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Understanding Competitive Advantage of Organic Agriculture through the Natural-Resource-Based View: Case Studies of Three Organic Rice Producer Networks

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Abstract

This study is aimed at exploring the link between organic agriculture and competitive advantage in Thailand. A qualitative study, involving focus groups and in-depth interviews, is undertaken to understand the various points of view surrounding the production of organic rice, as this is the main organic agricultural product in Thailand. The natural-resource-based view (NRBV) is applied as the theoretical lens to study this relationship. The findings explain the practices of organic agriculture with three organic rice producer networks in Surin, Amnat Charoen, and Yasothon, in terms of pollution prevention, product stewardship, and sustainable development. The results reveal that Thai farmers in organic rice agriculture gain competitive advantage in various respects. In particular, the results of this study provide evidence that these farmers are aware of the benefits of organic agriculture. Moreover, the findings indicate that the Thai government should motivate other farmers to move from conventional agriculture to organic farming more widely, thereby also achieving competitive advantage.

Keywords

Competitive Advantage, Natural-Resource-Based View, Organic Agriculture, Sustainability

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Introduction

The agricultural industry has been playing an important role in driving the Thai economic system, representing 8.35% of total GDP in 2016 (Fiscal Policy Office, 2017). In 2014, the agricultural sector provided the employment to 13.5 million Thai people (Thailand Development Research Institute, 2015). Moreover, approximately 20.5% of the total value of agricultural products was exported to the international market in 2011 (Ministry of Industry, 2014). However, the industry in Thailand is now experiencing difficulties, including lack of raw materials/labor, global warming and changes consumer behavior (Ministry of Industry, 2014). Consequently, agricultural productivity has declined, especially the rice yield, which decreased from 20.46 million metric tons in 2011/2012 to 15.8 million metric tons in 2015/2016 (Office of Agricultural Economics, 2016). In particular, the agricultural industry is more sensitive to climate change than other industries, in that there is always a risk to agricultural yield from natural threats, including drought, flood and plant diseases, amongst other things. The degeneration of natural and agricultural resources has been negatively affecting agricultural development (Office of Agricultural Economics, 2016).

Chemicals are used to prevent insects or other organisms harmful to cultivated plants in Thailand, with their imports (herbicides, insecticides, fungicides) having reached 0.16 million metric tons in 2016 as compared with 0.11 million in 2011 (Office of Agricultural Economics, 2017). This affects farmers' health as well as the ecosystem of agricultural farming (Biothai, 2011). Hence, organic agriculture, which is a production system that sustains the health of soils, ecosystems and people (International Federation of Organic Agriculture Movements: IFOAM, 2005) has been proposed to address this issue. That is, organic agriculture is a system that counters negative potential environmental and social impacts by eliminating the use of synthetic inputs (United Nations, 1999). Henning et al. (1991) claimed that organic farming has a definition that equates with sustainable agriculture. Similarly, Lampkin (1994) stated that "sustainability lies at the heart of organic farming" (p.5). Furthermore, Rigby and Cáceres (2001) argued that organic farming is environmentally-friendly agriculture that is associated with the concept of sustainability.

The Thai government put out its National Organic Development Strategic Plan (2017–2021) aimed at making Thailand the leader in the region in sustainable production, consumption, trade and services through the creation of an organic system (Greennet, 2017). Organic agriculture in Thailand has been a reality for 30 years (Panyakul & Kongsom, 2015), but the level of organic agricultural land only stood at 0.045 million hectares in 2015 (Greennet, 2016), which covered only 9% of the total. This was considerably lower than other emerging countries in ASEAN, including: the Philippines (46%), Indonesia (26%), and Vietnam (15%) (Organic Agriculture Certification Thailand, 2017). The main product of Thai organic farming is rice, which covers the largest organic agricultural area (59% of the 9%)

(Organic Agriculture Certification Thailand, 2017; Panyakul, 2016). In fact, the plantation area grew by 28% between 2014 and 2015. The Thai government stimulates farmers through several projects supporting organic rice production in relation to the use of superior quality rice seed, or finding markets for the organic rice. This plantation move is part of the strategic plan of National Organic Agricultural Development set out for 2017–2021 (Office of Industrial Economics, 2017).

