

## **Chapter 5**

### **Thai Export of Durian to China**

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#### **Abstract**

In the last five years or longer, exports of Thai durian has been increasing consistently. Although other fruit exported from Thailand also travels in the same direction, durian is the outstanding fruit dominating the China market. There are several factors that affect this development, including the Chinese regulations, development of the durian industry in Thailand, the role of Chinese entrepreneurs, and transport improvements in the Mekong region's countries.

Meanwhile the increase of Thai durian exports to China has created changes for Thai durian exports. The durian industry has expanded through high consumption, and some exporters' business activities have enlarged, some have disappeared, or been replaced by Chinese entrepreneurs. Although some Thai stakeholders in the process, such as the farmers and sorting and packing plants, may benefit from the higher export volume of durian at present, there are still some concerns that they may face in the future.

#### **1. Durian, and the increasing export of Thai fruit to China**

Before the political reforms and open trading policy of China since the end of the 1970s or around thirty or forty years ago, Thai fruit was shipped to Hong Kong as the main

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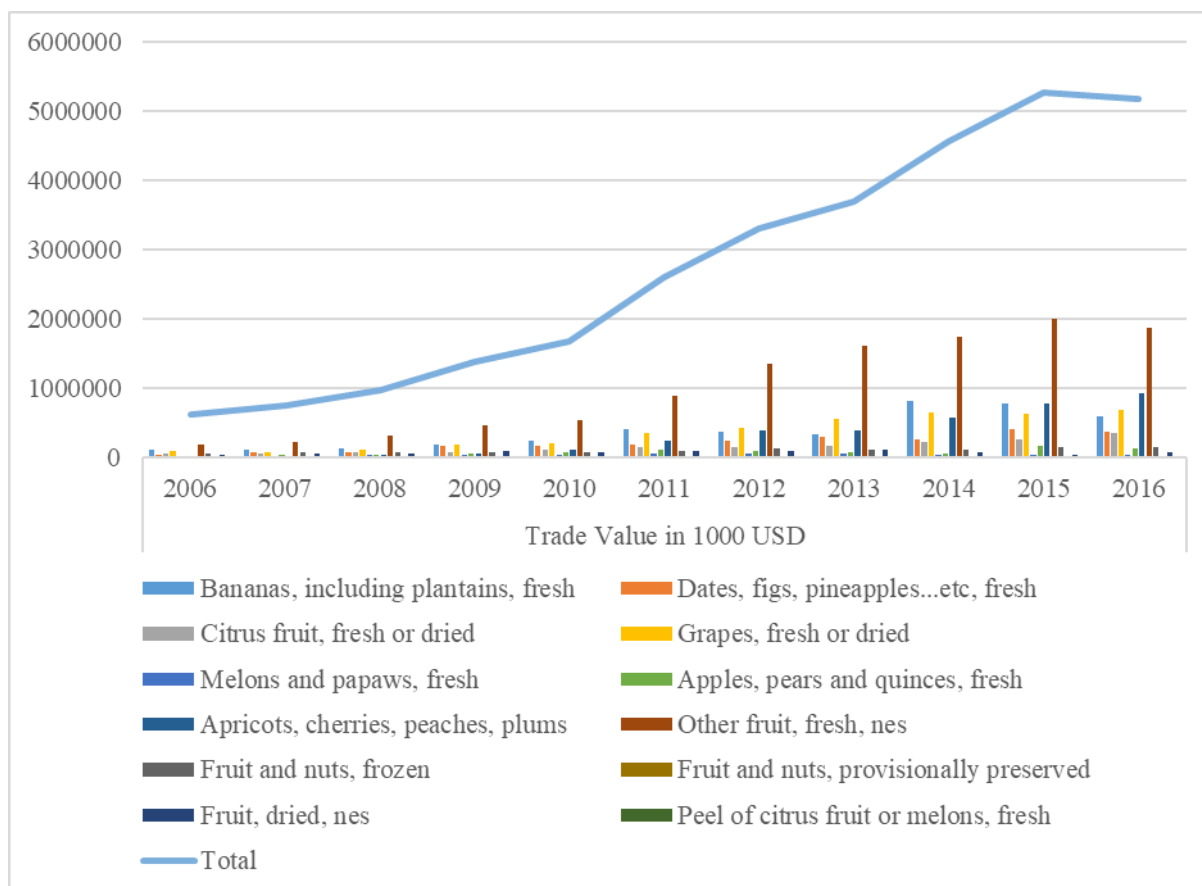
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market, and only some was re-exported to China. By the end of the 1990s, the volume of Thai fruit re-exported to China had risen to 50-70% of the total export volume. In the 2000s, thanks to China's WTO accession and Thai-China FTA agreement, Thailand's fruit has gradually been expanding direct exports to China (Suksangworawong, K. 2008)<sup>1</sup>. In fact, the China market has been an important export destination for Thai fruit for more than three decades. However, the significant growth in Thai fruit exports to China has only happened during the last decade in the 2010's. Durian is the outstanding fruit dominating the export of Thai fruit to China.

Although China can grow some fruit, especially winter fruit such as apple, pear, peach, plum etc. , China needs to import much fruit to cope with the rising consumption and more diverse demand partly due to that nation's growing middle class population. Therefore, it not surprising that China's imports of fresh fruit have seen explosive growth, with the volume growing by more than 300% since China joined the WTO, achieving 3.5 million tons in 2016<sup>2</sup>. In 2016, China imported fresh fruit from all over the world for total volume of 5,864,967 thousand US dollars. Besides Thailand, other large fruit suppliers include Chile and Vietnam. Among these suppliers China imported from Chile a volume of 1,2010,708 US dollars, 21% of the total, from Thailand 1,153,257 US dollars 20% of the total, and from Vietnam with 638,409 US dollars, 11% of the total.<sup>3</sup>

As shown in Figure 1, China's import of fruit has increased during 2006-2016, especially during 2010-2011 the increase is very significant<sup>4</sup>. By comparing the trade value between 2006 and 2016, the total value of China's fruit imports has increased by 733%. There are three groups of fruit which China imports with a huge increase including 1) Apricots, cherries, peaches, plums – 23,376% increase, 2) Dates, figs, pineapples – 977% increase, and 3) Other fresh fruits which were not specified elsewhere include 7 fruits<sup>5</sup> – 934% increase. Fruit that China imports with the lower increase of 21% is melon and papaw<sup>6</sup>.

Figure 1: China's fruit imports during 2006-2016



Source: Based on UNCOMTRADE data drawn via WITS<sup>7</sup>

For Thailand, between 2006 to 2016 (shown in below Table 1), fruit trade exports by Thailand with the world have increased. The fruit export value has increased fourfold, while the value of imports has increased fivefold. During the same period, Thailand's trade with China has been moving in the same direction; the value of Thailand's fruit exports to China has increased around fivefold, the import value from China has increased by a factor of 5.5 Also, China takes major proportion of the Thai fruit trade, achieving 33% of exports and 67% of imports in 2016. The total trade value in 2016 was 978,346,000 US dollars.

