



Supply Chain Current Condition and Barrier of Small Farmers: Case of Pineapple Farming Tangkit Baru Hamlet, Muaro Jambi, Jambi Province, Indonesia

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Abstract

Tangkit Baru hamlet is the largest pineapple production area in Jambi Province. This commodity is the driving force of the economy and the primary source of income for this region. However, the development categorized was as slow because of the long and poor supply chain system. Therefore, it needs a good supply chain system to improve the income of small farmers and economic actors involved in a supply chain system. This study aims to clarify and reveal the supply chain current conditions and the barrier of supply chain processes. Two stages field survey was conducted in September 2018 and June 2019 at Tangkit Baru hamlet that belongs to Muaro Jambi District. The case study research and descriptive statistic were 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. Interviews were carried out with pineapple farmers (42 people), middlemen (5 people), wholesalers (3 people), local traders (2 people), owners of the pineapple processed home industry (4 people). 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.

Key words: Supply chain, pineapple, farmers, barrier, agriculture

Introduction

Among horticultural products, fruit has high economic value and is a source of income for the community and small farmers in rural areas. As a tropical country, Indonesia has an advantage as a global tropical fruit producer and exporter. In fact, the fruit trade balance data shows that more fruit is imported than is exported. (Indonesian Agriculture Ministry, 2015). Pineapple (*Ananas comosus* L.) is one of the leading fruits commodities in Indonesia. This refers to the amount of pineapple production which occupies the third position after bananas and mangoes. Besides being consumed in fresh form, the pineapple can also be processed into various products such as juice, jam, syrup and chips. Pineapple contains water, sugar, organic acids, minerals, nitrogen, protein, bromelain enzyme and all vitamins in small amounts, except vitamin D. Pineapple skin can be processed into syrup or extracted its liquid for animal feed, while fiber on the leaves can be processed into paper and textiles (Hadiati and Indriyani, 2008).

Pineapples is one of the national superior fruits and also contributes to foreign exchange. Indonesian pineapple production is quite large, in 2015 it reached 1.73 million tons. Indonesia is the third largest producer of pineapple for Southeast Asia after the Philippines and Thailand with a contribution of around 23%. Almost all regions of Indonesia are pineapple producing areas because they are supported

by a suitable tropical climate. However, the development of pineapple has not received serious attention because the underdeveloped use of superior varieties and cultivation techniques have not been optimal. Indonesian pineapple production ranks third after bananas and mangoes (Pusdatin, 2016; Nindita et al, 2018). The prospect of pineapple agribusiness is very bright and tends to increase both for the needs of fresh fruit as well as processed ingredients. The main part of the important economic value of pineapple plants is the fruit (Nofriati et al., 2016). Pineapple production in Jambi Province ranks 5th nationally after Lampung, North Sumatra, West Java and East Java with an average production in 2011-2015 of 146.1 tons or a contribution of 8.23%. (Pusdatin, 2016). Pineapple is the most exported fruit commodity in Indonesia, followed by banana and mangosteen. As the world's fifth-biggest pineapple producer, Indonesia exports around 10% of its total production, mostly as canned pineapple. Indonesia is the third largest exporter of canned pineapple in ASEAN, following the Philippines and Thailand. The average export of canned pineapple is 167,392 tons per year, while Indonesia only exports 82 tons of fresh pineapple per year, on average (Pusdatin, 2015). Besides being exported, pineapple also has a potential domestic market. Although based on pineapple consumption data in Indonesia shows that people's interest to consume fresh pineapple is declining, people still like to consume pineapple after being processed into canned pineapple, candied pineapple, pineapple jam, pineapple lunkhead, pineapple chips, and others (Indonesian Agriculture Ministry, 2015). Muaro Jambi Regency is the largest pineapple production area in Jambi Province, this commodity is the driving force of the economy and the main source of income for this region, pineapple as a mainstay agricultural commodity in Muaro Jambi Regency aims to increase the potential of local economic resources. There is potential for development pineapple in Muaro Jambi Regency will be very much better if it is supported by an efficient supply chain system. This is because pineapple is a primary product has the characteristics of perishable and voluminous (Pratama, 2017).

