Analysis Of The Impact Of Covid-19 On The Income Of Oil Palm Farmers In Kuantan Singingi Regency

Andi Alatas[1], Chezy WM Vermila[2*], Jamalludin[3]

[1,2,3] Lecturer of the Faculty of Agriculture, Kuantan Singingi Islamic University,
Kuansing Regency, Indonesia
[*] Corresponding author:
Email: chezywmvermila16@gmail.com

Abstract.
With the title Analysis of the Impact of Covid-19 on the Income of Oil Palm Farmers in Kuantan Singingi Regency. The purpose of this study was to find out how the impact of covid-19 on the income of oil palm farmers in Kuantan Singingi Regency. The analytical method used is mathematical analysis and descriptive analysis by simplifying table data. The data collected in this study are primary and secondary data. Primary data obtained through interviews with respondents using questionnaires. The results showed that there was a significant difference in palm oil production before and during the COVID-19 pandemic and there was a significant difference in farmers' income before the pandemic, which was Rp. 13,795,936 and during the pandemic, which was Rp. 11,175,474.

Keywords:*Covid-19 Pandemic, Production, Income.*

I.   INTRODUCTION

1.1   Background

Oil palm is an industrial/plantation plant 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. Oil palm tree elaeis guineensis, native to West Africa between Angola and Gambia, oil palm tree elaeis oleifera, native to Central America and South America. 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 food and for the soap industry (Indonesian Plantation Service, 2007) According to Owolarafe OK and Arumughan (2007) the factors that influence the price of palm oil are the price of oil palm fruit, investment, the exchange rate of the rupiah against the USD.

According to Abdul Aziz Karia et al. (2013), the factors that increase the price of palm oil are palm oil production, palm oil exports, and crude palm oil (CPO) prices, according to May and Amaran M. H (2011). Factors that affect the price of palm oil are the color of the maturity of the oil palm, the age of the oil palm, the price of crude palm oil (CPO), the price of palm oil.As the COVID-19 pandemic continues to threaten the incomes of independent smallholder oil palm farmers in Indonesia due to low prices for fresh fruit bunches (FFB), Roundtable on Sustainable Palm Oil (RSPO) certified smallholders have found that the sale of RSPO Credits has provided the additional funding and support needed to support them. see him through this difficult time.Seeing the problems experienced during covid-19, the author is interested in conducting a research entitled "The impact of covid-19 on the income of oil palm farmers in Kuantan Singingi Regency".

1.2   Formulation of the problem

The formulation of the problem in this study is how the impact of covid-19 on the income of oil palm farmers in Kuantan Singingi Regency.

1.3   Research purposes

to find out how the impact of covid-19 on the income of oil palm farmers in Kuantan Singingi Regency.

1.4   The scope of research

The scope of this research is oil palm farmers who have a land area of 2-5 ha, and the age of the plant is 10-15 years. The price data used is for prices before covid taken in January 2020 While for price data at the time of covid the prices were taken in May 2021.

II.   LITERATURE REVIEW

2.1 Palm oil

Oil palm plants are not native to Indonesia, but some sources state that this plant comes from two places, namely the continents of Africa and America. This plant was first planted in 1848 as a collection plant of the Bogor Botanical Gardens which was introduced by the Dutch colonial government (Fauzi, 2007). Commercial cultivation of this plant was carried out for the first time around 1914 in the Deli area of North Sumatra, until now it has developed as a center for oil palm production in Indonesia (Said, 1996). Adrien Hallet, a Belgian national known as a pioneer in the oil palm plantation business in Indonesia, has learned a lot about oil palm in Africa. His cultivation was followed by K. Schadt which marked the birth of oil palm plantations in Indonesia.According to Batubara (2002), oil palm is one of the plantation crops that can grow well in Indonesia, especially in areas with an altitude of less than 500 meters above sea level.

