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## Market opportunities for Thai beef cattle exports to Yunnan province, China

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**Abstract** The study described beef cattle production, demand, consumption, and prices in ASEAN and China. It presented the internal and external factors of market opportunities for Thai beef cattle exports to China. The Thai domestic fresh beef market is divided into local, middle, and premium markets. There are risen in expectation about constant growth in premium markets, and the consumers are paid a premium for high-quality beef products. In 2015, Thailand and China showed lower population of beef cattle compared with demand. However, China kept the highest market prices in both local and modern markets: 330–420 and 500–560 baht/kg, respectively. From 2011 to 2015, beef consumption in China is increased by approximately 12 percent (808 metric tons). Similarly, live beef cattle imports in China is increased by 35,097 head, which 26 percent increased. In the same period, Thailand showed a dramatic rise in exports by 87,602 head, which 68 percent increased. The rapid increasing in beef imports in China showed that Chinese domestic beef consumption is accelerated and consumer demand for beef continues to grow and great opportunity for the Thai beef cattle export business exists. Thailand's efficient production system matches the strong consumer demand for a premium market, especially for a Chinese health-conscious market. By analyzing all the factors from the SWOT matrix, the results revealed that IFE was 2.534, EFE was 2.359, and the total weight scores was 4.893, which indicated a significant opportunity for Thai beef cattle exports by minimizing weaknesses.

**Keywords:** ASEAN, beef cattle, China, market

### Introduction

Beef cattle in Thailand can be classified into three groups. The first and most common group is *Bos indicus*, the Thai native cattle genetic type, which accounts for approximately 60 percent of the Thai beef cattle population. They

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have high fertility, although productivity is low: live weight at 24 months is only 150–200 kg for heifer and 200–250 kg for steer; and the average meat yield is 32–33 percent or 50–60 kg/head. The Thai native cattle are well adapted to utilize agricultural by-products. The second major group consists of the Brahman pure breed and Brahman crossbreed, approximately 35 percent of the population. Both breeds are used in a production system with roughage and agricultural by-products. The third group is fattening beef cattle. Angus and Charolaise pure breeds (genetic type: *Bos taurus*) have been hybridized with Brahman pure breed cattle, resulting in improved performance. These cross-bred cattle are well adapted to the tropical environment but grow slower and have lower productivity than pure *Bos taurus*.

In 2015, Thailand's beef cattle population decreased by approximately 3.38 million as compared with that in 2005 due to strong demand for beef. The annual beef consumption rate increased by approximately 5–10 percent per year. A look at the structure of Thai beef production shows the northeast region being the main source of beef production in the country (47.76 percent), the central region being next (21.36 percent), with the north and the south following at 16.91 and 13.97 percent, respectively. Thailand imported 125,176 live cattle from Myanmar in 2015; particularly, the cattle imports came through cross-border trade. Thailand has become an exporter of cattle, including breeding cows and it has also become a transit country for cattle movement from Myanmar to China, benefiting from the growing beef demand in China. As to exports, live beef cattle were sent to Thailand's main border crossings, including Mae Sod (in Thailand)–Myawadee (in Myanmar), Tak, Mae Hong Son, and Kanchanaburi for the purpose of fattening and re-export. Live beef cattle exports to China (Yunnan) through Laos accounted for 93 percent and Vietnam followed, with 5 percent (Angkurasanee *et al.*, 2016a). There were two main routes in the border trade systems. One route was shipping, about 70 percent, passing through the Chiang Saen (Mekong River), known as the Golden Triangle, to the Sabai Pier (Myanmar) before entering China. The other was land transportation, 30 percent, through Chiang Khong (Chiang Rai), on the R3A route, to Laos and then through the checkpoint in Xishuangbanna to China (Angkurasanee *et al.*, 2016b). The export patterns and data in northeast Thailand and Yunnan in China are from research studies and field surveys carried out by the author.

