

THESIS

**PERCEPTIONS OF OIL PALM FARMERS OF TRI BAKTI
SENTOSA KPKS MEMBERS ON THE SMALLHOLDER
PALM OIL REJUVENATION PROGRAM (PSR) AND THE
RELATIONSHIP WITH OIL PALM INCOME IN SIDO REJO
VILLAGE, KELUANG DISTRICT, MUSI BANYUASIN
REGENCY**



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DEPARTMENT OF AGRICULTURAL SOCIAL ECONOMIC
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SUMMARY

YULIYANTI. Perceptions of Oil Palm Farmers Members of KPKS Tri Bakti Sentosa on The Smallholder's Palm Oil Rejuvenation Program (PSR) and Its Relationship with Oil Palm Income in Sido Rejo Village, Keluang District, Musi Banyuasin Regency. (Supervised by **AGUSTINA BIDARTI**).

This study discusses the perceptions of farmers belonging to Tri Bakti Sentosa KPKS on the oil palm smallholder's rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency. The aims of this study were (1) to analyze farmers' perceptions of the smallholder oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency, (2) to analyze the farm income of oil palm farmers from the smallholder oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency, and (3) Analyzing the relationship between the perception of oil palm farmers on the smallholder's Palm Oil Rejuvenation Program (PSR) and the income of palm oil from the smallholder's oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency. This study uses a survey method by taking samples and using a questionnaire as a tool in collecting basic data from direct interviews with respondents. The sampling method was carried out using Simple Random Sampling based on the consideration of population homogeneity, namely 30 samples. The data collected in this study are primary and secondary data. The research has been carried out from October to November 2021. The results of this study are farmers' perceptions of the smallholder oil palm rejuvenation program measured based on input, market, financial, technology, and institutional aspects in the very good category. The income of oil palm farming from the smallholder oil palm rejuvenation program is IDR 54,363,104.00/arable area/year or IDR 4,530,259.00/arable area/month. The relationship between farmers' perceptions of smallholder oil palm rejuvenation and farmers' income was tested by Spearman's Rank showing a significant value or Sig. (2- tailed) of 0.015. The significant value is less than 0.05, which means that there is a significant relationship. The correlation coefficient in the test spearman rank was 0.438*, meaning that it can be concluded that the relationship between farmers' perceptions of the oil palm rejuvenation program and the income of oil palm farming is quite strong.

Keywords: perception, rejuvenation, income.

THESIS

PERCEPTIONS OF OIL PALM FARMERS OF TRI BAKTI SENTOSA KPKS MEMBERS ON THE COMMUNITY PALM OIL REJUVENATION PROGRAM (PSR) AND THE RELATIONSHIP WITH OIL PALM INCOME IN SIDO REJO VILLAGE, KELUANG DISTRICT, MUSI BANYUASIN REGENCY

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**PERCEPTIONS OF OIL PALM FARMERS OF TRI BAKTI
SENTOSA KPKS MEMBERS ON THE SMALLHOLDERS
PALM OIL REJUVENATION PROGRAM (PSR) AND THE
RELATIONSHIP WITH OIL PALM INCOME IN SIDO REJO
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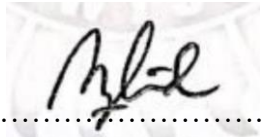
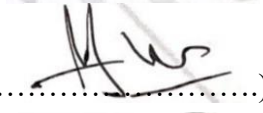
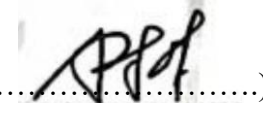
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BIOGRAPHY

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Yuliyanti

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CHAPTER 1

INTRODUCTION

1.1. Background

Plantation is an agricultural sector that contributes to the country's foreign exchange which can improve the welfare of the people in Indonesia. The plantation sector has an important role in advancing the Indonesian economy where the plantation sector in addition to providing food and industrial raw materials, plantations also provides employment. Plantation do not refer to one type of plant, but all types of plants whose results can be processed and marketed to the global market.

According to the Law of the Republic of Indonesia Number 18 of 2004, plantation is all activities of growing annual plants on soil or other growing media in an appropriate ecosystem, processing and selling goods and services produced from these plantation crops with the assistance of science and technology, capital and good management in order to create public welfare.

In Indonesia, the development of plantations, especially oil palm plantations, has given many positive effects, especially the economic impact on the community, both the people involved in oil palm plantation activities and the surrounding community. Syahza (2011) explains that in oil palm plantation development activities can provide external influences that have benefits for the surrounding area, especially the rural economy. The benefits of the rural economy are 1) create job opportunities widely because oil palm plantations, both nucleus and plasma companies, in their management system must require quite a lot of manpower; 2) improve the welfare of the surrounding community; and 3) can contribute to regional development.

Indonesia is the largest palm oil producing country in the world, this is in line with the extensive data on oil palm land in Indonesia. According to the Directorate General of Plantations (2019), the largest area of oil palm land in Indonesia is on the island of Sumatra, which covers an area of 8,047,920 hectares.

Table 1.1. Land Area and Oil Palm Production in South Sumatra Year 2020

No	Regency/City	Land Area (Ha)	Production (Tons)
1	Ogan Komering Ulu	43,590	113,592
2	Ogan Komering Ilir	412,720	412,720
3	Muara Enim	222,054	222,054
4	Lahat	47,412	165,105
5	Musi Rawas	128,650	419,051
6	Musi Banyuasin	314,442	939,384
7	Banyuasin	202,756	568,893
8	OKU Selatan	6,305	158
9	OKU Timur	21,068	50,893
10	Ogan Ilir	11,255	28,948
11	Empat Lawang	7,204	6,538
12	Penukal Abab Lematang Ilir	36,146	118,751
13	Musi Rawas Utara	89,035	283,606
14	Palembang	110	274
15	Prabumulih	820	1,592
16	Pagar Alam	31	30
17	Lubuk Linggau	235	287
Jumlah		1,543,833	3,331,876

Source: Central Bureau of Statistics South Sumatra Province, 2021.

Based on Table 1.1. In 2020 the total area of oil palm plantations in South Sumatra Province reached 1,543,833 hectares and Musi Banyuasin Regency is a district in South Sumatra Province which has the second largest oil palm plantation area with a land area of 314,442 hectares. Musi Banyuasin Regency occupies the second position after Ogan Komering Ilir (OKI) Regency which has an area of 412,720 hectares with a total production of 412,720 tons. In addition, Musi Banyuasin Regency also has the largest palm oil production in South Sumatra Province compared to other regencies/cities, namely with a total production of 939,384 tons in 2020. Meanwhile, for areas that have the lowest land area and total production, the Pagar Alam area with the land area is 31 hectares and the total production is only 30 tons.

Table 1.2. Area of Palm Oil Plantation and Total Production by District in Musi Banyuasin Regency in 2020

No.	Subdistrict	Land Area (Ha)	Total Production (Tons)
1	Sanga Desa	1,253	5,653
2	Babat Toman	3,889	28,866
3	Batanghari Leko	619	6,467
4	Plakat Tinggi	611	3,987
5	Lawang Wetan	451	4,276
6	Sungai Keruh	251	1,277
7	Jirak Jaya	110	538
8	Sekayu	250	2,076
9	Lais	764	5,496
10	Sungai Lilin	2,962	17,516
11	Keluang	2,230	19,594
12	Babat Supat	3,563	22,759
13	Bayung Lencir	16,778	220,240
14	Lalan	4,584	48,139
15	Tungkal Jaya	4,756	47,704
	Jumlah	43,071	434,588

Source: Central Bureau of Statistics of Musi Banyuasin Regency, 2021.

Keluang District is one of the districts in Musi Banyuasin Regency which has high potential in the oil palm plantation sector. This is directly proportional to the area of oil palm plantations which is no less extensive than other sub-districts. The Central Bureau of Statistics of Musi Banyuasin Regency (2021) states that Keluang District is a district in Musi Banyuasin Regency which has the sixth largest area of oil palm plantations, with an area of 2,230 hectares. Moreover, Keluang District also has the sixth highest total oil palm production, with a total production of 19,594 tons in 2020.

Oil palm plants have a productive age of approximately 25 years. Oil palm plants that have passed the age of productivity are required to be immediately replanted with the aim of helping the productivity of oil palm plantations to be better in the future. Oil palm rejuvenation activities are carried out by considering the benchmark productivity standard, which is 10 tons of FFB/ha/year. In addition, harvest effectiveness and oil palm plant density are also determinants of oil palm rejuvenation. Oil palm trees that have a height of more than 12 meters will reduce the effectiveness of the harvest so rejuvenation is needed (Regulation of the Minister of Agriculture of the Republic of Indonesia, 2016).

Most of the oil palm plantations in Keluang District, more precisely in Sido Rejo Village, are oil palm plantations that were planted in 1991 under the auspices of PT Hindoli's Trans Smallholder's Core Company, which at this time has already exceeded its economic life. This condition has a significant effect on the decline in the production of palm oil produced, causing the income of oil palm farmers to decrease. Therefore, oil palm plants in Sido Rejo Village are rejuvenating independently in the sense of being separated from the Smallholder's Core Company. The rejuvenation carried out in Sido Rejo Village is managed independently by the Oil Palm Producers Tri Bakti Sentosa KPKS located in Sido Rejo Village by obtaining financial assistance from the Palm Oil Plantation Fund Management Agency (BPDPKS) in the amount of IDR 25,000,000.00/hectare. Based on the description above, the authors are interested in researching the perceptions of oil palm farmers who are members of the Tri Bakti Sentosa KPKS towards the PSR program and how it relates to oil palm income in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.

