

Productivity Improvement Strategy Analysis Palm Oil in Sumatra Province 2011-2021

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Abstract. This study uses a weighted index model and a productivity model where Aceh Province is the province with the highest weighted ranking value with a weighted value of 2.06, meaning that Aceh Province to obtain 1 ton of palm oil requires an average area of 2.06ha. Meanwhile, North Sumatra Province is the province with the lowest weighted index value when compared to other Sumatra Provinces, namely with a weighted value of 3.62, meaning that to obtain 1 ton of palm oil, an area of 3.62 Ha is needed. The highest productivity of palm oil production is in Aceh Province at 49.16% while the lowest palm oil production productivity is in North Sumatra Province at 27.98%. The strategy to increase the added value of palm oil production in Sumatra Province is through mapping of smallholder and company palm oil production areas, regulations for the sustainability of palm oil production, provision of subsidized fertilizer assistance for oil palm farmers, especially smallholder farmers and supervision and assistance to oil palm farmers in selecting seeds and processing land.

Keywords: Oil palm production and land area

INTRODUCTION

Indonesia is an agricultural country that has abundant natural resources plus Indonesia's position which is considered very strategic. Indonesia's development is strongly supported by the agricultural sector. One of the agricultural sub-sectors is the plantation sector. The plantation sector has become the mainstay of exports for Indonesia in the international market, so it has a very large role in providing employment, exports and economic growth (Kartasmita, 2011). In addition, Indonesia is also a palm oil producing country and ranks first as a palm oil exporter in the world with an average contribution of 42.99% (Indarti, 2014). Palm oil as one of the plantation product commodities has an important role in economic activities in Indonesia. Apart from being one of the country's foreign exchange earners, palm oil is also labor intensive, so it absorbs a lot of workers. Palm oil became popular after the industrial revolution at the end of the 19th century which led to a high demand for vegetable oils for the food and soap industry (Ministry of Trade, 2011). Palm oil as one of the mainstay non-oil and gas agricultural commodities has good prospects as a source of foreign exchange and tax income, in the production and processing process it is able to create job opportunities while improving people's welfare. The advantages possessed by oil palm in Indonesia, especially in the province of Sumatra, are an illustration of very fertile soil conditions, rainfall and sufficient sunlight conditions. Possession of high competitiveness in agriculture will make Indonesia able to compete in the Asian and world markets. Palm oil can produce vegetable oil as much as 6tons/ha, while other crops only produce vegetable oil as much as 4-4.5 tons/ha (Sunarko, 2007).

The need for palm oil continues to increase in line with the increase in the world's population, which is also driven by the discovery of processing technology or industrial diversification. This shows that the market opportunity for palm oil is very good so that palm oil production has very good prospects to be developed in Indonesia. Dradjat (2008). The need for palm oil is also accompanied by an increase in the area of oil palm plantations. The area of oil palm plantations in Indonesia over the last six years tends to show an increase of 2.77 to 11.33 percent per year. Seeing the large prospect of oil palm in Indonesia, it is necessary to increase productivity to increase the production of oil palm plantations. One of the efforts to increase productivity can be done by applying fertilizer efficiently and effectively. Pahan (2011) stated that good palm oil fertilization should refer to the maximum effectiveness and efficiency factor. The effectiveness and efficiency of fertilization can be achieved by referring to the five correct fertilizers, namely the right type, the right dose, the right time, the right method, and the right target (Pardamean, 2014). In supporting the Indonesian economy, oil palm has an important role as a national mainstay plantation commodity. Meanwhile, in terms of production, the development of palm oil (CPO) production from 2013 to 2016 always increased every year. In 2013 to 2015, palm oil production increased between 5.67 percent to 7.70 percent. Then in 2016, palm oil production experienced a sharp increase of 53.28 percent from 2015. From 2013 to 2016 production of palm oil (CPO) increased by 77.18 percent. Meanwhile, in 2017 it is estimated that palm oil (CPO) production will increase by 9.46 percent

Meanwhile, according to Edward et al, (2020) stated that to determine the productivity of palm oil production depending on the area of land and urea fertilizer is a factor that significantly influences oil palm productivity and

differs according to Yuza, (2019) stating increasing the amount of FFB processed by paying attention to the quality of the fruit. seeds used. Productive and efficient palm oil will encourage the optimal use of production factors, which in turn will determine the profits to be obtained. To achieve maximum profit, farmers must be able to use production factors efficiently. Efficient in the palm oil production process has a very important meaning in efforts to increase the income of oil palm farmers themselves, in planning or developing effective and efficient oil palm production. From the description above, the researcher is interested in conducting a deeper study related to the conditions of oil palm production, especially in the Sumatran provinces, entitled Analysis of the Strategy for Increasing Oil Palm Productivity in the Province of Sumatra in 2011-2021. Where the purpose of this study is to analyze how the weighted index and productivity conditions of palm oil production and how the strategy to achieve the level of productivity of palm oil production, especially in the province of Sumatra during the years 2011-2021.

