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Siem Citrus Commodity Development Strategy in Kerinci Regency, Jambi Province, Indonesia

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Abstract.

This research has the objective of analyzing the revenue generation and strategy development for siem citrus commodity. The study was conducted for eight months from April to November in the two districts in Kerinci Regency, namely Keliling Danau District and Bukit Kerman District. Research data were generated from primary and secondary sources. Primary data were collected using observation, direct interviews, in-depth interviews and Focus Group Discussions (FGD), while secondary data were obtained from related department/agency reports, journals, and other reports related to the research topic. One hundred eighty households served as respondents in the study. The descriptive research design was used with data analyzed using SWOT analysis. The results showed that the average income of siem citrus farmers reached Rp. 64,690,751.55 per year or around Rp. 5,390,895.96 per month. The income obtained by citrus farmers in Kerinci Regency is relatively high compared to other farming income. Based on the SWOT analysis diagram, the development of siem citrus farming is in an aggressive strategy so that the alternative strategy that must be applied is the SO strategy to maintain the quality of products and land fertility by utilizing market opportunities, and take advantage of partner cooperation in the procurement of seeds and yield marketing.

Keywords: aggressive, revenue, siem citrus, strategy, SWOT.

1. Introduction

Citrus plants and tangerines were brought in Indonesia by the Dutch mainly from America and Italy (Anonymous, 2015). One type of citrus growing in Indonesia, particularly in Kerinci Regency in Jambi Province, is *Siem Citrus* (*C. microcarpa L.*). *Siem citrus* is one of the horticultural commodities that has its own added value compared to other commodities, because it is very popular with all levels of society, including children, adolescents, and adult groups.

Siem citrus has the advantage of quite a high production amount, reaching 50-100 kg/tree (Muhammad & Taufik, 2002). This commodity can be easily obtained both from traditional and modern (supermarket and mall) markets. With prices ranging from Rp.10,000 - Rp.12,500 per kilogram, it is very affordable for the middle to lower class groups. In every production process or harvest from 400 trees per hectare and aged 5-10 years, it can generate an income of 120 million/year or around 10 million/month. *Siem citrus* farming is very profitable compared to other crops, but the farmers battle with problems such as limited number of farmers who cultivate the crop, the weak marketing chain, low competitiveness of the commodity both in product development and product quality improvement.

Based on a report from the Jambi Province Department of Food Crop Agriculture in 2015, the three biggest regencies producing *siem citrus* in Jambi Province are Kerinci Regency, Muaro Jambi, and Tanjung Jabung Timur Regency. The districts that have the biggest harvests and total production areas are in Kerinci Regency (Anonymous, 2016). According to the latest data obtained from the Kerinci Regency Department of Food Crop Agriculture, the production centers of *siem citrus* in Kerinci Regency are the districts of Keliling Danau, Danau Kerinci, and Bukit Kerman Districts, with a total production of 981, 1,165 and 1,472 tons, respectively per year (Anonymous, 2015).

According to Kerinci Regency Department of Food Crops and Horticulture (2017) report, the development of *siem citrus* plant in Kerinci district has been running for approximately five years. This research on the analysis of *siem citrus* commodity development strategy aims to generate information and help develop policies, especially agribusiness development policies geared towards the welfare of farmers (Anonymous, 2017). The success of regional development in this sector seems to have given its contribution to the said region under the respective development goals and regional potential. Based on the existing problems in Kerinci Regency, the research objective is to analyze revenues and development strategy of *siem citrus* farming in Kerinci Regency.

2. Method

The study design was *cross-sectional in nature*. The study was conducted in Kerinci Regency and covered two districts namely, Keliling Danau District, and Bukit Kerman District. The research was done in a span of eight calendar months (from April to November) concentrating on research variables such as farming and agribusiness (number of products, quality of products, land area, farmer institutions, and use of rice production infrastructure), institutions and marketing (economic assistance, partnerships, input market access, and output market access), and internal and external variables for the development of the *siem citrus* commodity. Research data came from primary and secondary sources. Primary data were collected using observation, direct interviews, in-*depth interviews* and *Focus Group Discussions* (FGD), while secondary data were obtained from related department/agency reports, journals, and other reports related to the research topic.

