Market Outlook Report

FRESH PAPAYAS

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EXECUTIVE SUMMARY

Papayas have been gaining popularity, but Hawaii's competitive position compared to other papaya producing countries has been weakening. The objective of this outlook report is to provide information to Hawaii farmers on the worldwide papaya market and the factors that are important to consumers in several export markets.

The local market consists of Hawaiian papayas. Production has been increasing but production value and farmgate prices have been falling. Roughly 50% of the papayas produced in Hawaii are exported to the U.S. Mainland and overseas.

There are several export markets that Hawaii can focus on: U.S. Mainland, Japan and Canada. The U.S. is the largest importer of papayas and imports have been increasing over the past 10 years. Factors that affect demand in this market include income, health, convenience, ethnicity, and quality.

Japan is another market that Hawaii currently serves. Papaya imports have fluctuated but overall have remained fairly stable. Prices, however, have been falling. Additionally, Hawaii has been losing market share to the Philippines, probably due to lower prices and a greater supply of non-GMO papayas. Demand factors in this market include age, time of year, and quality.

The Canadian market is a relatively newer market. Previously, Canada only accepted GMO free papayas, but due to recent legislation, that has been reversed. The country has experienced a steady state in papaya imports, but it is unclear how this change in legislation will impact papaya imports. However, Hawaii production is expected to increase due to this development.

Hawaii competes with several countries in the papaya market. Mexico, Brazil, and Belize are the state's main competitors. Other countries making a presence are the Philippines and Jamaica. Hawaii produces high quality papayas and therefore, they have a higher price. Yet, the state has a smaller available supply than other countries. Furthermore, transportation and packaging are important issues in exporting the product because these factors affect quality and price.

In order for Hawaii to increase its presence in the marketplace, the following conclusions have been reached:

- Targeting those areas in the U.S. that are concerned with health, have high Asian, Hispanic and Caribbean populations, and have the highest per capita income may yield higher consumption.
- Educating the public about GMO papayas and irradiation would help lift negative attitudes, which could also stimulate demand.

- Product displays providing information on the product and recipe suggestions is important. Also, taste testing would be helpful as a tool for persuasion.

- Focusing on the quality factor could help to drive demand in the Japanese market. This seems to be the most important aspect to Japanese consumers when selecting produce.

- Hawaii farmers who produce organic or GMO-free papayas may want to sell their products in natural or health food stores.

- Hawaii farmers and suppliers should utilize a seal of quality to inform consumers about the product’s origin.

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Introduction

Papayas have become one of the many tropical fruits that have gained widespread popularity over the past few years, and Hawaii, although well known for their papayas, has been fading out of the limelight as other papaya producing countries improve their position in the marketplace. Outbreaks of the papaya ringspot virus (PRSV) have been affecting production quantities. To combat this problem, growers have turned to producing GMO (Genetically Modified Organism) papayas that are resistant to PRSV in order to restore production levels. However, this has resulted in some buyers turning away from Hawaiian papayas because they are unwilling to purchase GMO products and non-GMO quantities are in limited supply. Furthermore, having the highest prices for the commodity aggravates Hawaii's problem.

There are several objectives of this market outlook report:

1. To provide small farmers with information on the worldwide papaya market.
2. To assist small farmers in discovering new export markets and/or analyzing existing export markets by identifying the demand factors for papayas in those markets.

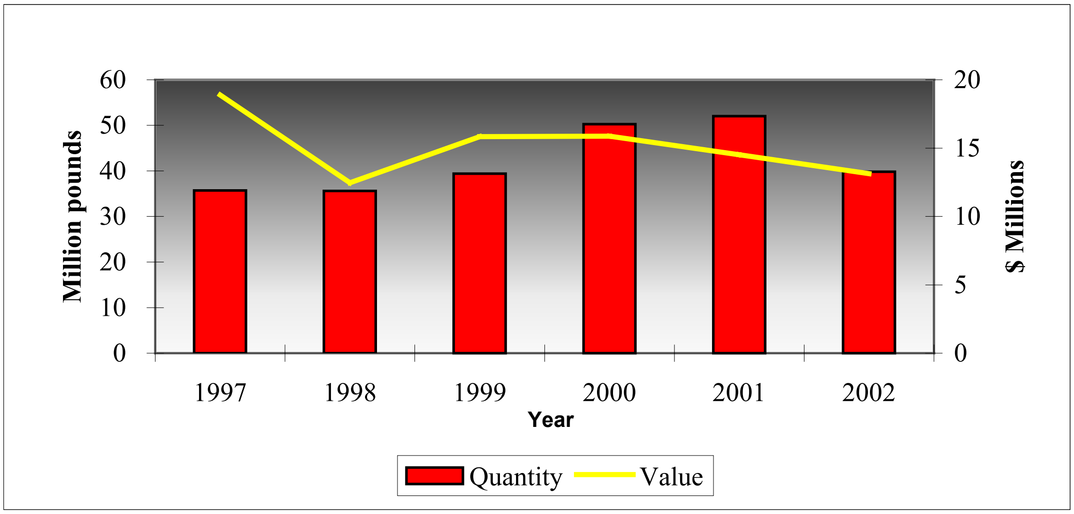
Local Production & Market

The local market for papayas consists of predominantly Hawaii grown papayas. Although there have been some inshipments of papayas, the amount imported is negligible. Production over the past six years has been rising, with the exception of 2002, but production value and prices have been falling (Figure 1 and 2). The decline in production in 2002 was due to a combination of fruit scarring, fungal disease and slower fruit maturation as a result of adverse weather. In addition, the Papaya Administrative Committee (PAC) disbanded in October 2002. Formed in 1971 as a result of a USDA marketing order, this entity was responsible for developing the papaya market, conducting product and market research, and advertising. The Hawaii Papaya Industry Association is planning on taking over those duties that PAC once handled.