Theoretical Study

Productivity is one of the measuring tools for companies in assessing the work performance of their employees. Productivity is a concept that describes the relationship between capital, land, and energy used to produce these results. Basu, (2002). Productivity implies a comparison of the results achieved (output) with the overall resources used (input). Productivity is formulated as the ratio of output to input (output/input). So productivity is the division of the value of the production output to the cost of production inputs. Productivity Measurement Productivity measurement so far tends to refer more to a physical production process, namely by converting resources into currency values. This concept is actually not sufficient as an economic indicator that can explain how the economic process is going well, especially in terms of utilizing existing resources. Then production is an activity that converts inputs into outputs. These activities in the economy are usually expressed in product functions. The product function shows the maximum amount of output that can be generated from the use of a number of inputs using certain technologies (Sugiarto, et al, 2002). Production is often defined as the creation of use, where use means the ability of goods or services to meet human needs (Ari, 2004). According to the above definition, production includes all activities and not only includes a very broad sense, production includes all activities and does not only include the manufacture of goods that can be seen using factors of production. In general, production is defined as an activity or process that transforms inputs into outputs. The products can be in the form of consumer goods or industrial goods.

Production is an activity to create or add to the use of a product or service. Production is a process of converting inputs into outputs so that the value of the goods increases. Inputs can consist of goods or services used in the production process, and outputs are goods or services produced from a production process (Sri, 1999). Production is the center of the implementation of concrete activities to procure goods and services. Without this activity, the meaning of a business entity is empty. Furthermore, oil palm is an industrial/plantation plant that is useful as a producer of cooking oil, industrial oil, and fuel where the oil palm tree consists of two species, namely *elaeis guineensis* and *elaeis oleifera* which are used for commercial agriculture in the production of palm oil because palm oil is a plant. industry/ plantation that is useful as a producer of cooking oil, industrial oil, and fuel. Oil palm trees consist of two species, namely *elaeis guineensis* and *elaeis oleifera* which are used for commercial agriculture in the production of palm oil.

METHODS

To calculate the index number where there are many types of commodities there needs to be a weighting for each commodity. This is because each good and service has a different level of utility. The problem is how to determine the weight of the scales. Several formulas have been developed to determine the value of weights. Laspeyres formula to determine the weighted index using the base period weights Maria et al, (2016).

By applying his method, the weighted price index is formulated by:

$$IL = \frac{\sum H_t K_0}{\sum H_0 K_0} \times 100$$

Technically, productivity is a comparison between output and input. The Partial Productivity formula can be stated as follows:

$$Produktivty = \frac{Efektivty\ output}{Efficiency\ input}$$

Often also called single factor productivity, which shows the productivity of certain factors used to produce output.

RESULTS

Table 1
Oil Palm Production Weighted Index in Sumatra Province 2011-2021

Province	Weight Value	Rank
Aceh	2,06	1
Sumatera Utara	3,62	10
Sumatera Barat	2,91	5
Riau	3,26	9
Jambi	2,55	4
Sumatera Selatan	3,04	7
Bengkulu	2,92	6
Lampung	2,37	2
Kep, Bangka Belitung	3,06	8
Kep, Riau	2,52	3

Source: BPS data processed 2022

The findings on the weighted index of oil palm production in Sumatra Province during 2011-2021 were an average of 2.83, meaning that to obtain 1 tonne of palm oil in Sumatra Provinces, an area of 2.83ha was needed. Meanwhile, for the weighted index value, Aceh Province is the Province with the highest weighted ranking value with a weighted value of 2.06, meaning that Aceh Province to obtain 1 ton of palm oil requires an average area of 2.06 Ha, followed by Lampung Province of 2.37 Ha/ton. Meanwhile, Jambi Province as the research area is in the 4th place with a weight value of 2.55, meaning that to get 1 ton of palm oil, an area of 2.55ha is needed. Meanwhile, North Sumatra Province is the province with the lowest weighted index value when compared to other Sumatra Provinces, namely with a weighted value of 3.62, meaning that to obtain 1 ton of palm oil, an area of 3.62 Ha is needed. This condition illustrates that oil palm plantations in the Province of North Sumatra has not maximized the available land management. This is in line with the annual growth rate of palm oil production in North Sumatra Province, which is an average of 3% with an average land growth rate of 1%. Regarding the condition of palm oil production in North Sumatra Province where in 2016 it experienced a drastic decline to reach -23% and was followed by -8% in 2021, which in the same year occurred the covid 19 outbreak which shook the world economy and even the national economy.