In the literature, there is evidence of a link between sustainability and competitive advantage in relation to the triple-bottom line, green supply chain, and environmental management. Kwarteng et al. (2016) studied the relationship between sustainability and competitive advantage of manufacturing firms in Ghana based on the triple-bottom line. Laari et al. (2017) investigated the green supply chain management strategies and competitive strategies of various industries in Finland. Dai et al. (2015) examined how green supply chain management had an impact on performance. Molina-Azorín et al. (2015) probed the effects of environmental management on competitive advantage in the hotel industry in Spain. Aigner and Lloret (2013) explored how the adoption of environmental sustainability practices related to the competitiveness of companies from six business sectors in Mexico. Flint and Golicic (2009) studied the competitive advantage of the wine industry in New Zealand through sustainability within the supply chain.However, little attention has been devoted to understanding the elements competitive advantage that can be acquired through sustainable organic agriculture.

Specifically, little work from the natural-resource-based view (NRBV), has been undertaken that addresses the impact that it could have on competitive advantage (Grimstad & Burges, 2014; Markley & Davis, 2007; Menguc & Ozanne 2005; Shi et al., 2012; Yunus & Michalisin, 2016). However, this perspective has not been sufficiently incorporated into prior review articles published on organic agriculture and competitive advantage.Hence, the research objective of this study is to uncover the relationship between organic agriculture and competitive advantage, by relying on NRBV theory. By so doing, the ways in which farmers benefit through organic farming will be elicited. The research questions are as follows.

RQ1: What are the practices of organic agriculture in terms of NRBV theory?

RQ2: What aspect of competitive advantage can farmers gain through undertaking organic agriculture?

The findings, which will allow for the two research questions to be addressed, will explain the benefits Thai farmers gain from organic agriculture practices, according to NRBV theory. In addition, the results can be drawn upon by the state sector, and to academia to encourage more Thai traditional farmers to switch to an organic farming system in the future. This paper contains four sections. Section 1 presents a literature review, whilst the research

methodology is explained in Section 2. Next, the results are expressed in Section 3. Finally, the conclusion is presented in Section 4 including discussion, managerial implications, limitations and proposals for future research.

Literature Review

The Natural-Resource-Based View (NRBV)

The challenges of the natural environment have led to the creation of new strategy concepts and the focus here, is on how to gain competitive advantage through sustainability, for example, waste minimization, green product design, and technology cooperation. Hart (1995) introduced the NRBV framework, inserting the natural environment into the resource-based view (RBV), which indicated the relationship between the natural environment and competitive advantage explicitly. Under NRBV, it is suggested that competitive advantage can be sustained only if organizational resources are valuable, rare, difficult to imitate, and non-substitutable (Barney, 1991). In particular, the natural environment regarding NRBV contains three dimensions: pollution prevention, product stewardship, and sustainable development, while competitive advantage in this regard pertains to lower costs, preempt competitors and future position (Hart, 1995). Pollution prevention pertains to reducing waste and emissions as well as removing pollutants from the production process, which can lead to competitive advantage through more efficient use of materials and greater productivity. Product stewardship involves the selection of raw materials, product design and the development process with stakeholders throughout value chain, so as to minimize the environmental impact of the product system. Sustainable development refers to pursuing strategies that reduce material and energy consumption, including diminishing the environmental burden created by new economic activity (Hart, 1995). However, NRBV was revisited by Hart and Dowell (2011) after 15 years, whereby they distinguished elements of sustainable development, namely, clean technology and business at the base of the pyramid (BOP). This distinction has helped firms to improve their sustainable development strategies in subsequent years.

Organic Agriculture

Organic agriculture has been recognized by the European Union since 1991 and by the American federal government since 1995 (Gomiero et al., 2011). Its role, involving farming, processing, distribution or consumption, is to sustain and enhance the health of ecosystems and organisms in the environment (International Federation of Organic Agriculture Movements: IFOAM, 2005). The term organic agriculture is defined as “a production system that sustains the health of soils, ecosystems and people”, as described in the IFOAM (IFOAM, 2005, p.1), which excludes synthetic fertilizers, pesticides and herbicides

as well as genetic engineering. It also includes the maintenance of long-term soil fertility, compatibility with natural cycles, maintenance of agricultural and natural biodiversity, provision for animals to express their innate behavior, and the promotion of local as well as regional production and distribution (Ponti et al., 2012). The Codex Alimentarius Commission has put forward that "organic agriculture is a holistic production management system that avoids use of synthetic fertilizers, pesticides, and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people" (Scialabba & Müller-Lindenlauf, 2010, p.1). The National Organic Standards Board (2000, p. 1) has clarified that "organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity". It is based on minimal use of off-farm inputs and management practices that restore maintain and enhance ecological harmony (Allen & Kovach, 2000). Farmers in organic agriculture need to implement a series of practices that optimize nutrient and energy flows, whilst minimizing risk, such as crop rotations and enhanced crop diversity as well as different combinations of live-stock and plants (Scialabba & Müller-Lindenlauf, 2010). Organic agriculture is aimed at maximizing the utilization of local resources, which are inherently adapted to site-specific endowments and limitations (Scialabba & Müller-Lindenlauf, 2010).