Planting oil palm is not recommended on land higher than 500 meters above sea level because the plant will experience slow growth, so that the first age of production cannot be reached on time although further growth will be satisfactory.Oil palm is an industrial/plantation plant that is useful as a producer of cooking oil, industrial oil, and fuel. Oil palm trees consist of two species, namely elais guineensis and elais oleifera which are used for commercial agriculture in the production of palm oil. The oil palm elais guineensis, native to West Africa between Angola and the Gambia, the oil palm elais oleifera, is native to Central and South America. 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 food and for the soap industry (Indonesian Plantation Service, 2007).Oil palm is a tree plant, its height can reach 0-24 meters. Flowers and fruit in the form of bunches, and branched a lot. The fruit is small, when ripe it is blackish red. The flesh and skin of the oil palm fruit contain oil. Palm oil is used as an ingredient in cooking oil, soap, and candles. The waste is used for animal feed, especially as one of the ingredients for making chicken food.

2.2. Covid-19

Wuhan is the seventh largest city in China, with a population of over 11 million people. The city is a major transportation hub in central China, located about 700 miles (1100 km) south of Beijing, 500 miles (800 km) west of Shanghai, and 600 miles (970 km) north of Hong Kong. Wuhan airport has direct flights to major European cities: six weekly flights to Paris, three times to London and five times to Rome.At the beginning of 2020, the world was shocked by the incidence of severe infections with unknown causes, which started with a report from China to the World Health Organization (WHO) that there were 44 severe pneumonia patients in an area, namely Wuhan City, Hubei Province, China, to be exact. on the last day of 2019 in China. The initial suspicion was that this was related to a wet market selling fish, marine animals and various other animals. On January 10, 2020, the cause was identified and the genetic code was obtained, namely the new corona virus. (Diah Handayani, 2019).

2.3 Production Concept

Production is a process in which goods and services called inputs are converted into goods and services called outputs. The process of changing the shape of the factors of production is called the production process. Production is basically a process of creating or adding the benefits of form, time and place to the factors of production so that they can be more useful for fulfilling human needs. The process of changing the form of the factors of production is called the production process. In addition, production can be viewed from two terms, namely technical understanding and economic understanding. (Budiono, 2006)

Production theory is an analysis of how an entrepreneur or producer should, in a certain technology, choose and combine various factors of production to produce a certain amount of production, as efficiently as possible (Sudarman, 1989). Production is a process of converting inputs into outputs, so that the value of these goods increases. Determination of the combination of production factors used in the production process is very important so that the production process carried out can be efficient and the production results can be optimal.

2.4 Cost Concept

According to Kautsar Riza Salman (2016) explains that: "Costs are defined as exchange rates, expenses, sacrifices made to ensure the acquisition of benefits". The operational cost definition is diverse and

its use is in accordance with the intended purpose, such as direct costs, indirect costs, prime costs, conversion costs, and fixed costs. fixed cost, variable cost, product cost, period cost, actual cost, joint cost, sunk cost. In planning and decision-making activities, various cost terms are introduced and analyzed such as relevant costs, differential costs, replacement costs,According to Alma (2000) cost is every sacrifice to make an item or to obtain an item that is economically rational. So in this sacrifice it should not contain an element of waste because all waste, including the element of loss, is not charged to the cost of goods.

2.4.1   Fixed Costs (Fixed Costs)

Fixed costs are costs whose total amount remains constant, not affected by changes in the volume of activities or activities to a certain level. Fixed costs per unit are inversely proportional to changes in activity volume or capacity. The higher the activity level, the lower the fixed costs per unit. The lower the activity level, the higher the fixed costs per unit. In relation to cost behavior, fixed costs can be classified into two, namely (Mulyadi, 1984) The type and behavior of costs is a key element in the budgeting process, especially regarding the responsibilities of managers. Costs can be divided into three (3), namely: 1) Variable costs, namely costs that vary directly with the level of existing activity, for example the sales component according to the direct commission method. 2) Semi Variable Costs, namely costs that vary with the level of existing activity but are not in direct proportion. 3) Fixed costs, namely costs that are not affected by changes in activity but are constant over a certain period.

2.4.2   Depreciation Cost

Depreciation costs for agricultural equipment are costs incurred for the tools used are calculated in units of rupiah (Rp) per hectare per one planting. The amount of depreciation of agricultural equipment is calculated using the straight line method with the following formula (Suratiyah, 2006). The residual value is the value at that time it can no longer be used or is considered zero.