Hawaii has 100% self-sufficiency in the production of papayas. Currently, about 50% of the amount of papayas produced in Hawaii is exported to either the U.S mainland or to foreign countries. Papaya production in the islands is expected to rise due to the opening up of Canada to GMO papayas.

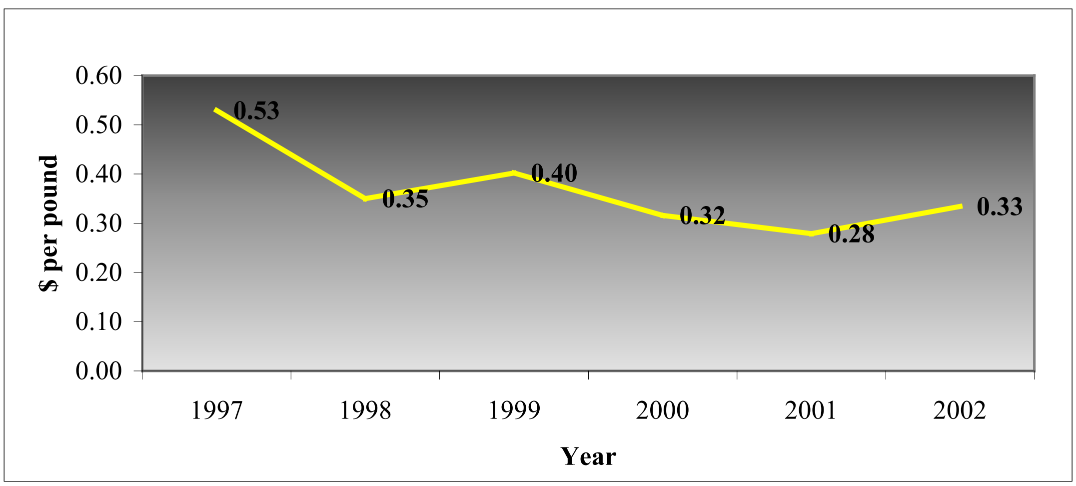
Hawaii has greater export potential than currently realized. The tropical fruit market is growing at a rapid pace and Hawaii has the ability to capitalize on this increase. Hawaii produces a premium product compared to other exporters. This in turn, should allow producers to have an edge in the market. However, this is dependent on the market in which the product is selling because market forces determine the quantity demanded and price.

Figure 1: Hawaii Papaya Production Quantity and Value, 1997-2002



Source: HASS, Hawaii Department of Agriculture.

Figure 2: Average Hawaii Farmgate Price for Papayas, 1997-2002



Source: HASS, Hawaii Department of Agriculture.

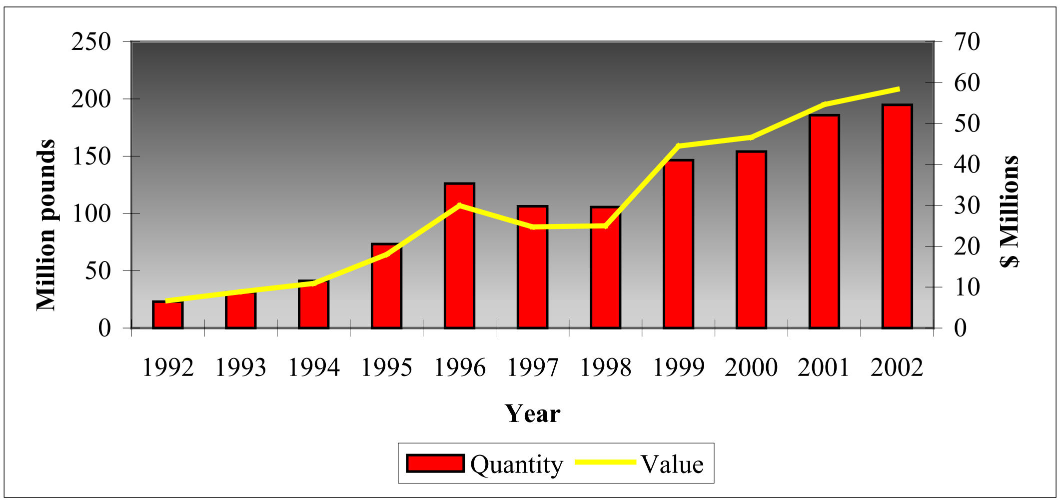
Potential Demand and Price Trends of Export Markets

There are several potential markets for papayas. Besides the U.S mainland, foreign countries such as Japan, Canada, and the European Union (E.U.), are areas where papayas have growth prospects. The U.S., Japan, and E.U. make up more than 75% of global tropical fruit imports. Even though the E.U. is one of the largest importers of tropical fruits, its distance from Hawaii creates a problem and therefore, will not be considered in this assessment. Growing consumer awareness of tropical fruits, rising per capita GDP, and immigrant population growth are several explanations for the increased consumption of papayas. However, there are also country/area specific factors that have contributed to the growth in papaya consumption.