Jambi Province has two superior pineapple varieties which are genetic resources (PGR) on peat land, namely Tangkit pineapple and Paun pineapple, which located in Muaro Jambi District (Dwiyanto and Setiadi, 2008). The development of efficient, low-cost marketing systems is basic to successful agricultural development. Marketing system improvements will always be a necessity. It strives system improvements marketing to increase the value received by farmers, minimize marketing costs in every supply chain in the countryside, and create good selling prices in the purchasing power of consumers. A good supply chain system is not only a system efficient but also sustainable. An efficient pineapple supply chain system will contribute fairly to every economic actor from the supply chain involved. The portion received in the efficient marketing system will encourage the motivation of farmers and the institutions involved to increase their productivity so that these objectives are expected to be achieved, it is important to know and identify about the current situation and what are the barriers of the supply chain system of an agricultural commodity in rural areas (Lele and Cander, 1976). This study aims to clarify and 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 a reference for making policies to strengthen supply chain systems in rural areas that are better for later day.

Methods

The survey was conducted through two-stage, in September 2018 and June 2019 at Tangkit Baru hamlet that belongs to Muaro Jambi District. The case study research and descriptive were chosen to provide an in-depth exploration and description of the current condition and barrier of the marketing system and the actors involved in the supply chain in Tangkit Baru hamlet. Respondents were purposely selected based on their experience in production and trading activities, their distance from the main markets, firm size (small, medium, and large), the market served (rural, urban, regional, and international), and membership (or not) of a pineapple farmer or traders association, this combination resulted in a representative and balanced sample. Secondary data related to the entire supply chain were first collected from a national public bureau, other scientific papers related to this research and development institutes. Interviews were carried out with pineapple farmers (42 people), middlemen (5 people), wholesalers (3 people), local traders (2 people), owner pineapple processed home industry (4 people). Besides, focus group discussions were conducted with a key informant of supply chain actors in this study area. These discussions, field surveys, and direct interviews provided information related to the specific constraints and challenges in pineapple production, trading, and export activities, for

documentation data and explaining the current condition and barrier of supply chain pineapple farming in Tangkit Baru hamlet that occurred in present time.

Results

Research Site Condition

This study focuses on Tangkit Baru hamlets which are transmigration areas and as small-scale pineapple production centers in Jambi Province. This area that used to be a swamp forest was then changed by transmigrates from the tribe of the South Sulawesi Island or ethnic bugis with self-help without the help of local government. Therefore, the Tangkit Baru hamlet is a hamlet dominated by peat soil. Peat soil is a watery and flammable soil during the dry season. Peatlands are very difficult to plant with other production crops. Due to peat soils, farmers only planted pineapple, because only the pineapple suitable to the soil conditions at the research site.

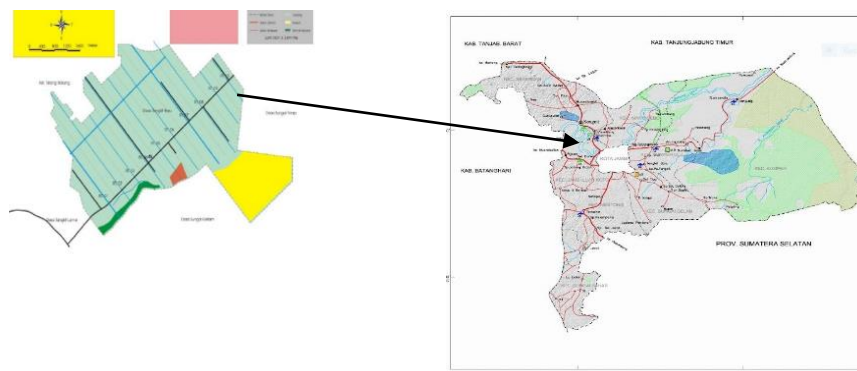


Figure 1: Map of Tangkit Baru Hamlet and Muaro Jambi Regency

Source: (Indonesian Rural Ministry, 2017)

Tangkit Baru hamlet is located on geography and topography which is not suitable, because the location is in lowland with the peat soil condition that contains high acidity, PH, 3,5 - 4. If in the dry season this area is vulnerable, there was a forest fire, on the contrary in the rainy season there was a flood. the condition of this topography and geography, thus impact on the difficulty of cultivating various types of crop varieties, Otherwise the hamlet is in a strategic orbit where the provincial capital is only 11 km away with asphalt road conditions, making the hamlet quick to gain access to information and easy to sell the products or commodities directly to Jambi Province capital (Indonesian Rural Ministry, 2017).

