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Production and Market of Certified Organic Products in Thailand

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***Abstract*—**The objective of this study was to assess the production and market of certified organic products in Thailand. A purposive sampling technique was used to identify a sample group of 154 organic entrepreneurs for the study. A survey and in-depth interview were employed for data collection. Also, secondary data from organic agriculture certification body and publications was collected. Then descriptive statistics and content analysis technique were used to describe about production and market of certified organic products in Thailand. Results showed that there were 9,218 farmers on 213,183.68 Rai (83,309.2 acre) of certified organic agriculture land (0.29% of national agriculture land). A total of 57.8% of certified organic agricultural lands were certified by the international certification body. Organic farmers produced around 71,847 tons/year and worth around THB 1,914 million (Euro 47.92 million). Excluding primary producers, 471 operators involved in the Thai organic supply chains, including processors, exporters, distributors, green shops, modern trade shops (supermarket shop), farmer's markets and food establishments were included. Export market was the major market channel and most of organic products were exported to Europe and North America. The total Thai organic market in 2014 was estimated to be worth around THB 2,331.55 million (Euro 58.22 million), of which, 77.9% was for export and 22.06% was for the domestic market. The largest exports of certified organic products were processed foods (66.1% of total export value), followed by organic rice (30.4%). In the domestic market, modern trade was the largest sale channel, accounting for 59.48% of total domestic sales, followed by green shop (29.47%) and food establishment (5.85%). To become a center of organic farming and trading within ASEAN, the Thai organic sector needs to have more policy support in regard to agricultural chemicals, GMO, and community land title. In addition, appropriate strategies need to be developed.

***Keywords*—**Certified organic products, production, market, Thailand.

I. Introduction

ORGANIC agriculture has been practiced in Thailand for almost 30 years. The development of Thai organic agriculture has gone through both upward and downward periods affected by both local and international political and economic environments. The collapse of the Thai economy in 1999 had both positive and negative implications, e.g. it encouraged more organic conversion as agro-chemical farm inputs became more expensive and Thai organic exports were more competitive, but it slowed down the growth of domestic markets due to tight financial flow. The active engagement of the government in organic agriculture since the early 2000s helped to promote more farm conversion for both the domestic market and exports. The oil crisis in the mid-2000s encouraged the conversion of producers and slowed down the domestic market development. Overall, Thai organic agriculture has been growing at quite a steady rate fueled by the expansion of export opportunities, especially in the EU and US in recent years. The domestic market also emerged quite a long time ago, but it has not developed due to unfavorable domestic politics and economic conditions [1], [2]. The majority of organic producers are family farms organized under grower group program or organic projects. The main organic agriculture products are crops, rice and vegetables [3]. Today, a greater variety of organic products is being produced such as organic livestock, organic aquaculture, and non-food products (organic textile, organic cosmetic, and so on). In the beginning, organic agriculture products were produced mainly for the export market, especially organic rice. Later, more organic agriculture products were produced and sold domestically, to meet the demand that has significantly increased in the last ten years. Domestic organic markets are mostly limit to the major cities of the region, such as Bangkok and Chaing Mai. The Thai organic product market is still limited in size and is small compared with other countries' markets.

Despite the growth of organic production in Thailand, there are few studies related to organic production and the market. The most recent available information and data is not comprehensive enough to describe local organic sector in any detail. A comprehensive study, focusing on production and the market for organic products was jointly conducted by the Organic Development Center (Sukhothai Thammathirat Open University) and the Earth Net Foundation, with financial support of the Thai Ministry of Commerce. The Ministry of Commerce expects to use the results of the study to formulate policies and marketing strategies for promoting Thai organic products both in locally and abroad.

II. Methodology

A. Criteria

The authors first defined what organic products to be covered in this study. It was decided that only those products and markets clearly using the term "organic" in Thai or English, and having some kind of certification or guarantee classification (e.g. third party certification of national and international standards, as well as local participatory guarantee classification) would be included within the scope of this study.

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The next step was to define market channels. Beside exports, the domestic channels should be those with focus on organic retailing. This means that producers and traders focusing on wholesale and who have minimal retailing activities are excluded from the survey. Also retailers (e.g. shops or supermarkets) which may stock only one or a few products are also not considered organic market channels and are thus excluded. Table I shows the detailed criteria used to evaluate whether a sale point is to be included in the survey.

B. Data Collection

A purposive sampling technique was used in this study to identify a sample group of 154 organic entrepreneurs including 18 exporters, 15 green shops, 98 sale points of -modern trade, 13 farmer's markets, three membership markets, one e-commerce, and seven food establishments. A nation-wide survey and in-depth interviews were conducted to compile the full list of organic points of sale in each category from June to July 2015. Also secondary data from organic agriculture certification bodies and relevant publications were collected to define and describe certified organic agriculture production in Thailand.