The performance of organic agriculture has been reviewed to understand the importance of organic systems. Badgley et al. (2006) indicated that organic agriculture can contribute substantially to feeding the current and future human population on the current agricultural land as well as providing a more sustainable system of food production. Organic agriculture provides opportunities for sustainable use of finite resources (Gomiero et al., 2011). Seufert et al. (2012) showed that organic yields are typically lower than conventional ones, which is in line with the results of Ponti et al. (2012) and Reganold and Wachter (2016), who also found that organic agriculture had lower yields, averaging 80% of conventional ones. Despite this, Seufert et al. (2012) argued that organic agriculture was an important tool for sustainable food production. Crowder and Reganold (2015) elicited that the total cost when comparing organic agriculture and conventional agriculture was no different, but the labor costs of conventional agriculture were higher than for organic farming. In addition, organic agriculture was more profitable and had a higher benefit/ cost ratio than the conventional farm. Further, it is environmentally friendly and provides more nutritious foods without synthetic inputs. Organic agriculture provides a greater ecosystem and social benefits to communities than the conventional form (Reganold & Wachter, 2016).

Organic agriculture in Thailand generated a market value in 2014 of 2,331.55 million THB (1 USD =32.94 THB in 2017), 77.9% of which represented the export market. Organic agricultural land in Thailand increased by 20.97% from 0.0376 million hectares in 2014 to

0.045 million hectares in 2015 (Greennet, 2016). Regarding the productivity of Thai organic products, of a total of 71,847 metric tons in 2013, Thai farmers produced rice, plants, and fruits representing 61.2%, 16.7%, and 6.64%, respectively (Panyakul & Kongsom, 2015). Most notably, organic rice farming covered the largest organic agricultural area in Thailand, as shown in Figure 1, penetrating around 59% (Panyakul, 2016). Approximately 80% of organic rice is cropped in the northeastern part of the country, i.e. Surin, Buriram, Ubon Ratchathani, Roi Ed, Amnat Charoen and Yasothon (Chidchob et al., 2014; Ministry of Commerce, 2011).

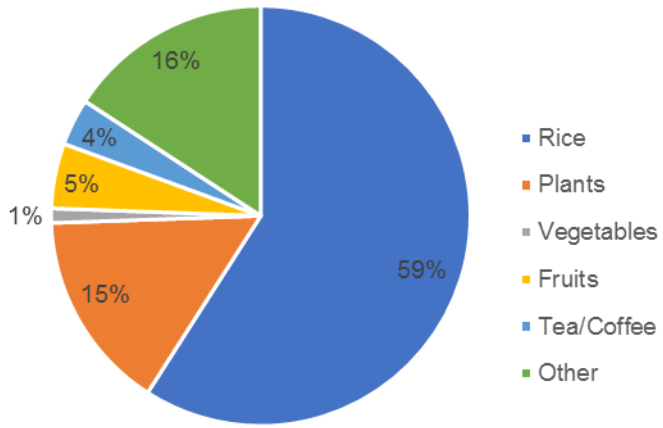

Figure 1 Types of Thai organic products from organic agricultural land in 2015

Competitive Advantage

Competitive advantage for an organization refers to it being able to gain a better position that delivers greater benefits than its competitors (Li et al., 2006; Shrivastava, 1995). Porter (1985) defined competitive advantage as consisting of three dimensions: cost, differentiation, and focus-based with competitors. Henderson (2011) held that to obtain cost-based competitive advantage, economies of scale are required so as to reduce costs lower than competitors. Differentiation-based competitive advantage refers to when there is a means to become different from competitors, while focus-based competitive advantage pertains to providing a product or solution to meet a customers' need not contributed by other firms. Whilst, Li et al. (2006) have argued that competitive advantage covers cost, delivery, dependability, product innovation and speed to market, Kathuria (2000) has claimed that it involves cost, delivery, quality and flexibility. Other aspects regarding competitive advantage from the relevant literature are innovation, environmental performance, and price (Koufteros et al., 2002; Leong et al., 1990; Vachon & Klassen, 2008).