The development of the *Siem Citrus* commodity in Kerinci Regency, Jambi Province covers areas that have good agricultural potentials, such as horticulture potential, plantations, food and other agricultural sectors within the Kerinci Regency administrative area. Five district that have potential for horticulture, especially *siem sitrus* are Keliling Danau, Bukit Kerman, Danau Kerinci, Gunung Tujuh, and Kayu Aro District. Using purposive random sampling, the districts of Keliling Danau District and Bukit Kerman District were selected as study areas because they have the highest producers of citrus. Three villages were taken from each district. Utilizing *simple random sampling,* 30 households were selected and served as respondents from each village, for a total of 180 households. Data were analyzed using SWOT approach.

3. Result and Discussion

3.1 Siem Citrus Farming Income and Feasibility

According to Mubyarto (2003), farm income is the revenue reduced by costs incurred in farming and agricultural products marketing. There are three approaches used in income calculation in farming: nominal value, future value, and the present value (Suratiyah, 2011). For the results of this study, the nominal approach was considered. A nominal approach disregards the time *value of money. T*he prevailing price is used so the amount of expenditure and the amount of revenue in a period of the production process can be directly calculated. In this way, farm income can be measured in value by calculating the difference in total revenue and total costs within one year or each cycle of farm production (Soekartawi, 2003).

Data shows that the average income of *siem citrus* farmers reached **Rp. 64,690,751.55** per year or around Rp.5,390,895.96 per month. The income obtained by *siem citrus* farmers in Kerinci Regency is relatively high compared to other farming income (Suandi *et al.*, 2013). Income obtained by citrus farmers in this study area was much higher compared to other citrus farmers, such as the results of Wijaya *et al.* (2015) research with a net income of only Rp.2,422,482.78 per month, Kusumaningrum *et al.* (2018) research with a net income of Rp.2,697,100.75 per month, and Marhawati (2019) research with even smaller income of only Rp 2,345,160.75 per month.

The analysis presented in Table 1 showed that siem citrus farming in Kerinci Regency was very feasible because the R / C ratio > 1. This value indicates that the level of revenue is greater than the cost of managing a siem citrus farm. Other results, where the value of π / C ratio = 25.3 percent. This figure is greater than the current bank interest of 14%, which means that it is feasible. Thus, it can be interpreted that the borrowed capital provides more benefits because the ratio between profits is greater than the total costs incurred during the venture.

The results of this study were in line with research by Wanda & Akbar (2015) which states that farming of siem citrus is very feasible. The results of the calculation of the level of efficiency in Wanda & Akbar research (2015) showed that *siem citrus* farming is very promising with an R / C Ratio of 3.35, which is higher than those from lowland rice farming with an R / C Ratio of just 2.14. Other studies have also shown significant results, such as the one carried out by Zuraida (2012). Citrus farming on tidal land is very feasible as indicated by an R / C Ratio of 3.1, while tidal land paddy farming only has 2.3. The results of this study are further supported by Supriadi's research (2017) stating that farming of siem citrus is very profitable and therefore feasible because it has a profitability value which is higher than bank interest rate of 10.5%.

Table 1: Profitability Analysis of Siem Citrus Farming

No.	Description of Usefulness	Volume	Prices (Rp/unit)	Values (Rp.)
1	Productions	8,982.40	10,000.00	89,824,000.00
2	*Cost incurred*			
	a. Cost of Production Facilities			16,643,785.00
	b. Labor costs			2,856,974.45
	c. Other costs			5,632,489.00
Total Costs				**25,133,248.45**
Net Income (revenues-costs)				**64,690,751.55**
R/C (revenues/costs)(Feasibility)				**3.57**
π/C Ratio				**25.30**

3.2 Strategy for Developing Siem Citrus Commodities

The SWOT approach was used in the strategy development for *siem citrus* commodity in Kerinci Regency. **SWOT** (acronym in English of strengths, weaknesses, opportunities, and threats) is a method of strategic planning used to evaluate the strengths, weaknesses, opportunities, and threats in a project or business speculation (Rangkuti, 2015).