TABLE I
THE STUDY CRITERIA ON ORGANIC PRODUCT AND MARKET CHANNEL

Category	Criteria
Exporters	Exporting certified organic products
Green Shop	For small shop with less than THB 5 million sale revenue, sale of certified organic products is more than 10% of total sales For large shops with more than THB 5 million sale revenue (for each branches), sale of certified organic products is more than 3% of total sales
Modern Trade	Sale of certified organic products is more than 0.5% of total sales
Farmer's market	A minimum of 20% of the regular stalls in the market are selling certified organic products
Membership market (e.g. box scheme, CSA)	A minimum of 20% of products sold are certified products
Direct sale and e-commerce	A minimum of 20% of products sold are certified products
Food establishment (e.g. restaurant and cafe)	A minimum of 5 menu offered use more than 50% of certified organic products. The menu may not have organic certification.

The questionnaire for each entrepreneur category was designed and tested before use. The certified organic products included in the survey were divided in to two categories; 1) food products (rice products, vegetable and fruit products, processing food products) and 2) non-food products. The questions were designed to gather information about the stakeholders, market channel, market chain, volume and value sales of certified organic products were used in the questionnaire and in-depth interview.

C. Data Analysis

The data from the questionnaire were analyzed using descriptive statistics, such as percentage and mean. The content analysis technique was used for analyzing the data from the organic agriculture certification bodies, relevant publications, and in-depth interviews to describe the production of and markets for certified organic products in Thailand.

III. RESULTS

A. Certified Organic Agriculture Production

Organic agriculture production in Thailand can be divided into two categories: self-reliance organic agriculture and certified organic agriculture. The key stakeholders of self-reliance organic agriculture are farmers. But the key stakeholders of certified organic agriculture are local entrepreneurs who have links to overseas markets. Certified organic land increased rapidly from 2001 to 2013 [4]. (Fig. 1) The average growth of certified organic land between 1998 and 2013 was about 39.9% per year. However, the number of farmers and certified organic land still remains limited. There were 9,218 farmers on 213,183.68 rai (83,309.2 acres) of certified organic agriculture land in 2013 (Table II). Certified organic agricultural land accounted for 0.29% of all national agriculture land. Of that, some 57.8% of certified organic agriculture land was certified by an international certification body. Most certified organic agriculture land (125,730.71 rai or 49,710.03 acres) was used for rice growing, followed by field crops at 42,865.57 rai (16,947.72 acres), and other crops and mix crop at 15,685.48 rai (6,201.59 acres) and 9,145.09 rai (3,615.69 acres). Number of certified organic farms in 2013 also increased to 9,281 farms, account for 0.18% of national farm.

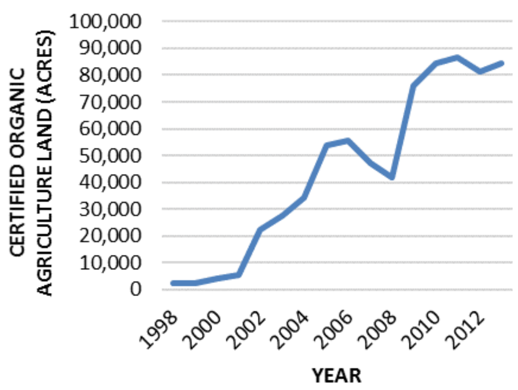

Fig. 1 Certified organic land from 1998 to 2013 (Note: 1 rai = 0.395369 acre)

Production of certified organic has increased annually since 2004, rising from 15,996.1 tons to 71, 847.2 tons in 2013 (Table III). In 2013, the main organic agricultural crop was rice at 44,005.8 tons, followed by field crops and fruits at 12,002.4 tons and 4,770.7 tons, respectively. Production volumes increased sharply from 2010 to 2013, with organic farms producing around 71,847.2 tons/year, with a value of around THB 1,914.8 million (Euro 47.92 million) (Table IV).