Table 1: Thailand's fruit trade with China in 2006 and 2016

Prod Code	Product Description	Export value in '000s USD						Import value in '000s USD					
		2006			2016			2006			2016		
		World	China	China share in the world (%)	World	China	China share in the world (%)	World	China	China share in the world (%)	World	China	China share in the world (%)
0803	Bananas, including plantains, fresh	7550	2969	39	14426	6562	45	631	n/a	n/a	4676	90	2
0804	Dates, figs, pineapples, etc., fresh	22266	4879	22	167535	49665	30	1567	184	12	15788	95	1
0805	Citrus fruit, fresh and dried	12855	3801	30	15318	5879	38	5688	4644	82	135088	119802	89
0806	Grapes, fresh and dried	108	n/a	n/a	1606	30	2	27384	7806	29	160788	85238	53
0807	Melon and papaw, fresh	734	246	34	1264	49	4	135	112	83	14869	14575	98
0808	Apples, pears, and quinces, fresh	1488	226	15	1991	n/a	n/a	84592	67198	79	290265	228445	79
0809	Apricots, cherries, peaches, and plums	111	n/a	n/a	62	n/a	n/a	1670	62	4	14377	522	4
0810	Other fruit, fresh, nes	174462	71111	41	911277	346717	38	13047	2628	20	60639	13847	23
0811	Fruit and nuts, frozen	31468	2502	8	80306	31978	40	3541	3267	92	19835	16060	81
0812	Fruit and nuts, provisionally preserved	2626	214	8	3293	152	5	1256	591	47	6300	5255	83
0813	Fruit, dried, nes	60240	12102	20	279157	50709	18	3346	1356	41	7306	2672	37
0814	Rind of citrus fruit and melon, fresh	506	5	1	154	1	1	237	2	1	410	3	1
<b>Total</b>		<b>314414</b>	<b>98055</b>	<b>31</b>	<b>1476389</b>	<b>491742</b>	<b>33</b>	<b>143094</b>	<b>87850</b>	<b>61</b>	<b>730341</b>	<b>486604</b>	<b>67</b>

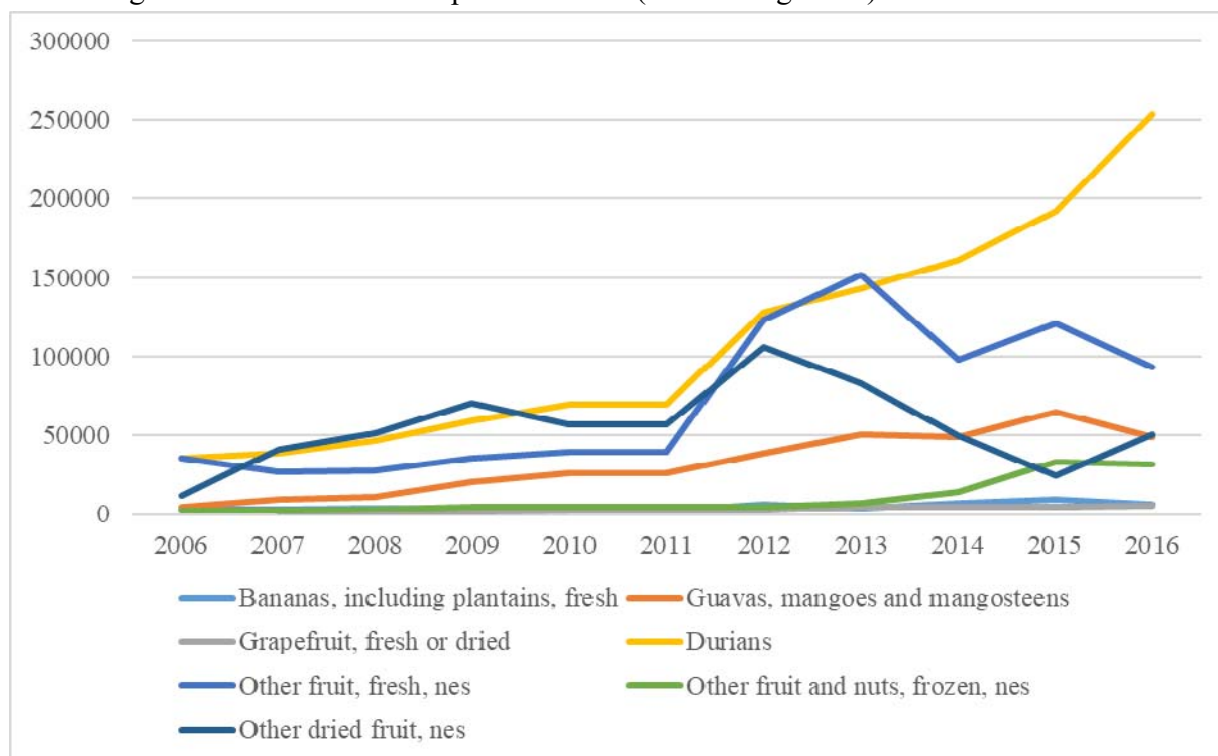
Source: Based on UNCOMTRADE data drawn via WITS

Among Thailand's imported fruit from China, the top three items for which the value shows an outstanding increase are 1) Apples (and pears, quinces), 2) Fresh or dried citrus fruit, and 3) Fresh and dried grapes.

In the fruit exported to China, the category of 'Other fresh fruit' has increased significantly. This category includes strawberries, raspberries (and blackberries, mulberries and loganberries), black/white/red currants (and gooseberries), cranberries (and bilberries and other fruits of the genus *Vaccinium*), kiwi fruit, durian, and others. In the 'Other fresh fruit' category, durian is the most outstanding item that Thailand exports to China.

In Figure 2, we see that during 2011 to 2016, durian was exported increasingly from Thailand to China, and this has become the dominating fruit exported from Thailand to China.

Figure 2: Thailand's fruit exports to China (outstanding items)



Source: Based on UNCOMTRADE data drawn via WITS

Therefore, the significant increase of Thailand's durian exports is the focus of this paper, in order to observe the change and development of the Thai fruit export supply-chain. The phenomenon of China's increasing durian consumption may represent and be a future prospect for trade in other types of fruit between Thailand and China.