United States

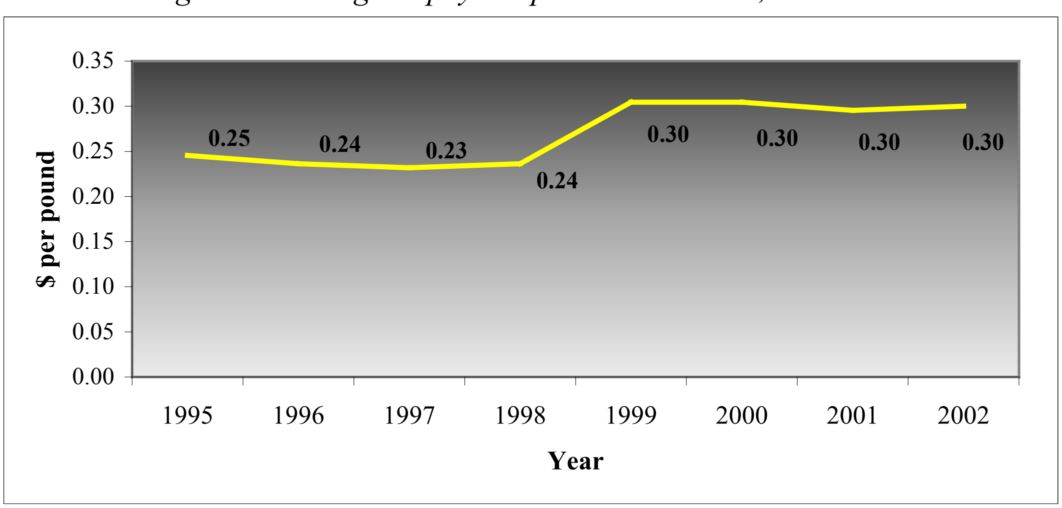
The U.S. is the largest importer of papayas and this trend shows no signs of slowing. Over the past 11 years, papaya imports have been increasing, but the average papaya import price has only increased slightly (Figure 3 and 4). During the same period, per capita consumption of the fruit has also increased. The breakdown of papaya imports by district in the U.S. for 2002 is shown in Figure 5. It is important to note that this graph can only provide information about where papaya imports are initially received. Once the product is shipped into the U.S., it is transported to other cities and states.

Figure 3: U.S. Papaya Imports by Quantity and Value, 1992-2002



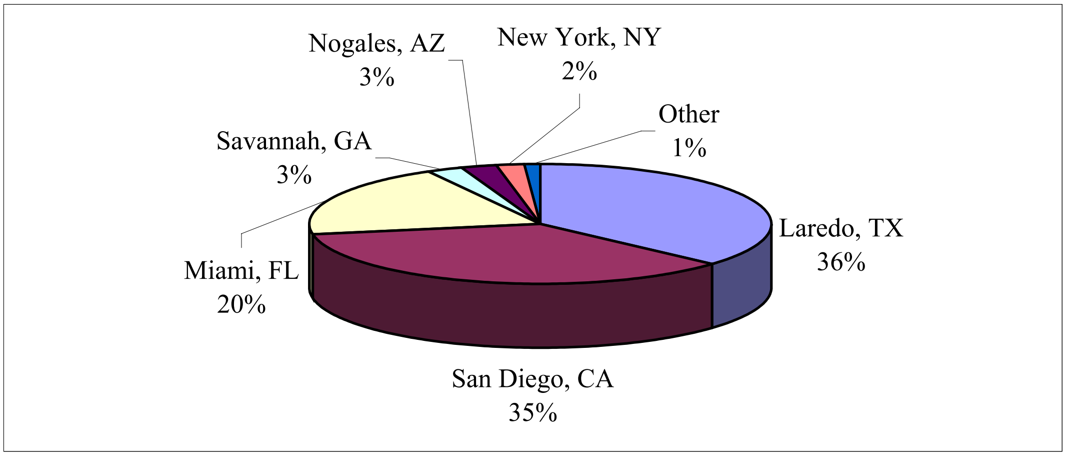
Source: USDA/Economic Research Service

Figure 4: Average Papaya Import Price in U.S., 1995-2002



Source: U.S. Dept. of Commerce, Bureau of the Census. Presented by: World Trade Atlas.

Figure 5: U.S. Papaya Imports by District, 2002



Source: U.S. Dept. of Commerce, Bureau of the Census. Presented by: World Trade Atlas.

An elasticity study by the Food and Agriculture Organization of the United Nations (FAO) revealed that the price elasticity of papayas in the U.S. is very low. This indicates that there would be a very small change in the quantity demanded with a change in price.