The Link Between Sustainability and Competitive Advantage

Rao and Halt (2005) contended green supply chains are a source of competitiveness, leading to manufacturing in the South East Asia region improving efficiency, quality, productivity and cost saving. Menguc and Ozanne (2005) investigated the impact of the natural environmental orientation based on the NRBV on the performance of Australian manufacturing firms, revealing that higher natural environmental orientation is related to better profit and market share. Markley and Davis (2007) outlined the sustainable supply according to NRBV (pollution control, product stewardship, and sustainable development)and competitive advantage, as performance based on the triple bottom line. Shi et al. (2012) presented a structural model of a natural-resourced-based green supply chain and its relationship toward performance in terms of operational, environmental, and financial perspectives. Aigner and Lloret (2013) found that improving the environmental performance of firms in various sectors in Mexico through the adoption of sustainability practices was related to competitiveness and financial performance, including information, market opportunity, profit, revenue, and efficiency. Grimstad and Burges (2014) examined the competitive advantage of environmental sustainability, building their analysis on NRBV consisting of pollution prevention, product stewardship, and sustainable development in wine tourism in Australia. The findings indicated that environmental action promoted sustainable projects as a source of potential competitive advantage. Kwarteng et al. (2016) examined the impact of sustainability, as measured by the triple-bottom line, on the competitive advantage of manufacturing firms in Ghana. The finding indicated that environmental sustainability had no impact on corporate image and corporate performance. Yunus and Michalisin (2016) identified the relationship between green supply chain management practices based on the NRBV perspective (pollution prevention, product stewardship, and sustainable development) and that of competitive advantage.

Based on the literature review, there is a link between sustainability and competitive advantage regarding NRBV. Hence, in this study, a conceptual model through NRBV is deployed, for which it is assumed there is a relationship between sustainability and competitive advantage, as shown in Figure 2.

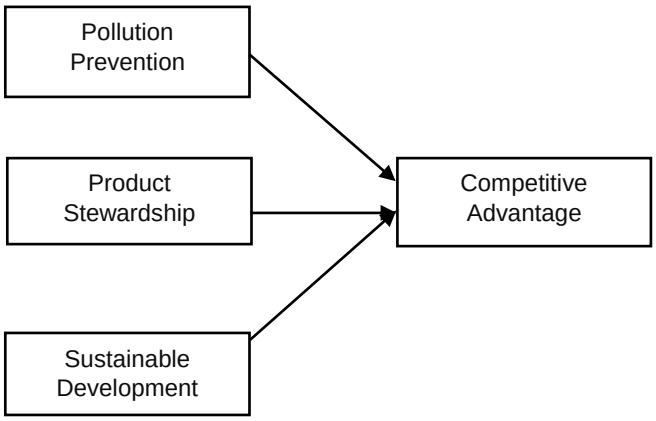

Figure 2 Conceptual Model

Research Methodology

For this study, as aforementioned, a qualitative approach was adopted to address the two research questions. The first research question relates to identifying farmers' practices in organic farming, whilst the second is about exploring the nature of competitive advantage available through pursuing organic agriculture. A case-study methodology was used, as this allowed for rich textured detailed data to be gathered. Specifically, the case of organic rice agricultural was studied through focus groups and in-depth interviews with farmers during June, 2017. The focus was on the area of organic rice agriculture in the Northeast region since, as abovementioned, it has the greatest amount of organic farming land when compared to the other regions of Thailand. Purposive sampling was used in the field for this qualitative study, after the researcher had been introduced to a Thai organic rice entrepreneur in Bangkok, who identified two agricultural clusters (Small and Micro Community Enterprise: [SMCE]), supported by the head of provincial agriculture in Amnat Charoen and Yasothon, whilst another organic rice producing network was also introduced by the head of provincial agriculture in Surin.

The nature of the networks for the three case studies are as follows. First, Khao-Sajjatham is located in Amnat Charoen and is an organic agricultural cluster founded in 2011 by bringing together more than 400 rice farmers. In 2014, this producer network participated in a project aimed at producing good quality organic rice, enhancing value of organic rice, increasing fairness and delivering sustainability. This cluster has received an award for Thai organic rice (2013 - 2014) from the Department of Internal Trade. Second, Changpi-WithiThai at the Surin organic agricultural cluster was founded in 1999 under a supporting policy delivered by the Governor of Surin aimed at expanding this crop and making a City of

Organic Agriculture. The originator of the cluster persuaded farmers in local communities to join for cooperation in development in this cluster. In 2014, this cooperative obtained the outstanding SMCE for organic farming by the Governor of Surin. Finally, Nam-Om organic agricultural cluster was established in 1999. This third organic agricultural cluster was certified by Governor of Yasothon and is a 100% organic village, involving farmers, an academic practitioner, community leader, and an officer from the public sector. Their focus is on community development of organic agriculture for strengthening production and providing sustainability. In 2014, this producer network was the winner of the outstanding SMCE of Yasothon by the Department of Agricultural Extension.

