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氏名（本籍地）　ボリス　カイド（その他）

学位の種類　博士（農学）

学位記番号　農博第1308号

学位授与年月日　令和4年9月26日

学位授与の要件　学位規則第4条第1項

研究科，専攻　東北大学大学院農学研究科（博士課程）資源生物科学専攻

論文題目　SUPPLY CHAIN AND MARKETING PROBLEMS OF AGRICULTURAL COMMODITIES: CASE STUDIES OF PINEAPPLE AND ARABICA COFFEE IN MUARO JAMBI AND KERINCI REGENCY, JAMBI PROVINCE, INDONESIA

(商品作物のサプライチェーン及びマーケティングにおける課題：インドネシアのジャンビ州ムアロジャンビ県とクリンチ県におけるパイナップルとアラビカ珈琲の実証研究)

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ABSTRACT

The roles of agriculture in the Indonesian economy remain important even though the structural transformation process does not occur smoothly as outlined in the textbook of economic development. The share of agriculture in the country's Gross Domestic Products (GDP) has been declining to 15.7 percent in 2011. Most agricultural commodities in Indonesia must pass along the supply chain before they arrive at consumers. From farmers to consumers, it may pass through collectors, village and district-scale traders, wholesalers, distributors, retailers. Along with the flow, goods or products may be cleaned, sorted, dried, and undergone other simple processing, transported, and manufactured. The supply chain of agricultural commodities in Indonesia is very long and complex involving many actors. Such a complex and long-chain leads to a concern by the government as it causes high price disparity between farm-gate and retailers (Padjung, R., 2018). The Indonesian agricultural commodities, however, remain facing various challenges, such as low-yielding smallholder crop systems, sustainability pressures, low-quality of production, long supply chain, and complex marketing problems, underinvestment, inadequate infrastructure, underdeveloped agricultural practices, and restrictive government policies (Arifin, B., 2013).

Especially for the Indonesian agricultural product marketing and supply chain are running through a long marketing chain most of the time because of some marketing agent looking for benefits which cause the decrease of farmer income (Juswadi et al., 2020). The strength of Indonesian agricultural products is the number and variety of food crops, plantations, horticulture, livestock, fisheries, and forestry for domestic and export needs. Many Indonesian agricultural products are included in the rising star category in the ASEAN market. Including Coffee and Pineapple (Ningsih and Kurniawan, 2016). Pineapple which is one of the flagship products of the horticultural commodity has an economic value and high market demand. Based on data from the Indonesia DJHKP (2011), among the commodity fruits, pineapple has value and volume tends to be the highest in the period 2003 - 2011. Besides that, the aspect of production capability for commodities pineapple is not optimal, besides the production of commodities optimality problems relating to land issues, breeding, cropping, and cultivation; post-harvest and production issues such as quality assurance, receipt of goods, storage, up to marketing and distribution process including, in this case, is the payment process a transaction that will ultimately inhibit increase pineapple as the source of income of small farmers (Singagerda, F. S., 2016).

In line with arabica coffee as the higher prices and potential source of income of small farmers, in recent years, the trend in coffee consumption has exploded in various countries. During 1990-1996, Indonesia was a major producer of world coffee. According to the International Coffee Organization (2016), the position of the major producer of coffee has been occupied by Vietnam since 1997 until now. The decline in Indonesia's position is caused by the saturation of Indonesian coffee export destination countries which results in declining demand for Indonesian coffee exports (Meiri et al., 2013). Indonesia's National coffee productivity has fallen in recent years since 2017, so there is an imbalance between the growth of national coffee consumption and the level of coffee production (Andoko et al., 2020). Many issues and challenges affect coffee productivity. The quantity of Indonesian coffee supplied to the international market depends on the secured supply of domestic raw materials and the efficiency of the supply chain network (Rosiana et al., 2017). Given this background, the research for this thesis has attempted to investigate and identify the challenges and problems occurred of pineapple and arabica as an agricultural commodity in Jambi province, Indonesia. The first chapters of the present research give an introduction and an overview of the research issue and objectives.

The second chapter focuses on the first objective, that aims to reveal the supply chain current conditions and the barrier of supply chain processes from growers to the end consumers of pineapple in rural areas which can then be a reference for making policies to strengthen supply chain systems in rural areas that are better for a later day. The case study research was chosen to provide in-depth exploration and description of the current marketing system and the actors involved in the supply chain in Tangkit Baru hamlet. The results showed actors involved in the supply chain system are farmers, middlemen, wholesalers, local home industries, and for small farmers, development showed two major on-farm and off-farm barriers.