Thailand tended to export beef cattle to China and to countries in the ASEAN region, such as Malaysia, Cambodia, Laos, and Vietnam. This tendency was influenced by the population growth of these countries between 2005 and 2015. Malaysia had the highest population increase of 18.28 percent (31.7 million), followed by Laos, Cambodia, and Vietnam, with a population

increase of 14.48 percent (6.8 million), 13.62 percent (15.6 million), and 10.07 percent (92.7 million), respectively. China had the least population growth of 4.38 percent (1,374.62 million), but it had the highest rate of increase, of 86.29 percent (6,497.50 USD) in average annual income of the people. Myanmar and Laos followed, with 78.98 percent (1,308.70 USD) and 60.52 percent (1,531.20 USD), respectively. The rest of the countries had less than 50 percent of the increase in average annual income (Trading Economics, 2017).

The rising population and per capita income and the change in consumption patterns in these regions resulted in a growing demand for beef. Beef production in China is inadequate and cannot meet its beef consumption; China has thus become a great importer in the global beef market. Located at a key logistical hub in the ASEAN region, Thailand has a strong potential to enhance its competitiveness in these markets. Since Thailand has had a major border trade system, its beef cattle exports have increased. The exports of Thai beef cattle to China was booming in 2013; however, recent changes in the trading conditions of neighboring countries and the changes in trade routes of beef cattle, especially to China, have led to inquiries about the potential and market opportunities for Thai beef cattle exports to China. The objectives were to identify internal and external factors relating to beef cattle enterprises, look at the prospects and market opportunities for Thai beef cattle exports to China, and to assess trends of beef population and prices in 10 members of ASEAN and China.

## **Materials and Methods**

### ***Data collection and interviews***

The research area focused on Yunnan province in China because of its regional characteristics. Yunnan is located in the southern part of China and the borderland near Thailand. Around this area is the so-called Golden Triangle, where the borders of Thailand, Laos, and Myanmar meet at the confluence of the Raak and Mekong rivers. This area covers approximately 367,000 square miles, which overlap the mountains of the three adjacent countries. In Thailand, the Golden Triangle area is part of Chiang Rai province, in the far north of Thailand. Livestock raising is common in this region with beef cattle, buffalo, dairy cattle, and poultry. In the markets in Yunnan (China), live beef cattle from adjoining or nearby countries, including Thailand, are gathered; then, they are transferred to other parts of China.

Data were collected from both primary and secondary sources, such as statistics, population, prices, exports, imports, and computation. Purposive

sampling and snowball sampling techniques (Biernackai and Walnorf, 1981; Boyce and Naele, 2006) were used to determine the target sample. For primary data collection, a semi-structured questionnaire was used and collected from stakeholders by in-depth interviews (Boyce and Naele, 2006), non-participant observation, and focus group discussions. The beef cattle supply chain involved many players, a total of 384 people, started from primary producers or ranchers (100), manufacturers or processors (10), exporters or importers (4), wholesalers or retailers (20) and consumers (250) from 2014 to 2015. These activities included design, production, marketing, distribution, and support services up to reaching the final consumers. It is used a qualitative research, content analysis and data triangulation which were adopted in order to confirm the validity of qualitative data. To make a clearer picture of beef cattle market opportunities, data on imports and exports and secondary data were collected from various sources such as the Department of Livestock (2015), Department of International Trade Promotion (2015), Food and Agriculture Organization of the United Nations, FAO (2016), Global Trade Atlas database (2016) and the United States Department of Agriculture (USDA, 2016).

### ***Data and information analysis***

The methodology was designed to analyze the market opportunities for Thai beef cattle exports to China. The secondary statistical information was analyzed by descriptive statistics through SAS (2013) software. The main objective was identified internal and external factors relating to beef cattle enterprises by conducting focus group discussions and interviews using the questionnaire. The group discussions were conducted by nine groups and each group, there were 8 to 10 players of the beef cattle supply chain, i.e. farmers, manufacturers, business people, and representatives of government departments.