As an analytical tool, SWOT is an important strategic planning tool to help the planner compare internal organizational strengths and weaknesses with the external opportunities and threats (Kurtz: Suandi *et al.* 2019). In other words, the analysis of SWOT needs to be done in company planning to achieve the "fit" between internal resources and external situations of the company. Successful matching will maximize the company's strengths and opportunities and minimize the weaknesses and threats (Pearce & Robinson: Suandi *et al.*, 2019).

Results show that internal and external indicators were closely related. As shown in Table 2 and Table 3, IFAS and EFAS strategies were interrelated. In the IFAS Table (Table 2), it shows that the most significant strengths are the citrus fruit quality and land suitability. Field observations show that the quality of citrus fruits is unique and sweet because *siem citrus* in Kerinci Regency come from good varieties. The quality of the fruit according to the studies of Rahayu (2014) and Nawaz *et al.* (2018) is one of the critical factors that influence consumer patronage, especially when the fruit is suitable to their personal taste. Consumers prefer the distinctive bitter-sweet flavor. The mix of bitter, sweet and fresh flavors is in high demand by the people of Indonesia.

The most notable weaknesses were insufficiency of capital and inability to manage pest and disease attacks. As discovered by Ichsan & Prayuginingsih in their study in 2016, one of the challenges in developing the competitiveness of Indonesia n oranges is the limited capital. Considering the development of siem citrus or horticultural commodities generally have limitations or weaknesses in maintaining fruit quality and added value. This finding is consistent with the results of the research of Kongai *and associates* in 2018 stating that the weakness factors of the supply of siem citrus is quality planting materials, processing for value addition, and establishment of commodity innovation platforms. The overall score for the strength factors is 3.19, while the weaknesses scored an overall weighted rating of 1.70, resulting to a positive axis point of 1.49.

Table 2. Internal Strategic Factor Analysis Summary (IFAS) Matrix on the Development of Siem Citrus Commodities, 2018

No.	Internal factors	Weight	Rating	Weighted Rating
	Strenghts			
1	Citrus fruit quality	0.24	3	0.72
2	Land Suitability	0.23	3	0.69
3	Access to Production Facilities	0.22	2	0.44
4	Prodution center area	0.19	2	0.38
5	Farmers' Institution	0.18	2	0.36
6	Labor Availability	0.18	2	0.36
7	Product Durability	0.12	2	0.24
	Strength Score			**3.19**
	Weaknesses	**Weight**	**Rating**	**Weighted Rating**
1	Capital availability	0.16	3	0.48
2	Land availability	0.16	3	0.32
3	Pest and diseases attack	0.14	3	0.24
4	Post-harvest	0.12	2	0.24
5	Human Resources	0.12	2	0.24
	Weakness Score			**1.70**

Other strength factors that were not so important were in the areas of production centers, farmer institutions, labor availability, and access to production facilities, while human resources and post-harvest were the weakness factors which were given low weights. The results of this study are in line with the research of Usman *et al.* (2018), citrus production in Pakistan's Punjab is limited because it is affected by a lack of human resources.

Apart from internal factors, there were external factors that also influence the citrus farming activities, the weight and rating values of which were shown in the EFAS matrix in Table 3. There were many opportunities for the development and marketing of *siem citrus* in the research area. The interview with the farmers revealed that the foremost opportunities that can be explored for the further development of citrus commodities include price and market availability. These results were in line with research findings of Mutiara & Nurhantanto (2016) and Dien & Dao (2018) declaring that the bright prospects in marketing orange products are price, demand, and market factors. Especially the price factor has an important role as an opportunity factor in the development of siem citrus.