The third chapter to develop a strategy to improve the competitiveness of agricultural products (pineapple) in the market. A Porter's five forces model (PFFM) is used to develop better strategies by understanding and exploiting the conditions of pineapple farming. Research findings found that middlemen and wholesalers from outside Muaro Jambi Regency have a significant role and power in the pineapple business, they play a role in setting the base price. It results in small farmers involving value-added activities because of the concept of "business as usual". Pineapple market in Muaro Jambi Regency is only focused on the local market, not for international markets. The pineapple can provide income for small farmer livelihoods when using available resources with low capital investment while increasing the value chain of pineapple farming through the power identified from the PFFM model and continuing to

maintain or strengthen factors that can further strengthen pineapple product in local markets and national markets as the further improvement strategy to lifting the competitiveness of the pineapple farming value chain in this village. If factors identified from PFFM model could be adopted, it will further strengthen the pineapple in the local market and the national market as a strategy to further enhance the competitiveness of the value chain in this village. Furthermore, will affect increasing the income of each actor involved.

Chapter four aims to investigate the supply chain and the value-added distribution of the marketing channel that is formed from an agricultural product (Pineapple) that occurs in Tangkit Baru village. The research location was determined intentionally (purposive), considering that the Muaro Jambi Regency is the biggest pineapple small farmer production center in Jambi Province. Gathered data and information through interviews with farmers, middlemen, local traders, wholesalers, and pineapple local home industries. The value chain with value-added analysis was conducted to determine the performance of marketing of pineapple fruit, with the indicators covering the cost of production inputs, labor, procurement, and transportation of farmers and marketing actors involved. The results showed that in the case of pineapple's marketing chain can be identified that in the research area there are 3 marketing channels, of which marketing channels 2 and 3 very depend on the presence of middlemen and the marketing channel 1, farmers do not rely on the presence of middlemen but conducting a direct sale to wholesalers who come from outside the research area, but farmers find it difficult to sell on marketing channel 1 because the quality requirements are not met. The distribution of value-added and price are wholesalers that get the largest share value and for the distribution of profits it is identified that farmers get a share the greatest share value. Marketing Channel 1 is the best for farmers, namely farmers sell directly to wholesalers who come directly from outside the area Muaro Jambi Regency then the farmers get the highest price for the harvest of pineapple, but for some reason the farmers sell through other actors, most the problems are small farmers not be able to meet quality requirement from wholesalers.

In chapter five, contradictory facts that Arabica coffee is a specialty coffee export commodity that has a higher selling price and contributes importantly to the Indonesian economy. However, the problem of marketing of exporting coffee commodities is still a major obstacle and fundamental problem. This chapter explains the successful reason for cooperatives already able to export and have determined the export market as the prime destination, and the second to clarify the remaining challenges of arabica coffee marketing. A qualitative method was employed to capture the complexities of marketing challenges and Semi-Structured interviews were conducted. The results showed that the fundamental challenges were the

inconsistency of supreme quality, price fluctuation, long bureaucratic absence of a bank loan, and the role of government. The study noted that it should do crucial first steps, focusing on improving ways of producing and maintaining superior quality that meets export standards and providing capital stimulus. Then it is necessary to hold synergy and encourage the seriousness of the role of the local government to give full support to farmers and cooperatives.

Chapter six aims to analyze the cost and profitability of arabica coffee through the direct selling system among cooperatives and its farmers. The in- depth interview was conducted with the chief executive officer (CEO) of the ALKO cooperative and farmers who are members of the ALKO cooperative. The indicator for all costs is calculated based on the distribution of each type of cost item, namely variable costs, fixed costs, and total costs. The calculated profitability indicator is the gross profit generated from the sales quantity multiplied by the sales price (cooperative) and the yield multiplied by the sales price (farmers). Then to calculate the net profit generated, namely the gross profit minus the total cost. The Mann-Whitney test with a significance of 5% was used to determine the difference between all cost items, variable costs, fixed costs, total cost, and profitability of the cooperative and its farmers. The result shows the monthly net profit generated by cooperative higher than farmers, but the return point of farmers is 0.87 points higher than cooperative, it shows that in profitability, farmers get to benefit more from the direct selling process from farmers to cooperative, because of the costs incurred by farmers is less in terms of quantity and total cost item, but farmers get a high and fair selling price for red cherry arabica coffee. The findings make several contributions to the literature. First, the calculated gross and net profits are large, but statistically, they are not much different between the cooperative and farmers. Second, farmers enjoy more profitability with a higher net return point and ROI than the cooperative. This result can encourage policymakers to consider our novel finding that a direct marketing scheme can be applied to other areas of economic sustainability development in rural Indonesia.