Table 2
Productivity Level of Palm Oil Production in Sumatra Province in 2011-2021

Province	Produktiviti	Rank
Aceh	49,16	1
Sumatera Utara	27,98	10
Sumatera Barat	34,85	5
Riau	30,85	9
Jambi	39,52	4
Sumatera Selatan	33,25	8
Bengkulu	34,72	6
Lampung	43,32	2
Kep, Bangka Belitung	33,56	7
Kep, Riau	41,48	3

Source: BPS data processed 2022

Based on research findings through the calculation model of palm oil production productivity in Sumatra Province in 2011-2021 or for the last 11 years an average of 33.52%, meaning that the productivity level of palm oil production in Sumatra Province is still in the low category, it is in line with the findings of the weighted index value found which amounted to 2.83 where to obtain 1 ton of palm oil required an area of 2.83 Ha. The findings of the highest level of palm oil production productivity were found in Aceh Province, which was 49.16%, of which Aceh Province was the province with the first rank when compared to other provinces in Sumatra. Then followed by Lampung Province with a productivity level of 43.32% of palm oil production. Meanwhile, the productivity level of palm oil production for the research area, namely Jambi Province, is ranked 4th, which is 39.52%. Meanwhile, for the condition of palm oil production productivity in Sumatra Province, the lowest occurred in North Sumatra Province, which was 27.98%. This means that the production of palm oil in North Sumatra Province is not superior in

influencing the regional economy and this condition is a reflection of the low economic condition of the local community so that it will automatically have implications for the purchasing power of the people themselves. In addition, the findings of this productivity study prove that the area of oil palm plantations is not a guarantee to increase the production of palm oil produced, while the needs of the community both nationally and internationally for palm derivative products such as cooking oil continue to increase as a result of which products available in the market become scarce.

This low productivity is the result of choosing the wrong seeds, besides that, at the same time, farmers do not manage their gardens properly, starting from plant care, fertilizing, to harvesting. For example, do not know how to clear the net or cut the fronds properly. Even at harvest time, farmers do not have knowledge of whether the fruit is really ripe and another cause, late rejuvenation of the garden. On the other hand, farmer institutions are not yet strong because they are not integrated into cooperatives or farmer groups. As a result, access to banks for capital and access to the National Land Agency for land legality is limited. Based on the research findings related to the weighted index model and the productivity model, there are strategies to increase the added value of palm oil production in Sumatra Province, namely through mapping of smallholder and company palm oil production lands, regulations for the sustainability of palm oil production, providing subsidized fertilizer assistance for oil palm farmers, especially smallholders and supervision, as well as assistance to oil palm farmers in seed selection and land management.

CONCLUSIONS

Aceh Province is the Province with the highest weighted ranking value with a weighted value of 2.06, meaning that Aceh Province to obtain 1 ton of palm oil requires an average area of 2.06 Ha, followed by Lampung Province of 2.37 Ha/ton. Meanwhile, North Sumatra Province is the Province with the lowest weighted index value when compared to other Sumatra Provinces, namely with a weighted value of 3.62, meaning that to obtain 1 ton of palm oil, an area of 3.62 Ha is needed. This condition illustrates that oil palm plantations in the Province of North Sumatra has not maximized the available land management. The findings of the highest productivity level of palm oil production are in Aceh Province, which is 49.16%, of which Aceh Province is the province with the first rank when compared to other provinces in Sumatra. Then followed by Lampung Province with a productivity level of 43.32% of palm oil production. Meanwhile, for the condition of palm oil production productivity in Sumatra Province, the lowest occurred in North Sumatra Province, which was 27.98%. From the results obtained, the suggestion of this research is that it is hoped that the government can guarantee sustainability regulations for palm oil production actors, both smallholder oil palm production and private oil palm production so that production volume can run safely and stably.

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