1.2. Problem Statements

Referring to the background above, the problem statements that can be formulated are as follows:

1. What is the perception of oil palm farmers who are members of Tri Bakti Sentosa KPKS towards the Smallholder's Palm Oil Rejuvenation Program (PSR) in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.
2. How big is the income level of oil palm farming from the Smallholder's Palm Oil Rejuvenation Program (PSR) in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.
3. How is the relationship between oil palm farmers' perceptions of the Smallholder's Palm Oil Replanting Program (PSR) and oil palm income in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.

1.3. Objectives

Based on the problems described above, there are expected goals in this study, namely as follows:

1. To analyze farmer's perceptions of the smallholder oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.
2. Calculating the farm income of oil palm farmers from the smallholder oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.
3. Analyzing the relationship between oil palm farmer's perceptions of the Smallholder's Palm Oil Rejuvenation (PSR) program and oil palm income in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.

1.4. Uses of Research

The uses of the results of this study is expected to be able to add new knowledge that can be applied in the future to manage oil palm plantations in rejuvenating. In addition, it can be a reference for further research to make it even better.

CHAPTER 2

LITERATURE REVIEW

2.1. Literature Review

2.1.1. Conception of Oil Palm

Oil palm (*Elaeis guineensis*) is a plantation crop that produces vegetable oil and is a plant that has higher productivity compared to other vegetable oil-producing plants. When viewed based on the thickness of the shell on the oil palm fruit and the content of vegetable oil it contains, oil palm plants can be divided into three types, namely passiveera, dura, and tenera. Oil palm plantations have the main products, namely CPO (*Crude Palm Oil*) and palm kernel. Palm oil can be used for various industries such as the food, cosmetic or beauty, chemical, and pharmaceutical industries because palm oil has a good composition and nutritional content (Erivianto *et al.*, 2020).

Oil palm plants can grow well in the wet tropics, namely between 12° North Latitude-12° South Latitude and at an altitude of 0-500 meters below sea level (masl). Oil palm in Indonesia was introduced by the Dutch colonials in 1848 when there were about four stalks of oil palm seedlings brought from Amsterdam and Mauritius to be planted in the Bogor Botanical Gardens. During the New Order era, plantation development was directed towards creating job opportunities and as a sector that generates foreign exchange for the country. The government continues to clear new lands for use as plantations. In 1980 it was recorded that the area of oil palm in Indonesia reached 294,560 hectares and the production of *Crude Palm Oil* (CPO) reached 721,172 tons. In 1986 the government developed a follow-up program, namely the Smallholder's Core Plantation (PIR) Transmigration. Since then, the oil palm plantation sector has grown rapidly. So that in the 1990s the area of oil palm plantations in Indonesia reached 1.6 million hectares which was dominated in Sumatra and Kalimantan (Fauzi *et al.*, 2012).

According to Raharja (2019), oil palm plants can be classified as follows:

Divisio : Spermatophyta
Subdivisio : Angiospermae
Class : Monocotyledoneae

Order : Palmales
Family : Palmae
Subfamily : Cocoidae
Genus : *Elaeis*
Species : *Elaeis guineensis* Jacq

Oil palm plants have vegetative organs including stems, leaves, roots, and have reproductive organs, namely fruit and flower. Oil palms have compound leaves that resemble coconut plant leaves. Oil palm midrib has a length ranging from 6.5-9 meters depending on the variety. Each midrib has a number of leaflets ranging from 250-400 strands. The stem of the oil palm plant has a cylindrical shape and has a diameter of 20-75 cm. The stems of oil palm plants have the following functions; (1) as a structure to support flower, fruit, and leaves; (2) as a vascular system whose job is to transport water, nutrients, and minerals from the roots to the top and carry the products of photosynthesis from the leaves to the bottom of the plant; and (3) as an organ in charge of storing food substances. Oil palm roots have a function as a support for the structure of the stem above the ground, absorb water and mineral nutrients from the soil, and also as a means of respiration. Male and female flowers on oil palm plants are found on one tree (*monoecious*). In general, cross-pollination of oil palm plants occurs. Flowers usually appear in the axils of the leaves and in each leaf axils only produce compound flowers. For the fruit of this oil palm plant, it can be classified as a *drupe* consisting of a pericarp wrapped by an *exocarp*, *mesocarp*, and *endocarp*. The core of the oil palm fruit has *testa* skin *endosperm* which is solid and also an embryo (Pahan, 2015).

2.1.2. Technical Aspects of Oil Palm

In oil palm cultivation, soil and climatic conditions are important factors in addition to other factors. Environmental conditions are one of the limiting factors for oil palm productivity and growth. In the process of oil palm plant growth, there are several factors that can have a positive effect on growth, namely rainfall, temperature, altitude, soil type, and duration of sunlight. Environmental conditions that are limiting factors in the productivity of oil palm growth can be

overcome by implementing technical culture by adjusting local environmental conditions by selecting superior seeds, water management, and fertilization techniques (Pardamean, 2017).

Oil palm plants can grow well in rainfall ranging from 2,000–2,500 mm per year. Evenly distributed rainfall has a positive impact on fruit production in oil palm plantations. If it doesn't rain for a long time, it will inhibit the growth of the leaf buds. This will have a bad impact on fruit production because if the fruit is of sufficient age it will not ripen before it rains. Oil palm plants require irradiation ranging from 5-7 hours a day. This supports the process of carbohydrate production and stimulates the formation of flowers and fruit in oil palm plants. The optimum temperature for the growth of oil palm plants to grow well is around 24°C–28°C with the lowest temperature being 18°C and the highest temperature being 32°C. Oil palm plants will grow well at an altitude of 0–400 meters above sea level. Oil palm plants planted above the height limit will cause the plants to flower slowly compared to oil palm plants grown at a standard height. Types of soil that are usually suitable for oil palm cultivation are latosol, podsol, hydromorphic and alluvial. A good soil pH for oil palm plant growth is between 4.0–6.5 and the optimal pH is 5.0–5.5. For soils that have a low pH, such as peat soils, additional lime should be added so that the soil pH is stable for planting oil palm (Indriarta, 2019).

In the cultivation of oil palm plantations are mostly carried out on peatlands due to the limited mineral land. Peatlands that can be planted with oil palm plants have several criteria, namely having a peat soil layer thickness of less than 3 meters at least 70% of the area of land being cultivated, mineral soil layers under peat soil should not consist of acid sulfate soil (a layer of acid sulfate soil). pyrite with a content of more than 2%) and quartz sand because it can be a determinant of whether peat land can be used as a medium for growing oil palm plants, other criteria are peat which has a maturity level of sapric (already weathered) and hemic (half weathered).), raw peat is strictly prohibited for the development of oil palm cultivation. In addition, the last criterion is that peatlands have a eutrophic fertility level or contain sufficient micro and macro nutrients to

be used in oil palm cultivation (Directorate General of Plantations, Ministry of Agriculture, 2014).

2.1.3. Conception of Cooperatives

According to David (2019), cooperatives are legal entities based on the principle of kinship and have members consisting of individuals and have the aim of providing welfare to its members. Most cooperatives are run jointly by all members, where each member of the cooperative has the same voting rights in decision making in the cooperative system. For profit sharing, the Remaining Operating Income (SHU) is usually calculated and divided according to the contribution.

The foundation of Indonesian cooperatives is stated in the Constitution no. 25 of 1992 which contains the main points of cooperatives, cooperatives have an ideal basis which is written in chapter II of Law no. 25/1992, namely Pancasila and the structural foundation, namely the 1945 Constitution. This foundation is a reference and guideline in determining the direction, objectives of the role and position of cooperatives against other economic actors in the Indonesian economic system. Still referring to the Cooperative Law based on Article 2 of Law no. 25 of 1992 stipulated the principle of cooperatives is kinship and Article 3 states the purpose of cooperatives which reads "cooperatives aim to promote the welfare of members in particular and society in general and participate in building the national economic order in order to create an advanced, just and prosperous society based on Pancasila and the Law. - the 1945 Constitution".

In Law Number 25 of 1992 is explained that cooperatives carry out the principles, namely 1) membership is voluntary and open; 2) management is carried out democratically; 3) the distribution of the remaining operating results is carried out fairly in proportion to the amount of business services of each member; 4) provision of limited remuneration for capital; and 5) independence.

2.1.4. Conception Replanting

Replanting is activity carried out to rejuvenate oil palm plants by replacing unproductive or 20-25 year old oil palm plants with new oil palm plants.

If oil palm plants that have entered the age of over 20 years are not replanted, it will cause a decrease in the number of Fresh Fruit Bunches (FFB) produced every month, thus will not provide great benefits to the garden owner because the yield has decreased (Saputri , 2018).

According to Hakim (2018) the reason for rejuvenating oil palm plants is to increase the productivity of palm oil plants that have declined or the FFB produced in a year is less than 10 tons/ha, facilitating FFB harvesting activities because oil palm plants are over 25 years old. has a stem height of more than 12 meters so it will require additional costs (high harvest costs), replace superior seeds so that they can achieve higher productivity in the future, and improve the density level of oil palm plantations, especially if the number of oil palm plantations is less than 80 trees/ha.

In general, replanting system consist of four types of oil palm namely underplanting system, the intercropping, and the gradual replanting system. The simultaneous fall system has advantages compared to other systems because with this system land preparation and soil management are carried out more optimally so that it will create suitable soil conditions for growth and also reduce various kinds of pests and diseases such as horn beetles (*Oryctes rhinoceros*) and diseases. stem rot caused by the fungus *Ganoderma boninense* which will attack oil palm plants. While the underlanting system is a rejuvenation system by planting oil palm seedlings under old oil palm plants, it will certainly disturb the young plants, besides that it will increase the attack of horn beetle pests and also stem rot disease caused by the fungus *Ganoderma boninense*. In the intercropping rejuvenation system.is the planting of oil palm plants with intercropping plantsThe system requires an optimal management system for intercrops, this system requires technical and marketing skills so that the production of intercrops can be absorbed by the market. On the other hand, the gradual rejuvenation system is a gradual rejuvenation of oil palm plantations, this provides an advantage because it still earns income from old plants but the system is not effective if used on small land areas such as land in self-help plantations and plantations. plasma plantations (Regulation of the Minister of Agriculture of the Republic of Indonesia Number: 18/Permentan/KB.330/5/2016).