Other factors affecting demand include:

1. Income: In the fruit market, consumption is positively correlated with income. Middle aged and older Americans generally have the highest incomes. Yet, papayas have also gained increasing popularity with the high-income younger generation. Thus, the highest per capita consumption occurs between the ages of 25 to 55.

2. Health: Consumer health consciousness is rising. If a fruit is known to have beneficial effects on one's health, demand for that fruit has been known to rise. However, this works only up to a certain point.

3. Convenience: With many Americans concerned about time, product convenience plays an important role in the consumption decision. This has significant implications in the produce market. It is for this reason that most Americans consume processed produce. Convenience is also important in the consumption of fresh fruit. The most popular fruits in the U.S. are usually the ones that are the easiest to eat.

4. Ethnicity: Tropical fruit consumption has increased due in part to the growing immigrant population in the U.S. (Hispanics, Caribbeans, and Asians). This part of the population is familiar with tropical fruits, unlike most of the American population, and is willing to pay higher prices for quality fruit.

5. Packaging and Distribution: As packaging and shipping technology improved, the supply of papayas increased. Additionally, greater distribution enabled suppliers to increase the availability of papayas to consumers. Advances in these two areas have led to fruit ending up at the grocery store in better condition.

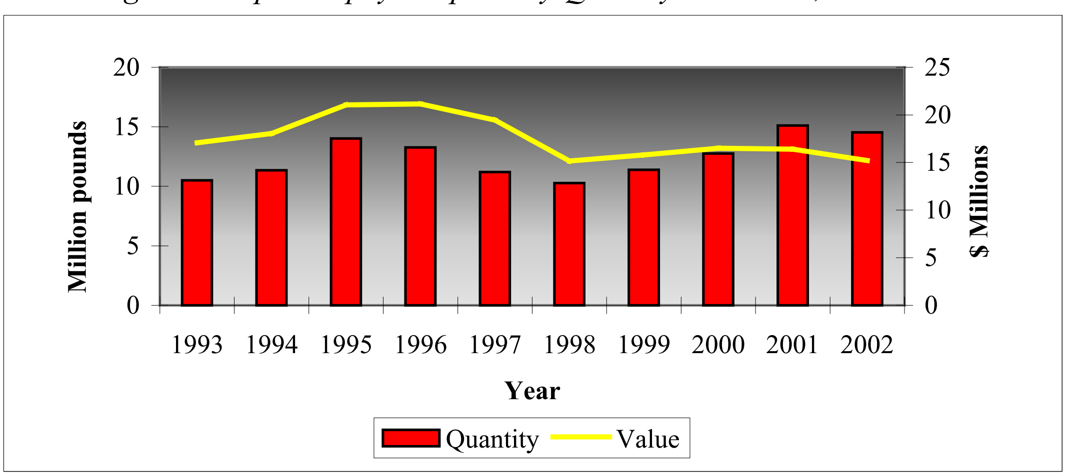
6. Quality: Consumers are concerned with the appearance and taste of produce. In addition, some consumers pay attention to how the fruit is grown and treated. There are those who would rather not purchase GMO or irradiated fruits because they lack trust in those products, but they are a small group compared to the entire population.

Japan

Another market that Hawaii is familiar with is Japan. The Japanese papaya market is in the mature stage, which is characterized by steady sales or increasing sales at a decreasing rate and declining profit margins. One major papaya importer has more than 50% of the market in Japan. This makes it difficult for others to compete. Moreover, the costs to market new products outweigh the benefits that can be gained when taking market size into consideration.

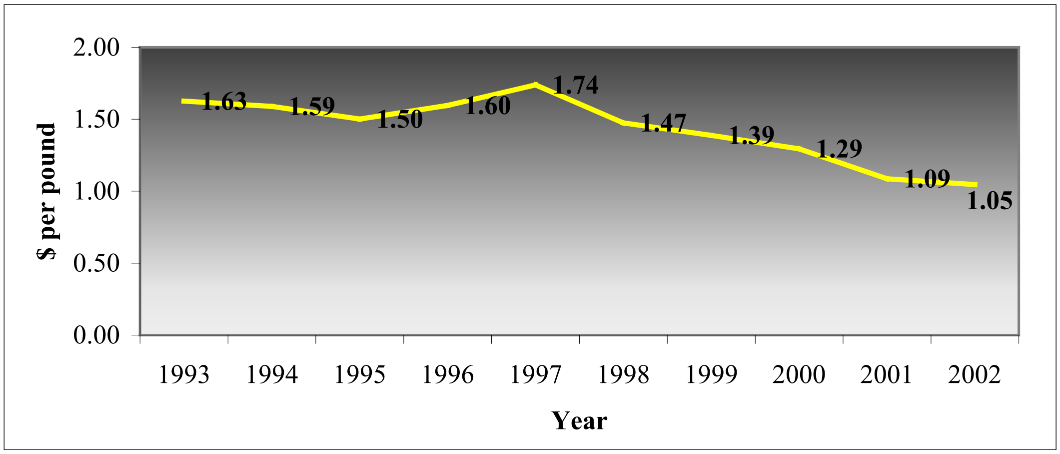
Over the past 10 years Japan's papaya imports have remained relatively stable, in spite of fluctuations (Figure 6). During that same period, per capita consumption of papayas remained steady. Import value followed the same trend as import quantities, but prices have been falling (Figure 7). This can be attributed to the rising amount of imports from the Philippines, whose papaya prices are lower.