## 2. Dominance of Thai durian in the China market

“...2017 is the year that Thailand exported durian to China in a vast quantity. In 2014, there were 70 sorting and packing plants, but now this number has grown to 200 plants. They bought so much we are almost unable to pack the volume.”<sup>8</sup>

Above is a quote by a durian farmer in Chantaburi Province regarding the recent status of Thai durian exports to China. Durian has been a favorite with Chinese consumers for decades. Not only because of its taste, but the Chinese believe that durian is a nutritious fruit. Regular consumption of durian is good for physical fitness; for example, warming the body, enhancing blood circulation, relieving menstrual pain in women, improving abdominal cold, invigorating the kidneys, and overcoming male impotence.<sup>9</sup>

Durian is grown **indigenously** to countries in Southeast Asia, including Thailand, Malaysia, Vietnam, Indonesia, the Philippines, and in the northern region of Australia. Different varieties of durian are grown in different areas; the Monthong (and Chanee) variety is grown commercially in Thailand, the Musang King so-called variety from Malaysia, etc. Like many tropical fruit trees, durian can generally be grown in many places in the area, but there are only a few places where the weather is ideal and the water supply sufficient for planting durian.

Although “Monthong” durian is generally known as Thailand’s most famous durian, there are several varieties, each with a different taste, texture, and color. Monthong is the variety mostly exported from Thailand to China, because it fascinates the Chinese market and its quality is ideal as a ‘cash crop’ and ‘export crop’, as it is sweet and can be kept under suitable conditions for a longer time, around 20 days without turning mushy or spoiling. This feature allows Monthong to be exported to more distant markets.

In 2016, China imported fresh durians for a total value of 693,579 US dollars from all over the world. With almost a hundred percent of the value at 693,577 US dollars, Thailand is the leading exporter of fresh durian to China. While in the same year China imported around two thousand USD value of durian from Malaysia. The status has been the same from 2011 to 2016 as below shown in Table 2.

Table 2: China’s fresh durian imports globally, Malaysia, Thailand (2011-2016)

Year	Value in '000s USD		
	Global	Malaysia	Thailand
2011	234,303.80	0.30	234,303.50
2012	399,752.60	0.92	399,751.70
2013	543,165.40	0.34	543,165.10
2014	592,624.80	-	592,624.80
2015	567,886.40	2.46	567,883.90
2016	693,578.70	1.54	693,577.20

Source: Based on UNCOMTRADE data drawn via WITS

The data shows that Thai fresh durian has been dominating the China market for a decade, if not longer. One important factor that influences Thailand's domination of the China market is that China only permits the import of fresh Thai durian. This is because of the limited quality of Malaysian durian, as they wait for the fruit to ripen and drop to the ground, which may cause risks of dirt and pests contaminating the fruit – according to Malaysia's Deputy Minister for International Trade and Industry. Recently Malaysian durian was exported to China as frozen fruit pulp.<sup>10</sup>

However, as regards Thailand, China is not the only market for Thai durian, as Thailand also exports fresh and processed durian to other destinations. Regarding the export of fresh durian, besides China, the markets of Hong Kong, Indonesia, Taiwan, the United States, and others, are destinations of Thai durian, while the destinations for the frozen durian export are more varied, such as Canada, the United States, South Korea, Australia, France, and others. The markets importing dried durian from Thailand include Hong Kong, the United States, Vietnam, and Singapore. For durian preserved in sugar, the export destinations are the United States, Russia, Australia, France, the United Kingdom, and others.<sup>11</sup> Some exporters state that there are many destinations for Thai durian as follows:

*“For the European market, currently the delivery is easier as it travel by air cargo. In the past, I used to deliver within 30-45 days by cargo ship to France or the United States.”<sup>12</sup>*

*“The market is the most important thing, but there are some constraints now. Europe and the United States do not allow fresh fruit from Thailand, only the processed quality. So, we change to focus on processing, as well as some other entrepreneurs. Fresh durian can be exported to China with a not-so-high specification”<sup>13</sup>.*

Therefore, Thai durian export destinations are varied, and this reflects appreciation of Thai durian. However, the phenomenon and impact of trading with other markets still cannot compare with the phenomenon and impact created by the Chinese consumers' appreciation.

Chinese rising consumption trend of durian has attracted Thai farmers to grow durian, and attracted farmers from other countries, such as Malaysia and Vietnam. Especially Malaysia, which has a close relationship with China, has push the Chinese government to allow the import of fresh durian from Malaysia. It seems that the push is effective, and China may allow Malaysia to export fresh durians soon.<sup>14</sup>

After the export of Malaysian durian is ‘unlocked’, whether it will affect Thai durian’s dominance in the China market or not, will lie with pricing and the Chinese consumers’ taste. Especially the latter, as a higher price will not be a difficulty for Chinese consumers to afford. No matter what they choose, it could affect and bring the supply chain of Thailand and Malaysia to the next phase.

### **3. The Recent change in Thai exports of durian to China**

The increase in Thailand's fruit exports to China has been due to at least three factors, including the development of Thailand's agriculture that has boosted the volume and improved the quality in order to comply with the export quality standard. The second factor is that the improvement of land route connectivity helps to bring the producer to the market at a lower cost. The third factor is the competition and expansion of the fruit business in China that has forced Chinese entrepreneurs to seek new qualities at a lower cost, which will be discussed further. In this case, the pull factors are all factors that attract Chinese entrepreneurs to engage with fruit exports from Thailand, including Thai durian development and the transportation improvements in the Mekong sub-region. In addition, there are other factors which support the increased durian exports to China, such as the land transportation improvement. Consequently, these factors have created some changes in Thailand's durian export process to China.

### 3.1 Durian industry development in Thailand

There is evidence of durian in the central region of Thailand since the Ayutthaya period, supposedly the origin was from the south of Thailand. Durian variety development has been conducted continually by the Thai social and governmental system. From the past until now, the Thai people have valued that they would provide the best fruit to dedicate to the monks or landlords. In addition, in the past the Thai government collected a tax on the number fruit trees and this allowed Thai farmers to put their effort on the fruit variety's improvement. These factors have encouraged Thai durian development since then. However, the conventional propagation system used the seeds for growing the fruit has produced many durian varieties in Thailand.<sup>15</sup>

As the origin of durian is from the Malay Peninsula, Thai durian was first cultivated in the southern provinces of Thailand, then gradually expanded to the eastern provinces. However, despite the fact that Thai durian is grown across the country, the two main production areas for durian are still in the east and the south of Thailand. (Thaifta)<sup>16</sup>

The eastern provinces of Thailand include Chantaburi, Rayong, and Trad and the southern provinces Chumphon and Yala. The durian season in the eastern part is from March to June, while the season for the southern part is from the end of June to January.

