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Importation of Tropical Fruits from Thailand[1]

Edward A. Evans and Sikavas Nalampang[2]

Introduction

Recently, the U.S. government has decided to amend federal fruit and vegetable regulations to allow importation into the United States of longan, lychee, mango, mangosteen, pineapples, and rambutan from Thailand. The decision to change the regulation was in response to a request from the National Plant Protection Organization (NPPO) of Thailand and in keeping with the commitments given by the United States under the International Plant Protection Convention (IPPC).

The IPPC is an international treaty to secure action to prevent the spread and introduction of pests of agricultural products, and to promote appropriate measures for pest control. As a signatory to the IPPC, the United States has agreed not to impose phytosanitary measures concerning the importation of plants, plant products, and other regulated articles unless such measures are made necessary by phytosanitary considerations and are technically justified. In evaluating the request, the U.S. government conducted the necessary pest risk analyses and established a protocol that sets out the specific conditions under which imports of these six commodities would be allowed into the United States.

However, there are concerns among U.S. producers of these commodities that this decision will result in a surge of these Thai imports, which would decrease prices and make it difficult for U.S. growers to compete. Because several of these commodities, particularly longan, lychee, mangosteen, and rambutan, are not sold in the mainstream U.S. market (considered exotic fruits), the overall market for these commodities is limited. Hence, a sizable increase in supply could result in markedly lower prices to domestic growers and shippers

The purpose of this document is to assess the price competitiveness of imports of longan and lychee because of their importance to South Florida growers. To do so, we estimate the CIF (cost, insurance, and freight) prices of these two commodities and compare them with the wholesale prices in the California market (largest domestic market for these products). In addition, this document briefly outlines import regulations and highlights Thailand's production and export trends for these commodities.

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2. Edward A. Evans, assistant professor, and Sikavas Nalampang, research assistant, Food and Resource Economics Department, Tropical Research and Education Center, Homestead, FL, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL.

Import Regulations

For Thailand to ship longan, lychee, mango, mangosteen, pineapples, and rambutan to the United States, they must satisfy the following U.S. federal regulations:

1. These fruits must be grown in production areas that are registered and monitored by the NPPO of Thailand.
2. These fruits must be treated with at least a dose of 400 gray (Gy) of irradiation in Thailand.
3. Shipments must be inspected for lepidopteran pests for which irradiation treatment is not approved.
4. These fruits must be accompanied by a phytosanitary certificate and a declaration stating that the fruit has been treated with irradiation in Thailand.
5. In the case of lychee, the declaration would also be required to state that the fruit has been inspected and found free of *Peronophythora litchii*, a fungal pest of lychee.

In addition to these federal regulations, lychee and longan imports from Thailand would be prohibited in Florida. This extra precaution is deemed necessary to guard against lychee rust mite, which is present in Thailand but not in Florida (Federal Register 2007).

Thailand's Production and Export Trends of Select Commodities

Production Statistics

Thailand is the world's largest producer and exporter of longan. In 2007, Thailand produced approximately 1,092 million pounds of longan, with a farm gate value of about US$215 million (Thai Office of Agricultural Economics). The 2007 longan crop represents a 5% increase over the previous year's output but is about 30% less than the amount recorded for 2005 (Table 1). Longan production occurs mainly in the northern provinces of Lamphun, Chiang Mai, and Chiang Rai, with the official harvesting season running from June to August. However, the fruit is available year-round due to the use of potassium chlorate ($KClO_3$), which is an off-season, flower-inducing substance. Acreage under cultivation continues to increase due mainly to the enormous potential for exports and support received from the Thai government. As shown in Table 1, approximately 32% of the crop was exported as fresh longan in 2007, earning about US$61 million. According to Anupunt and Sukhyibul (2005), 70% of the total crop is exported as fresh, dried, or canned longan while the other 30% is sold in the Thai domestic market as fresh fruit (Table 2).

Regarding lychee, Thailand is ranked as the world's fourth largest producer. In 2007, Thailand's lychee production was estimated at 163 million pounds, totally about US$12 million at the farm gate (Table 1). Thailand has the potential to produce as much as 180 million pounds annually (Evans and Degner 2005). Lychee production occurs mainly in the northern region of the country in the provinces of Chiang Mai and Chiang Rai, with the official harvesting season running from April to June. Due to strong competition from China, most of the lychee produced in Thailand is sold locally. In 2007, less than 15% of the crop was exported as fresh fruit, totaling about US$5 million.