Figure 6: Japan Papaya Imports by Quantity and Value, 1993-2002



Source: Ministry of Finance, Japan Customs.

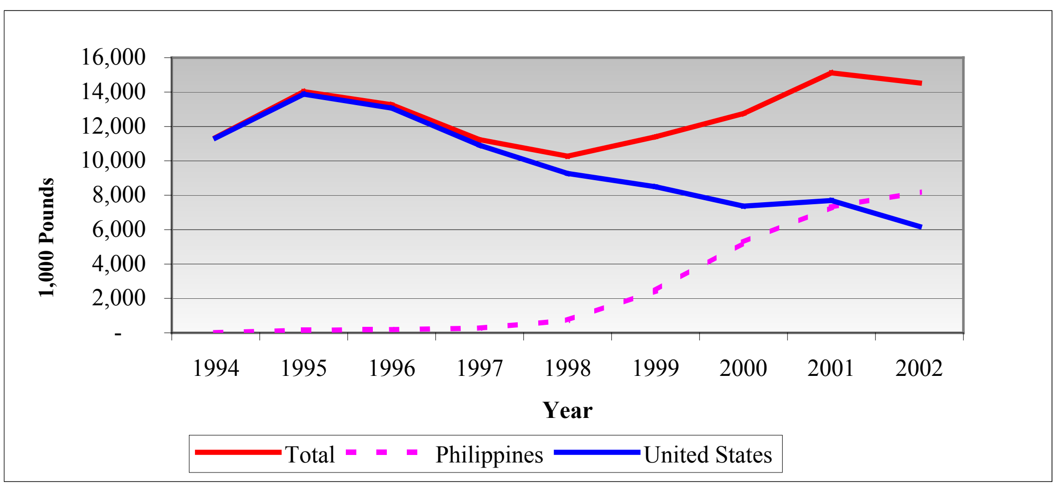
Figure 7: Average Papaya Import Price in Japan, 1993-2002



Source: Ministry of Finance, Japan Customs.

Hawaii has been losing market share to the Philippines (Figure 8). In 2002, the Philippines had 56% of the Japanese papaya market, while Hawaii had 43%. Possible reasons for the decline in Hawaii's market share are distance from the market, price, and a limited supply of non-GMO papayas. Papayas from the Philippines are roughly half the price of Hawaiian papayas, and the distance between the two countries is shorter, meaning less damage to the fruit. The U.S. government is making efforts to persuade the Japanese government to allow the importation of GMO-papayas. As of May 2003, the Japan Department of Agriculture has approved this measure, but Japan's Ministry of Health, Labour & Welfare is still examining the issue.

Figure 8: Japan Papaya Imports by Origin, 1994-2002



Source: Ministry of Finance, Japan Customs.

In Japan, fruits are eaten as a snack food or given as gifts. They are traditionally cut up in bite size pieces and eaten after a meal. According to the FAO study, the price elasticity for papayas indicates that consumers are highly price sensitive. This is in line with Japanese behavior, since exotic fruits, like papayas, are deemed luxury goods. However, the cross price effects are low, suggesting that papayas have a limited number of substitutes.

Other factors affecting demand include:

1. Age: Younger generations in Japan consume the least amount of fruit. Sixty percent of those who consume tropical fruits are between the ages 35-39 and 55-59. The other 40% are between the ages of 25-29 and 45-49.

2. Time of year: Consumption of tropical fruits is highest during holidays and gift giving seasons. Gift giving seasons are in the months of July, August, December and January. During this time period, Japanese consumers are willing to pay top dollars for high quality fruit.

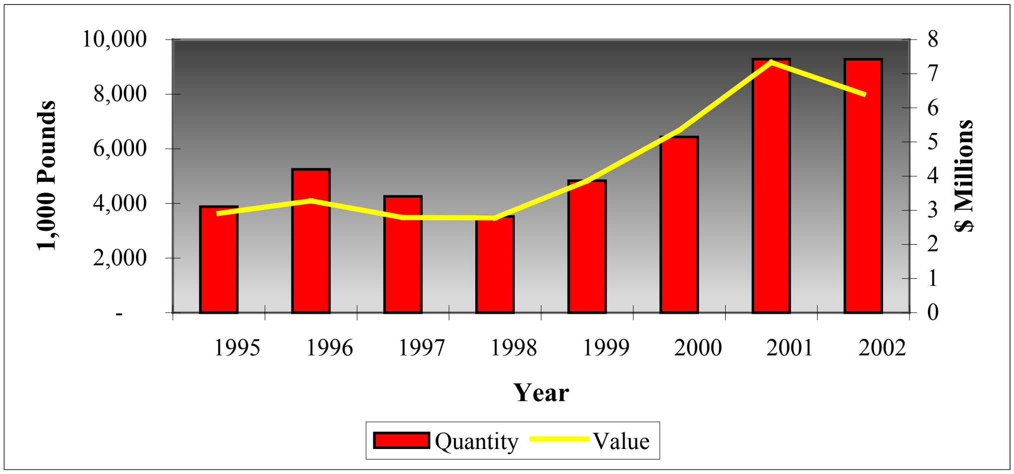
3. Quality: The Japanese like fruit that is blemish free, uniform in size, and free of pesticides and wax residue. In addition, if consumers know the origin of the fruit, are familiar with a particular grower, and are able to associate the fruit with the grower's logo or picture, they are more likely to purchase that "brand" over another.