Table 3: Seasons for Thai durian in the two main production areas

Production area	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Eastern provinces												
Southern provinces												

Source: Author



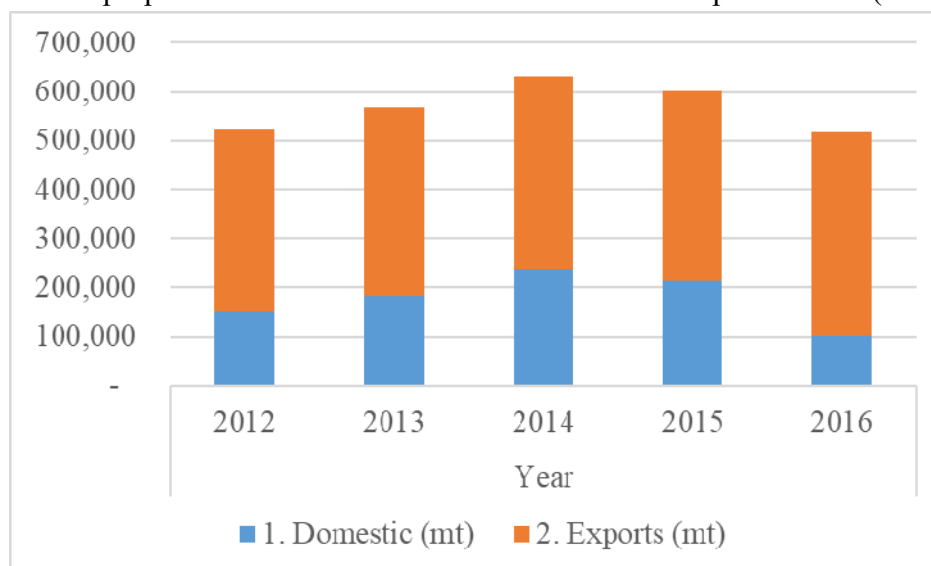
However, due to the recent higher consumption of durian, the off-season durians are developed for planting in both of the main production areas in Thailand. Thai durian currently can be harvested almost throughout the year. The off-season production methods cause durian tree damaged and shorten the harvest period. (Kehakaset, October 2017)<sup>17</sup>

Until now, there are four popular and well-known varieties in Thailand, including Kradum, Chanee, Monthong, and Kanyao. Among these varieties, Monthong is the commercial variety which has many benefits; fleshy meat, small seeds, and a wide consumption period. The long crop of Monthong is 110-135 days after the durian flowers bloom, or around 20-25 days. While the crop of other varieties is up to one week.<sup>18</sup> This is the significant factor that makes Monthong become the number one exported durian from Thailand.

Nonetheless, Thai durian is still seeking to improve the quality and develop more varieties, for example to be less smelly, etc. Thai agriculture experts take advantage of each variety to make a new variety, not only for export purposes but also for preserving the diversified varieties of Thai durian.<sup>19</sup>

In the past, despite Thai durian has been exported to several markets, there was an oversupply, a price fall, and fluctuating of crop yield of durian from time to time in Thailand's domestic supply before the surge by the China market. Farmers even sold durian at 2-5 baht per kilogram.<sup>20</sup> This situation caused some farmers to sell their land, or they replaced the durian farm with another cash crop, such as rubber, palm, or even other fruit trees; longan, mango or custard apple. Later, thanks to the rising consumption by China from 2012 to 2016, the total production of Thai durian has grown, only fluctuating due to natural conditions, especially the total production volume of durian in 2016 decreased due to the severe drought. The proportion of durian exports fluctuates around 60-70% of the total production volume, excepting the significant increase in exports in 2016, where the proportion was around 81%. (See the below figure)

Figure 3: The proportion of durian's domestic volume vs the export volume (2012-2016)



Source: Office of Agricultural Economics<sup>21</sup>

Thai durian has been developed for trading overseas for decades. In the past years, Thai durian farmers have faced an oversupply status, and some sold their land or changed to grow other plants, such as longan. They stated that “...*Durian has not been oversupplied for 10 years. I sold the land as at that time durian was oversupplied, and every year we needed to speed selling out. We had no technique and chemicals to apply like today. Previously, we had durian for consumption around 2-3 months a year, but now we have it throughout 12 months.*”<sup>22</sup>

Gradually the durian industry in Thailand has developed by the rising demand from outside the country. High production technology has been applied to the durian crop, as it is worthwhile to invest, while farmers have tried to yield more crops to respond to the rising demand.

As above mentioned, the higher consumption of durian makes some farmers change to grow durian. However, as with many tropical crops, there are many diseases that can cause durian infertility. Therefore, even if the demand increases year by year, durian supply expansion is not easy. (See Table 3, in the Appendix) As the demand is greater than the supply, Thai durian farmers consequently achieved a higher selling price for their crop; from 34,290 baht/mt in 2014 to 62,960 baht/mt, or around an 84% increased, and the net return also increased as shown in the below table.

Table 4: Thai durian production volume 2014-2016

Production*	Year		
	2014	2015	2016
1. Production volume (mt)	631773	601884	517955
2. Production cost (baht/mt)	15078	15722	17700
3. Farmers selling price (baht/mt)**	<b>34290</b>	46960	<b>62960</b>
4. Net return on sales (baht/mt)	19212	31238	45260

Source: Office of Agricultural Economics, data from the Thai Customs Dept.

\* Collected by the Office of Agricultural Economics

\*\* The average price durian farmers achieve

Remark: The author has selected the most likely accurate data as there is much data discrepancy between the reports and tables.

Each destination for Thai durian exports has its own regulations and specifications. At least there are two basic standards that durian needs to comply with, including the GAP (Good Agricultural Practices) and GMP (Good Manufacturing Practice) standards. According to Thailand's regulations, to export fresh durian farmers need to comply with the GAP requirements. The Department of Agricultural Extension is responsible for contributing knowledge and basically assess the practice, then they will list the approved farmers and pass the list to the Department of Agriculture for GAP certification. Otherwise, farmers may contact with Department of Agriculture direct to seek certification approval. For a long-cycle crop like durian, GAP certification will be effective for three years before renewal. For for GMP, the other certification, the standard is for the sorting and packing plants that work for the fruit exports. The GMP standard is under the control of Department of Agriculture. To comply with the GMP standard the sorting and packing plant must only accept only durians from GAP certified farms before proceeding further.

Generally, fresh durian is sorted into four grades; firstly, the Special Grade represents durian with a very specific quality, secondly, Grade AB represents good quality and fit-for-export durian, thirdly, Grade C represents a lower quality, and fourthly, the Off-spec Grade (smaller and bigger than the standard) or lower quality grade. Special Grade durian is normally exported to Japan and Taiwan. The specific requirements include weight is up-to 4 kilograms, a good shape, etc. Grade AB durian is exported to China, where a variety of markets can accept a wide-range in durian quality. Grade C durian is for Indonesia (during Indonesia's off-season period).<sup>23</sup> Off-spec or low grade durians are sent to plants for further processing or selling to neighboring countries or in Thailand's domestic markets.

Picture 1: Export quality durian for the China market; even color, ripeness at 75%



Source: Authors

Picture 2: Off-spec quality durian selling in the Thai border market in Chantaburi Province



Source: Authors

In addition to the export in its fresh and whole form, Thai durian is also processed for export. In some countries, where the regulations do not allow fresh imports, such as some European countries or those located in remote areas, processed durian is imported to serve the durian consumers. There are four forms of processed durian, including paste, chips, whole frozen fruit, or only the flesh (seeds removed), and freeze-dried chunks.