### ***Analyzing the SWOT matrix***

The analytical instrument was the matrix of SWOT (strengths, weaknesses, opportunities, and threats). The strengths and weaknesses can be found in an organizational body, including the particular business unit, while opportunities and threats are environmental factors that confront organizations, companies, or business units in question. The matrix combines the opportunities and threats that are being faced; it can be further tailored according to existing strengths and weaknesses to produce SO, ST, WO, and WT alternative strategies. Armstrong (2006), David (2009) and Achmad *et al.*

(2013) also used or cited the SWOT analysis. The internal factor evaluation (IFE) matrix is used to determine the internal factors that affect the competitiveness of the beef cattle industry, which deals with strengths and weaknesses. Data and information on the internal aspects of the beef cattle industry can be obtained from management, finance, marketing, information systems, production, and operation. The external factor evaluation (EFE) matrix evaluates the external factors that determine the success of the beef cattle industry in competition. The relevant external data are collected for analysis. These factors are related to economic, social, cultural, demographic, environmental, political, government, legal, technological, and competitive aspects in markets. This is important because external factors have a direct or indirect influence on the beef cattle industry (David, 2009).

## **Results**

The results are presented in the following five headings: (1) beef markets in Thailand; (2) ratio and trend of beef cattle population in ASEAN and China; (3) beef prices in ASEAN and China; (4) beef consumption in China; and (5) market opportunities for Thai beef cattle exports to China.

### ***Beef markets in Thailand***

The Thai domestic fresh beef market is divided into three levels: local market, middle market, and premium market. The local market (meatball markets) is a market where raw materials are obtained from local cattle, discharged cattle, and imported cattle from neighboring countries. The middle market involves most of the distribution channels (supermarkets, general food shops, and fresh-meat markets). The premium market (high-class butchers' shops, department stores, hotels, and luxury restaurants) needs only high-value cuts of meat.

Local market: From 2014 to 2015, the local market share was about 50 percent. The prices of cattle depended on their age and conformation. Typically, Thai native and Brahman breed, including culled and old cows, were directly sold in feedlots by local market producers to brokers or middlemen. To increase body muscle and fat percentages, culled or old cows were fattened for 3–4 months using agricultural by-products, such as rice straw, cassava pulp, and pineapple peels. Buyers were usually wholesalers or slaughterhouse owners who slaughter cattle for retailers and ranchers who purchase stock for breeding or fattening. To transfer livestock across provincial boundaries, cattle holders were required to obtain an individual movement license or permission from the

local livestock officer; they also need to hold a health certificate signed by a government veterinarian.

**Middle market:** The market share for middle markets from 2014 to 2015 was about 48 percent. The middle beef market is produced from crossbreeds, including Brahman, Angus, and Charolaise. Midstream ranchers purchase the quality live cattle from upstream ranchers and transfer them to cooperatives for further beef production downstream. Cattle are traded from the stocker system producers to the business people who supply the beef to fresh-meat markets, supermarkets, and restaurants. They are sold directly to consumers and priced by consumer demand and quality of the products. Young cattle are fed for a certain period before being sold to the beef-processing industry.

**Premium market:** The premium market share from 2014 to 2015 was about 2 percent. In this market, there are business units to carry out planning, production, and delivery management of supplies from upstream ranchers to midstream ones. Beef cattle produced on the finishing system are specific on the *Bos taurus* cattle breed, including Angus, Charolaise, and Wagyu. A high energy dietary regime in the intensive system is used for fattening cattle for a specific market. Cattle are fattened for 8–12 months to reach 550–600 kg body weight for high-quality beef with ample tenderness and high intramuscular fat content. Normally, the beef cattle production cycle from birth to finished cattle averages 3–3.5 years. The carcass is chilled and aged for more than 2 weeks to improve tenderness for the premium market.

The flow of live cattle from upstream farmers to downstream consumers has taken a long time. If cattle were counted from suckling calves, it will take about 2–3 years for the first young cattle to be delivered to cattle feeders and then another 1–2 years for fattening before cattle are sent away for meat processing. As for the beef that is transferred to the middle and local markets, the flow will take a shorter period. All fresh meat is required to be sold out within one day after beef processing is completed. On the other hand, in the premium market, the beef will undergo a ripening process for a period of about 7–30 days before being passed on to the cutting-up process. Meat ripening will help enhance tenderness, especially that of the European blood and the high-blood Brahman cows.