Canada

Hawaii also exports papayas to the Canadian market. Canada imports fewer papayas than Japan, but the market is in the growth stage. Total papaya imports and per-capita papaya imports have remained steady over the past 10 years. In January 2003, the Canadian government approved the importation of GMO papayas, but it is unclear if this recent legislation will generate a sudden boom in the market. An overwhelming majority of Canadians would like to see labeling of GMO or GMO-free foods. However, several of the country's largest supermarkets prohibit suppliers from labeling their foods as GMO-free because they detract consumers from purchasing products without these labels.

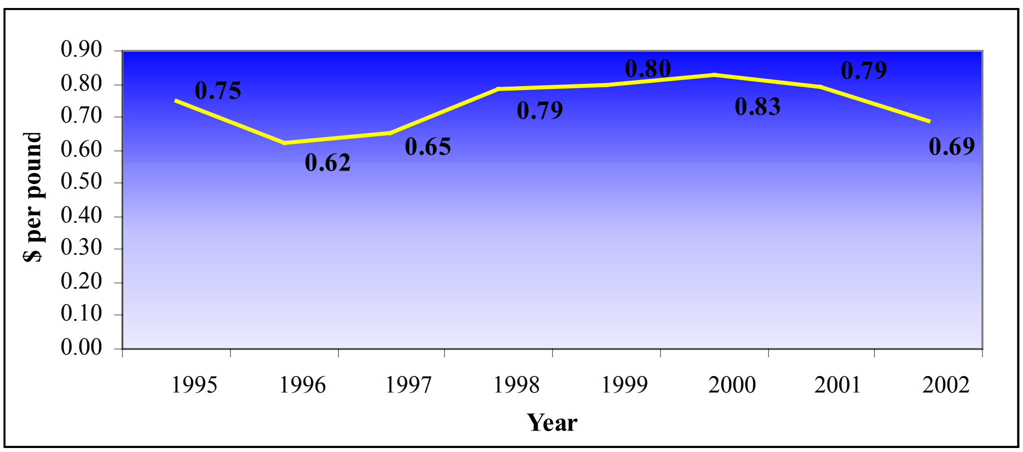
Although U.S. papaya exports to Canada and papaya prices have increased over the past 8 years, U.S. market share has declined over the past 10 years (Figures 9, 10 and 11). Brazil has been gaining market share in the Canadian papaya market and has a market share that is slightly less than that of the U.S. U.S. market share has been hovering around 40% for the past 5 years.

Figure 9: U.S. Papaya Exports to Canada by Quantity and Value, 1995-2002



Source: U.S. Dept. of Commerce, Bureau of the Census. Presented by: World Trade Atlas.

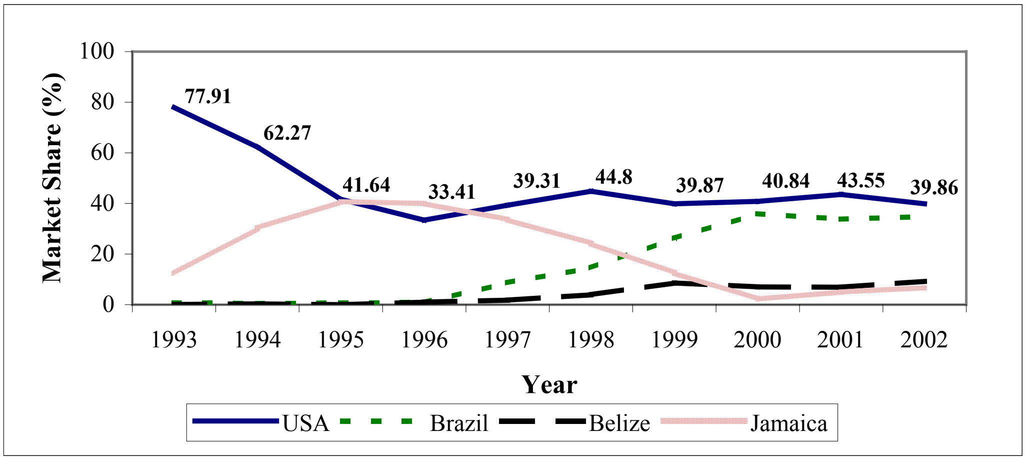
Figure 10: Average Papaya Import Price in Canada, 1995-2002



Source: U.S. Dept. of Commerce, Bureau of the Census. Presented by: World Trade Atlas.