The first two processing forms were Thailand's traditional way to preserve durian. The frozen process has been used for export to distant countries or preserving for further processing. Frozen durian has an extra cost of 21 baht per kilogram<sup>24</sup>. This was the technology investment and higher cost which made some of Thai entrepreneurs change their previous export destinations to China where accepts the exported fresh durian.

Picture 3: Off-spec durian during processing



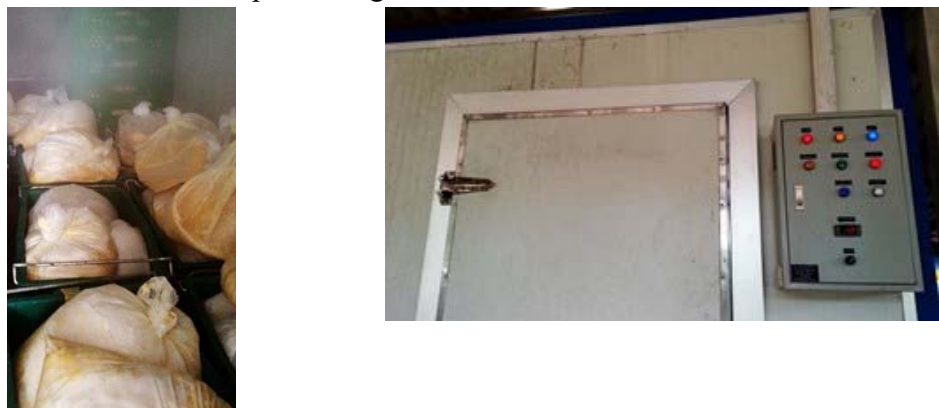
Source: Authors

Picture 4: Durian chip processing plant



Source: Authors

Picture 5: Frozen durian for further processing and the freezer



Source: Authors

Picture 6: Freeze-dried durian, the newest processing method for Thai durian



Source: Authors

Among these processed forms, the freeze-dried durian is the latest processing technology to preserve and transform Thai durian to be more value-added. The following table shows the export price for each category.

Table 5: Export price of durian (baht/kg.)

Category	Year		
	2014	2015	2016
<b>Fresh</b>	34	37	43
<b>Frozen</b>	66	88	106
<b>Paste</b>	128	120	125
<b>Freeze-dried</b>	616	723	829

Source: Author, based on the Office of Agricultural Economics' report<sup>25</sup>

Although almost all fresh whole durian is exported to China, processed durian is also increasing in popularity. China's rising consumption of durian has expanded not only the production quantity but also the processing methods of Thai durian.

### 3.2 The Role of Chinese entrepreneurs in Thai fruit trading

According to the comprehensive review by the China Fruit Marketing Association of the Chinese industry in 2015, the expanding Chinese consumption leads to an emerging contradiction between the supply and demand of fruit, especially the high-end fruit supply, as Chinese consumers are more concerned with quality. Imported fruits, which generally are valued as quality fruit, take a bigger market share, while low-quality fruit is overstocked<sup>26</sup>.



Considering the result of the Chinese rising demand since 2011 (See Figure 2), this has generated more competition in the fruit trading business and also creates a business opportunity. In the development of Thai durian exports to China, this could be considered as a 'push factor', as they face competition, so they leave China for Thailand in order to find a better chance for their business, either as permanent residents or temporary visitors. Under such a situation, many Chinese entrepreneurs see business opportunities with durian, if for a different purpose and motivations. From interviews with stakeholders in the fruit business in Chumphon (Langsuan District) and Chantaburi (Pongnumron District), it was found that the purpose of the Chinese entrepreneurs in the area can be divided into two groups; one is businessmen who work to expand their business in China, the other is new investors seeking a business opportunity.

The Chinese entrepreneurs in the expert group have their own fruit importing business in China, they also have more business potential and experience. They try to find a direct route to the suppliers, a lower cost, and more efficient service (better price and better quality).<sup>27</sup> Sometimes they have an advantage over local businessmen as they have a bigger budget. So, they see Thailand as a supply resource to expand their existing business. The business in Thailand is not their only supplier for the fruit trading business. They go around Thailand and the neighboring countries to explore the supply of higher quality fruit. The following are two cases of Chinese businessmen who came to Thailand seeking to expand their business expansion.

First, is a businessman from Shantou City in Guangdong province, he has been living in Pongnumron, Chantaburi Province since 2011, invited by a Thai friend, and also he wanted to expand the fruit import-export business run by his family in China. He settled and built a sorting and packing plant and plans to make it a processing plant in the future. He buys longan, durian, and mangosteen for the business in China. For durian, he even tried to deliver durian from Vietnam for freezing in Thailand, however thanks to the high cost he discontinued the project and procure only Thai durian recently. Currently, he also planted one-year durian on his land.<sup>28</sup>

Second, is a Chinese businessman from Chongqing Municipality, who came to Thailand in 2007. His experience of longan export is for more than 10 years. At first, he tried the longan supply from Chiangmai in the north of Thailand for two years, then moved to Pongnumron in Chantaburi, where he built big sorting and packing plant for export processing. His plant is quite big and has full facilities for the workers. He visited Vietnam and Cambodia searching for suitable fruit. His markets cover many provinces in China, including Chongqing, Chengdu, Guiyang, Yunnan, etc.<sup>29</sup>

The above two cases of Chinese businessmen not only procure durian and other fruits from one place. They try to search for fruit from each area both in Thailand and neighboring countries as to respond the demand in China.

The second group of Chinese entrepreneurs who trade in Thai fruit seek new investment. This group of Chinese entrepreneurs are aware of the growth of the fruit export business from Thailand, so that they are looking for a business opportunity. Below, is the interview with the manager at a sorting and packing plant in Chumphon Province.

*“The other kind, which is quite popular recently, is those (Chinese) who just bring one bag to Thailand and drive to find us. One man even came straight to ask me ‘If I want one container of mangosteen, how much does it cost?’”<sup>30</sup>*

However, business established by such methods, mostly does not last long. According to the informant in the above example, the new Chinese investor just closed the business after the second or third container, as this kind of entrepreneur has no experience, but wanted to seek for an easy business opportunity. Although not all new businessmen fail, few are successful, as they cannot compete with competitors with more experience.

### **3.3 Transportation improvements in the Mekong sub-region**

Transportation is the most significant factor that affects the fresh fruit business, especially tropical fruit, which rots easily. While the transportation infrastructure in China has been developed, the land routes connecting Thailand and China have only improved gradually.