Kerinci's *siem citrus* were not only distributed in the local markets in the area. The products have also been sold in other available regional markets such as Jambi City, Padang, West Sumatra, and even Jakarta. This finding affirms Rahayu's (2014) research result stating that an external factor that can be utilized as an opportunity in marketing horticultural fruits is the opening of significant market. Citrus farmers in Kerinci Regency have many partners both in the procurement of seeds and result marketing. Citrus farmer partners are scattered in Pekan Baru, Padang, and there are even partners in the city of Medan. The results of this study are in line with research by Purnama *et al.* (2014) that the marketing strategy of Indonesian mangoes in the international market, one of which is determined by the factor of collaboration between farmers and entrepreneurs / exporters. Another very promising factor for the development of siem citrus is technology. Although citrus farmers do not have high education, but they have skills in managing the *siem citrus* business. Another opportunity factor that is no less important is the relationship/partner factor.

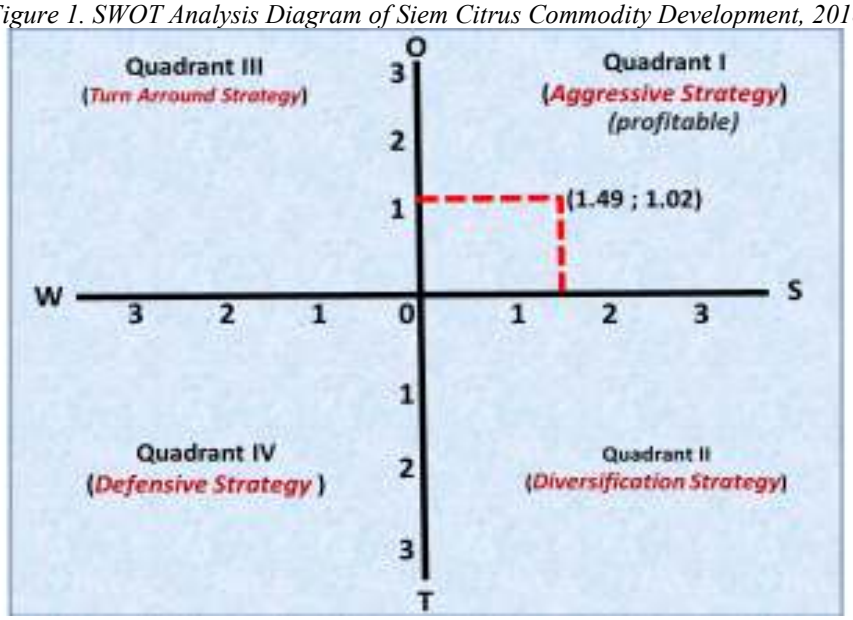
Table 3: External Strategic Factor Analysis Summary (EFAS) Matrix on the Development of Siem Citrus Commodities, 2018

No.	External Factors	Weight	Rating	Weighted Rating
	Opportunities	(1)	(2)	(3)
1	Price	0.22	3	0.66
2	Market availability	0.21	3	0.63
3	Seedling availability	0.21	3	0.42
4	Partner collaboration	0.19	2	0.38
5	Government policy	0.18	2	0.36
6	Technology	0.18	2	0.36
	Opportunity Score			**2.81**
	Threats	**Weight**	**Rating**	**Weighted Rating**
1	Variable cost	0.19	3	0.57
2	Continuity of siem citrus	0.18	2	0.36
3	Agricultural counseling	0.15	2	0.30
4	Climate Change	0.14	2	0.28
5	Competitiveness	0.14	2	0.28
	Threat Score			**1.79**

However, there were various threats in the development of the *siem citrus* commodity in the research locality. Threats are conditions that can interfere with the development and marketing of *siem citrus* in the future. As expressed by farmers, the *main threats so far in the development of siem citrus include the variable cost and continuity of citrus fruit..* Based on the opportunity and threat factors condition that occurs, the determination of the development and marketing position of *siem citrus* in Kerinci Regency can also take account the weighted value determination of the opportunity and threat factor.