2.1.5. Smallholder's Palm Rejuvenation (PSR)

The problem that is often faced in rejuvenating oil palm is limited capital. In maintaining the role of oil palm in a sustainable manner, the government is trying to develop smallholder oil palm plantations. The solution to problems related to capital in oil palm rejuvenation is the palm oil rejuvenation aid program or more commonly known as the Smallholder's Palm Rejuvenation Program (PSR) by the National Agency for Palm Oil Plantation Fund Manager (BPDPKS). Smallholder's Palm Oil Replanting (PSR) is an effort made to replace unproductive oil palm plants with new oil palm plants gradually or completely with the assistance of BPDPKS (Aulifa, 2019).

In the financing of oil palm replanting, the Palm Oil Plantation Fund Management Agency (BPDPKS) is assisted with an amount of IDR 25,000,000/ha. Funds obtained from BPDPKS assistance are combined with savings owned by farmers and also bank loans. With these funds, it will certainly ease the burden on farmers to carry out oil palm rejuvenation. In the implementation of the Smallholder's Oil Palm Rejuvenation (PSR) program, farmers are required to fulfill the legality of their land (Oil Palm Plantation Fund Management Agency, 2017).

According to the Decree of the Director General of Plantations Number: 29/KPTS/KB.120/3/2017, stated that before carrying out oil palm rejuvenation activities, there are several activities needed to meet technical and administrative requirements. These activities consist of pre-replanting, namely in the form of socialization, administrative preparation which includes data collection on the area of the plantation and plantation verification, as well as the preparation of the Plan for Replanting Needs and Financing for Oil Palm Plantation (RKP3KS). The next activity is technical preparation for rejuvenation in the form of procurement of certified superior seeds and preparation of tools and materials, then institutional preparation by conducting training for members of farmer groups/ cooperatives/ other planter institutions, and the last is mentoring.

2.1.6. Characteristics of Farmers

Education level of farmers will affect the insight and knowledge that will be obtained to improve the farming business run by a farmer. Farmers who have higher education will be better able to absorb information about the latest innovations and then adopt these innovations to run a better farming business (Mandang, 2020).

Basically, the age of farmer can affect the activities in cultivating his farm, in the context of affecting the ability to think and physical condition. The younger the age of a farmer usually has a stronger physical condition to work compared to farmers who have an older age. On the other hand, younger farmers will have high courage to take risks if they want to adopt new innovations for the advancement of their farming business. A person's productive age ranges from 15-64 years (Prasetya, 2019).

Land is production facilities for farming activities and part of the production and factory factor of agricultural products. Land is an important part for farmers because it is a physical natural resource. Farmers who have a large area of land will get a large income and if there is a failure, they will get a big loss as well (Mandang, 2020).

The number of dependents in the family is the total number of family members who are still educated and not working, where all the necessities of life are still borne by the head of the family. The number of family members is closely related to income. Family members who are still productive will be a source of labor to increase farm income because they can actively participate in farming (Cepriadi, 2012).

2.1.7. Conception of Perception

Jayanti (2018) states that perception is part of the main psychological aspect for humans to respond to all aspects and symptoms that exist in the surrounding environment. Perception has a fairly broad meaning, including internal and external. Experts have given various meanings but still have the same meaning. Based on the Official Indonesian Dictionary, perception is a direct response or acceptance of something which in the process uses the five senses.

Perception is the ability of the five senses to translate the stimulus received by the sense organs of humans. Every human perception has differences based on the perspective of the senses that perceive whether something is seen as good or bad which will then affect the actions that will be taken by humans in real terms (Suhartono, 2007 in Arifin *et al.*, 2017).

Indicators of farmer's perceptions of oil palm rejuvenation include input aspects, market aspects, financial aspects, technological aspects, and institutional aspects. The input aspect is the most important aspect in oil palm cultivation activities. This aspect is everything related to the production process. The intended input access is the access of farmers to obtain seeds and fertilizers as well as herbicides and pesticides. Market access is a farmer's business when selling and marketing his fresh fruit bunches (FFB). In this aspect, the things that want to be seen are the access of farmers when selling and the price match with the quality level of Fresh Fruit Bunches (FFB). The financial aspect is an aspect to determine the perception of farmers regarding readiness in facing replanting activities. The financial aspect includes readiness related to the source of funds to finance rejuvenation activities. The source of these funds is personal funds or loan programs from banks or other institutions. The technological aspect in the perception of farmers is the benefits of rejuvenation activities as a technology in development and efforts to maintain the continuous process of the oil palm business. The technological aspect includes the benefits of rejuvenation activities more generally. The institutional aspect is an aspect that looks at farmer's access in an effort to obtain assistance. The institutions in question are the government, cooperatives, companies, banks, and other institutions (Hutasoit *et al.*, 2015).

2.1.8. Conception of Revenue and Income

Farming Revenue is the total amount of revenue received from farming activities at the end of production activities. It can also be intended as material profit earned by farmers or referred to as a form of compensation for the services of farmers or their families who act as managers of farming businesses. Farming revenue is the multiplication of the selling price with the production obtained (Antara *et al.*, 2017).

Farming income is the difference between revenues and costs incurred from farming activities. Income has a function to meet aspects of daily needs and the continuity of farming activities. The rest of the income from farming is used as savings for resources and allows farmers to build other businesses. The amount of farming income is used to assess the level of success of farmers in farming. Farmer's net income is calculated by subtracting gross income from production costs (Prasetya, 2006 in Sutrisno, 2019).

2.2. Approach Model

The approach model used in this research activity is presented in a diagrammatic approach model in Figure 2.1. following.

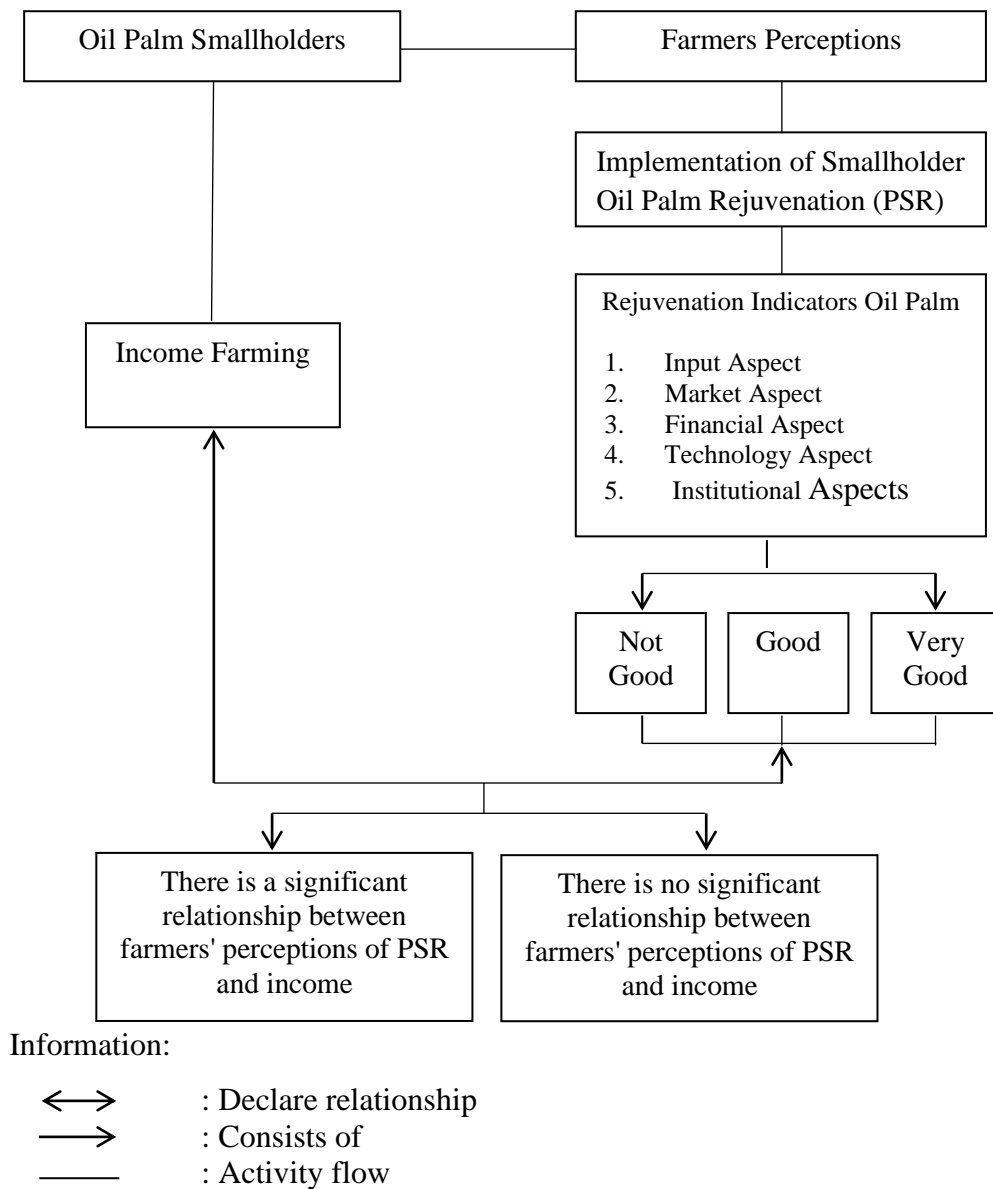


Figure 2.1. Diagrammatic Approach Model

2.3. Hypothesis

According to the results of research from Hutasoit *et al.* (2015) entitled Analysis of Perceptions of RSPO Certified Independent Oil Palm Smallholders in Facing Oil Palm Plantation Rejuvenation Activities in Ukui Subdistrict, Pelalawan Regency, stated that farmers' perceptions of oil palm rejuvenation activities had a score of 132.79, which means very good.