Overview of The Pineapple Supply Chain in Muaro Jambi Regency

Pineapple Production

Muaro Jambi is one area that have the potential of horticultural commodities in Jambi Province. Activities carried out in Muaro Jambi Regency will use of the potential of pineapple in Tangkit Baru hamlet. As an illustration, pineapple in Tangkit Baru hamlet is a pineapple variety that has been released as a regional superior commodity, with a total area of approximately 800 ha and 596 ha of processed area, Muaro Jambi Regency has a potential peatland for the development of pineapple cultivation. The following are data on pineapple harvest, production, and productivity in Sungai Gelam Sub-District (Tangkit Baru hamlet is belong to Sungai Gelam sub-district).

Table 1

Harvest Area, Production, and Pineapple Productivity in Muaro Jambi Regency divided each subdistrict in 2016

Sub-District	Harvest Area (Ha)	Production (Ton/Ha)	Productivity (Kg/Ha)
Sekernan	0	0	0

Muaro Sebo	0	0	0
Outside Jambi	0.2	7.7	38.5
Mestong	0	0	0
Sungai Bahar	0	0	0
Sungai Gelam	850	218.593	383.49
Kumpeh Ulu	0	0	0
Kumpeh	0	0	0
Taman Rajo	0.06	12	20
Total	850.26	238.29	441.99

Source: BPS, 2017

Table 1 shows that Sungai Gelam Sub-District has the largest harvest area of 99.95% of the total harvested area in Muaro Jambi Regency with a productivity of 441.99 kg/ha and the table 1 also shows that from the outskirts of Jambi City and Taman Rajo only has harvest which does not reach 1 ha. From several hamlets in Sungai Gelam Sub-District, there is one pineapple cultivation hamlet, where the hamlet as main area of pineapple production in Jambi Province, namely Tangkit Baru hamlet. Tangkit Baru hamlet is known as the biggest pineapple producer in Muaro Jambi Regency. Tangkit Baru hamlet is the largest producer of fresh pineapple in Jambi Province, from the hamlet area is 1,811 ha, and 1,000 ha is pineapple plantations which can produce over 50,000 pieces of pineapple/day. These fresh pineapples are sold in the angso duo market (local market) and among the markets in the cities in Jambi Province and outside the Jambi Province. Jakarta, Padang, and Palembang cities are the main destinations for pineapple Tangkit Baru hamlet market share (Indonesian Rural Ministry, 2017).

Demography of Farmers and Farming Characteristic

Farmers' Demography

From table 2, the age level affects a person's ability to carry out activities and concepts of thinking especially for farmers. Farmers who have a young and healthy age certainly have strong physical conditions and a more creative thinking power compared to farmers who have an old age. From the results of the research conducted, it was found that the age range of pineapple farmers ranged between 21-55 years. 44 years old, not all male, the average age of pineapple farmer, but there are also some women in the field who found that women helped pineapple management activities from the beginning to the end, and there were also some who were left to die by their husbands so that the management pineapple farming is the responsibility of the wife. For the age of farmers, it is categorized as the age of farmers who are still active (healthy), who can manage people farming well. The age of farmers who carry out farming activities in the Tangkit Baru hamlet is classified as productive. This is in line with Asmaida and Zarkasih (2017), productive age ranges from 14 to 55 years, which at this age level is expected to be able to work and manage their own farming business, both in the production process or processing of agricultural land. The higher the farmer's height the physical ability of farmers to work on agricultural land is relatively decreasing, because in general farmers only rely on physical strength or energy in carrying out agricultural activities.