In this market, Canadians prefer Solo Sunrise and other red-flesh papaya varieties. However, there is a market for yellow-flesh papayas. Mexican papayas, Maradols, are also marketed, but they are typically sold in ethnic markets. Price, quality and supply are also important factors in Canada. Canadians desire high-quality papayas, and they are willing to pay slightly more for such fruits. In addition, the ability to consistently provide a supply of quality papayas is one of the keys to success in this market.

Figure 11: Percent Market Share of Canadian Papaya Imports, 1993-2002

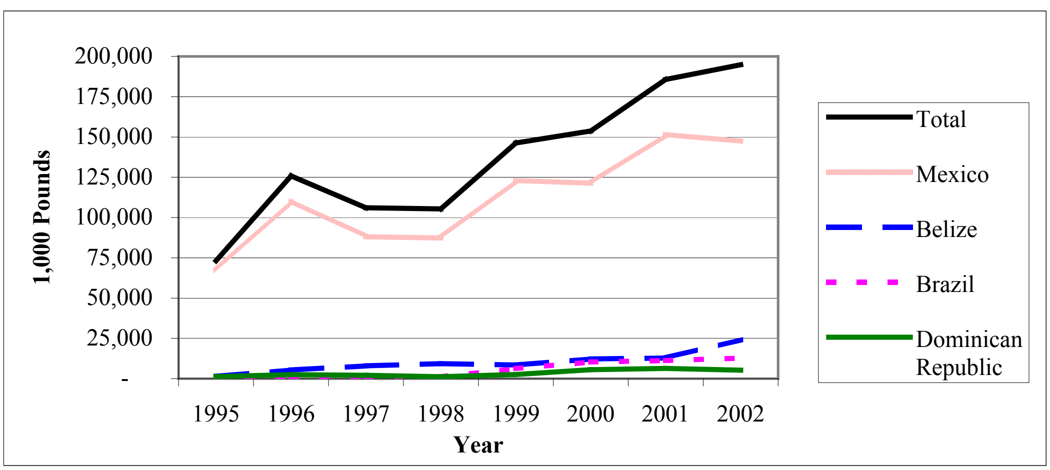


Source: Statistics Canada

Competitive State

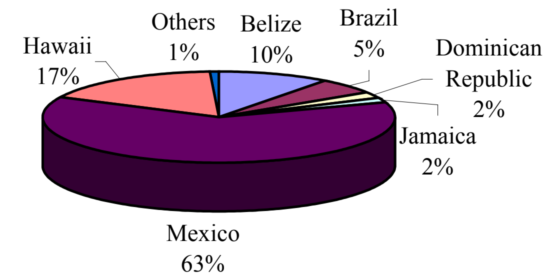
It is usually the case that one supplier dominates each market. For example, in the U.S. it is Mexico and in Japan, until recently, Hawaii. Figures 9 and 10 depict the breakdown of U.S. papaya imports.

Figure 12: U.S. Papaya Imports by Origin, 1995-2002



Source: U.S. Dept. of Commerce, Bureau of the Census. Presented by: World Trade Atlas.

Figure 13: U.S. Papaya Imports by Origin, 2002



Source: Foreign Trade Division, U.S. Census Bureau. Presented by: Office of Trade and Economic Analysis (OTEA), International Trade Administration, U.S. Department of Commerce.

Hawaii is competing with other countries for market share in the U.S. and abroad, and consumers are faced with an array of choices in the papaya market. They have many types to choose from and those types can be broken down into different varieties. Furthermore, depending on the consumer's preferences, they can select papayas based on how they were grown and/or treated (i.e organic, genetically modified, irradiated…etc). These characteristics are important when looking at which markets to penetrate because certain markets may prefer a specific type. Hawaii's main competitors are Mexico, Brazil and Belize in the U.S. and the Philippines in Japan.

Competitive products

Mexico: Mexico is the largest exporter of papayas into the U.S. market. However, it is viewed as an indirect competitor with Hawaii in the papaya market because the characteristics of Mexican papayas are completely different than Hawaiian papayas. Mexican papayas, called Maradols, are very large papayas that can grow up to 10 pounds. Hence, Maradols are viewed as substitutes for the Hawaiian Solo papaya. The skin of the fruit is green and does not turn very yellow when ripe. They can be either red or yellow fleshed and are not as sweet as Hawaiian papayas. Maradols are usually the least expensive of all papayas. Moreover, because supply is not an issue, additional quantities can be provided without problems. Transportation and shipment of the product is not an important issue.

Brazil: Brazil is the world's largest producer of papayas. It is the number one supplier to Europe and the third largest supplier to the U.S., despite its problems with PRSV. Brazil supplies Solo papayas and Formosas, which are similar to Maradols. The Solo papaya is pear shaped, about six inches in length, and weighs between one-and-a-half to two pounds. It is generally very sweet. The skin of the fruit is green and turns yellow when ripe. Solo papayas can be red or yellow fleshed. The varieties that Brazil produces include: Sunrise, Golden and Strawberry. As with the case of Mexico, supply is not an issue for Brazilian exporters. However, transportation and shipment can be a problem depending on the product's destination.