Based on research conducted by Zulsam (2020) entitled Perception of Independent Smallholders on Oil Palm Rejuvenation and Its Relationship with Income Levels in Air Talas Village, Rambang Niru District, Muara Enim Regency, it shows that the total score of independent smallholders' perceptions of oil palm rejuvenation is 53.77 which means good. And the relationship between farmers' perceptions and the level of oil palm farming income is $(0.260 < 0.306)$ which means that there is a relationship between farmers' perceptions of oil palm rejuvenation and income.

Based on the theoretical basis above, the hypothesis to answer the research objective is suspected that there is significant relationship between farmers' perceptions of smallholder oil palm rejuvenation and oil palm farming income in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.

2.4. Operational Limitations

The operational limitations of this study are as follows:

1. Farmers who were respondents in this study were oil palm farmers who were members of Tri Bakti Sentosa KPKS, Sido Rejo Village, Keluang District, Musi Banyuasin Regency who participated in the community oil palm rejuvenation program and had reached the First Year of Mature Plants.
2. Smallholder oil palm rejuvenation is program from the Indonesian government with the aim of replacing oil palm plants that have entered the age of 25 with new oil palm plants in order to increase oil palm production in collaboration with the Palm Oil Plantation Fund Management Agency (BPDPKS).
3. The research location is in Sido Rejo Village, Keluang District, Musi Banyuasin Regency.

4. The characteristics of oil palm farmers include education level, age, land area, and total of family dependents.
5. Oil palm is a plantation crop that produces the main product, namely Fresh Fruit Bunches (FFB).
6. Perception is an act of interpreting information about the environment around us using the five senses.
7. The indicator of the perception of oil palm rejuvenation is seen from the input aspect, market aspect, financial aspect, technological aspect, and institutional aspect.
8. Very good criteria on farmers' perceptions of the smallholder oil palm rejuvenation program, namely assessing that the smallholder oil palm rejuvenation program is in accordance with what is expected by oil palm farmers.
9. A good criterion on farmers' perceptions of the smallholder oil palm rejuvenation program is to assess that the smallholder oil palm rejuvenation program is in accordance with what is expected by oil palm farmers.
10. The criteria that are not good for farmers' perceptions of the community oil palm rejuvenation program are assessing that the smallholder oil palm rejuvenation program is not as expected by oil palm farmers.
11. The income analyzed is the income of oil palm farmers who are members of Tri Bakti Sentosa KPKS and have reached the First Year of Mature Plants.
12. The criteria for the income of oil palm farmers per year for the 1st Year Mature Crops PSR program (plant age 3 years) are divided into 3 criteria, namely:
 - a. Low (< IDR 30,000,000.00/year)
 - b. Medium (< IDR 60,000,000.00/year)
 - c. High (> IDR 60,000,000.00/year)
13. Revenue is the result of multiplying the selling price with the production obtained.
14. Income is the difference between total revenue and costs incurred from farming activities.

15. Variable costs are costs that can vary with each production, such as fertilizer, labor, cutting costs and herbicides (IDR).
16. Fixed costs are costs whose amount does not change in each production or costs that are always issued with a fixed amount in each production, such as depreciation costs of equipment (IDR).

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Time and Place

This research was carried out in Sido Rejo Village, Keluang District, Musi Banyuasin Regency. The location selection in this study was done deliberately with the consideration that Sido Rejo Village is village that has large area of oil palm plantations and a village that implements the Smallholder's Palm Oil Replanting (PSR) program. As for the time of data collection in the field, it has been carried out from October to November 2021.

3.2. Research Methods

The research method used in this study is a survey method. The survey method is one of the research methods carried out by taking samples from the population that can represent a description of the characteristics of the population as a whole using a questionnaire that serves as a tool for collecting basic data from direct interviews with oil palm farmers, members of Tri Bakti Sentosa KPKS, Sido Rejo Village, Keluang District, Musi Banyuasin.

3.3. Sampling Methods

The population in this study is a member of farmer group at Tri Bakti Sentosa KPKS who has reached first year or the plants can be harvested as many as 240 farmers. From this population, the sample used in this study was 30 samples of farmers based on considerations of population homogeneity, desired accuracy, time, cost, and available manpower. The sample criteria in this study are:

1. Oil palm farmers are member of Tri Bakti Sentosa KPKS Palm Oil Producers, Sido Rejo Village, Keluang District, Musi Banyuasin Regency.
2. Oil palm farmers are farmers who have participated in the Smallholder's Palm Oil Rejuvenation (PSR) program and have reached the 1st Year of Mature Crops.

So that in taking samples, 3 samples of farmers from each farmer group were taken by *simple random sampling* which can be seen in Table 3.1. following.

Table 3.1. The total of samples for each farmer group TM 1 who are Tri Bakti Sentosa KPKS, Sido Rejo Village, Keluang District

No.	Name of Farmer Group	Number of Members (Persons)	Number of Samples (Persons)
1	Catur Bakti	23	3
2	Karya Tani	21	3
3	Usaha Bersama	20	3
4	Sido Makmur	30	3
5	Serba Usaha	29	3
6	Sidodadi	30	3
7	Trimulat	26	3
8	Rukun Makmur	21	3
9	Usaha Baru	17	3
10	Rukun Tani	23	3
Jumlah		240	30

Source: Tri Bakti Sentosa KPKS, 2021.

3.4. Data Collection Methods

The data collected in this study included primary and secondary data. Primary data is data obtained from field observations and direct interviews with farmers at the research location, namely Sido Rejo Village, Keluang District, Musi Banyuasin Regency using a previously prepared questionnaire. While secondary data is data obtained from related institutions and agencies such as the Sido Rejo Village Head Office, Tri Bakti Sentosa KPKS, Central Statistics Agency of Musi Banyuasin Regency, Agricultural Research and Development Agency, as well as literature studies such as scientific journals, books, and other libraries related to this research.

3.5. Data Processing Method

The method used in this study is survey method to examine the perception of oil palm farmers on smallholder oil palm rejuvenation in Sido Rejo Village, Keluang District, Musi Banyuasin Regency which was analyzed using class intervals and *Spearman*.

The calculation formula used in this study is as follows:

1. The value of the questionnaire on farmers' perceptions of the oil palm rejuvenation program farmers' perceptions of the oil palm rejuvenation program in Sido Rejo Village, Keluang District, Musi Banyuasin Regency

were measured using statistical analysis with tabulated scores. The choice of answers for oil palm farmers' perceptions of the oil palm rejuvenation program contained 5 indicators. Each statement was given a score of 3 for very good criteria, 2 for good criteria, and 1 for not good. Answers from respondents will be categorized into class intervals with the formula:

$$\mathbf{NR = NST - NSR}$$

$$\mathbf{PI = NR : JIK}$$

Description:

NR = Range Value

NST = Highest Score Value

NSR = Lowest Score Value

PI = Interval Length

JIK = Number of Class Intervals

Calculations to make intervals The component classes are:

$$NST = (5 \text{ indicators} \times 3 \text{ questions} \times \text{question weights } (3)) = 45$$

$$NSR = (5 \text{ indicators} \times 3 \text{ questions} \times \text{question weights } (1)) = 15$$

Calculation of the total class interval:

$$\begin{array}{ll} NR & = NST - NSR & PI = NR : JIK \\ & = 45 - 15 & = 30 : 3 \\ & = 30 & = 10 \end{array}$$

Calculations to create class intervals per indicator are:

$$NST = (3 \text{ questions} \times \text{question weights } (3)) = 9$$

$$NSR = (3 \text{ questions} \times \text{question weights } (1)) = 3$$

Class interval calculations per indicator:

$$\begin{array}{ll} NR & = NST - NSR & PI = NR : JIK \\ & = 9 - 3 & = 6 : 3 \\ & = 6 & = 2 \end{array}$$

Calculations to make class intervals for each question are:

$$\text{NST} = (1 \text{ question} \times \text{question weight (3)}) = 3$$

$$\text{NSR} = (1 \text{ question} \times \text{question weight (1)}) = 1$$

Total interval calculation

$$\begin{aligned} \text{NR} &= \text{NST} - \text{NSR} & \text{PI} &= \text{NR} : \text{JK} \\ &= 3 - 1 & &= 2 : 3 \\ &= 2 & &= 0.67 \end{aligned}$$

From the results of the above processing, the class interval values in the table are as follows.

Table 3.2. Class Interval per Question

No.	Grade Interval Score (per Question)	Criterion
1	1.00 X 1.67	Not Good
2	1.67 < X 2.34	Good
3	2.34 < X 3.00	Very Good

Based on Table 3.2. each indicator has three questions, each question has a score to determine the criteria for not good, good, and very good. The questions on each indicator will be explained first before determining the perception criteria for the oil palm rejuvenation program based on input aspects, market aspects, financial aspects, technological aspects, and institutional aspects. In determining the criteria for each indicator, the class interval values can be seen in Table 3.3. following.