The facts obtained in the field that the average pineapple farming in the Tangkit Baru hamlet has become the second generation, which previously was a pineapple farming inheritance from previous families and the next generation just to continue. Whereas in the education side most farmers can complete up to 9 years of education (junior high school) but this is below the mandatory standard of education in Indonesia, where the central government requires all citizens to complete 12 years of compulsory education (high school). Education of the farmers in this hamlet are categorized as low level of education. For the number of members of the family, the average farmer has 2 children each with an educational level at the elementary level.

Table 2
Descriptive Statistic of Farmer's Demography

No	Variables	Unit	n = 42
1	Age	Mean (year)	43.83
2	Sex	Male (%)	90
3	Education	Mean (year)	9.6
		Female (year)	10
	Elementary school	(%)	13.33
	Junior high school	(%)	53.33
	High school	(%)	33.33
4	Married	(%)	96.7
5	Number household member	People	2.48

Source: Own Survey, 2019

Farmers' Farming Characteristic

As table 3 shows, the average experience in cultivating pineapple is 20.03 years, where most of these farmers have been running pineapple plantations since they were teenagers where they helped their father, this is one keys to the long experience of farming, especially pineapple, farmers can manage pineapple plantations well. Then the average farm size is only 1.96 ha, with ownership ratios almost all of which are owned by either land or pineapple farming themselves, but there is also a ratio of 6.66% is the land rented, this is because the farmer family had previously sold the pineapple farm and farmer's child did not get the inheritance of the pineapple farm. The labor force used is mostly used only by the head of the family and wife if there are children, the child will help the father usually only when harvesting, because in the Tangkit Baru hamlet most of them are small scale agriculture and that is handled by a family, but the number 0.17% for the use of labor, if the land area has exceeded 3 ha, if less than that, it is only managed by the farmer's own family, and labor is used to carry out fertilization and harvesting activities. Multi-cropping activities are very rarely done by farmers because planting 2 or more types of plants in one field can cause a decrease in crop yields, but there are still some farmers who do multi-cropping by planting Areca nut plants, usually Areca nuts are naturally grown and farmers reluctant to revoke it, by increasing the income of the farmers but not much to plant area, then the other planters are left to grow.

Table 3
Farmers' Farming Characteristics

No	Variables	Unit	n: 42
1	Experience cultivating pineapple	Mean (year)	20.03
2	Farm size	Mean (hectare)	1.96
3	Land ownership ratio		
	Owned	(%)	93.33
	Rent	(%)	6.66
4	Number labor		
	Family labor per hectare	(%)	0
	Hired labor per hectare	(%)	0.17
6	Multi-cropping		
	Areca nut	(%)	3.33

Source: Own Survey, 2019

Mapping Muaro Jambi Regency's Pineapple Supply Chains

Based on the mapping conducted in the study area identified, several actors in the supply chain of pineapple comprising farmers, middlemen, local seller, home industry business, local chain supermarket actors, wholesaler from outside Jambi Province. The linkage between actors are connected

through the flow of products, the flow of money and flow of demand and information, in simple terms, the relationship between actors involved on flow of product and flow of information, demand and money are illustrated in figure 2 and figure 3.