To understand the practices of organic agriculture as well as the competitive advantage available through it, the first focus group was held in Amnat Charoen with participants, who were Thai organic rice farmers from the Khao-Sajjatham organic agricultural cluster. In-depth interviews were also carried out with this group of farmers. Then, a visit was made to the Changpi-WithiThai organic agricultural cluster in Surin, where there was a second focus group and in-depth interviews. Finally, data were collected from the Nam-Om organic agricultural cluster in Yasothon, as the third case for this study, which involved Thai organic rice farmers joining the focus group and attending in-depth interviews.

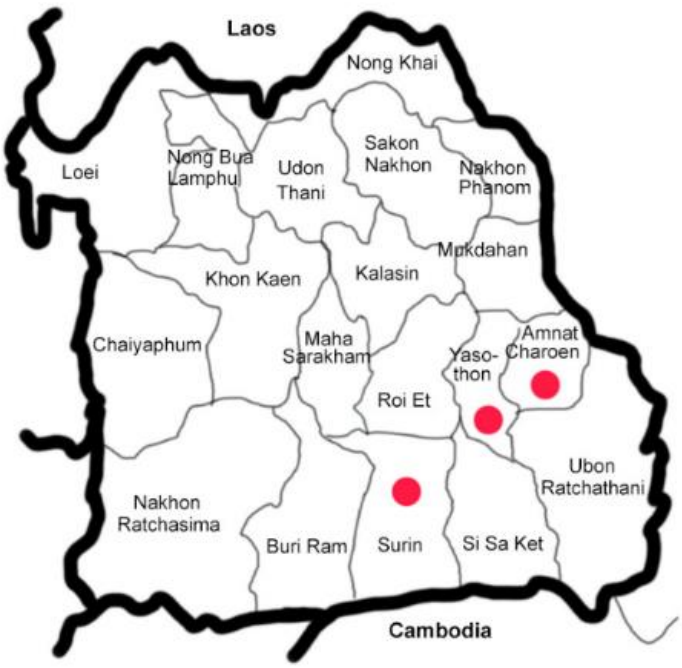

Figure 3 Study Areas in the Northeast Region of Thailand

Results

Descriptive Statistics

An overview of findings from the case study of three organic rice agricultural clusters is provided in Table 1. The first case, namely Khao-Sajjatham, which has the least organic farming experience (7 years) compared to the other two cases, Changpi-WithiThai and Nam-Om, with 19 and 16 years, respectively. They all have organic international standards, in particular, the European Organic Standard (EU). The Nam-Om network has the highest membership, followed by Khao-Sajjatham and Changpi-WithiThai and this is also the order of the area of organic rice agricultural land for the cases.

The main products of Khao-Sajjatham are jasmine rice, red jasmine rice, rice berry rice, jasmine brown rice, and red jasmine brown rice, whereas Changpi-WithiThai and Nam-OM have other products, including aromatic black rice and sticky rice. Regarding the customers for each case, Nam-Om, concentrates on Tops Supermarket, Kor-wang Hospital in Yasothon, and a trader in the export market. For Khao-Sajjatham, it places emphasis on restaurants (e.g. Sizzler and Mae Sri Ruen), hotels (Twin Towers Hotel in Bangkok and Sampran Riverside in Nakhon Pathom), green shops and the green market. In addition, Khao-Sajjatham has also joined “Pook Pin Toe,” which is a project for a direct channel between customers of urban and organic farmers in the region involving a one year contract without intermediaries. Finally, Changpi-WithiThai’s main customers include an organic rice cooperative, the green market, and the non-toxic market of the provincial commercial office in Surin.

Table 1 Overview of the Organic Rice Agricultural Cases

Characteristics	Organic Agricultural Cluster		
	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
Organic Rice Products	Jasmine Rice, Riceberry Rice, Red Jasmine Rice, Jasmine Brown Rice, Red Jasmine Brown Rice	Jasmine Rice (105), Riceberry Rice, Red Jasmine Rice, Aromatic Black Rice, Sticky Rice (RD15)	Jasmine Rice, Riceberry Rice, Red Jasmine Rice, Red Jasmine Brown Rice, Aromatic Black Rice, Sticky Rice (RD6/RD15), Red Sticky Rice

Characteristics	Organic Agricultural Cluster		
	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
Founded (Founded as an SMCE)	2011 (2013)	1999 (2005)	1999 (2009)
Number of Members	400	147	730
Organic Rice Agricultural Land (Hectare)	688	488	2,560
Duration of Organic Farming (Year)	7	19	16
Organic Standard	IFOAM, EU, Organic Thailand	EU, Organic Thailand	IFOAM, National Organic Program (NOP), EU, Canada Organic Regime (COR), Organic Thailand
Awards	Winner of Thai Jasmine Rice Contest in 2013/2014 by Ministry of Commerce	Outstanding SMCE for Organic Farming in 2014 by the Governor of Surin	Winner of Outstanding SMCE of Yasothon in 2014 by Department of Agricultural Extension
Customer	Twin Towers Hotel, Sampran Riverside, Restaurants, “Pook Pin Toe,” Green Shop, Green Market	Organic Rice Cooperative, Green Market, Non-toxic Market of Provincial Commercial Office	Rice Land Food Ltd., Tops Supermarket, Wang-Kor Hospital