Table 3.3. Farmer Perception Class Interval

No.	Interval Score (total score)	Interval score (per indicator)	Criteria
1	$15 \leq X \leq 25$	3.00 X 5.00	Not Good
2	$25 < X \leq 35$	5.00 < X 7.00	Good
3	$35 < X \leq 45$	7.00 < X 9.00	Very Good

2. Revenue and Income

To answer the formulation of the next problem, namely to determine the income of oil palm farmers in Sido Rejo Village, Keluang District, Musi Banyuasin Regency, the smallholder's palm oil rejuvenation program (PSR)

which has entered the First Year of Mature Crops. The formula for production costs, income, and farm income is in the following equation:

$$\mathbf{BT = BTp + BV}$$

$$\mathbf{Pn = Hy \times Y}$$

$$\mathbf{Pd = Pn - BT}$$

Description:

Pn	= Total Farm Revenue (IDR/Arable Area/Year)
Hy	= Selling Price (IDR/BT)
Y	= Production Produced (Kg/Arable Area/Year)
BT	= Total Production Cost (IDR/Arable Area/Year)
BT	= Fixed Costs (IDR/Arable Area/Year)
BV	= Variable Costs (IDR/Arable Area/Year)
Pd	= Farming Income (IDR/Arable Area/Year)
Pn	= Total Farming Revenue (IDR/Arable Area/Year)
BT	= Total Cost (IDR/Arable Area/Year)

3. Correlation Analysis

Correlation analysis was carried out using SPSS where the collected data were analyzed. The formula of correlation coefficient *Spearman Rank* is as follows (Sugiyono, 2018).

$$\mathbf{rs = 1 - \frac{6\sum dI^2}{n(n^1 - 1)}}$$

Description:

rs	= Spearman Rank correlation coefficient
n	= Number of sample
\sum	= Difference in ranking between the two variables
dI	= Difference in the ratings of each observation $R(x_i)$ and (y_i)
Y	= Farmer's Perception
X	= Income (IDR)

Decision Rules:

- 1) If Sig. 2-Tailed ≥ 0.05 or 0.01 then H_0 is accepted, which means that there is no significant relationship between farmers' perceptions of the smallholder's oil palm rejuvenation program (PSR) and oil palm farming income.
- 2) If Sig. 2-Tailed < 0.05 or 0.01 then H_0 is rejected, which means that there is a significant relationship between farmers' perceptions of the smallholder's oil palm rejuvenation program (PSR) and oil palm farming income.

To answer the value direction if the correlation coefficient is positive then the direction of the relationship is unidirectional and if it is negative the direction of the relationship is not unidirectional. To see the relationship between the level of perception of farmers with income can be divided into five groups can be seen in Table 3.4. (Sugiyono, 2018).

Table 3.4. Correlation Coefficient Interpretation

No.	Interval Coefficient	Level of Relationship
1	0.00 – 0.199	Very low
2	0.20 – 0.399	Low
3	0.40 – 0.599	Moderate
4	0.60 – 0.799	Strong
5	0.80 – 1,000	Very strong

CHAPTER 4

RESULTS AND DISCUSSION

4.1. Regional General Condition

4.1.1. Location and Administrative Area Boundary

Sido Rejo Village is one of the villages in Keluang District, Musi Banyuasin Regency, South Sumatra Province. Sido Rejo Village has an area of ± 940 ha. The administrative boundaries of Sido Rejo Village are as follows:

1. To the north it is bordered by Cipta Praja Village
2. To the south it is bordered by Sumber Agung Village
3. To the east it is bordered by Mekar Jaya Village
4. To the west it is bordered by Keluang Village.

Sido Rejo has an area based on its uses which are listed in Table 4.1. following.

Table 4.1. Sido Rejo Village Land Use

No.	Description	Area (Ha)	Percentage (%)
1	Residential Land	134	14.26
2	Palm Oil Plantations	670	71.28
3	Rubber Plantation	126	13.40
4	Public Facilities	10	1.06
	Amount	940	100.00

Source: Sido Rejo Village, 2021.

In Table 4.1. From this it can be seen that most of the Sido Rejo Village area in Keluang District, Musi Banyuasin Regency is dominated by oil palm plantations with a percentage of 71.28 percent with an area of 670 ha. There are 14.26 percent of residential land with an area of 134 ha consisting of 4 hamlets and 12 RT. Rubber plantations have a percentage of 13.40 percent with an area of 126 ha. As for the land for public facilities, the percentage is 1.06 percent with an area of 10 ha which includes schools, mosques, sports fields, etc.

4.1.2. Sido Rejo Village Government

Sido Rejo Village has government system where the village is led by the Village Head and assisted by village officials such as the Village Consultative Body (BPD), Village Secretary, Head of Administrative and General Affairs, Head of Financial Affairs, Head of Planning Affairs, Head of Service Section, Section Head. Government, Head of Welfare Section, Head of Hamlet 1, 2, 3, and 4, and Head of RT 1 to Head of RT 12.

4.1.3. Geography and Topography

Geographically, Musi Banyuasin Regency is located between 1.3° to 4° South Latitude (LS) and 103° to 104°45' East Longitude (BT) and is located at an altitude of 20 to 140 meters above sea level. The soil condition in Musi Banyuasin Regency consists of 4 types, namely alluvial, organosol, klei humus, and padzolic.

Sido Rejo Village, located in Keluang District, Musi Banyuasin Regency, has a wet tropical climate with rainfall of 2,000 to 2,500 mm/year and has a height of 14 meters above sea level. Meanwhile, the average air temperature in this village is 280°C to 330°C. With these climatic conditions, Sido Rejo Village has a very high potential in the development of various agricultural activities. Plants that grow in Sido Rejo Village are fruit plants such as rambutan, durian, coconut, banana, and mango. In addition, Sido Rejo Village has plantation crops such as oil palm and rubber. Meanwhile, livestock that are often found in Sido Rejo Village are goats, cows, chickens, wild ducks, geese, and swallows.

4.1.4. Demographics of Sido Rejo Villagers

4.1.4.1. Number of Population by Gender

Sido Rejo Village has 4 hamlets and 12 neighborhood association with a total of 457 families. In 2021, the population in Sido Rejo Village is 1,457 people, of which 733 are male and 724 are female.

Table 4.2. Number of Population by Gender

No.	Gender	Total (Soul)	Percentage (%)
1	Male	733	50.31
2	Female	724	49.69
Total		1,457	100.00

Source: Sido Rejo Village, 2021.

Seen from the percentage, it shows that in Sido Rejo Village, the male population is 50.31 percent more than the female population, which is 49.69 percent. The difference in the number of male and female residents in Sido Rejo Village is 9 people.

4.1.4.2. Total Population by Age

Based on the data obtained in Sido Rejo Village, it can be seen in Table 4.3. the majority of the population is productive age or working age with a range of 19-55 years, which is 56.69 percent. This shows that residents in Sido Rejo Village can still work well because they are still productive. For the population who are at the unproductive age, 12.22 percent of which the population is no longer able to work or is unable to work optimally because their age has exceeded their productive working age. As for the unproductive age of 31.09 percent where they have not entered working age.

Table 4.3. Number of Population by Age

Source: Sido Rejo Village, 2021.

No.	Age (Years)	Total (Persons)	Percentage (%)
1	0-18	453	31.09
2	19-55	826	56.69
3	>55	178	12.22
Total		1,457	100.00

Sumber: Desa Sido Rejo, 2021.

4.1.4.3. Population Based on Livelihood

According to a data source, the Sido Rejo Village government explained that the economic activities of Sido Rejo Village are supported by various

community livelihoods that are spread to various business sectors, along with various types of community livelihoods and the total of residents listed in Table 4.4.

Table 4.4. Total of Population Based on Livelihood

No.	Occupation	Number (Persons)
1	Pharmacist	1
2	Midwives	3
3	Casual Daily Workers	6
4	Farmer/Plantation Workers	12
5	Teachers	11
6	Employees	1
7	Honorary Employees	4
8	Private Employees	21
9	Indonesian National Police (POLRI)	1
10	Mechanics	2
11	Civil Servants (PNS)	17
12	Students/Students	300
13	Retirees	4
14	Nurses	2
15	Farmers/Growers	716
16	Artists	-
17	Drivers	8
18	Entrepreneurs	60
Amount		

Source: Sido Rejo Village, 2021.

From Table 4.4. This shows that most of the population in Sido Rejo Village make a living as farmers, with a total of 716 people, while for the least livelihood or work in Sido Rejo Village are pharmacists and nurses, each of which is only 1 person.

4.1.4.4. Total Population Based on Education Level

One of the important things in an effort to improve the level of welfare and the economy is education, at a higher level of education a person will have broad insight and have bright ideas that are useful in society and in the level of the economy in particular. The education level of the residents of Sido Rejo Village is listed in table 4.5.

Table 4.5. Total Population Based on Education Level

No.	Education	Number (Persons)
1	Not Graduated Elementary School/Equivalent	47
2	Not Graduated Elementary School/Equivalent	155
3	Graduated Elementary School/Equivalent	402
4	Junior High School/Equivalent 1 1	247
5	Senior High School/Equivalent	320
6	Diploma I/II	12
7	Academy/Diploma III	19
8	Diploma IV /Strata I	63
9	Strata II	2
Total		1,267

Source: Sido Rejo Village, 2021.

From Table 4.5. explained that the education level of the majority of the people of Sido Rejo Village graduated from elementary school/equivalent A total of 402 people and as many as 2 people had successfully completed their strata II studies. study in junior high, high school, up to the strata.

4.1.5. Facilities and Infrastructure in Sido Rejo Village

Facilities and infrastructure are supporting aspects in various social and economic activities of the villagers. Every year the facilities and infrastructure in Sido Rejo Village have increased and added to make the development of the village grow well, the facilities and infrastructure in Sido Rejo Village are used actively by the community in every social and economic activity of the village. The facilities and infrastructure in Sido Rejo Village include worship facilities such as mosques and prayer rooms, then educational facilities such as Early Childhood Education (PAUD) building rooms, Kindergartens, Elementary Schools, Vocational High Schools. As well as sports and arts advice and infrastructure including soccer fields, badminton, volleyball and art halls as well as infrastructure such as chairs, tables, boards, and other equipment. More detailed details of various facilities and infrastructure in Sido Rejo Village are listed in table 4.6.