Philippines: The Philippines exports to other Asian countries and is currently the number one exporter to Japan. The country produces several types of papayas: Native, Hawaiian, and Solo. It produces several varieties of the Solo papaya. The Philippines also has problems with PRSV and is working on developing a resistant strain.

Hawaii's Product

Hawaii produces Solo papayas. The different varieties available include: Kapoho, Sunrise, Sunset, Rainbow, and Sunup. Kapoho and Sunrise are non-GMO papayas, while Sunset, Rainbow and Sunup are GMO papayas. GMO papayas were introduced due to the outbreak of PRSV on the islands of Oahu, Maui and Hawaii. Rainbow, Sunset and Sunup papayas are all resistant to PRSV.

Quantity: Hawaiian papayas are available on a year round basis. Product supply is an issue for Hawaii growers, due to low-planted acreage and outbreaks of PRSV, which have been damaging the fruit and trees. This is especially important when looking at non-GMO papayas, since some countries only accepts this type. Furthermore, smaller quantities of non-GMO papayas can limit the number of potential export markets.

Price/Quality: Hawaiian papayas are the most expensive in the marketplace, but they are thought to be of the best quality and accordingly command a premium. Moreover, it is possible for farmers to receive more for non-GMO papayas than GMO papayas. The problem, however, is that international growers can produce non-GMO papayas, which are of lower quality, at a cheaper price. This makes it difficult for Hawaii growers to compete. The quality of the papayas can also be affected depending on the type of post-harvest treatment that the papayas receive.

Transportation/Packaging: Papayas are highly perishable and easily damaged, thus reducing fruit quality. Since Hawaii is relatively far to major markets, transportation and shipment of the product is an important issue. The deciding factor on whether to transport the fruit by air or sea is usually cost. However, fruit quality should play a role in that decision as well. For example, fruit quality may be more adversely affected when transporting papayas to markets far away rather than nearby. Papayas that are shipped by air are usually of higher quality because they are allowed to ripen on the tree before being harvested. Papayas transported by boat are picked while still green because of the longer transport time between markets.

Exchange Rates: The Japanese Yen is appreciating against the U.S. Dollar, and the Filipino Peso. The Canadian dollar is also appreciating against the U.S. Dollar, and it is appreciating against the Brazilian Real and Belizean Dollar. The U.S. Dollar is appreciating against the Brazilian Real and Mexican Peso. Because papayas are relatively cheaper now for the Japanese and Canadians, the demand for Hawaiian papayas may rise. However, the currencies of Hawaii's competitors are also becoming relatively less expensive. Thus, if prices are the chief motivator for demand, papaya imports from the Philippines, Brazil and Belize may rise by more than imports from Hawaii.

Conclusion

The papaya market is growing and demand is expected to rise. In order for Hawaii to capitalize on this opportunity, various factors must be considered when exporting from Hawaii.

- It is very difficult for Hawaii to compete with other countries in terms of price. Therefore, Hawaii growers need to differentiate themselves from the competition in ways other than price. Hawaiian papayas are considered a premium product that can obtain a premium price. However, consumers need to be educated as to why Hawaiian papayas are unique and thus, worth the extra cost. To assist in this strategy, Hawaii farmers and suppliers should utilize a seal of quality to inform consumers about the product's origin and quality.

- More emphasis needs to be placed on advertising and promotion. Product exposure is key in penetrating new markets. It is difficult to persuade consumers to purchase new products they are unfamiliar with, especially if they do not know what the product tastes like or how to use it. Thus, product displays providing this type of information and recipe suggestions are important. Taste testing would also expose consumers to the product.

- Based on the demand factors for the U.S., targeting those areas that are concerned with health, have high Asian, Hispanic and Caribbean populations, and have the highest per capita income may yield higher consumption (Table 1).

Table 1: U.S. Rankings by Metropolitan Area for 2000

Ranking	Hispanic Population	Asian Population	Per Capita Income
1	New York	New York	San Francisco
2	Los Angeles	Los Angeles	San Jose
3	Chicago	San Francisco	New York
4		San Jose	

Source: U.S. Census Bureau, Population Division

Table 2: Top 5 Healthiest Cities

Ranking	City/State
1	San Francisco, CA
2	Washington, D.C.
3	Seattle, WA
4	Atlanta, GA
5	Minneapolis, MN

Source: Natural Health Magazine

- Educating the public about GMO papayas and irradiation would help lift negative attitudes, which could also stimulate demand.

- Based on the factors for Japan, focusing on the quality factor could help to drive demand. This seems to be the most important aspect in the Japanese market when selecting produce. The U.S. is currently trying to persuade the Japanese government to approve GMO papayas, and the outcome is unclear. However, even if Japan approves the proposal, growers and suppliers should be aware that it might not have an initial positive effect on import quantities.

- The effects of recent Canadian legislation on the papaya market are unclear. Consumers who, until recently, were confident about purchasing GMO-free papayas at the grocery store may now shy away from purchasing papayas at these same stores because they will not know if they are GMO-free or not. Thus, Hawaii farmers who produce organic or GMO-free papayas may want to sell their products in natural or health food stores.

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