Organic Agriculture and Competitive Advantage

Regarding the first research question, we investigated the practices of organic agriculture in terms of NRBV theory. The outcomes of this qualitative study indicate that Thai farmers in organic agricultural clusters perform their practices based on NRBV, covering pollution prevention, product stewardship, and sustainable development.The finding in

relation to pollution prevention shows that farmers do not use synthetic inputs, for example, herbicides, insecticide, in their organic agriculture. Some interviewees explained that they make bio-extract/biological fermentation from natural resource (e.g., residue of lemon grass, neem leaves) and waste (e.g., molasses, dung, leaves, garbage) to dispose of insects or weeds rather than synthetic inputs. In addition, they make biological fertilizer from waste, for example, husks, dung, leaves, food waste, instead of using chemical fertilizer. They are prohibited to burn anything (e.g.,rice straw/stubble)so as to avoid pollution and do not discharge waste/pollution onto organic agricultural land. In fact, rather than burning rice straw/stubble, it is used to improve the quality of land by incorporating with the soil. Moreover, farmers create natural barriers with trees for protection from outside chemicals and any organic agricultural cluster has to have environmental campaign and/or policy for waste management, including being proactive in delivering a sustainable environment. Many informants said that these practices had led to improvement in the quality of the environment, being beneficial for people around organic farming and neighbors as well as supporting the farmers in lowering production cost, thereby increasing their competitive advantage.

The findings also describe the practices with regards to product stewardship in relation to lower product life cycle cost. Stakeholders in the supply chain of production participate in knowledge sharing, training, and help others within the group to become aware of technology.These stakeholders range from the farmers themselves to agricultural cooperatives, community mills, packing entrepreneurs, and processing manufacturers. The organic network system improves farmers' planning and operation (e.g., Nam-Om has applied the quick response code (QR) for distribution and traceability), leading to higher efficiency in their agricultural system. In addition, one of respondents said that they have been improving the quality of their products through material selection and resource management, thereby increasing the value added on their goods. Regarding product design, the utilization of packaging has been reviewed by many farmers, who now use white sacks created from the waste products of organic agriculture as well as reusing packaging for transportation purposes.That is, they are encouraged to use biodegradable packaging wherever possible.In particular, the Khao-Sajjatham cluster has been enhancing its capabilities in relation to production, marketing, and brand awareness through the SMCE system.This organic rice producer network communicates about its products through online marketing, for example Facebook, thereby providing a direct channel for organic rice products to the consumer.Mutual marketing/social activities between the cluster and other partners, such as hotels and the aforementioned cooperative, have been applied. Nam-Om has created a brand called "Kwan Num-Om," which they promote with customers through a website and Facebook.The action among these clusters in relation to the product

stewardship dimension is in line with NRBV theory, whereby the reputation of the organic rice producer networks is enhanced through stakeholder integration in supply chain.

It was also found that clean technology in terms of sustainable development based on NRBV involved alternative energy (e.g., solar cell, biogas or biodiesel) sources produced naturally. This practice indicates that organic farmers in Khao-Sajjatham and Nam-Om benefit from these technologies through cost reductions, but there was no evidence of future planning in this regard. According to the BOP, i.e. the second aspect of sustainable development, the producers offer value-added products through innovation, such as ice cream from Khao-Sajjatham, soap and rice bran oil from Changpi-WithiThai, and noodles, soap and jasmine red rice pasta from Nam-Om. All these value-added activities are helping to reduce poverty, thus being in accordance with the NRBV perspective. In addition, farmers in organic agriculture endeavor to use natural resources economically (e.g., vegetables, fish) with the aim being to become self-reliant in many aspects of their lives and strengthening the local community through beneficial mutual relationships, for example, "long-kaek" activity among the farmers of Khao-Sajjatham and a community tree planting project by Nam-Om. Furthermore, it emerged that many farmers apply integrated agriculture, for example, rice, vegetables and livestock, without the use of chemicals for their work and they have water storage facilities. In sum, these practices are helping to deliver a better quality of life for the focal organic farmers in terms of their physical and mental health.