Table 4.6. Facilities and Infrastructure of Sido Rejo Village

No.	Facilities and Infrastructure	Number (Unit)
1	Mosque	1
2	Mushola	6
3	SD	1
4	Kindergarten	1
5	PAUD	1
6	SMK	1
7	Poskesdes	1
8	Puskesmas	1
9	Midwife Practice	3
10	Posyandu	4
11	Village Hall	1
12	Village Office	1
13	KUD/Cooperative	1
14	Bank	1
15	PKK Office	1
16	Village Library	1
17	Sports Field	9
18	Public Cemetery	1
19	Poskamling	12
20	BUMDes	1
21	Art Center	1
Total (Unit)		50

Sources: Sido Rejo Village, 2021.

4.1.5.1. Worship Facilities in Sido Rejo Village

The people in Sido Rejo Village are predominantly Muslim. The worship facilities in Sido Rejo Village include 1 mosque and 6 prayer rooms scattered throughout Sido Rejo Village. The worship facilities in Sido Rejo Village are equipped with supporting facilities such as reading equipment and others. Apart from being a place of worship, mosques and prayer rooms are also used as a means of Al-Quran Education Park (TPA).

4.1.5.2. Educational Facilities in Sido Rejo Village

Educational facilities are an important tool in efforts to develop the knowledge and abilities and skills of human resources in Sido Rejo Village. The educational infrastructure in Sido Rejo Village starts from Early Childhood

Education (PAUD), Kindergarten (TK), Elementary School (SD)/Equivalent, and Teacher High School.

4.1.5.3. Health Facilities in Sido Rejo Village

The health facilities available in Sido Rejo Village include community health centers (Posyando), village health post (Poskedes), Midwife Practices, and unified service post (Posyandu). However, if the community has health problems that the village health facilities cannot handle, the sick community will be referred to another village or directed to the district capital for more complete health facilities.

4.1.5.4. Sports and Arts Facilities in Sido Rejo Village

Sports and arts activities are activities that can be done to improve the health, level of happiness, and skills of villagers. The sports facilities in Sido Rejo Village are quite complete with details of 9 sports fields including Football, Badminton, and Volleyball fields and for art facilities in Sido Rejo Village there is an art hall.

4.1.5.5. Sido Rejo Village Government Facilities

There are 2 units of existing infrastructure facilities in Sido Rejo Village, including the village office and village hall. The people of Sido Rejo Village use the village hall as a place to hold important meetings and events such as counseling, community meetings and others. Sido Rejo Village government also has a Village Library and Family Welfare Empowerment Office (PKK).

4.2. Characteristics of Sample Farmers

In this study, the sample farmers are oil palm farmers who are actively involved in the Tri Bakti Sentosa KPKS Palm Oil Producer, which is located in Sido Rejo Village, Keluang District, Musi Banyuasin Regency and has reached TM 1 (First Year Producing Crops). Sample farmers were selected as many as 30 farmers at random, 3 farmers each from each group who are members of the cooperative.

4.2.1. Characteristics of Sample Farmers by Age

The age factor affects the ability to think and the physical condition of the farmer. The age level of the sample farmers is very varied, from the data obtained the age of farmers ranges from 25 years to above 55 years, farmers aged 45 to 55 years and over dominate with a percentage of 60 percent and the remaining 40 percent are farmers aged 25-44 years based on the data. From this it can be said that oil palm farmers in Sido Rejo Village are still in a productive age, so farmers still have good thinking skills and excellent physical abilities to increase production in order to get good income. The characteristics of the sample farmers in this age-based study are described in table 4.7. following.

Table 4.7. Characteristics of Sample Farmers by Age

No.	Farmer Age (Year)	Total (Person)	Percentage (%)
1	25-34	4	13.33
2	35-44	8	26.67
3	45-54	9	30.00
4	>55	9	30.00
Jumlah		30	100.00

Source: Primary Data, 2021.

4.2.2. Characteristics of Sample Farmers Based on Cultivated Area

The area cultivated by the sample farmers in Sido Rejo Village, Keluang District, Musi Banyuasin Regency and incorporated in the Tri Bakti Sentosa KPKS Oil Palm Producers is fairly similar in distribution, each farmer owns 2 hectares of oil palm land that is incorporated in group members with a percentage of 100 percent.

4.2.3. Characteristics of Sample Farmers Based on Education Level

Education is an effort made by someone to gain knowledge and skills to improve self-quality. The education of farmers has an influence on the insights obtained and used to improve the farming business they run. Farmers who have a higher education level will more easily absorb information about the latest innovations and then adopt these innovations in order to run a better farming business, as for an explanation of the education level of the sample farmers in the

research conducted in Sido Rejo Village, Keluang District, Musi Banyuasin Regency, it is listed in table 4.8. following.

Table 4.8. Characteristics of Sample Farmers Based on Education Level

No.	Education Level	Total (People)	Percentage (%)
1	Elementary School	9	30.00
2	Junior	2	6.67
3	Senior High School	12	40.00
4	Bachelor Degree	7	23.33
Total		30	100.00

Source: Primary Data, 2021.

Based on Table 4.8. explained that the majority of sample farmers in the study conducted in Sido Rejo Village had a high school education (SLTA) with a percentage of 40 percent, with a total of 12 farmers, elementary school (SD) with a percentage of 30 percent totaling 9 farmers, then Strata-1 (S1) with a percentage of 23.33 percent and the lowest level of education is Junior High School (SLTP) with 2 farmers or a percentage of 6.67 percent. So it can be concluded that the level of education of farmers in Sido Rejo Village is quite good.

4.2.4. Characteristics of Sample Farmers Based on Total of Dependents

The total of dependents is the total of family members who are still study and not working or in other terms are all family members whose living needs are still borne by a family head. The sample farmers in this study conducted in Sido Rejo Village, Keluang District, Musi Banyuasin Regency stated that the majority of the dependents of the sample farmer families were 3 to 4 dependents from 16 sample farmers with a percentage of 53.33 percent, then 1 to 2 dependents were under the auspices of 13 sample farmers or with a percentage of 43.33 percent, while for dependents of more than 4 people there is 1 sample farmer, for more details on the characteristics of sample farmers in this study based on the number of dependents can be seen in Table 4.9. as follows.

Table 4.9. Characteristics of Sample Farmers Based on Number of Dependents

No.	Number of Family Members (Persons)	Total (KK)	Percentage (%)
1	1-2	13	43.33
2	3-4	16	53.33
3	>4	1	3.33
Jumlah		30	100.00

Source: Primary Data, 2021.

4.3. General Description of the Agricultural Environment in Sido Rejo Village

4.3.1. Overview of Oil Palm Farming in Sido Rejo Village

Sido Rejo Village is one of the villages in Keluang District, Musi Banyuasin Regency, South Sumatra Province. The village is a village where the majority of its residents depend on the plantation sector, especially oil palm. Apart from oil palm, the residents of Sido Rejo Village also depend on the rubber plantation sector for their livelihood. On the other hand, a small number of villagers are also active in the livestock sector. However, oil palm is the most loved commodity by the residents of Sido Rejo Village because it is considered more profitable than other farming activities so that the village area is dominated by oil palm land.

The total area of oil palm land in Sido Rejo Village is 670 hectares of which 604 hectares of the total land area is oil palm land owned by villagers who are members of the Tri Bakti Sentosa KPKS Palm Oil Producers, while the other 66 hectares are managed by farmers independently.

In 1980, the government carried out a transmigration program in which residents were given 2.5 hectares of land for each family. The given land is used 0.25 hectares for house land, then 0.25 hectares is used for food land, and 2 hectares is used for plantation land. However, at that time the land that should be used for plantations by the community was not used properly or it could be said that the land was only overgrown with weeds. Thus, land management was taken over by Perkebunan Inti Rakyat (PIR) Trans PT Hindoli to plant oil palm trees in 1990. Then in 1991, the first oil palm plantations were planted and started producing fresh fruit bunches in 1997 where the proceeds from these sales shared with the landowners. Furthermore, in 1998 a Village Unit Cooperative was formed which specifically handles oil palm farming activities in Sido Rejo

Village, namely the Tri Bakti Sentosa KPKS Oil Palm Producers at the initiative of farmers and was fostered directly by PT Hindoli from 1990 to 2017. Since 2017 PT Hindoli has not fostered oil palm farmers in Sido Rejo Village, because in 2017 oil palm has entered an unproductive age and for further management and rejuvenation it is managed by Tri Bakti Sentosa KPKS until now.

4.3.2. Overview of the Tri Bakti Sentosa KPKS Palm Oil Producers

Tri Bakti Sentosa KPKS Palm Oil Producers is cooperative in Sido Rejo Village, Keluang District, Musi Banyuasin Regency that provides services to the community, especially farmers in the village in managing oil palm plantations. It was formed in 1998 which in that year still managed 3 villages namely Mekar Jaya Village (A6), Mekar Jaya Village (A3) and Cipta Praja Village. Since 2010, Tri Bakti Sentosa KPKS has only managed one village, namely Mekar Jaya Village (A6) which has now changed its name to Sido Rejo Village. This is because Mekar Jaya Village (A3) and Cipta Praja Village (A7) have formed their respective village cooperatives. The farmer groups who are members of the Tri Bakti Sentosa KPKS are 14 farmer groups including Catur Bakti, Karya Tani, Joint Venture, Sido Makmur, Multi-Business, Sidodadi, Tri Mulat, Rukun Makmur, New Usaha, Rukun Tani, Sawit Mulya, Sumber Sustenance, Harapan Jaya, and Mitra Abadi. The total of farmers in the group reached 302 farmers.