Processed results and data analysis obtained a weighted value of the opportunity factor equivalent to 2.81, the threat factor of 1.79 with a positive axis point of 1.02 (Table 3). Thus, the opportunity factor in the development and marketing of the production of *siem citrus* in Kerinci Regency is more dominant than the existing threats, hence the development and marketing of *siem citrus* is possible in the future. Through the results of the weighted value difference, the position of the development and marketing of siem citrus can be seen described in the SWOT analysis diagram (Figure 1).

Figure 1. SWOT Analysis Diagram of Siem Citrus Commodity Development, 2018



Based on the SWOT analysis diagram (Figure 1), it can be seen that the position of the development and marketing of *siem citrus* in Kerinci Regency is located in Quadrant I, which falls in the area of aggressive strategy. According to Rangkuti (2015) this position is a very favorable situation since the development and marketing of siem citrus have strengths and opportunities that can be utilized. The strategy that can be applied in these conditions is an aggressive growth policy (growth-oriented strategy) or aggressive strategy (aggressive strategy).

Based on the position held, the strategy adopted in the development and marketing of *siem citrus* in Kerinci Regency is aggressive. Based on the SWOT matrix (Table 2 and Table 3), the choice of strategy used is the SO strategy in which this strategy optimizes strength so that the opportunities can be utilized, namely by maintaining the quality of *siem citrus*, flavors, increasing the role of farmer institutions in procurement seeds and marketing results by utilizing available market opportunities. *Siem citrus* found in Kerinci Regency has a unique and specific flavor compared to the other *siem citrus*. With the existence of these advantages, then the flavor of *siem citrus* needs to be maintained so that consumers are satisfied to consume it directly and these advantages can be exploited with the opening of existing market opportunities. The recommendation is in line with Rahayu's (2014) findings that maintaining quality needs to be done to expand market share by utilizing the increasing number of consumers.

The role of farmer institutions is not only in following the seed procurement cooperation activities but also as a provider of production facilities, providers of farming equipment and machinery, providers of capital and also as a marketing unit. This is in line with Anantanyu's (2011), Fitri's (2013) Astoko's (2014), Olife's *et al* (2015) research which recommend that coaching and learning to the Farmers Group Association (*Gapoktan*) to be able to function not only as a production unit, but also as a provider of production facilities, providers of farming equipment and machinery, development of citrus value chain, providers of capital and also as a marketing unit. Another essential strategy is to follow government policies in subsidies on inputs; promoting and facilitating *siem citrus* as alternative livelihoods for rice farmers and cinnamon and coffee farmers (Usman *et al.* 2018). Promotional activities are essential to the progress of farming. As expressed by Riyono (2016), promotion is a product introduction activity to the public (consumers) which aims to increase marketing location and demand. Then, use partner collaboration as a means of providing seeds and marketing results. Kerinci's typical *siem citrus* has good quality compared to others in Indonesia.

4. Conclusion

The average income of *siem citrus* farmers reached Rp. 64,690,751.55 per year or around Rp. 5,390,895.96 per month. The income obtained by citrus farmers in Kerinci Regency is relatively high compared to other farming income. Based on the results, it was found out that the internal factors which became the strengths in the development of the commodity include the quality of *siem citrus*, access to production facilities, farmer institutions, product durability, and land suitability, while the weaknesses are pests and disease attack, land availability, post-harvest, and capital availability. External factors that became opportunities were market availability, technology, partner cooperation, and prices, while the threats are variable cost and continuity of *siem citrus*. Based on the SWOT analysis diagram, the development of *siem citrus* farming is in an aggressive strategy so that the alternative strategy that must be applied is the SO strategy to maintain the quality of products and land

fertility by utilizing market opportunities, and take advantage of partner cooperation in the procurement of seeds and yield marketing.

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