In accordance with NRBV, the practices of organic agriculture are summarized regarding the three focal aspects of pollution prevention, product stewardship, and sustainable development among the three organic rice agricultural clusters, as presented in Table 2.

Table 2 Practices of organic agriculture based on NRBV

Organic Agriculture	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
Pollution Prevention			
	- Do not use of synthetic inputs - Do not burn anything within organic agricultural land - Incorporate of rice straw/stubble - Make biological fertilizers from waste	- Do not use of synthetic inputs - Do not burn anything within organic agricultural land - Do not discharge waste outside - Incorporate of rice straw/stubble	- Do not use of synthetic inputs - Do not burn anything within organic agricultural land - Do not discharge waste outside - Incorporate of rice straw/stubble

Organic Agriculture	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
	- Make bio-extract/ biological fermentation from natural resource and waste - Create natural barrier through trees	- Make biological fertilizers from waste - Make bio-extract/ biological fermentation from natural resource and waste - Create natural barrier of trees	- Make biological fertilizers from waste - Make bio-extract/ biological fermentation from natural resource and waste - Have environment campaign/ policy - Have activity to support sustainable environment
Product Stewardship			
	- Made to order to utilization of packaging - Reuse packaging for transportation - Have material selection and resource management - Have direct channel - Support knowledge sharing with other networks - Create brand awareness	- Use packaging created with waste products of agriculture - Provide knowledge sharing and training within cluster	- Made to order to utilization of packaging - Support for the use of biodegradable packaging - Support knowledge development through organic network system - Support knowledge sharing within the family and cluster - Have traceability with a QR code - Create brand awareness
Sustainable Development			
- Clean Technology	- Use alternative energy - Use resource economically	-N/A	- Use alternative energy - Use resource economically
- BOP	- Self-reliance for consumption of natural resources on their agricultural land - Have local community activity (“Long-Kaek”)	- Apply integrated agriculture - Have water storage for agriculture - Develop innovative products (Soap, Rice Bran	- Apply integrated agriculture - Develop innovative products (Noodles, Soap and Jasmine red rice pasta)

Organic Agriculture	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
	- Develop innovative products (Ice Cream)	Oil)	- Have local community activity (“Community Tree Planning Project”)

The competitive advantage through organic agriculture is explored in relation to the second research question. The findings indicate that farmers gain various benefits from organic agriculture. Many informants contended how they profit by having better health, happiness, quality of life and a strong spirit. They pointed out that the level of hospital visits is less today when compared with the past. Moreover, they have a lower risk of cancer owing to their non-use of chemical products. In addition, many said that they were proud to tell people that they were organic farmers; it appears to have raised their self-esteem. Without the use of chemicals and deploying natural resources instead in their organic farming, there was a strong view that this was more environmentally friendly and safer for living; creating a good ecosystem for plants, people and animals. For all the case studies, farmers reported that there were fish, crabs, frogs and/or earthworm on their agricultural land, which are generally not found on traditional farms that use synthetic inputs.

In addition, in economic terms, the cost of agriculture is reduced due to non-purchase of certain raw materials, especially synthetic chemicals. They have more income as they receive a higher price for organic rice/innovative products than for conventional ones with consequent increased value-added as aforementioned. Regarding the quality of organic rice, many of the participants reported that it is more fragrant and softer, harder to break and spoil as well as being bigger and more attractive, thus increasing customer satisfaction despite the higher price of product. Whilst they can produce organic rice with higher productivity, it does take time (at least two to three years) to obtain this advantage.

Regarding the focus groups and in-depth interviews, the findings based on our informants’ responses indicate that relationships amongst stakeholders, including farmers, agricultural cooperatives, community mills, packing entrepreneurs, processing manufacturers, traders and consumers in the organic rice supply chain are stronger, as shown by higher participation in relation to production. Further, many farmers reported the advantages of benefit sharing (e.g., dividend, stock) through membership of the cluster, which was arrived at mutual agreement.Many farmers reported how through such cooperation they were able deliver their products directly to the customer without intermediaries and still meet their requirements, because of closer communication through the network. In addition, distribution through traders, the green market and business-to-business (B2B) arrangements are practices found amongst associated stakeholders. Organic

agriculture also provides opportunities for farmers to access knowledge management about technology, organic standards and agricultural production within their communities and others. For instance, they have recorded data throughout their processes, including information sharing among the membership of the organic agricultural cluster. Moreover, one of the respondents pointed out how they have training courses to provide knowledge with respect to organic products among their family and the cluster. Also, they are able to transfer their knowledge to their progeny through demonstration of practices, training and meetings. Further, the evidence suggests that competition in organic agriculture is lower than the traditional form in that it inherently promotes an atmosphere of cooperation and sharing of knowledge amongst farmers. Further, increasing efficiency of production and planning was mentioned as one result of organic agriculture, through such things as technology development, for example, QR code, for distribution and traceability regarding resource management. Finally, the enhanced information sharing meant that the farmers in the clusters were able to make decisions more efficiently. A summary of the farmers' competitive advantage through organic agriculture is provided in Table 3. Whilst the organic farmers recognized the benefits of competitive advantage, they did acknowledge, as abovementioned, that this would only materialize after two or three years of implementation of organic practices. Thus, the transition period is a key obstacle for traditional farmers wanting to engage in organic agriculture.