The chairman of the cooperative is elected by holding a members' meeting in which the name to be nominated must meet the requirements, namely one of them owns oil palm land which is incorporated in the Tri Bakti Sentosa KPKS on behalf of the person concerned. The composition of the General Chairperson of Tri Bakti Sentosa KPKS is Mr. Maryadi in the period 1998-2001, Mr. Slamet Prapto Sudarmo in the period 2001-2004, Mr. Sopyan in the period 2004-2007, Mr. Prapto Sudarmo in the period 2007-2012, and Mr. Sumingsro in the period 2012- present. As for the management of the cooperative, there are several sections, namely the garden sector which is responsible for the plantation section and the maintenance needed, the administration and finance sector has responsibilities related to programs in financial expenditure and income, the business sector is in charge of the business economics section of a cooperative,

the human resources sector responsible for planning as well as the implementation of counseling and training activities aimed at the management and members of the cooperative, and the head of the farmer group is responsible for coordinating the members of the farmer group who are members of the cooperative.

Tri Bakti Sentosa KPKS has routine activity, namely the Annual Members Meeting (RAT) which is usually attended by the Head of the Agriculture Service, members of farmer groups who are members of the cooperative, and other related parties. The meeting usually discusses the evaluation of oil palm plantation management activities and also the formation of plans based on joint decisions.

For the main task of the Tri Bakti Sentosa KPKS itself, namely managing oil palm plantations owned by residents of Sido Rejo Village who are members of the cooperative, starting from planting, caring, to harvesting. Proceeds from the sale of fresh fruit bunches produced will be distributed to landowner farmers who are members of the cooperative according to the agreement made at the joint meeting. For the distribution of the sales of each group will be reduced by the production costs incurred by each group and also deducted by the cooperative fee which will then be distributed equally to each member, with the cooperative discount also being agreed through a joint meeting.

4.3.3. Overview of Smallholder's Oil Palm Rejuvenation Activities in Sido Rejo Village

Smallholder oil palm replanting is an activity to replant oil palm plants that are not productive. Oil palm plants have a productive age of approximately 25 years. Plants that are 25 years old or more will soon be replanted because these plants are no longer able to optimally produce fresh fruit bunches so that yields decrease and income also decreases, besides the high oil palm plantations make harvesting difficult. Sido Rejo Village is village that has planted oil palm since 1991 which is managed by PT Hindoli Trans Smallholder's Core Plantation (PIR), which in 2017 has entered an unproductive age because the fresh fruit bunches produced have decreased. Farmers' income is sometimes deducted for production costs. Therefore, in 2017, oil palm farmers who are members of the Tri Bakti Sentosa KPKS of Sido Rejo Village undertook a rejuvenation program from the

government, namely the Smallholder's Palm Oil Rejuvenation (PSR) program which in this case was managed by a cooperative which at that time also the oil palm farmers had been released. from the intervention of PT Hindoli.

The stages of this smallholder oil palm rejuvenation activity start from pre-rejuvenation, namely making a rejuvenation proposal by collecting documents such as a nominative list of planters, farmer group ID cards, farmer group family cards, legality of oil palm land owned, Cultivation Registration Certificate (STDB), and also coordinate location maps of oil palm plantations. Furthermore, administrative preparations where in this activity the cooperative collects data on the area of oil palm plantations that have entered a productive age and will be rejuvenated as well as identifying and verifying planter data and cooperative documents which will later be used in the preparation of the Need Plan and Financing for Oil Palm Plantation Rejuvenation (RKP3KS). In this case, the farmer member of Tri Bakti Sentosa KPKS received oil palm rejuvenation funds of IDR 25,000,000.00 per hectare from the Palm Oil Plantation Fund Management Agency (BPDPKS). Assistance funds plus farmer savings are used to carry out oil palm rejuvenation. Assistance funds from BPDPKS are used for rejuvenation activities, which include land clearing for oil palm plantations, which in this case use a chipping or chopping system assisted by heavy equipment or excavators. Where the heavy equipment used is in collaboration with PT Teguh Mandiri Sentratama (PT TMS) with an agreed cost of IDR 50,000.00 per oil palm plant. In addition, these funds are also used to procure seeds, in which case the seeds used come from the Medan Oil Palm Research Center (PPKS). Meanwhile, for planting and maintaining oil palm until it can produce fresh fruit bunches using savings funds that have been previously prepared by farmers. The funds that have been prepared by the farmers reach IDR 12,500,000.00/ha or IDR 25,000,000.00/arable area. The next stage is technical preparation for the implementation of replanting in the form of data collection on the area of land to be rejuvenated, preparation of tools and materials to be used, as well as procurement of superior seeds tailored to the planting plan. Then the next stage is institutional preparation and then continued with rejuvenation assistance by BPDPKS and the Directorate General of Plantations. The Palm Oil Plantation Fund Management Agency (BPDPKS)

does not only provide grants to oil palm farmers for replanting, but the agency has another goal, namely to guide farmers in obtaining Indonesian Sustainable Palm Oil (ISPO) certification. ISPO is a certification of a viable business system for oil palm plantations, both from an economic, social and environmental perspective, in accordance with applicable laws and regulations. The purpose of the ISPO certification is for production to be accepted and have high competitiveness in national and international markets, in addition to improving the management of oil palm plantations based on ISPO principles.

The implementation of oil palm rejuvenation carried out by farmers who are members of Tri Bakti Sentosa KPKS, Sido Rejo Village, begins with land clearing. In land clearing, the system used is the chipping or commonly referred to as land clearing which is done by uprooting trees and then enumerating the felled oil palm trees using an excavator. Falling with this system is considered quite good because oil palm trees that have been chopped will easily experience weathering so that it will avoid beetles and rats that nest in the dead tree. In addition, if the old tree decomposes, it will result in the growth of ganoderma (fungi) and will cause disease in new oil palm plants. After felling and also chopping, the next thing to do is to erect and make planting holes and then proceed to planting oil palm seedlings. In addition to planting oil palm, farmers are also planting ground cover crops or Legume Cover Crops (LCC) of the *Mucuna bracteata*. The use of the LCC is to provide moisture to the soil, improve the properties of the soil, can produce biomass or organic compounds that can increase soil fertility, hold the soil from erosion, and also inhibit the growth of weeds that can interfere with the growth of oil palm plants. In the case in this study, the LCCs planted were not cultivated for cultivation but were only used as organic mulch in order to avoid the growth of weeds and to moisten the soil. The maintenance and care activities until the harvesting of oil palm are managed by the cooperative and then the proceeds from the sale of fresh fruit bunches (FFB) will be distributed to the land-owning farmers in accordance with the agreement during the previous members' meeting.

4.4. Farmer's Perceptions of the Smallholder's Palm Oil Replanting Program

4.4.1. Smallholder's Palm Rejuvenation (PSR)

Smallholder oil palm rejuvenation is an effort made to rejuvenate old oil palm plants which will be replaced with new plants with the aim of getting better production. In this oil palm rejuvenation, from preparation, planting, maintenance to harvesting, the cooperatives in Sido Rejo Village, namely Tri Bakti Sentosa KPKS, are involved. The perception of oil palm farmers who are members of cooperatives towards smallholder oil palm rejuvenation is a view of farmers regarding oil palm rejuvenation activities managed by cooperatives whether they are good in implementation or otherwise. The perception of farmers is something that has an influence on the success of all activities carried out in oil palm rejuvenation. Smallholder oil palm rejuvenation activities will be said to be successful if the activities run smoothly, farmers participate actively, and obtain results in accordance with what is the goal of oil palm rejuvenation. This perception is seen from several aspects, namely input, market, financial, technological, and institutional aspects.

4.4.2. Farmers Perceptions of Tri Bakti Sentosa KPKS Members Against Smallholder's Palm Rejuvenation (PSR)

The perception of farmer members of the cooperative towards the community oil palm rejuvenation program is measured based on five aspects which include input aspects, market aspects, financial aspects, technological aspects, and institutional aspects. These five aspects represent an assessment of community oil palm rejuvenation activities. The input aspect is related to the preparation of oil palm rejuvenation activities, the market aspect is related to the sale and determination of the price of fresh fruit bunches produced, the financial aspect is related to activities in dealing with oil palm rejuvenation, the technological aspect is related to the desire of farmers to participate in smallholder oil palm rejuvenation, while for institutional factors related to management and technical rejuvenation.

Table 4.10. Farmers Perceptions of Tri Bakti Sentosa KPKS Members Against Smallholder's Palm Oil Rejuvenation (PSR)

No.	Indicator	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Input Aspect	0	44.44	55.56	7.67	Very Good
2	Market Aspect	0	56.67	43.33	7.30	Very Good
3	Financial Aspect	0	63, 33	36.67	7.10	Very Good
	Technological	0	54.44	45.56	7.37	Very Good
4	Aspects					
	Institutional	0	48.89	51.11	7.53	Very Good
5	Aspects					
	Total				36.97	

Source: Primary Data, 2021.

Questions regarding the input aspect are in the very good category, the market aspect in the very good category, the financial aspect in the very good category, the technological aspect in the very good category, and institutional aspects in the very good category. This excellent aspect can be achieved because of good cooperation between farmers and cooperatives. The results of the measurement of perceptions of farmers belonging to Tri Bakti Sentosa KPKS in Sido Rejo Village, Keluang District will be explained in each indicator.

4.4.3. Farmer's Perceptions of the Smallholder's Palm Oil Replanting Program (PSR) By Input Aspect

The assessment based on the input aspect is represented by three measurement components of the implementation of oil palm rejuvenation, in which the results of the analysis of the perceptions of cooperative farmers regarding the community oil palm rejuvenation program can be seen in Table 4.11. following.