Equipment depreciation = Purchase Value – Residual value

Economic age

2.4.3 Variable cost (variable cost)

Variable costs are costs that increase in total in proportion to the increase in activity and decrease in proportion to the decrease in activity. Variable costs include the cost of direct materials, direct labor, some supplies, some indirect labor, small tools, rework and defective units. Variable costs can usually be defined directly with activities that give rise to costs. (Soekartawi 2006).

2.4.4   Total Cost (Total Cost)

Costs can be classified into three, namely: total costs (Total Cost), total fixed costs (Total Fixed Cost) and total variable costs (Total Variable Cost). Total cost is the overall cost used to produce a certain output, fixed costs are costs that will not change even though the level of output changes, while variable costs are costs that will change when the level of output changes (Joesron, 2003). Mathematically the relationship between total costs, fixed costs, and variable costs can be written as follows:

TC=TFC+TVC... ....(3)

Information :

TC = total cost (Total Cost)

TFC = total fixed cost (Total Fix Cost)

TVC= total variable cost (Total Variable Cost)

Income Concept

Income is the total income from each household member in the form of money or in kind obtained either as salary or wages for household business or other sources. A person's condition can be measured using the concept of income which shows the total amount of money received by a person or household during a certain period of time (Samuelson and Nordhaus, 2001).Income is a person's net receipts, either in cash or in kind. Income or also called income from a citizen is the result of the sale of the factors of production that he owns in the production sector.There are three income concepts proposed by Friedman (Stonier and Hague, 1984), which are useful for studying the behavior of the home economy. Friedman's income concept is; measured current income [Ym], transitory income [Ytr], and permanent income [Yp].

Ongoing income contains two components, namely fixed income and variable income which are formulated as follows:

$Ym = Yp + Ytr$

Where ;

Ym = Current income

Yp = Fixed income

Ytr = Income is not fixed

Variable income is income that deviates from normal, variable income can be positive or negative. Windfall profit, i.e. unexpected profits are variable income with a positive sign, on the other hand, windfall losses or unexpected losses are non-fixed income with a negative sign. While fixed income is interpreted as expected or anticipated income. Based on these two definitions, ongoing income can be greater or less than fixed income, depending on the value of variable income (Soediyono Reksoprayitno, 2000).

III.   OVERVIEW OF THE RESEARCH PLACE
4.1   Geography and Topography

Astronomically, Kuantan Singingi Regency is located in the southern part. Riau Province, with a position of 0°00 north latitude to 1°00 south latitude and between 101°02 to 101°55 East Longitude.Area of Kuantan Regency Singingi is ± 7,656 Km² (763.603 Ha) or 7.81% of the total outside the Province Riau with a distance of ± 120 Km from the sea with an altitude ranging from 25-30º from sea level which is directly adjacent to:

a) In the north it is bordered by Kampar and Pelalawan Regencies

b) In the west it is bordered by the province of West Sumatra

c) In the east, it is bordered by Indragiri Hulu Regency

d) Next to Sekatan, it borders Jambi Province.

Administratively, Kuantan Singingi Regency consists of 15 sub-districts, 11 sub-districts and 218 villages. Based on these data, the largest sub-district is Singingi District with an area of 1,953.66 km² while the narrowest sub-district is Kuantan Hilir Seberang District with an area of 114.29 km².Kuantan Singingi Regency generally has a tropical climate with maximum air temperatures ranging from 32.6ºC – 36.C and maximum temperatures ranging from 19.2ºC – 22.ºC. Meanwhile, the rainfall ranges from 44.49 to 433.19 mm per year with the rainy season ranging from September to February and the dry season ranging from March to August. One of the climate elements that greatly influences the growth of food crops and horticulture is rainfall.

According to the Koppen classification, each climate in Kuantan Singingi Regency is of the AFA type (wet trika), namely monthly rainfall above 60 mm or annual rainfall of 1,500 mm, which makes Kuantan Singingi a fertile area for agriculture and plantations.Topographically, Kuantan Singingi Regency is a hilly area that has varying elevations, where the highest elevation reaches 804 meters above sea level and the slopes vary widely. Generally this area is a hilly area, partly mountainous areas and river plains. The main rivers in Kuantan Singingi Regency are the Kuantan/Indragiri River, Teso River and Singingi River. The soil structure generally consists of orgonosol and humus soil types which are acidic swamps, very corrosive to iron. Kuantan Singingi Regency is divided by the Kuantan/Indragiri River which flows from West to East.