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TABLE II
CERTIFIED ORGANIC AGRICULTURE LAND (RAI) AND NUMBER OF FARM BETWEEN 2010-2013[4], [5]

	2009	2010	2011	2012	2013
Rice	112,152.27	138,328.03	140,711.61	124,964.39	125,730.71
Field crop	45,920.63	46,682.07	46,682.07	46,691.44	42,865.57
Vegetable	18,066.51	7,047.70	7,132.83	4,443.45	4,433.33
Fruit	7,342.20	6,751.33	9,485.50	7,440.04	7,951.09
Tea/Coffee	-	5,286.00	5,605.00	6,689.25	7,372.41
Mix crop	-	7,832.88	7,935.13	12,106.50	9,145.09
Others	8,738.43	1,067.34	1,960.02	3,050.75	15,685.48
Total	192,220.03	212,995.34	219,390.66	205,385.81	213,183.68
Number of Farm	NA	NA	7,499	7,189	9,281

Note: 1 rai = 0.395369 acre

TABLE III
PRODUCTION VOLUME (TON) OF CERTIFIED ORGANIC AGRICULTURE [6]

	2004	2007	2010	2013
Rice	7,827.4	13,467.1	23,515.8	44,005.8
Field crop	1,572.0	2,934.1	13,071.0	12,002.4
Vegetable	2,656.7	5,336.8	2,114.3	1,330.0
Fruit	3,833.1	11,930.4	4,050.8	4,770.7
Tea/Coffee	0.0	0.0	1,057.2	1,474.5
Mix crop	0.0	0.0	3,524.8	4,115.3
Others	76.9	9.1	213.5	4,148.6
Total	**15,966.1**	**33,677.5**	**47,547.3**	**71,847.2**

TABLE IV
PRODUCTION VALUE (THB MILLION) OF CERTIFIED ORGANIC AGRICULTURE [6]

	2004	2007	2010	2013
Rice	313.1	373.4	752.5	704.1
Field crop	55.0	65.9	366.0	336.1
Vegetable	159.4	297.2	105.7	53.2
Fruit	76.7	236.6	153.9	190.8
Tea/Coffee	0.0	0.0	190.3	176.9
Mix crop	0.0	0.0	141.0	164.6
Others	4.6	1.8	42.7	289.1
Total	**608.8**	**974.8**	**1,752.1**	**1,914.8**

Note: 1 Euro = 40 THB

B. Organic Market

a. Market Channels and Chain

Excluding producers or farmers, entrepreneurs involved in the Thai organic supply chains were processors, exporters, distributors, green shops, modern trade shops, farmer's markets, membership markets, direct markets, and food establishments. There are 471 entrepreneurs operating within the Thai organic market, the distribution of entrepreneurial entities is shown in Table V. Modern traders (big retail chains in the form of hyper stores), processors, and exporters account for 36.3%, 35.2%, and 10.8%, respectively. Most of them are scattered within the Bangkok metropolis and other major cities in the region. The main market channel of organic products is modern traders and green shops, followed by farmer's markets. Exporters are also still an important market channel especially for organic products that are certified by international certification bodies.

The market chain for organic products is simple and direct. (Fig. 2) Exporters and retailers, such as modern trade and green shops, would either contract individual farmers or selected producer groups directly to produce and supply organic produce for them. Just a few of retailers employ a middleman or distributer to supply organic products for them. Exporters and retailers would normally organize their own processing or contract out the processing activities to private processors. The firms then trade the processed (or packed) organic products themselves. Many organic producers or farmers also process and sell their produce directly at a farmer's market. (Fig. 2)

TABLE V
NUMBER OF EACH ENTREPRENEURS INVOLVED IN THAI ORGANIC SUPPLY CHAINS

Entrepreneurs	Number	Percent
Processors	166	35.2
Exporters	51	10.8
Distributors	3	0.6
Green shops	33	7.0
Modern trade shops	171	36.3
Farmer's markets	24	5.1
Membership markets	3	0.6
Direct market	1	0.2
Food establishment	19	4.0

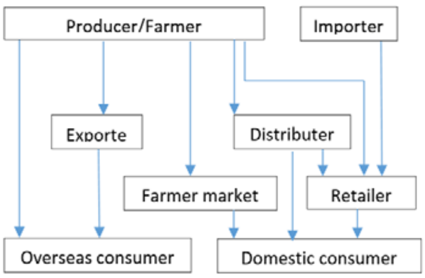

Fig. 2 Market channel of Thai organic products

b. Volume and Value Sales of Organic Product in Organic Market

Before 2014, by volume, organic rice was the most consumed Thai organic product. Surprisingly, processed organic foods had the largest volume of sales (19,233 tons) in 2014, followed by organic rice (13,840 tons), organic fruits and vegetables (3,416 tons), and organic non-food products (24 tons) (Table VI). Processed organic foods, such as coconut milk, coconut oil, sugar and sugar substitutes, snacks and cereals, account for about 59% of total export volume. For the domestic market, organic fruits and vegetables have the largest volume of sales, accounting for 66.4% of the total domestic volume. The volume of sales of Thai organic products was

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estimated at 36,513 tons in 2014 (36,489 tons of food and 24 tons of non-food products). The volume of sales to the export market accounted for over 86% of total Thai organic product sales.