Table 3 Competitive advantage through organic agriculture

Competitive Advantage	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
Health	- Better health / life / happiness / spirit	- Better health / life / spirit	- Better health / life / spirit
Cost	- Reduce cost of production	- Reduce cost of production	- Reduce cost of production
Income	- Higher price	- Higher price	- Higher price
Quality	- Better quality of product	- Better quality of product	- Better quality of product
Environment friendly	- Have a good ecosystem - Greater safety from living on agricultural land	- Greater safety from living on agricultural land	- N/A
Productivity	- Higher productivity	- N/A	- Higher productivity
Relationship with stakeholders	- More coordination with other networks for development - Better relationship	- Higher participation from stakeholders towards production	- Sharing benefits (dividend/stock) with members within the cluster

Competitive Advantage	Khao-Sajjatham (Amnat Charoen)	Changpi-WithiThai (Surin)	Nam-Om (Yasothon)
	between buyer and seller via closer communication channels - Stronger network for negotiation and helping each other		
Knowledge Management	- Having the necessary information for efficient and timely decision making - Information sharing about technology and production	- Information sharing about production - Internal learning within the family - Have knowledge on training to be a farmer	- Having the necessary information for efficient and timely decision making - Internal learning within the family by the cascading of knowledge to progeny - Holding regular meetings
Innovation	- Delivering value-added products	- Delivering value-added products	- Delivering value-added products
Efficiency	- More effective production process/planning	- N/A	- Make decisions efficiently

Conclusion

This research provides an understanding of Thai farmers' competitive advantage through organic agriculture based on NRBV. The study involved analyzing survey information gathered from focus groups and in-depth interviews with participants in organic agriculture. Three organic rice agricultural clusters in the Northeast region were selected through purposive sampling, introduced by one Thai organic rice entrepreneur in Bangkok and the head of provincial agriculture in Surin. These were: 1) Khao-Sajjatham; 2) Changpi-WithiThai; and 3) Nam-Om, located in Amnat Charoen, Surin, and Yasothon, respectively. The findings indicate that farmers perform their organic agriculture taking into account pollution prevention, product stewardship, and sustainable development. In particular, this paper introduces the first qualitative study of the link between practices of organic agriculture and competitive advantage based on NRBV in Thailand. Moreover, it has been elicited that farmers could gain various benefits from organic rice agriculture. Competitive advantage covers many aspects, including health, cost, income, quality, environment friendliness,

productivity, relationship with stakeholders, knowledge management, innovation and efficiency. The results are in line with Rao and Halt (2005), indicating that natural environment orientation leads to efficiency, quality, higher productivity and cost reduction. Moreover, the finding that organic agriculture provides higher profit accords with those of Menguc and Ozanne (2005) and Aigner and Lloret (2013), in relation to information, market opportunity, income, and efficiency.

Regarding managerial implications, the results could lead to the relevant Thai government sector recommending to Thai farmers that transforming their system from conventional agriculture into organic farming, which is in line with the national organic development strategic plan. Regarding the limitations of this study, the research was focused on organic rice agriculture of three provinces in the Northeast region, thus not covering all areas of Thai organic agriculture, i.e. both the Northeast and North regions. Hence, future research should incorporate both. Future investigation into the relationship between organic agriculture practice and competitive advantage based on NRBV would benefit through the application of quantitative methods as an extension of this qualitative study. In addition, future research should empirically test the relationships suggested in this paper for different organic products to enable comparisons to be made. The findings could provide benefits to public sector in terms of promoting the extension of organic agriculture in Thailand based on the national organic development strategic plan. Moreover, the results could be used to encourage traditional farmers to engage in organic agriculture, but they would need to be aware that it will probably take a few years to reap the benefits. The findings can inform academics about how the theory of NRBV can be deployed to explain the relationship between organic agriculture and competitive advantage in the context of sustainability. The learning process of organic farmers like those in the three focal case studies needs to be ongoing and the collaborative networks made more extensive, if this competitive advantage over traditional farming techniques is to be maintained.

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