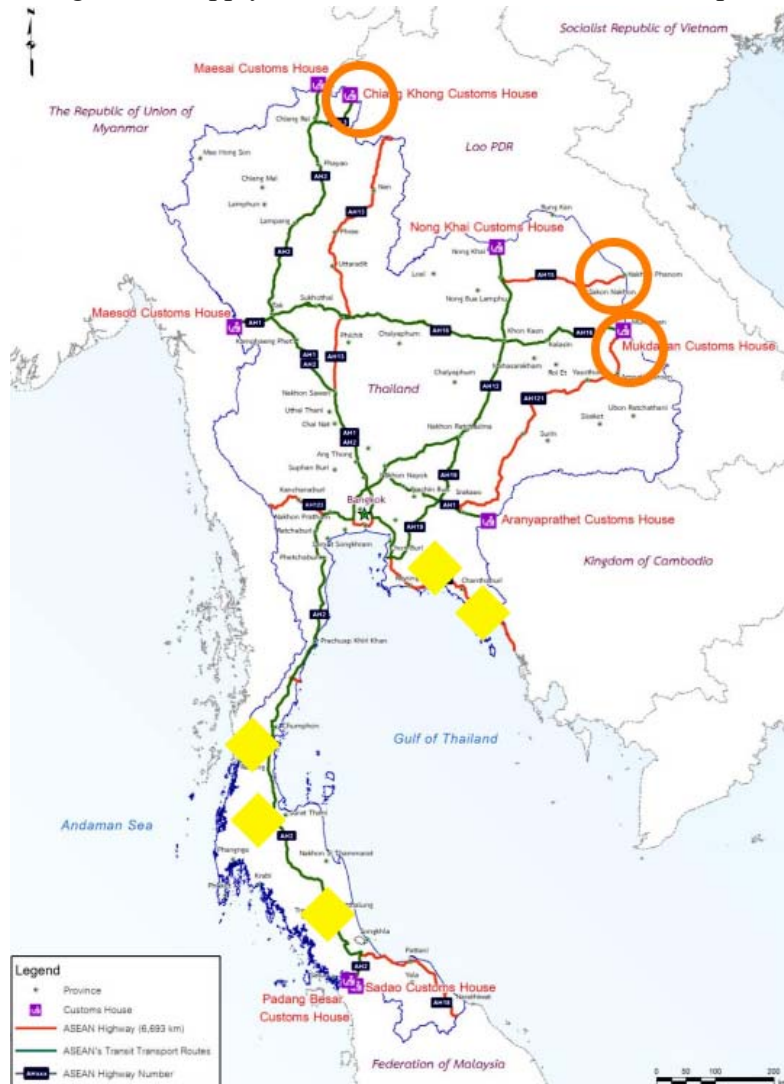
In the past, the trans-boundary Mekong river, was the main transit channel between the countries in the region. The cross-border economy needed to rely on conventional boats and ferries, which consumed much time. Later, with assistance from the Asian Development Bank (ADB), connectivity improvement became the target of transnational economic routes in the region. Mekong bridges have been constructed to facilitate economic development and the flow of trade, investment, and people, among the six countries in the region.

There are four bridges now open, and another bridge under construction connecting Thailand to Laos that replace the conventional river crossing boats. The First Thai-Laos Mekong Friendship Bridge was built to connect Nong Khai in northeastern Thailand to Vientiane, the capital of Laos, and opened in April 1994. The Second Mekong Friendship Bridge between Mukdahan in the northeast of Thailand and Savannakhet in central Laos was opened in early 2007. The Third Mekong Friendship Bridge between Nakhon Phanom, also in the northeast of Thailand, and Thakhek in Laos opened in November 2011. The Fourth Mekong Friendship Bridge, the only bridge that connects northern Thailand in Chiang Khong with Houayxay in Laos, opened in December 2013.<sup>31</sup> While the Fifth Mekong Friendship Bridge connecting Bueng Kan in northeastern Thailand and Paksan in Laos, is still under construction.<sup>32</sup>

To facilitate trans-border activities between and among Thailand, Laos, Vietnam and China, these bridges have been constructed to improve road transportation. However, each bridge connects a different route and offers different advantages. The First Bridge connecting Thailand with Vientiane, the capital of Laos, facilitated the trade between the two countries. The other bridges connect Thailand and Laos to Vietnam and China. The Second Bridge connects Thailand - Laos - Vietnam by Route No. 9 (R9), the Third Bridge connects Thailand - Laos - Vietnam by Route No. 12 (R12), and both routes connect with Guangxi, the southernmost province of China. The Fourth Bridge connects Thailand and Laos to China's Yunnan Province by Route No. 3A (R3A)<sup>33</sup>



Figure 4: Map showing durian supply areas and the routes of Thai fruit exports to China



Source: Map from the OTP Ministry of Transport, modified by the author.

Remark: Orange circles = Customs Office, Yellow diamond-shapes quadrangle = durian supply areas

The vegetable and fruit trade between Thailand and China also benefits from the Second, Third, and Fourth Bridges. Many fresh fruit exporters have turned to use truck transportation to transport fresh Thai fruit to China.

Table 6: Export value of Thai fruit to China, in total, and via each Customs Office\*

Year	Total export value of Thai fruit to China (million baht)	Total export value of Thai fruit via R9, R12, and R3A		Export value of Thai fruit via each Customs Office (million baht)		
		(million baht)	% of total export value	Mukdahan (R9)	Nakhon Phanom (R12)**	Chiang Khong (R3A)
2008	4942	0	0	x		0
2009	6822	108	2	x		108
2010	6438	314	5	x		314
2011	6188	868	14	x		868
2012	9224	1669	18	866		803
2013	10714	3119	29	1918		1201
2014	10296	3365	33	1961		1404
2015	13419	2725	20	721		2004

Source: Author

Remark: \* Values in this table need to be rechecked

\*\* To be completed (in the midst of requesting for data from the customs)

The above table (even if incomplete data) shows that overland transportation is becoming an increasingly more important channel for the China market. In the past, overland shipment took around 10 days, with a cheaper cost.<sup>34</sup> Currently, compared with sea shipment, which is the traditional channel for Thai fruit exports to China, the conditions and costs of overland transportation have changed and are now more attractive.<sup>35</sup>

Table 7: Comparison between sea shipment and overland shipment

Channel	Cost (baht/container 40ft)	Delivery time (days)	Advantage
Sea shipment (from Laem Chabang – Foshan Port, Guangzhou)	40,000-50,000	7-8	- Shipment held at sea in the case of crowded supplies at the port/market - Quality guaranteed
	Chantaburi - Jiangnan		
Overland shipment (via R9, R12, R3A)	150,000	3-4	- Quick - If the destination is in southwest China, route R3A is nearer.
	Chantaburi - Jiangnan		

Source: Author

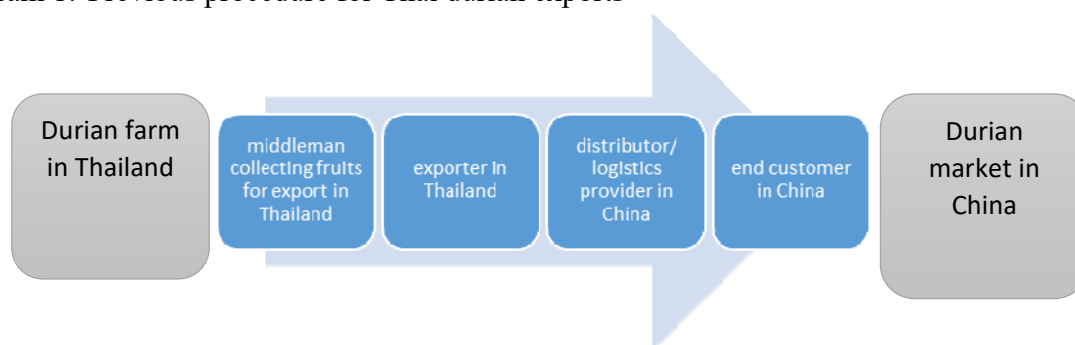
Thanks to the above support factors, China's high demand for durian has been satisfied. Meanwhile, the development has attracted Chinese investment and changed the durian supply chain in Thailand.