Export Statistics

The total value of Thai fruit exports in 2006 was about US$1.4 billion. Table 2 shows trends in the value of Thailand's total fruit exports for the period 2003 to 2006. Figure 1 shows the world value of fresh longan and lychee from Thailand for the period 2003 to 2006.

Figure 2 shows that the main export destinations for Thai exports of longan in 2006 were China (43.98%), Indonesia (36.06%), Hong Kong (10.27%), Singapore (2.79%), and the Philippines (1.51%). Figure 3 shows that the main export destinations for Thai lychee in 2006 were China (53.22%), Indonesia (16.87%), the Netherlands (8.06%), the Philippines (7.73%), and Hong Kong (6.21%).

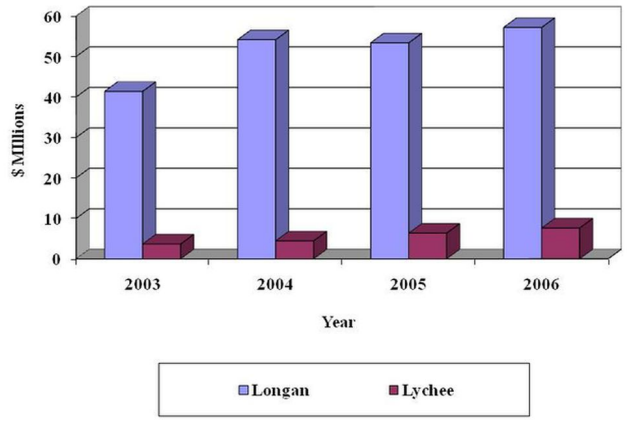

Figure 1. World export value of Thai fresh longan and lychee, 2003-2006. Source: Thai Ministry of Commerce.

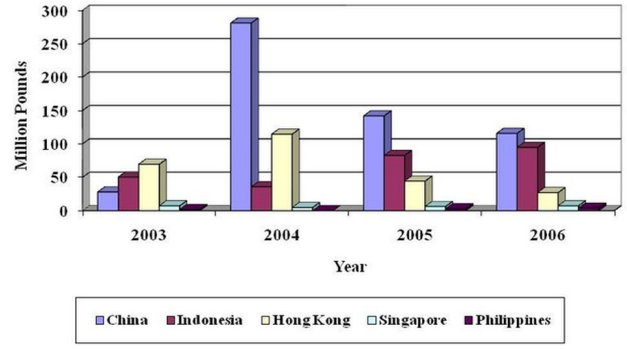

Figure 2. Thai total exports of longan by countries, 2003-2006. Source: Thai Customs Department.

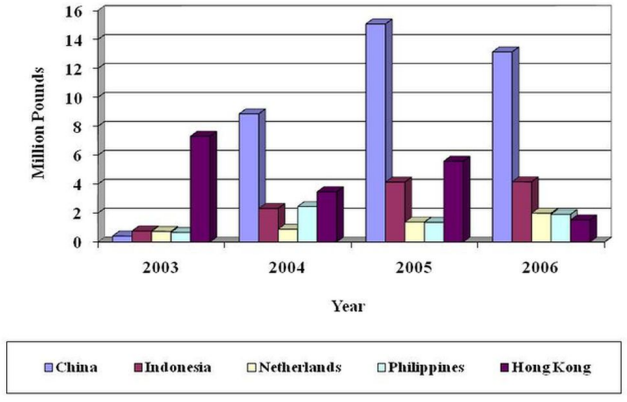

Figure 3. Thai total exports of lychee by countries, 2003-2006. Source: Thai Customs Department.

U.S. Production and Consumption of Longan and Lychee

The United States is not a major producer of longan and lychee. Most of the U.S. production of these commodities comes from South Florida, followed by Hawaii and California. On average, the United States annually produces close to 5 million pounds of longan and 3 million pounds of lychee. While the official production season for longan produced in the United States is from July to August, production can be year-round due to potassium chlorate ($KClO_3$. In the case of lychee, the U.S. production season runs from May to July, overlapping the production season in Thailand. These two fruits are sold mainly in the New York and Los Angeles markets where there are large concentrations of Asian-Americans. Less than 15% and 10% of longan and lychee, respectively, are sold in the Florida market. Although the U.S. demand for these commodities has increased due to increases in the Asian ethnic populations in the United States, the overall demand for these fruits remains limited.