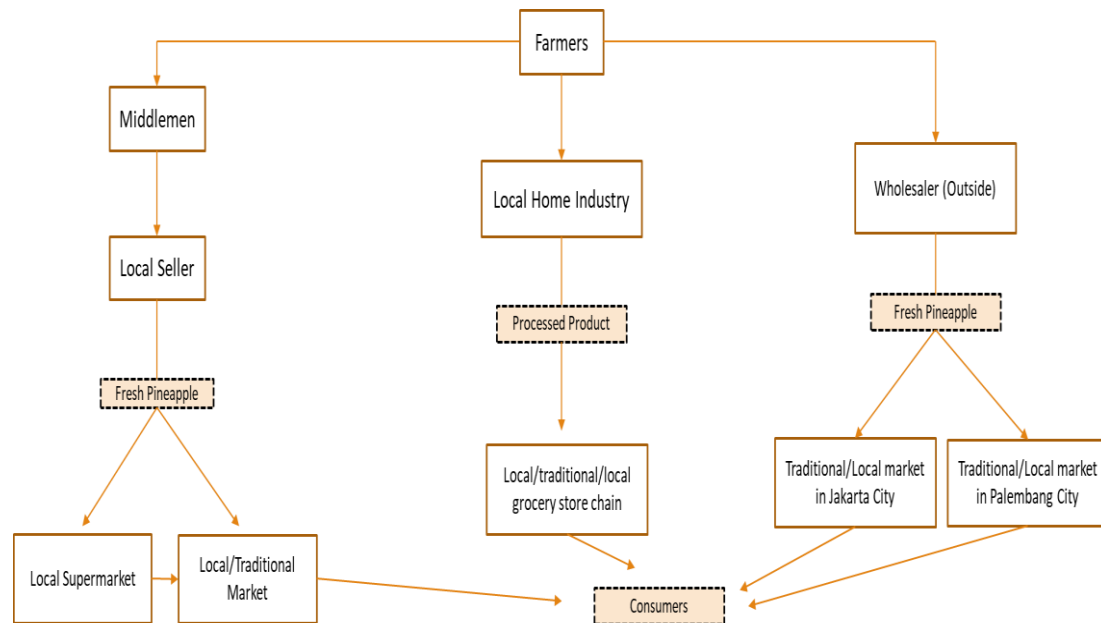


Figure 2: *The Flow of Goods from Upstream to Downstream Stream*

Source: Own Survey, 2020

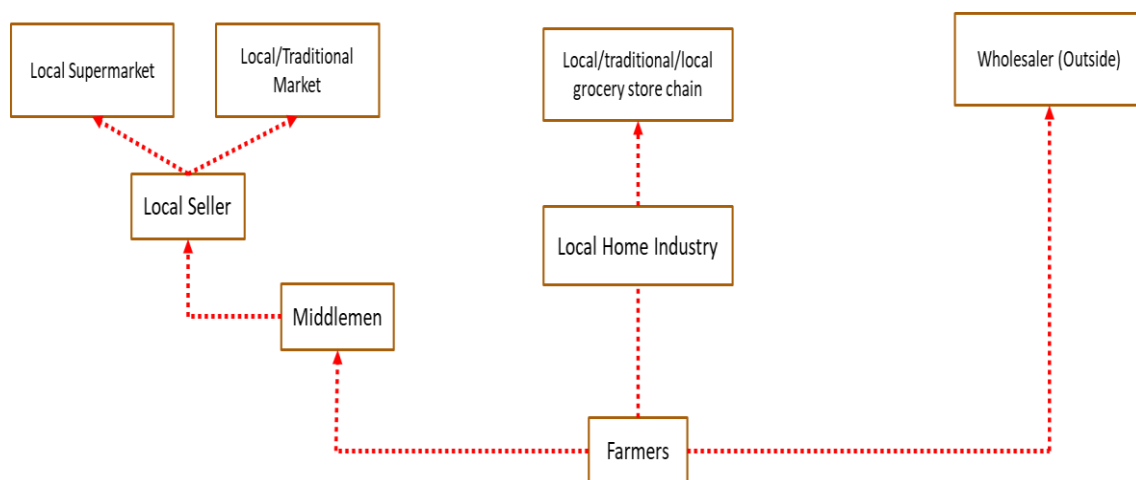


Figure 3: *The Flow of Information, Demand, Money from Downstream to Upstream*

Source: Own Survey, 2020

Supply Chain Channels Involved in Pineapple Products

In general, there are four supply chain channels involved in the agricultural products, which are the farmers as producers, small collectors, large collectors, and exporters. Each has their different roles and functions in supply chain from farmers to exporter (Menggala and Damme, 2019). Based on the research and survey conducted in September 2018 and June 2019, it can be identified that the actors involved in the pineapple farming supply chain marketing system in the Tangkit Baru hamlet are as follows.