### 3.4 Changing of the export process of Thai durian to China

The business competition among Chinese entrepreneurs, the business opportunities, the high margin of Thai durian, and the convenient transportation and other factors have motivated Chinese entrepreneurs to, more and more, engage in the durian exports business. Some business activities have enlarged, but some have disappeared.

Previously, Thai fruit exports usually used the consignment trading method. While this method is recommended for fresh fruit export, as the process helps enhance export competitiveness by the faster delivery of the goods, and suits the competitive environment to enter new markets, there are also significant risks for the exporter who retains title to the goods until they are sold. (ACFS n.d.) This means if the goods are not sold within the agreed period they may be returned to the exporter at cost. The simple procedure for Thai durian exports is shown by the below diagram.

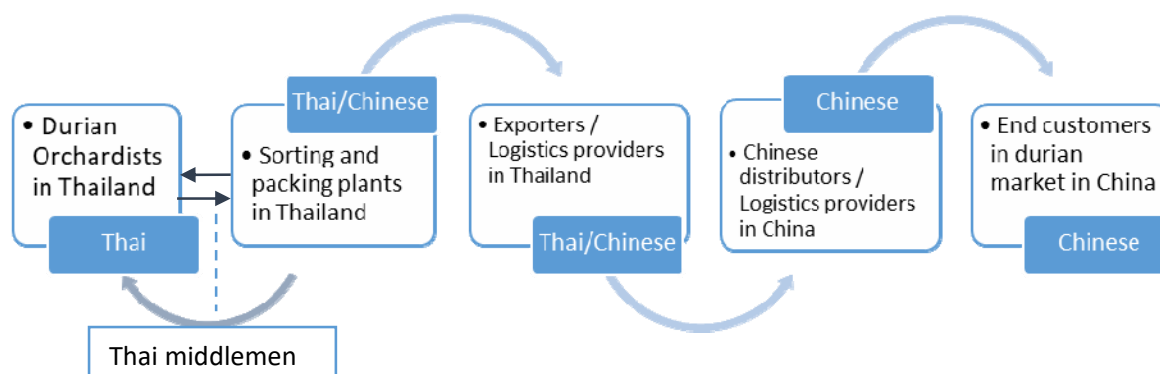
Diagram 1: Previous procedure for Thai durian exports



Source: Author

The export of Thai durian to China, as with other export business, needed cooperation between the exporter in Thailand, the distributor, and the end customer in China, to proceed the business. However, in the last five years, under the same export method, the above procedure has been altered due to the increasing engagement of Chinese entrepreneurs, both the Chinese businessmen who came for business expansion and the new investors seeking business opportunities. The Chinese entrepreneurs have engaged more with the logistics and the sorting and packing plants, they have expanded, shared and adapted some parts of the export business process in Thailand. The below diagram shows the greater engagement by the Chinese entrepreneurs in each activity of durian export in the supply chain in Thailand.

Diagram 2: Procedure for Thai durian exports after more engagement by the Chinese entrepreneurs



Source: Author

In the early stage of durian exports, the Chinese entrepreneurs needed Thai middlemen to source durian supplies. Later, they could find the farmers themselves. They contact the farmers directly, or the farmers can go directly to the sorting and packing plant to sell their fruit. This is why the Thai middlemen have gradually been removed from the durian export chain, and replaced by sorting and packing plants which are mostly supported by Chinese investment. According to a sorting and packing plant, they are in charge of procurement and packing durian for loading into the containers. The charge is 6 baht/kilogram or 108 baht/carton. After they finish loading durian into cartons and close the container, they have no more responsibility.<sup>36</sup>

Under the competitive situation that Chinese entrepreneurs have become more and more involved in the durian export process, Thai durian farmers who succeed growing and harvesting durian benefit much from engagement. Some sorting and packing plants also obtain an advantage with low risk from the packing charge.

However, the situation may reverse for Thai farmers and businessmen if the Chinese entrepreneurs should monopolize durian procurement, or if they replaced each chain in the export procedure in the future.

#### 4. Summary and issues for further research

Similar to the same trend with other fruit and quality food, Chinese durian consumption has been increasing significantly since 2011 until the present time. Compared with other fruit products

whose exports have fluctuated, durian exports keep rising. This is because Thailand is the only country that China has permitted to export fresh durian to China, even though other countries in Southeast Asia and northern Australia can also produce durian. The other benefits include the fact that the Chinese consumers value imported fruit, while Thai durian, the so-called 'Monthong' variety, has the quality suitable for commercial purposes, especially the export business that needs time for delivery.

China's rising consumption of durian has developed the demand for durian. Thai durian farmers have never faced an oversupply situation since then. The seasons for harvesting durian in the main production area in the eastern provinces and the southern provinces of Thailand have expanded to supply throughout the year, as there are off-season durians in both areas. However, as growing durian has some limited conditions, it requires experience and agricultural technology to handle the fruit, and in the meantime, the durian crop relies much on the natural conditions. Therefore, although more and more farmers want to grow durian, the planted areas of durian still fluctuate from time to time.

Despite the many destinations for durian exports, it seems that the Chinese market is the most important destination. This market consumes fresh durian, which require less processing technology and less cost than other forms of durian. In addition, the quality of durian that the China market accepts covers a wider range than other destinations. As for Thailand, this situation may cause Thailand to lose the opportunity to develop its agricultural technology if it chooses to rely on only on the China market. The development of Thai durian exports to China seems to happen naturally by the marketing system; however, the changes to the export process in Thailand have encouraged the direct involvement by Chinese entrepreneurs that may hide the future concerns in each part of the supply chain.