Estimating the Cost of Exporting Longan and Lychee from Thailand to the United States

To assess the competitiveness of fresh longan and lychee shipped from Thailand to the United States, we first estimated the CIF (cost, insurance, and freight) values of these commodities using a three-step procedure (all currency rates are in U.S. dollars). For the first step, we determined the cost to ship apples from Seattle to Thailand. Using information obtained from the USDA Agricultural Marketing Service (USDA, AMS 2008), we estimated that it cost about 81 cents per 40-foot container mile in 2006. To arrive at the total freight cost to ship a 40-foot container of apples from the United States to Thailand in 2006, we multiplied the shipping cost per container mile (81 cents) by the distance between the United States and Thailand (6,472 miles) which equaled US$5,242. Since the maximum weight of a 40-foot container of apples is approximately 67,200 pounds, we calculated a per pound freight cost of 8 cents (US$5,242 divided by 67,200 pounds) for 2006. For 2007, we estimated a per pound freight cost of 10 cents due to the cost of transportation fuel increasing approximately 30% between 2006 and 2007.

For the second step, we obtained the recent Thai FOB (freight on board) prices for lychee and longan. Using data from the Thai Office of Agricultural

Economics (Table 3), we estimated the average FOB prices of longan and lychee as 22 and 26 cents per pound, respectively. However, based on our discussions with Richard Hunter, Food Technology Service representative, we adjusted the current FOB price by 50 cents per pound to allow for U.S. importation requirements (costs for irradiation treatments, special pest-proof box packaging to prevent re-infestation, and certification documents). Hence, the adjusted FOB prices for longan and lychee are estimated at 72 cents and 76 cents per pound, respectively.

For the third step, we added the 10 cents per pound freight cost to estimate the CIF landed prices per pound for longan and lychee. We estimated a CIF price of about 82 cents per pound for longan and about 86 cents per pound for lychee (Table 4).

Competitiveness of Longan and Lychee Imported from Thailand

Table 5 illustrates the average 2005-2007 wholesale market prices in the California market and our estimated CIF prices for longan and lychee (all currency rates are in U.S. dollars). The data in Table 5 indicate a price difference of about 82 cents for longan, or 49% of the average 2007 U.S. wholesale market price in California. In the case of lychee, the price difference is about 81 cents per pound, or 51% the average 2007 U.S. wholesale market price in California. This implies that Thai exports of longan and lychee to the U.S. market would be price competitive. Moreover, there is evidence that the Thai Government may intensify its effort to promote longan exports to cope with an oversupply situation. Recent reports have indicated that the Thai Government has set aside US$13.5 million to help defray shipping costs (Thai Government Public Relations Department).

Concluding Remarks

In this document, we examined the price competitiveness of two (longan and lychee) of the six commodities that were recently approved for shipment from Thailand to the United States, subject to satisfying certain conditions. Thailand is the world's largest producer of longan, earning US$57-$61 million per annum during the 2005-2007 period. In contrast, lychee exports from Thailand to the United States earned an average of US$7 million per annum during the 2005-2007 period. Our analysis indicates that, notwithstanding the additional costs that will be incurred to satisfy compliance, exports of longan and lychee from Thailand would still be price competitive in the U.S. market. For both commodities, the landed prices, as determined in our analysis, would be only half of the average U.S. wholesale market prices. On that basis as well as recent government support being given to the industry, we conclude that there will be an increase in exports of fresh longan from Thailand to the United States, which could decrease prices.

One advantage of U.S. producers and shippers of these commodities is the FDA requirement that all food treated with irradiation must be labeled “treated with radiation” or “treated by radiation”. American consumers currently are reluctant to buy fruits and vegetables that have been treated with irradiation because they associate a health benefit with eating fresh (not irradiated) fruits and vegetables. Locally grown fruits and vegetables usually are not treated with irradiation, which could serve to differentiate the domestic crop from those imported from Thailand, enabling local growers to compete based on quality.

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Table 1. Production and trade for fresh longan in Thailand, 2005–2007.