### ***Ratio and trend of beef cattle population in ASEAN and China***

Table 1 illustrates the beef cattle population of the 10 members of ASEAN and China between 2011 and 2015. There was a gradual decline with negative growth in most countries, except for Indonesia, Laos, Myanmar, and the Philippines. Population size in Thailand continued to drop by 20.03 percent

during these 5 years. By contrast, the highest increasing rate was found in Laos and Myanmar, 18.86 and 13.52 percent, respectively. In 2015, China, with 82,265,743 head of beef cattle, had a negative 0.9 percent growth; however, this figure almost doubled the total population of all ASEAN members: 82 million head as against 49 million head. Among the ASEAN members, Myanmar showed the highest beef cattle population (15,993,276 head).

**Table 1.** Ratio and trend of beef cattle population in ASEAN countries and China

Country	Population					Trend
	2011	2012	2013	2014	2015	(%) *2011 vs 2015
Brunei	899	812	800	800	742	-17.46
Cambodia	3,406,972	2,914,974	2,900,000	2,875,000	2,875,000	-15.61
Indonesia	14,824,373	15,980,697	12,686,239	14,726,875	15,419,718	4.02
Laos	1,538,000	1,692,000	1,14,000	1,766,000	1,828,000	18.86
Malaysia	768,710	744,377	751,629	743,019	742,338	-3.43
Myanmar	14,088,043	14,559,000	15,481,101	15,481,101	15,993,276	13.52
Philippines	2,518,400	2,493,157	2,497,908	2,512,184	2,534,243	0.63
Singapore	200	200	200	200	178	-11.00
Thailand	5,809,701	5,392,579	5,147,521	4,898,575	4,646,092	-20.03
Vietnam	5,436,600	5,194,178	5,156,727	5,234,300	5,367,600	-1.27
China	83,023,758	80,402,985	80,328,809	80,652,987	82,265,743	-0.91

Source: FAO (2016)

Note: \* = Compare beef cattle population in 2011 vs 2015

### ***Beef prices in ASEAN and China***

The beef prices in the local and modern markets of seven countries of ASEAN and China can be compared in Table 2. From 2014 to 2015, there were considerable price differences between the markets, especially in Vietnam, Cambodia, Malaysia, and China. The largest price gap was found in Vietnam: the local price was 300–360 (baht/kg); the modern market price was 500–520 (baht/kg), approximately 66–44 percent difference. China placed second, with more than double that of (approximately 51–33 percent) Thailand's market price gap (approximately 21–10 percent). Meanwhile, Laos had the least price

gap between the markets, which was only approximately 7.6–16 percent difference. In terms of price level, China kept the highest prices in both local and modern markets, 330–420 and 500–560 (baht/kg), respectively, while Myanmar had the lowest prices, 200–250 and 250–300 (baht/kg), respectively.

**Table 2.** Beef market prices from 2014 to 2015

Country	Price (baht/kg) *		Local vs modern market	
	Local market	Modern market	Price (baht/kg)	%
Thailand	230–290	280–320	50–30	21–10
Myanmar	200–250	250–300	50–50	25–20
Laos	260–300	280–350	20–50	7–16
Vietnam	300–360	500–520	200–160	66–44
Cambodia	280–320	400–450	120–130	42–40
Malaysia	300–350	450–500	150–150	50–42
China	330–420	500–560	170–140	51–33

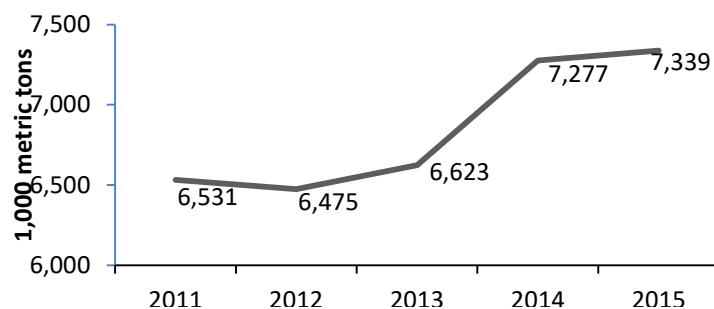
Note: \* = Survey beef prices in China (Yunnan Province) from 2014 to 2015