4.2   Population Condition

The population problem in Kuantan Singingi Regency is the same as in other regions in Indonesia. To achieve quality human beings with an uncontrolled population will be difficult to achieve, population programs that include birth control, reducing the birth rate of babies and children, extending age and life expectancy, balanced population distribution and developing population potential as development capital must be improved.

IV.   RESULTS AND DISCUSSION

5.1 Impact of the Covid-19 Pandemic on Average Palm Oil Production in Kuantan Singingi Regency

Based on the results of research on the impact of COVID-19 on average palm oil production in Kuantan Singingi Regency, it can be seen in the following table:

Table 4. Average Oil Palm Production in Kuantan Singingi Regency

No	Information	Land Area (Ha)	Average Harvest (Kg)
1	Before the Covid-19 Pandemic	2.5	5.112
2	During the Covid-19 Pandemic	2.5	5,000

Source: Processed data, 2021

Based on primary data processing, it was obtained that the average production of oil palm before the COVID-19 pandemic, namely in January 2020, was 5,112 kg with an average land area of 2.5 hectares and the average production of oil palm plants obtained by farmers during the pandemic. Covid-19 in May 2021 is 5,000 kg with the same land area. This means that the average production of oil palm plantations has decreased during the COVID-19 pandemic.

5.2 The Impact of the Covid-19 Pandemic on the Average Cost of Palm Oil Production in Kuantan Singingi Regency

Based on the results of the research on the impact of the COVID-19 pandemic on the cost of palm oil production in Kuantan Singingi Regency, it can be seen in the following table.

Table 5. Differences in the Average Cost of Oil Palm Production in Kuantan Singingi

No	Information	Production Cost (Rp)
1	Before the Covid-19 Pandemic	9,063,859
2	During the Covid-19 Pandemic	9,044,564

Based on Table 5 above, it can be seen that the average cost of palm oil production before the COVID-19 pandemic was Rp. 9,063,859 and the average cost of palm oil production during the covid-19 pandemic decreased to Rp. 9,044,564

Table 6. Differences in Average Fixed Costs and Variable Costs

No	Information	Fixed Cost (Rp)	Variable Cost (Rp)
1	Before the Covid-19 Pandemic	29,250	17,542,954
2	During the Covid-19 Pandemic	29,250	9,044,564

Source: Processed data, 2021

Based on Table 6 above, it can be seen that fixed costs did not change in the period before and during the covid 19 pandemic. Meanwhile, variable costs or variable costs decreased during the covid-19 pandemic. This is due to the fact that the cost of fertilizer issued by farmers is less during the covid19 pandemic compared to before the covid19 pandemic due to the constant needs of farmers while income decreases so that farmers cannot afford to buy fertilizer with the usual dose. The following table shows the distribution of variable costs before and during the covid19 pandemic.

5.3 Impact of the Covid-19 Pandemic on Average Oil Palm Farming Income in Kuantan Singingi Regency

The income of oil palm farmers in Kuantan Singingi Regency is carried out to see the amount of gross income and net income on oil palm farming activities that produce oil palm fruit and is multiplied by the current price, so it will be known that oil palm farmers gain or lose.The gross income received by oil palm farmers is the product of the total production and the unit price of the production. The farm income is divided into farm cash receipts and total farm income. Gross income is the result of the production of oil palm farmers in Kuantan Singingi Regency which is sold at the price prevailing at the time of this study which has not been deducted by the total cost.Efforts must be made by oil palm farmers to be able to produce or increase production so that community needs are met.Based on the results of the research on the impact of the COVID-19 pandemic on the income from oil palm farming in Kuantan Singingi Regency, it can be seen in Table 8 below.

Table 7. Differences in Average Oil Palm Farming Income in Kuantan Singingi Kabupaten

No	Information	Gross Income (Rp)
1	Before the Covid-19 Pandemic	13,795,936
2	During the Covid-19 Pandemic	11.175,474

Source: Processed Data, 2021

From primary data processing, it was obtained that the average income of farmers before COVID-19 was IDR 13,795,936 per month (two harvests in a month) and the average income of farmers during the COVID-19 pandemic decreased to IDR 11,175,474 per month (two harvest times in a month).

