Base Rate (per 40 ft. refrigerated container)	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Honolulu to Oakland	\$1,097	5	2094	\$0.52
Oakland to Honolulu	\$4,231*	5	2094	\$2.02
Haina, Dominican Republic to U.S. Mainland	\$2,800	9	1500	\$1.87
Mazatlan, Mexico to Los Angeles	\$2,500	4	1004	\$2.49

*Rate is for citrus fruit

Plants, nursery stock	Base Rate (per 40 ft. container)	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Honolulu to Oakland	\$1,508	5	2094	\$0.72
Oakland to Honolulu	\$5,080	5	2094	\$2.43
Puerto Limon, Costa Rica to Miami	\$2,055*	7	4235	\$0.49
Mazatlan, Mexico to Los Angeles	\$1,365*	4	1004	\$1.36

*Rates are for ornamental plants

Coffee, green in sacks	Base Rate (per 40 ft. container)	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Honolulu to Oakland	\$858	5	2094	\$0.41
Oakland to Honolulu	\$3,152	5	2094	\$1.51
Puerto Limon, Costa Rica to Miami	\$1,490	7	4235	\$0.35
Mazatlan, Mexico to Los Angeles	\$1,365	4	1004	\$1.36

Appendix C (continued): Rate Comparisons for Selected Commodities

Cattle	Base Rate (per "cowtainer")	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Honolulu to Los Angeles	\$2,242	5	2230	\$1.00
Honolulu to Oakland	\$1,681	5	2094	\$0.80
Oakland to Honolulu	\$4,959	5	2094	\$2.37

Glass bottles, empty	Base Rate (per 40 ft. container)	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Oakland to Honolulu	\$3,339	5	2094	\$1.59
Puerto Limon, Costa Rica to Miami	\$1,000	7	4235	\$4.24

Ocean/Truck/Rail Domestic Movements

Feed grains	Base Rate	Transit Time (days)	Distance (miles)	Rate (\$/mile)
Oakland to Honolulu (ocean)	\$273 \$0.35/bushel	5	2094	\$0.13
Des Moines, IA to Dalhart, TX (rail)	\$2,481* \$0.69/bushel	8	723	\$3.41
Southern Plains (truck)	\$270** \$0.30/bushel		100	\$2.70

*Rate is a simple average between UP and BNSF's single car rates.

**Rate based on annual average truck rates reported in the Grain Transportation Prospects, www.ams.usda.gov/tmd/prospects.

Sources: Matson Navigation Company, www.matson.com. maritimeChain.com, www.maritimeChain.com. MaerskSealand, www.maersksealand.com. Grain Transportation Prospects, www.ams.usda.gov/tmd/prospects. Union Pacific Railroad, www.uprr.com. Burlington Northern Santa Fe Railroad, www.bnsf.com.

Appendix C (continued): Rate Comparisons for Selected Commodities

Inbound Versus Outbound Shipments of Products Between Hawaii and the Mainland

Inbound

Honolulu to Oakland	Base Rate (per 40 ft. container)	Transit Times (days)	Distance (miles)	Rate (\$/mile)
Pineapple	\$770	5	2094	\$0.36
Papaya	\$1,097	5	2094	\$0.52
Plants, Nursery Stock	\$1,508	5	2094	\$0.72
Coffee	\$858	5	2094	\$0.41
Livestock	\$1,681	5	2230	\$0.75

Outbound

Oakland to Honolulu	Base Rate (per 40 ft. container)	Transit Times (days)	Distance (miles)	Rate (\$/mile)
Pineapple	\$4,608	5	2094	\$2.20
Papaya	\$4,231*	5	2094	\$2.02
Plants, Nursery Stock	\$5,080	5	2094	\$2.43
Coffee	\$2,522	5	2094	\$1.20
Livestock	\$4,959	5	2094	\$2.37

*Rate is for citrus fruit

Sample Air Transportation Rates for Agricultural Commodities from Hawaii

Nursery products moving from Hawaii to the mainland (sample rates):

- Kona to California \$750 per M1 or A2 Container
- Kona to California \$525 for 3,150 pounds
- Hilo to Los Angeles \$0.19 per pound (FedEx)
- Per gallon rate of \$5.25

Papaya moving from Hawaii to the mainland:

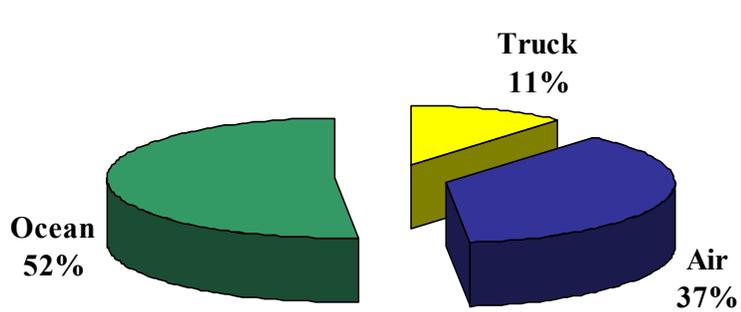
- \$0.12 per pound

Movement of agricultural cargo on the mainland can vary between \$0.42 per pound and \$0.68 per pound depending on product and carrier.

Sources: Matson Navigation Company, www.matson.com, maritimeChain.com, www.maritimeChain.com, MaerskSealand, www.maersksealand.com.

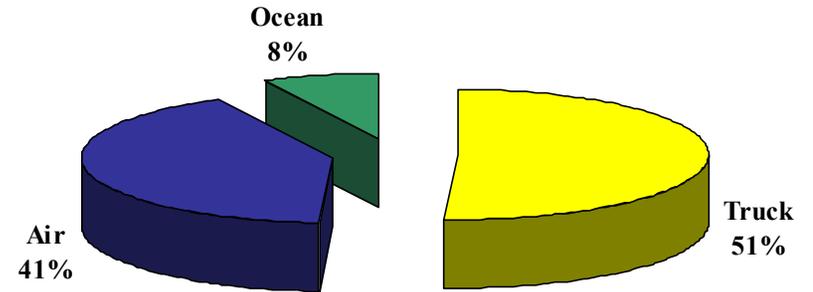
Appendix D: Transportation Modal Share for Select Hawaii Commodities

Modal Share of Pineapples Moved Domestically, 2002



Source: Market News Annual Summaries, 2002, Agricultural Marketing Service, Fruit and Vegetable Programs, Market News.

Modal Share of Papayas Moved Domestically, 2002



Source: Market News Annual Summaries, 2002, Agricultural Marketing Service, Fruit and Vegetable Programs, Market News.

Appendix E: Schedule of Interviews and Listening Sessions

May 2, 2003

Matson Navigation Company, Inc.

Vic Angoco, Manager, Container Operations

Gary Y. Nakamatsu, Assistant Vice President

R.S. Bliss, Vice President

Russell Chin, Manager, Big Island Operations

Young Brothers, Limited

Roger Olegario, Manager, Neighbor Island Operations

Henry Idehara, Vice President & General Manager

Denise Matsubara, Manager, Customer Service

Horizon Lines

Michael Ohashi, General Sales Manager – Hawaii

Charles Battiato, Strategic Account Director

Commodity Forwarders Incorporated

Norma Acob, Managing Director/Pacific Region

Hawaii Air Cargo

Brian Suzuki, President

Transpacific Associates, Inc.

Fred Spencer, Director of Sales

State of Hawaii Department of Agriculture

Matthew Loke, Ph.D., Administrator, Agricultural Development Division

Donald Martin, State Agricultural Statistician

Sandra Lee Kunimoto, Chairperson, Board of Agriculture

May 5, 2003

USDA Listening Session I, Honolulu

15 participants representing Islands of Oahu, Maui, and Kauai

Commodities represented: cattle, pineapple, sugar, shrimp, processed food products, and coffee

Pacific Air Cargo

Thomas Ingram, Station Manager, Honolulu

Continental Airlines

Lance Hoopai, Regional Sales Manager, Cargo

Dan Owen, Manager, Airport Services, Cargo

Delta Air Lines, Inc.

Jimmy Koshino, Account Manager, Cargo Sales

Barry Hanakahi, Supervisor Airport Services

Rod Oya, Manager, Air Logistics

American Airlines

Maria Zitney, Customer Service Manager

Libby Lee-Hobbs, Manager, Cargo Services and Sales

United Airlines(Cargo)

Boniface C.M. Leong, Supervisor, HNLFF

May 6-7, 2003

Participation at the Eighth Annual Hawaii MIDPAC Horticultural Expo, sponsored by Hawaii Export Nursery Association (HENA); Visited local ranch operations on the Big Island of Hawaii and livestock shipping facility at Kawaihae Harbor

May 8, 2003

USDA Listening Session II, Hilo

15 participants, representing Islands of Hawaii and Maui

Commodities represented: cattle, sugar, orchids, plants, bees, aquaculture