### ***Beef consumption in China***

There was a close correlation between beef consumption in China and quantity of live beef cattle imports into China (Figure 1, Table 3). Overall, there were upward trends from 2011 to 2015 in both sectors: beef consumption increased by approximately 12 percent (808 metric tons) and live beef cattle imports rose by more than 26 percent (35,097 head). With growing consumer demand, domestic beef consumption increased constantly, except in 2012, which declined by less than 1 percent. In 2014 as beef consumption increased sharply by approximately 9.8 percent (654 metric tons) from 6,623 metric tons to 7,277 metric tons, there was an even greater increase in the quantity of imports into China, which peaked at 208,337 (head), an increase of about 68 percent as compared with the previous year.

Thailand’s beef imports fluctuated considerably during the 5 years, which was influenced by market conditions, especially by the premium market (Table 3). In 2011, beef cattle exports were 127,455 head, more than the years of 2013 and 2014. In addition, the level of live beef cattle in Thailand was greater than its imports, by an average of 92 percent, whereas China showed greater imports than exports, by an average of 80 percent.





**Figure 1.** Beef consumption in China from 2011 to 2015

Source: Livestock and poultry: world markets and trade USDA foreign agricultural service (2016).

**Table 3.** Import and export quantity of live beef cattle for China and Thailand

Element	Year				
	2011	2012	2013	2014	2015
<b>China</b>					
Import (head)	132,213	152,751	123,899	208,337	167,310
Export (head)	31,721	28,435	21,053	38,567	37,997
<b>Thailand</b>					
Import (head)	71,672	74,601	204,882	126,790	130,641
Export (head)	127,455	169,389	333,947	292,048	215,057

Source: FAO (2016)

### *Market opportunities for Thai beef cattle exports to China*

The rapid increasing in beef imports into China illustrated that Chinese domestic beef consumption has increased substantially and that there will be an opportunity for Thailand to open a large export market. Market opportunities for Thai beef cattle exports to China can be divided into two factors, internal and external.

Internal factors affecting Thai beef cattle markets: the IFE matrix is a strategic management tool used for evaluating strengths (S) and weaknesses (W) for internal factors that affect the development of market opportunities. It can be seen from Table 4 that the total of the weight scores was 2.534, which indicated a great opportunity to formulate effective strategies for enhancing strengths and minimizing weaknesses.

Strengths: Thailand's beef cattle population (4,898,575 head) was approximately threefold lower than Myanmar's (15,543,000 head). Thai traders import beef cattle from Myanmar and raise them for a short period for proper weighting, nutrition, and hygiene. About 3–6 months later, traders export them to China. Thailand's beef cattle production system is efficiently industrialized. Thai beef cattle are grass-fed, which leads to good-quality, low-fat, and

nutrient-rich profile of beef. It is matched the strong demand in the premium market, especially the Chinese health-conscious market. Thai beef can also be used for a wide variety of dishes such as boiled curry soup. It is suitable not only for domestic consumption but also for neighboring countries with similar cultures. Thai beef is significantly preferred by Chinese consumers as it is suitable for cooking the common Chinese beef stew.

Weaknesses: The beef cattle supply in Thailand is inadequate to meet its domestic demand and export requirements to China. Therefore, Thailand's beef export business depended on imports from Myanmar, market stability, and growth of the Chinese market, which may impede the growth of the Thai beef cattle industry. Besides, beef cattle producers are found difficult profitability since they have ensured the quality control, improved the capacity of beef producers, and promoted the price competitiveness that is crucial for increasing beef exports.