V.   CONCLUSIONS AND SUGGESTIONS

6.1   Conclusion

The conclusions that can be drawn from the results of this study are as follows:

1. There is a significant difference in the production of palm oil before and during the COVID-19 pandemic in the study area.
2. There is a significant difference in the income of oil palm farmers before and during the COVID-19 pandemic in the study area.

6.2   Suggestion

1. The government is expected to make policies that are more instrumental in helping farmers in running farming and increasing farmers' income. This can be done by tightening supervision of all forms of assistance provided to farmers.
2. Farmers are expected to diversify crops or other businesses with lower costs in order to increase and maintain the stability of farmers' incomes themselves.

REFERENCES

[1]   AF Stoner, James and Edward Freeman (eds), Management Volume I, trans. Alexander Sindoro, Jakarta: PT Prahallindo, 1996.

[2]   Amen, Sarmidi. 2009. Cocopreneurship – Various Business Opportunities from Coconut. Yogyakarta : Lily Publisher. 166 p. Aminudin. 2005.

[3]   Anies. 2008. Plantation Agribusiness. Revised Edition. Jakarta: Self Helper. 76 pages

[4]   Ariani, Foni Putri. 2006. Analysis of Promotional Strategy on Sales Volume of Coconut Cooking Oil (Case Study at PT. BARCO Jakarta).

[5]   Arikunto, Suharsimi. 2006. Research Procedure A Practice Approach Revised Edition. Jakarta: Rineka Cipta Bungin, Burhan. 2008.

[6]   Budiono, 2006. "Construction Project Management"www.ilmusipil.com/concrate-manajemen-project-construction.

[7]   Central Bureau of Statistics. 2007. Standardization of Plantation Statistics. Jakarta.

[8]   Wake up, Wilson.2007. Microeconomic Theory. Publisher PT. Refika Aditama, Bandung.

[9]   Djarwanto PS, 2001, Socio-Economic Statistics, Part One, BPFE, Yogyakarta. Dumairy, 1997, Macroeconomics, BPFE UGM, Yogyakarta. Gujarati, Damodar, 1991, Basic Econometrics, Translation, Erlangga, Jakarta.

[10]   Duta Wacana University Press. Sugiyono. 2006. Qualitative Quantitative Research Methods and R&D. Bandung: Alphabeta.

[11]   Fauzi, Yan et al. 2007. Palm Oil, Cultivation, Utilization of Products, and Waste, Business Analysis and Marketing. Revised Edition. Printing 21. Jakarta: Self-help spreader.

[12]   Fauzi, Y., YE Widyastuti, I. Satyawibawa and R. Hartono. 2012. Cultivation, Utilization and Business Analysis and Marketing of Palm Oil. Jakarta: Self-Help Spreader. *Indonesian Journal of RESPIROLOGY* vol.4 No.2 of 2020

[13]   May, Z, & Amaran, MH (2011). Automated Oil Palm Fruit Grading System using Artificial Intelligence. *International Journal of Video & Image Processing and Network Security IJVIPNS-IJENS* Vol: 11 No: 03.Hlm 30-35.

[14]   Basic Principles of Marketing Management of Agricultural Products Theory and Its Application. Jakarta. PT Raja Grafindo Persada. 134 p. Subagyo, P Jok. 2004. Research Methods. Jakarta. RinekaCipta. 135 p.

[15]   Operations Research Principles. Jakarta: Erlangga Publisher. 198 p.Banggara,

[16] Qualitative Research, Communication, Economics, Public Policy, and Other Social Sciences. Jakarta: Kencana Pranada Media Group. Fathoni, Abdurrahman. 2006. Methodology and Techniques for Writing Thesis. Jakarta: Rineka Cipta.

[17] Rineka Cipta. Sudaryanto. 2003. Theory and Practice of Discourse Analysis. Yogyakarta:

[18] [Essay]. Jakarta. Faculty of Agriculture. National University. Agency for Agricultural Education, Training and Extension. 1984. Coconut. Jakarta: Agency for Agricultural Education, Training and Extension. 80 things

[19] Sukirno, Sadono. 2000. Modern Macroeconomics. Publisher PT. Raja Grafindo Perkasa, Jakarta