Farmers

Most pineapple farmers in Muaro Jambi Regency do not conduct nursery management, they get seedlings directly from pineapple seedlings. So that the cost of procuring seeds does not exist. Farmers rarely use labor from outside the family or hire, they usually only use labor from family members, because their land area is on average less than 3 hectares and this is included in the small area category. The farmers immediately harvest pineapple from their land, then stacked directly in front of their land. Harvesting is done every day by looking and looking for ripe pineapple. Pineapple collected in the field after harvesting, then taken by motorbike to the hamlet's main road. Usually local traders, middlemen and wholesalers are waiting to make transactions on the harvest of the farmers directly on that day. Farmers are the most important price base as the initial base for pineapple prices from the supply chain system. Pineapple with grade A quality (good) and even size, will be valued at a high price by the buyer, and quality A pineapple will be prioritized for sale to wholesalers from out of town that were previously bought by the middlemen, so that the second transaction takes place between the middlemen and wholesaler. Farmers will get a good price and bargaining position because of the quality of grade A. The price will be determined by the middlemen, because farmers feel benefited from the system because all pineapples with grade A will be bought by the middlemen, but behind those farmers get a price that is not so high compared to the next transaction, but the position of farmers is very weak, because of the perishable nature pineapple itself, if the farmer does not immediately sell pineapple, the pineapple will rot and will not sell. Besides these reasons, the farmers also want pineapple to be sold quickly because the sale of pineapple can directly fulfill daily needs. The position of farmers is very weak, and problems arise again when farmers want to sell their products. Farmers do not have direct access to consumers. The ability of farmers is also limited in terms of price negotiation. As a result, middlemen emerged who played a role in channeling production from farmers to factory processing agricultural products. Middlemen buy agricultural products with the price is determined unilaterally. The farmer is in a powerless position to participate determine the selling price of their products because of limited market information. Other than that, it indicates some farmers as being in debt from middlemen because of the limited access of farmers towards the capital (Wahyudi, 2017).

Middlemen

The function performed is a physical exchange. These middlemen have a vital role because they will first accommodate the farmers' harvest, then they will also determine the basic price for the farmers. Middlemen will determine the next supply chain destination, for grade A will be sold to wholesalers, and for grade B (with a small fruit size, uneven and maturity level of fruit that is too ripe) will be sold to local traders and the rest is grade C will be sold to the local home processed pineapple industry. Middlemen also performing grading, sorting and storage functions and middlemen often monopolize on information regarding pineapple demand information, market conditions, also including stock availability and price (Jaya et al., 2009). Since middlemen have access to significant financial resources, they can buy pineapple from growers directly at a low price, especially when farmers need money.

Wholesaler

Large traders come from outside the area of Muaro Jambi district, they come directly to the farmers' farmland and they buy in large quantities, their prices will determine before they come to the pineapple farming, they have financial strength and market information outside the pineapple production center in the Muaro Jambi district. Pineapples purchased from farmers by wholesalers are grade A quality, which is about 80% fruit maturity level and the size of all pineapple fruit is relatively the same, they will buy directly with a truck and with the price and amount determined based on mutual agreement, transaction done usually done by telephone. If an agreement occurs, the wholesaler will immediately come to bring the pineapple loading truck to the planted land, if there has been an agreement of the sale and purchase transaction, the farmers usually have seen the potential of harvesting from their land, if the transaction has occurred, this means that the farmer must undertake from the quality and quantity that have been predetermined. But for the main determinant price is wholesaler, farmers still could not determine the price, although it is still possible to bargain the price, but the base price of the wholesaler

will determine at the beginning, because they hold the amount of market demand, and current market prices it's for agricultural commodities such as pineapple.

Local Home Industry

At this stage, the economic actors of local home industry actors are hamlet around the arable land and pineapple production center area, or the wives of pineapple farmers who do this activity, they process pineapple into a variety of derived products to get additional income from the fresh fruit pineapple or the added value of raw pineapple products. Home industry uses fruit from the rest of the sales for wholesalers, namely fruit whose size is small and uneven size. Moreover, the fruit is not suitable for marketing both for local markets and markets outside the area of Muaro Jambi Regency. The selling price obtained by the home industry business people at the lowest price, because the quality of pineapple is not very good, but from here the farmers get a profit, if the fruit is not sold then the farmer must discard the fruit, because the nature of the pineapple is perishable product. The role of small-scale industries is providing productive employment and earning opportunities for farmers has emerged as an important concern among policy makers, international donor agencies and researcher (Leidhoim and Mead, 1987).