**Table 4.** The internal factor evaluation matrix

Internal strategy factor	Weight coefficient importance (0-1)	Rating (1-4)	Score (coefficient*rank)	
<b>Strengths</b>				
S1	Rapid growth in supermarkets, restaurants, and tourist hotels	0.077	4	0.308
S2	Consumer preference for beef	0.071	4	0.284
S3	Efficient domestic production system	0.069	4	0.276
S4	Preferred geographical area, climate, and breed	0.067	4	0.268
S5	Government support from the central or districts consisting of developing programs	0.074	3	0.222
S6	Availability of innovative technology	0.070	3	0.210
S7	Availability of cattle beef cooperation groups	0.065	3	0.195
Total strengths			1.763	
<b>Weaknesses</b>				
W1	Inadequate supply of beef cattle for domestic and exports	0.069	2	0.138
W2	Low productivity	0.069	2	0.138
W3	Lack of meat processing knowledge	0.063	2	0.126
W4	Financial limitation for cattle beef ranchers	0.063	2	0.126
W5	Lack of sufficient and proper slaughterhouses	0.067	1	0.067
W6	Difficulty in achieving profitability	0.066	1	0.066
W7	Lack of feed and fodder	0.056	1	0.056
W8	Limitation of local cattle breed	0.054	1	0.054
Total weaknesses			0.771	
Total			1.000	
			2.534	

### ***External factors of Thai beef cattle market***

The EFE matrix is used for identifying the value weight of opportunities (O) and threats (T) for the Thai beef cattle market. The results showed that the total of the weight scores was 2.359, which indicated beef cattle agribusiness had significant opportunity while minimizing the threats in the research area (Table 5).

**Opportunities:** With rapid economic growth and improvement in the standard of living of people in China, the buying power of the Chinese has dramatically increased. In recent years, China has processed a large number of cattle products and become one of the world's largest beef importers. In this regard, there is high potential for significant growth in the Thai meat processing industry. It is also an opportunity to export grass-fed Thai beef, which is preferred by the Chinese.

**Threats:** Prices and costs of beef in Thailand were high, although lower cost and easier transportation into China are essential; as a result, growth of exports to China was slow. Thai beef cattle costs were higher than those of imported beef cattle from Australia or Brazil. Furthermore, government regulations in Thailand increased, such as restrictions on the use of antibiotics for the production, care, and well-being of livestock. With trade barriers, access to Chinese markets was limited.

### ***IE Matrix***

The IE matrix is used to evaluate internal factors (strengths and weaknesses) and external factors (opportunities and threats) of Thai beef cattle agribusiness. The final scores of the internal and external factors evaluation matrix were 2.534 (IFE) and 2.359 (EFE), respectively (Tables 4 and 5). It indicated a stability strategy that was adopted without changing the direction of the predetermined strategy. Therefore, it can be concluded that the strategy of developing market opportunities for Thai beef cattle exports to China has been effectively done using strength and minimizing weakness factors.

### ***Formulating alternative strategies***

The different types of strategies were put on the strategic planning table after the examination of specific components of SWOT. The SWOT model comprised a two-dimensional coordinate table, each of four areas was the maker of a group of strategies. Based on various findings from the SWOT

analysis, four alternative strategies are formulated as follows—SO, ST, WO, and WT strategies.

**Table 5.** The external factor evaluation matrix

Internal strategy factor	Weight coefficient importance (0-1)	Rating (1-4)	Score (coefficient*rank)	
<b>Opportunities</b>				
O1	Potential demand for Thai beef cattle	0.074	4	0.296
O2	Increasing the buying power of the Chinese market	0.068	4	0.272
O3	Rising expectations about high-quality beef products	0.065	4	0.260
O4	Chinese consumer preference for beef	0.060	4	0.240
O5	Government support to develop beef cattle	0.067	3	0.201
O6	High potential for significant growth in Thai meat processing industries	0.061	3	0.183
O7	Labor intensive and employment opportunities	0.055	3	0.165
Total opportunities			1.617	
<b>Threats</b>				
T1	High cost of Thai beef cattle (including transportation into China)	0.066	2	0.132
T2	Global marketing toward free market (FTA)	0.065	2	0.130
T3	Increase in cattle prices	0.061	2	0.122
T4	Trade barriers	0.068	1	0.068
T5	Poor access to Chinese markets	0.065	1	0.065
T6	Increase in feed prices	0.063	1	0.063
T7	Increase in Thai government regulations	0.060	1	0.060
T8	Beef cattle smuggling into China	0.053	1	0.053
T9	Absence of pasture land	0.049	1	0.049
Total threats			0.742	
Total			1.000	2.359

SO strategy or aggressive: The SO strategy was formulated through maximum use of environmental opportunities with application of the strengths of the beef cattle agribusiness. Farmers, value chain actors, and meat processing industries should be involved in the development of an integration strategy by establishing new meat processing farms and slaughterhouses and determining strategies for marketing with the goal of increasing domestic and foreign market shares.