In chapter seven, aim to investigate comparison cost, profitability, and challenges of arabica coffee farming of cooperative and non-cooperative small farmers in Kerinci regency. The present study was designed to investigate comparison cost, profitability, and challenges of arabica coffee farming of cooperative and non-cooperative small farmers in Kerinci regency based on a direct survey conducted with a total of 102 arabica coffee farmers. The study has identified that the biggest element of variable cost was hired labor, both of cooperative and non-cooperative farmers. The farmers should use local labor to decrease cost of labor, or because land size farming is categorized small, farmers suggested to handle their cultivation of arabica coffee farming with family members with free of daily wage. One of the more

significant findings to emerge from this study is that it statistically reveals the difference of sale price and net profit among cooperative farmers and non-cooperative farmers (The two-sample t-test with a significance of 5%). These findings suggest that non-cooperative farmers should join the cooperative, because the cooperative was able to provide a much better price, guidance of efficient cultivation that impacts the yield of arabica coffee farming. Moreover, increase their income from arabica coffee farming in the future.

Finally, chapter eight draws several conclusions and makes some policy recommendations to improve two different agricultural commodities (pineapple and arabica coffee) in the same rural region (Jambi province). The recommendations were to establish a strong and financially strong cooperative in the Muaro Jambi region to ensure the absorption of pineapple yields at high selling prices for small farmers. Also, farmers should join the cooperative as this would be very beneficial for farmers, especially to increase their income in the future. Learn from the Arabica coffee commodity in the Kerinci region. In this area, the agricultural commodities have managed to find and expand the marketing area and determine the international market (export) as the main sales area. As a result, the selling price of agricultural products will automatically increase. Kerinci regency can also learn from Muaro Jambi regency that it can control the local market. This is a sign that Kerinci regency Arabica coffee needs to learn from pineapple commodities to enter the local market of Jambi province and Indonesian national market. It can be suggested to policy makers and local and central government that these two superior agricultural commodities need attention and assistance, especially support in the form of financial capital to extend farming size and training to implement good agricultural practices, which goes hand in hand with the seriousness of the government in supporting small farmers and cooperatives. This will be a synergy that will significantly raise the living level of farmers in rural areas and influence the massive economic movement of rural areas. It will also prevent the migration of villagers to the cities.

Keywords: Agricultural commodities, Marketing, Supply chain, Pineapple, Arabica Coffee, Cooperative, Indonesia.

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学位論文題目	SUPPLY CHAIN AND MARKETING PROBLEMS OF AGRICULTURAL COMMODITIES: CASE STUDIES OF PINEAPPLE AND ARABICA COFFEE IN MUARO JAMBI AND KERINCI REGENCY, JAMBI PROVINCE, INDONESIA (商品作物のサプライチェーン及びマーケティングにおける課題：インドネシアのジャンビ州ムアロジャンビ県とクリンチ県におけるパイナップルとアラビカ珈琲の実証研究)

論 文 審 査 の 結 果 の 要 旨

複数の発展途上国がこの数十年間で著しい経済成長を遂げ、新興国と呼ばれるようになった。インドネシアもそのような国の一つであるが、今もって国民経済に占める農業の位置付けは大きく、また、商工業分野に比べて農業分野の経済成長の速度は緩慢である。農業が発展するためには担い手である農民が市場にアクセスし、有利な条件で農産物を販売することが重要である。しかしながら、現状では農村におけるインフラの未整備、資本や情報の制約などの要因で、農民自身による市場へのアクセス機会は制限されており、旧来の商人に依存せざるを得ないため、農産物販売が必ずしも農民の経済厚生を高めてはいない。

そこで、本論文では、インドネシアの重要な商品作物であるコーヒー（保存性がある）とパイナップル（生鮮品）を対象に、農民が有利に市場参入し、経済厚生を高めるための条件を明らかにした。具体的には、①農業経営における資本の賦存状況や情報入手状況などがマーケティング・チャネルの選択に影響を及ぼしており、資本と情報が市場アクセスの制約条件となっていること、②それゆえ、資本の不足を補うため、地方政府の資金面での支援が重要であること、③資本の形成により、投入材を確保し、収量・品質の安定化も図れ、国際市場に参入する可能性も生じること、④その上で、アグリビジネス企業との結びつきによって国際市場の情報にアクセスし、適切なマーケティング・チャネルの選択が可能となること、⑤そのためにも農民自身による地元加工企業の育成（特にパイナップル）、協同組合の組織化により、アグリビジネス企業と結びつきながら、自分たちに有利なマーケティング・チャネルの形成が可能なこと、である。

発展途上国の商品作物販売に関する研究は多いが、農民と商人との関係性の解明が中心課題であった。また、発展途上国の農村における協同組合など農民組織に関する研究も多く、主に農民の自力更生を促す役割を明らかにしてきた。本論文ではこうした既存研究の成果をふまえ、アクターとして、農民が設立した企業やアグリビジネス企業を加え、これら複数の経済主体からなる多様なマーケティング・チャネルを整理・分類し、それぞれを選択した際に生じる農民利益の相違を実証的に明らかにしたことに学問的かつ実践的な独自性がある。それゆえ、本論文に示された研究成果は農業市場学、フードシステム論や開発経済学の発展に貢献するものであり、博士（農学）の学位を授与するに値するものと判断した。