However, observations in the local home industry in the study area have been closed, because of the limited technology and various products derived from pineapple processing and limited market reach to absorb the processing results of pineapple in this study area.

Supply Chain Barrier for Small Farmers Development

The following are the model of four major barrier that limit the competitiveness of small and medium-sized manufacturers and their entry into supply and value chains, namely access to end-market, access to skills, capacity improvement, collaboration cooperative building, access to finance and incentives (Lie et al., 2012). The findings showed that there were two major barriers identified, namely on-farm and off-farm problems.

Barrier of On-Farm Issues in Muaro Jambi Regency

Lacking Competence and Knowledge on Agricultural Practices (Growers)

It has been proven that growers only plant pineapples then harvest pineapples without planting them with seedlings from the nursery, meaning that farmers do not prepare seedlings, farmers depend only on seedlings from previous bloodstocks. Farmer's competence in farming is a manifestation of behavior to plan a series of activities to achieve the target. Competence refers to the ability of farmers to run a farming business or carry out their work tasks and functions competently. Competent is the functional skills needed to carry out tasks on a job according to the standards set, or competent is defined as having adequate skills and knowledge to carry out work (Palan, 2008).

In simple terms, competence is closely related to the basic character possessed by someone and closely related to effective performance (Spencer and Spencer, 1993). Moreover, the impact on the decline in the quality of pineapple and does not guarantee even quality for pineapple yields. farmers only depend on nature, without the knowledge of how to manage pineapple land and plants to grow optimally.

Scale of Farming is Narrow

These farmers are categorized as farmers with a small scale of land averaging only 2 hectares, the quantity of the crop is classified as small farmers who want to increase the area of pineapple plantations, improving is difficult because the price of farming land is very expensive while farmers do not have the capital to buy new land. In addition to the limited land, the land in the study area has been converted into commercial housing, and the land owned by farmers now is inherited from their parents so that farmers do not have or have the financial power to expand their pineapple plantations.

This situation is almost the same as the results of research conducted by Harijati (2007) on smallholder farmers on the outskirts of Jakarta and Bandung. Most farmers lack access to capital sources and access to sources of information to develop their farming businesses. Hirawan (1998) explains

that more land is controlled by farmers, usually, farmers have the attitude to adopt innovation better, because it has a better economic capacity.

Lack of Industry to Support Agricultural Practices and Research Development

Even though the area of land owned by farmers is very narrow, but if improvements are made to manage the growth of pineapple plants, it can still be expected that pineapple plants can grow optimally so that the quality of pineapple fruit will produce large and evenly sized fruit, and have an impact on selling prices high, and in quantity the yield will have an increased tendency, but in the research field is not found, the existence of a research institute for the development of pineapple plants, as well as the existence of periodic training on good pineapple planting practices assisted by local agricultural extensions are also not carried out intense and regular.

The Lack of Infrastructure to Support Pineapple Farming

This can be seen at the main entrance of the central pineapple planting area, there are so many holes in the road and puddles, this condition is very disturbing in transporting transportation of crops and sales transactions of pineapple, coupled between the production road, transportation of the harvest is united with the road traffic worn by villager every day.



Figure 4: *Poor Main Road*

Source: Own Survey, 2019

Low Quality of Pineapple (Unequal Size of Fruit)

The final impact of the overall factor that arises from this barrier is the harvest quality of pineapple fruit which is very low and uneven so that prices will fall considerably because they do not meet the market requirements both local and outside the area of Muaro Jambi Regency, so in this case farmers who most will be harmed, in this case they will get the lowest price of each step of the supply chain system here. Smallholder farming has been characterized by low productivity and quality. This situation is partly attributed to lack of capital and uses poor farming technologies by smallholder farmers, drought, and lack of market for the produce (Mwankemwa, 2004).

Barrier of Off-Farm Issues in Muaro Jambi Regency

Barrier in post-harvest pineapple supply chain process arises because of regulations, standards, laws and information rules and norms that are not supporting the supply chain improvement.