ST strategy or competitive: The ST strategy was generated by using strengths of the beef cattle agribusiness to avoid threats. This can be achieved by developing innovative technology, boosting efficiency in the production system, and improving the safety of cattle in a legal way.

WO strategy or conservative: The WO strategy was formulated by considering the advantages of an opportunity to minimize the weaknesses. In a medium-term strategy, the government has a role to play, such as supporting ranchers to increase their knowledge and ability with training programs and assistance and also providing input and market linkage. This may enhance the productivity of beef cattle.

WT strategy or defensive: The WT strategy was formulated by considering minimization of weaknesses to cope with the threats. In a long-term strategy, the government optimizes its role by supporting ranchers' potential and financial status by arranging access to institutional credit at reasonable interest rates.

## **Discussion**

The Chinese economy has rapidly expanded over the past decades, thereby dramatically changing the standard of living of its people. Beef consumption in China has outpaced domestic beef production due to low productivity, which has led China to enter the global market as a beef consumer. China is now a major player in terms of consumption, production, and trade in both international and regional beef industries. According to Li *et al.* (2018), beef consumption in China was estimated at 2.8 kg per capita in 1996 and this reached 5.8 kg per capita in 2017. It was a 107.14 percent increase in beef consumption per capita over the past 20 years. Hocquette *et al.* (2018) reported that Chinese beef consumption in 2011 was 5.5 million tons and the estimated figure will be 6.6 million tons in 2021, expectation of a 1.1 million may increase. The total beef consumption and production in China may increase from 2011 to 2025.

In Thailand, climatic or on-farm difficulties and national policy issues to improve cattle production was identified. Agricultural business is highly

competitive in the global market since Thailand has high potential in the areas of natural resources and geographical consequence for Thai beef cattle exports to neighboring countries; especially, to China. There are advantages in logistics and supply chain management. These give the Thai beef cattle industry a significant advantage over beef production in the Chinese market and it is likely to be expanded into the ASEAN markets. Based on the results of the SWOT analysis, the total weighted scores of strengths, weaknesses, opportunities, and threats were 1.763, 0.771, 1.617, and 0.742, respectively. The scores of strengths and opportunities were higher than the scores of weaknesses and threats, indicating a great opportunity for the Thai beef cattle export business. The findings of Suryana *et al.* (2009), Achmad *et al.* (2013), and Sarma and Raha (2015) showed similar results.

In conclusion, there was a shift in food consumption trends depending on consumer preferences and their needs; furthermore, public and market expectations of constant growth in the premium market are rising. This indicates that consumers are willing to pay a premium for guaranteed high-quality beef products. Under these circumstances, beef producers or entrepreneurs should respond to these changes and take it as an opportunity to increase profitability by varying their production. The calf-crop operation is a key sector for Thailand. To develop a sustainable cattle industry, the government should conduct further research for improving the production efficiency of beef cattle production. Increasing the knowledge and ability of ranchers through training programs or assistance is suggested. In addition, to elevate the role of beef cattle as meat suppliers and livestock income sources, it is advisable to apply an improved maintenance system with feed management and disease control. Moreover, to enhance growth in the beef cattle industry and to take market expectations forward, improvement in cattle management, investment in commercial cattle fattening, meat processing, slaughterhouses, butcher equipment, distribution network, and technology are required. Lastly, to make better organization of beef production and supply chain as part of a sustainable system, it will need to consider other issues, such as animal welfare, environmental impact, national policy support, and financial support for ranchers.

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