TABLE VI
ESTIMATED VOLUME SALES (TON) OF ORGANIC PRODUCTS IN 2014

Organic product	Domestic market	Export market	**Total** (ton)
Food	5,101	31,388	**36,489**
Rice	1,150	12,690	13,840
Vegetable and fruit	3,391	25	3,416
Food processing	560	18,673	19,233
Non-food	2	22	**24**
Total	**5,103**	**31,410**	**36,513**

The Thai organic market as a whole was estimated to be worth around THB 2,331.55 million (Euro 58.22 million) in 2014, of which exports accounted for 77.9%, with the domestic market making up 22.06% (THB 514.45 million, which is equivalent to around Euro 12.85 million). (Table VII) For the domestic market, organic products are now available in about 320 points of sale and nearly two out of every three modern trade stores. Modern trade accounted for 59.5% of total domestic sales, followed by green shops (29.5%) and food establishments (5.9%). Food processing accounted for 66.1% of the total export value, followed by organic rice (30.4%). The main export destinations were the European Union, followed by North America, East Asia, and Southeast Asian countries. Organic rice and processed organic foods mainly export to the European Union and North America such United States, France, Italy, Netherlands, Switzerland and Denmark. While for organic fruits and vegetables the main export countries included the European Union and Southeast Asian countries [7].

TABLE VII
SALE POINTS AND ESTIMATED VALUE SALES OF ORGANIC PRODUCTS IN 2014

	Number	**Total** (THB million)
Domestic market	**269**	**514.45**
Modern Trade	171	306.00
Green Shop	51	151.62
Farmer's market	24	24.02
Membership market	3	1.28
Direct sale and e-commerce	1	1.45
Food establishment	19	30.08
Export market	**51**	**1,817.10**
Total	**320**	**2,331.55**

IV. DISCUSSION

Production and sale of Thai organic products has enjoyed rapid growth year after year. The number of certified organic farms and land has also shown a steady increase. The average growth of organic lands was more than 20% before 2011. Rice production remains the main crop, follow by field crops and fruits. However, production volume of other crops (coffee/tea, mixed crops and others) trended to increase year-on-year. In 2013, organic farms produced around 71,847.2 tons of produce worth around THB 1,914.8 million (Euro 47.92 million). The results show that the production volume of organic farms has almost doubled for organic produce (36,513 tons). Some of this produce is available for sale in the local market from general markets without price premiums. The reason is that some organic products do not have access to the organic market. The main reasons identified include; 1) logistics problems due to long distances and the scattering of organic producers and farms far from processing facilities and markets; and 2) the organic certification system does not meet the destination market requirement, especially for the export market. The expansion of the domestic organic market can help absorb the surplus from organic farms. In addition, organic equivalency, which is a mutual recognition in the form of bilateral arrangements between key trading partners that allows for successful trade by reducing trade barriers and supporting the strengthening of the supply chain, may be necessary to implement for the export market [8].

Exporters and export markets play major role in supporting the Thai organic sector. The volume and value of the sales of Thai organic produce and products to export markets accounts for over 86% and 77% of total organic production, respectively. However, the domestic market is also steadily increasing. Modern traders and green shops play a vital role in the domestic market. Processed organic foods become more and more important to the organic sector. Although, the European Union and North America remain the major sales channels, the ASEAN region has also started to gain more importance for Thai organic products.

Research shows that Thailand has huge potential to become a center for organic farming and trade in the ASEAN region; however, in order to achieve this goal more policy support and appropriate strategies need to be implemented. Agricultural policy should discourage the use of agricultural chemicals (all pesticides and chemical fertilizers), and encourage the use of organic inputs for farming. GMO crop production or GMO field trials, which lead to further GMO contamination, endangering Thailand's organic agriculture development should not be allowed. The community land title policy that supports small farmers should be continued and limited for agricultural use only, especially organic farming. In addition, to reduce confusing the various organic standards and inspection systems, an aggressive public relations campaign informing about organic agriculture, organic standards, and inspection systems, should be urgently implemented.

The appropriate strategies for organic agriculture development consist of:

1. Capacity building on organic producers and entrepreneurs including internal control system management for organic certification and supply chain management that ensures product traceability, prevents co-mingling with non-organic products, and ensures that standards on handling and processing are met,
2. Organic product value creation in accordance with market demand,
3. Providing effective logistic and trade facilitation,
4. Funding certification costs for small farmers or farmer groups,

5. Supporting promotional activities for organic products of Thai entrepreneurs,
6. Reforming the agricultural expansion system and improving training and agricultural expansion development services for organic farmers
7. Market expansion both internationally and domestically.

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