Type of Fruit	Unit	2005	2006	2007
Longan				
Production	million pounds	1,570	1,040	1,092
Farm gate value	million dollars	242	219	215
Quantity exported	million pounds	295	263	354
Value of exports	million dollars	59	57	61
Lychee				
Production	million pounds	175	162	163
Farm gate value	million dollars	15	27	12
Quantity exported	million pounds	30	25	23
Value of exports	million dollars	7	8	5

Source: Thai Office of Agricultural Economics.

Table 2. World export value of fruits from Thailand, 2003–2006 (million dollars).

Thailand	Value: Million Dollars			
Commodity	2003	2004	2005	2006
Fresh, Frozen, and Dried Fruits				
Fresh Fruits	117.30	150.59	181.20	219.73
Longan	41.38	54.15	53.37	57.19
Durian	33.09	40.75	54.66	73.70
Mango	4.72	4.41	4.56	8.59
Lychee	3.66	4.44	6.35	7.62
Banana	1.84	3.70	4.00	5.24
Citrus	3.52	4.49	6.25	13.14
Rambutan	1.83	0.78	0.77	0.47
Mangosteen	7.38	10.98	17.49	7.10
Pineapple	1.32	1.26	1.27	2.17
Others	18.57	25.63	32.49	44.52
Frozen Fruits	25.46	28.52	28.55	32.16
Pineapple	2.43	2.54	4.31	3.85
Durian	16.86	14.77	11.48	12.55
Longan	0.52	0.68	0.83	0.58
Others	5.65	10.53	11.92	15.19

Table 2. World export value of fruits from Thailand, 2003–2006 (million dollars).

Thailand	Value: Million Dollars			
Commodity	2003	2004	2005	2006
Dried Fruits	77.71	57.19	75.47	66.59
Longan	62.82	38.36	56.95	43.42
Others	14.90	18.83	18.52	23.16
Other Fruits	6.84	8.50	10.17	11.28
Total Fresh, Frozen, and Dried Fruits	227.31	244.79	295.39	329.76
Canned and Processed Fruits and Juices				
Canned Fruits	394.86	420.25	457.55	530.77
Pineapple	268.80	279.14	301.05	361.33
Rambutan	8.93	9.47	9.32	8.04
Lychee	11.49	10.30	9.84	11.21
Longan	12.39	10.08	11.06	10.81
Mango	7.20	8.62	9.15	11.69
Mixed Fruits	60.59	71.73	80.44	86.00
Others	25.47	30.91	36.69	41.68
Juices	201.25	178.61	186.72	235.90
Pineapple	136.32	114.57	112.92	141.94
Orange	3.39	2.59	2.69	3.19
Mixed Juices	1.89	3.18	2.67	2.86
Others	59.65	58.26	68.44	87.91
Processed Fruits	141.94	185.43	218.92	259.51
Pineapple	22.63	25.37	30.53	36.84
Orange	14.13	23.07	28.84	33.66
Others	105.18	136.99	159.55	189.02
Total Canned and Processed Fruits and Juices	738.04	784.28	863.18	1,026.18
Total	965.35	1,029.07	1,158.57	1,355.94

Source: Ministry of Commerce, Thailand.

Table 3. FOB price of longan and lychee from Thailand, 2005–2007.

Year	FOB Price (*dollars per pound*)	
	Longan	Lychee
2005	0.20	0.23
2006	0.24	0.25
2007	0.20	0.28
Average	0.22	0.26

Source: Thai Office of Agriculrtural Economics.

Table 4. Estimated CIF (landed) price for longan and lychee imports from Thailand.

Item	Longan	Lychee
	(*dollars per pound*)	
Current average FOB cost	0.22	0.26
Plus treatment inspection and special packaging costs	0.50	0.50
Adjusted FOB costs	0.72	0.76
Plus transportation cost	0.10	0.10
Estimated CIF cost	0.82	0.86

Table 5. Comparison of U.S. market wholesale and estimated CIF prics of longan and lychee.

Commodity	U.S. Wholesale Market Price	Estimated Landed (CIF) Price	Price Difference	Percentage
	($/lb)	($/lb)	($)	(%)
Longan	1.66	0.82	0.84	49
Lychee	1.67	0.86	0.81	51

Source: *Fruit & Vegetable Market News*, Agricultural Marketing Service, USDA.