Sold in Fresh Fruit, Not Processed Products

Farmers prefer to sell their harvest (fresh pineapple fruit), rather than trying to sell it in processed form and in collaboration with the local government or the local home industry, this is because the first is the perishable nature of pineapple that cannot last longer, then the farmers sometimes need quick funds (cash) which can immediately be converted into money to meet the needs of the family, then industries and markets that absorb processed products derived from pineapple fruit have not been many, so that the market and demand for pineapple derivatives and processed products are still very limited, thus the main choice of the farmers is that when harvesting pineapple fruit must be sold to buyers immediately,

pineapple fruit that has not been sold for too long is rotten and cannot be sold so that the farmer loses money and time.

Limited Access to End Market

This limitation of access is the most negative effect with the lowest price obtained is the farmers, farmers do not have access to sell directly to the end consumer, and local consumers rarely buy in large quantities. Dependence on middlemen and wholesalers is huge. The fundamental problem for most Indonesian farmers is the powerlessness in negotiating the prices of their products. The bargaining position of farmers at present is in a weak condition. The weak bargaining position of farmers is generally caused by farmers lacking access to or having inadequate market access, market information and capital. (Alamsyah, 2015).

Lack of Professional Process Industry

The results of direct observation in the study area of many home industries that have experienced bankruptcy and closed, this indicates the absence of new products created to attract new consumers to buy processed pineapple derivatives and an indication that the stagnation or saturation of the market to absorb pineapple fruit processed products.



Figure 5: A Closed Local Home Industry

Source: Own Survey, 2019

Access to Finance and Incentives for Growers

The role of banks is very important, but banks provide high requirements if farmers want to borrow capital to expand planting land for pineapple. One of the major constraints faced by pineapple farmers is the difficulty in accessing financial support for their activities. Therefore, most farmers need access to credit or a loan. However, the available credits and loans are inappropriate for pineapple cultivation for two main reasons. Firstly, because of the long production cycle of pineapple (14-18 months) financial institutes are unwilling to provide credit. Secondly, the high interest rate is disincentive for pineapple farmers (Agbo et al., 2008). Farmers unable and are not brave to borrow money from banks, because farmers cannot control prices and yields their harvest, moreover the existence of the bank as farmers credit assistance institution to support pineapple farming and post-harvest activities is not felt and used by farmers.

No Access to Export or Exporter Activities (Institutional Support)

The role of exporters in the supply chain in the study area was not found, because there had been none discourse to open an export market for fresh pineapple or processed pineapple products and marketed overseas. Entering this step requires a related third party, because to meet export standards abroad is difficult, this requires synergy and cooperation at both the basic level (Farmers) and policy holders (Government). In addition, there is a lack of institutional support, research, and training, which would be beneficial to the farming environment (Sriri et al., 2011).

Conclusions

The Tangkit Baru hamlet has long been known for its agricultural production of pineapple, which has also become the largest pineapple production center in Jambi Province and has become the main source of livelihood for the villagers. Almost villagers depend on their income from pineapple farming, but the current situation found many barriers from this pineapple farming which is mostly done by small farmers with small scale farming land. Barriers that arise mostly are supply chain problems that depend heavily on the presence of middlemen, limitation of greater and wider reach market destinations, and the development of both home industry and large-scale industries that can make processed products derived from a fresh pineapple. The middlemen regulate and determine the price of pineapple, to get a good pineapple selling price, small farmers must sell it to wholesalers but are constrained by the quality of production of pineapple which must meet the requirements of grade A (good quality of fresh pineapple) category, and it is still difficult for farmers to fulfill the quality requirement.

The current conditions and barriers supply chain identified supply in Tangkit Baru hamlet can be divided into two groups of problems namely, on-farm and off-farm problems. For on-farm issues include lacking competence and knowledge on agricultural practices, scale of farming is narrow, lack of industry to support agricultural practices and research development, The lack of infrastructure to support pineapple, low quality of pineapple (unequal size of fruit) and problems off-farm includes, sold in fresh fruit, not processed products, limited access to end market, lack of professional process industry, access to finance and incentives for growers, no access to export or exporter activities (institutional support). For future research, suggested creating a model for upgrading from supply chain problems that occur in Tangkit Baru hamlet which aims to increase income and benefit the improvement of the welfare standards of pineapple small farmers in the Tangkit Baru hamlet.

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