## Appendix

Table 1: China fruit imports 2006-2016

Prod Code	Product Description	Trade Value in 1000 USD										
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0803	Bananas, including plantains, fresh	116248	111226	138549	179016	246819	401728	365858	335913	812675	775045	585607
0804	Dates, figs, pineapples, etc., fresh	33831	70481	83661	161497	169255	186736	237305	295807	255392	409702	364392
0805	Citrus fruit, fresh or dried	54642	54670	67312	74087	106059	148344	150776	166152	230034	267352	354850
0806	Grapes, fresh or dried	85359	81098	114704	189282	212390	358940	425205	552620	641158	637203	684936
0807	Melon and papaw, fresh	27764	24678	28348	34125	37064	51832	62633	56658	41659	38785	33535
0808	Apples, pears, and quinces, fresh	25301	34690	45215	53603	76007	116800	96169	73512	56608	160917	136525
0809	Apricots, cherries, peaches, plums	3919	14804	33279	54900	120151	235863	384726	386618	582939	777824	920036
0810	Other fruit, fresh, nes*	181271	219704	315543	457062	546220	885834	1343869	1603212	1746423	2001576	1873868
0811	Fruit and nuts, frozen	55805	78288	80429	65569	71714	98395	126659	112597	111802	140353	143010
0812	Fruit and nuts, provisionally preserved	976	3637	3213	3541	3409	3106	1976	2414	2144	2923	1718
0813	Fruit, dried, nes	35191	61366	64721	98348	78684	99106	97152	102526	70665	43894	74707
0814	Rind of citrus fruit and melon, fresh	507	170	1176	1600	2449	5857	6204	2501	4662	3137	919
<b>Total</b>		<b>620814</b>	<b>754813</b>	<b>976149</b>	<b>1372629</b>	<b>1670220</b>	<b>2592542</b>	<b>3298532</b>	<b>3690530</b>	<b>4556161</b>	<b>5258711</b>	<b>5174103</b>

Source: Based on UNCOMTRADE data drawn via WITS

Remark: \* “nes” on this figure and other figures and tables in the paper stands for not specified elsewhere. The category includes 7 fruits; 1) Strawberries, 2) Raspberries, blackberries, mulberries and loganberries, 3) Black/white/red currants and gooseberries, 4) Cranberries, bilberries and other fruits of the genus Vaccinium, 5) Kiwi fruit, 6) Durian, and 7) Other – each of sub-group fruit has its own product code; i.e. the product code for durian is 081060, but I have omitted this make it simpler to read.

Table 2: Thai durian trade 2012-2016

Trade*	Year				
	2012	2013	2014	2015	2016
<b>1. Domestic (mt)</b>	152,441	182,492	238,766	213,362	100,834
<b>2. Export (mt)</b>	371,946	386,746	393,009	388,522	417,122
2.1 Fresh durian	351,124	367,057	369,602	358,192	402,660
2.2 Frozen durian	13,895	13,662	17,143	22,187	20,430
2.3 Durian paste	501	230	455	690	720
2.4 Freeze-dried durian	392	465	353	401	340
<b>3. Export price (baht/mt)**</b>					
3.1 Fresh durian	17,644	20,010	33,646	36,981	43,383
3.2 Frozen durian	52,851	64,158	65,995	87,653	106,349
3.3 Durian paste	88,161	124,311	127,534	119,532	125,158
3.4 Freeze-dried durian	493450	600540	615886	723169	828736

Source: Office of Agricultural Economics, data from Thai customs

\* Collected by the Office of Agricultural Economics, data from Thai Customs

\*\* Price the exporter achieved for exporting durian

Remark: The author has selected the most likely accurate data as there is much data discrepancy between the reports and tables.

Table 3: Durian planted area, harvested area, production, yield per rai, farm gate price, and farm gate value, 2007-2016

Year	Planted area (1,000 rai)	Harvested area (1,000 rai)	Production (1,000 rai)	Yield per rai (kg)	Farm gate price (baht per kg)	Farm gate value (million baht)
2007	683	629	662	1,053	16.75	11,089
2008	726	668	638	955	20.93	13,353
2009	683	629	662	1,053	21.52	14,246
2010	665	612	569	929	25.36	14,430
2011	662	604	509	843	27.76	14,130
2012	645	582	524	902	31.92	16,726
2013	656	577	569	986	40.45	23,016
2014	667	571	632	1,107	34.29	21,671
2015	687	573	602	1,050	46.96	28,270
2016	(p) 715	(p) 582	(p) 518	(p) 890	62.96	32,613

Source: Yearbook<sup>xxxvii</sup>

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- <sup>2</sup> Fresh Produce Forum China: Closing Report. (2017). Retrieved from [http://www.asiafruitlogistica.com/Press/PressReleases/News\\_41990.html](http://www.asiafruitlogistica.com/Press/PressReleases/News_41990.html)
- <sup>3</sup> Based on UNCOMTRADE data drawn via WITS
- <sup>4</sup> Please see Table 1 in the Appendix for the exact trade value.
- <sup>5</sup> The 7 fruits are 1) Strawberries, 2) Raspberries, blackberries, mulberries and loganberries, 3) Black/white/red currants and gooseberries, 4) Cranberries, bilberries and other fruits of the genus *Vaccinium*, 5) Kiwi fruit, 6) Durian, and 7) Other
- <sup>6</sup> Please see Table 4 in the Appendix for the details.
- <sup>7</sup> “nes” on this figure and other figures and tables in the paper stands for not specified elsewhere.
- <sup>8</sup> Interview at a sorting and packing plant, Chantaburi, June 20, 2017
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- <sup>13</sup> Interview at a sorting and packing plant, Chumphon (Langsuan), August 22, 2017
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- <sup>18</sup> Interview with the durian farmer and former Chairman of the Chantaburi Chamber of Commerce, June 17, 2017
- <sup>19</sup> งานวิจัยการจำแนกพันธุ์ทุเรียนพื้นบ้านด้วยลายพิมพ์ชีวโมเลกุล. (2560). *เคหเกษตร*. Retrieved from [https://www.kehakaset.com/articles\\_details.php?view\\_item=451](https://www.kehakaset.com/articles_details.php?view_item=451)
- <sup>20</sup> Interview at a sorting and packing plant, Chantaburi, June 20, 2017
- <sup>21</sup> See specific and full details in Table 2 in the Appendix
- <sup>22</sup> Interview at a sorting and packing plant, Chantaburi, June 20, 2017
- <sup>23</sup> Interview the President, Knowledge Center of Agricultural Production Efficiency, and a durian farmer, Patiew District, Chumphon, October 4, 2016
- <sup>24</sup> Interview at a sorting and packing plant, Chantaburi, June 20, 2017



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- <sup>29</sup> Interview at a Chinese sorting and packing plant in Pongnumron, September 7, 2017
- <sup>30</sup> Interview at a Thai sorting and packing plant, August 22, 2017
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- <sup>36</sup> Interview at a sorting and packing plant, Chumphon (Langsuan), August 22, 2017
- <sup>xxxvii</sup> Office of Agriculture Economics. (2016). Retrieved from [http://www.oae.go.th/download/download\\_journal/2560/yearbook59.pdf](http://www.oae.go.th/download/download_journal/2560/yearbook59.pdf)