Table 4.11. Farmers' Perceptions Based on Input Aspects

No	Measurement Components	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Ease of obtaining seeds, fertilizers, and pesticides	0	26.67	73.33	2.73	Very Good
2	Seeds used	0	30.00	70.00	2,70	Very Good
3	Understanding of the workforce regarding technical renovation	0	76.67	23.33	2.23	Good
Total					7.67	Very Good

Source: Primary Data, 2021.

In Table 4.11. explained that as many as 26.67 percent of respondents considered that the ease of obtaining seeds, fertilizers, and pesticides was good. While the other 73.33 percent considered it very good. The difference in assessment occurs because of differences in views, satisfaction, and what is felt by each farmer, from that satisfaction they can give an assessment of whether it is good enough or very good. And the average score is 2.73, which means that it has very good criteria. Based on interviews with respondents in conducting oil palm farming in Sido Rejo Village, farmers get oil palm seeds, fertilizers, and pesticides easily. Because farmers do not have difficulty providing these three things themselves but are provided or assisted by cooperatives. The oil palm seeds used by the cooperative use oil palm seeds from the Palm Oil Research Center (PPKS) in Medan, while for fertilizers and pesticides the cooperative cooperates with PT Mitra Anugrah Perkasa Sumsel to provide convenience for oil palm farmers in Sido Rejo Village in obtaining fertilizers and herbicides easily. From this explanation, oil palm farmers who are members of the Tri Bakti Sentosa KPKS feel satisfied and give a positive perception of the indicators of the ease of obtaining seeds, fertilizers and pesticides to support oil palm production in the rejuvenation of smallholder palm oil.

Regarding the quality of oil palm seeds, 30.00 percent of respondents considered that the seeds used were of good quality, while 70.00 percent of other respondents considered that the quality of the seeds was very good. This is due to the knowledge and experience of different farmers. Based on interviews with

respondents, the varieties of oil palm seeds used in community oil palm rejuvenation in Sido Rejo Village, Keluang District, Musi Banyuasin Regency are DxP 540 NG. Meanwhile, other farmers considered it very good because oil palm seeds with the DxP 540 NG variety are seeds that are resistant to ganoderma, this type of seed also has good oil production and high yields.

In rejuvenation activities, the farmer must be able to understand the technicalities of oil palm rejuvenation, based on interviews with respondents, most of the farmers state that they already understand rejuvenation techniques in general or good and a small portion is very able to understand technical rejuvenation in general. Specifically, this is in line with the data obtained which states that 76.67 percent of respondents stated that they were able to understand technical well and 23.33 percent of respondents stated that they were able to understand the technical rejuvenation very well. Differences in understanding of the technical aspects of oil palm rejuvenation in the good and very good corridors are usually caused by farmers assessing several factors starting from the experience and knowledge of the workforce in oil palm rejuvenation.

4.4.4. Farmer's Perceptions of the Smallholder's Palm Oil Replanting Program (PSR) By Market Aspect

The market aspect is an aspect related to oil palm farming when selling and marketing fresh fruit bunches. In this aspect the measurement components include ease of marketing, price suitability, and price increases which can be seen in Table 4.12. following.

Table 4.12. Farmer's Perceptions Based on Market Aspects

No.	Measurement Components	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Ease of marketing Fresh Fruit Bunches (FFB)	0	66.67	33.33	2.33	Good
2	Matching FFB price with quality	0	76.67	23.33	2,23	Good
3	Increase in FFB price	0	26.67	73.33	2.73	Very Good
Total					7.30	

Source: Primary Data, 2021.

It can be seen in Table 4.12. The perception of farmers based on market aspects when viewed from the component of measuring the ease of marketing of fresh fruit bunches obtained an average score of 2.33 which means good perception. The majority of respondent farmers as much as 66.67 percent stated that the marketing of fresh fruit bunches was quite good or easy. Marketing access is said to be good because the sale of fresh fruit bunches is assisted by the cooperative by collaborating with PT Berkat Sawit Sukamaju so farmer's access when selling fresh fruit bunches is considered good enough by farmers, but in this collaboration must be renewed every three years and can be continued cooperation by considering the quality of the FFB produced.

Regarding price compatibility with the quality of fresh fruit bunches, 76.67 percent of respondents stated that the price with quality had fairly good match because some farmers thought that the price of fresh fruit bunches was in accordance with the quality of the bunches, but this was not a benchmark in determining the price because the price used as the benchmark is in accordance with the decision of the Plantation Office. While as many as 2.23 respondents stated that the price with the quality of fresh fruit bunches had a very good match, some farmers stated that the price of fresh fruit bunches was in accordance with the quality because the price of bunches was based on the age of the oil palm, the more mature of the oil palm, the yield of palm oil will increase and this it affects the price of fresh fruit bunches. The difference in perception is also due to differences in the knowledge of each farmer.

The price of fresh fruit bunches always rises over time, in addition to quality and other aspects that support the increase in palm oil prices, support for easy marketing from farmers to PT Berkat Sawit Sukamaju and price stability from the Plantation Service, making prices that will increase again over time, from the perspective of respondents also gave very good perception of the data, namely 73.33 percent who thought the same thing regarding the price of palm oil which will continue to increase. As many as 26.67 percent of respondent farmers expressed a good perception of the increase in the price of fresh fruit bunches, but there is still little doubt that prices will fluctuate unstable.

4.4.5. Farmer's Perceptions of the Smallholder's Palm Oil Replanting Program (PSR) Based on Financial Aspect

The financial aspect is an aspect to determine the perception of farmers regarding readiness to face rejuvenation activities, the financial aspect is related to the source of funds for financing rejuvenation activities. Measurement components related to financial aspects can be seen in Table 4.14. following.

Table 4.13. Farmers Perceptions Based on Financial Aspects

No.	Measurement Component	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Ease of obtaining a loan	0	56.67	43.33	2.43	Very Good
2	Preparation of savings from farmers for rejuvenation	0	46.67	53.33	2.53	Sangai Good
3	Ease of disbursing BPDPKS funds	0	86.67	13.33	2.13	Good
Total					7.10	Very Good

Source: Primary Data, 2021.

Based on Table 4.13. regarding the perception of farmers based on the financial aspect, it is stated that the average score of farmers is 2.43 which means that the perception is very good in getting convenience when applying for loans, this is because there are many access spaces that provide loans, but lending activities are only as a second plan to cover if there is a lack of funds in rejuvenating smallholder's palm oil.

Oil palm rejuvenation requires no small amount of funds to encourage cooperative initiatives to create savings from 2010 as a first step so that during oil palm rejuvenation, smallholders avoid a lack of funds and prepare a reserve fund where the savings funds are deducted from farmer's income by 10 percent every month. In this case, respondent farmers gave a very good response as much as 53.33 percent while 46.67 percent of respondent farmers gave a good response. This means that saving is a very good thing, in order to be prepared in the face of oil palm rejuvenation, and member farmers also provide full support for this

because farmers participate in the preparation of savings in order to prepare for the implementation of oil palm rejuvenation.

As many as 13.33 percent of respondent farmers stated that the disbursement of aid funds from the Oil Palm Plantation Fund Management Agency (BPDPKS) was carried out very well, while 86.67 percent of respondent farmers stated that the disbursement of aid funds from BPDPKS was carried out quite well. So the average score of the measurement component regarding the disbursement of BPDPKS funds is 2.13, which means it has good criteria. In line with information in the field, the disbursement of aid funds for oil palm rejuvenation from the Palm Oil Plantation Fund Management Agency (BPDPKS) was assisted by cooperatives in their submissions, immediately disbursed in one submission, there are several revisions to the proposal that need to be done until finally the aid funds are disbursed, in this case the farmers receive financial assistance of IDR 25,000,000.00 per ha to land clearing with chipping system using excavators and to procure oil palm seeds.

4.4.6. Farmers' Perceptions of the Smallholder's Palm Oil Replanting Program (PSR) Based on Technological Aspect

The technological aspect is an aspect that provides the benefits of rejuvenation activities in general. The technological aspect in the perception of farmers is the benefit of rejuvenation activities in development and efforts to maintain further processes in oil palm farming. The technology in this case is Smallholder's Palm Oil Rejuvenation (PSR), therefore the perception here assesses the usefulness of PSR in oil palm farming.

Table 4.14. Farmers Perceptions Based on Technological Aspects

No.	Measurement Components	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Farmers know the benefits of oil palm	0	50.00	50.00	2.50	Very Good
2	Farmers believe replanting will have a positive impact on production	0	30.00	70, 00	2.70	Very Good
3	Experience in oil palm affects the desire of farmers to do oil palm rejuvenation	0	83.33	16.67	2.17	Good
Total					7.37	Very Good

Source: Primary Data, 2021.

In the implementation of oil palm rejuvenation, farmers must understand the benefits of doing a replanting. Based on the results of data processing on the component of measuring the benefits of smallholder oil palm rejuvenation, the average score of respondent farmers is 2.50, which means it has very good criteria. Oil palm farmers who are members of the Tri Bakti Sentosa KPKS who carry out oil palm rejuvenation already understand the purpose of doing a rejuvenation such as replacing old oil palm plants with new oil palm plants. Farmers who are members of the cooperative feel directly that before replanting, oil palm plants are old and produce little production, which makes farmer's incomes decrease and even those incomes are deducted for production costs and other deductions. In addition, with the old oil palm, oil palm plants will grow taller, making it difficult to harvest fresh fruit bunches. From what the farmers experienced, they understood the purpose or benefit of replanting or replanting oil palm with new crops, namely to increase their income.

Farmer's confidence regarding the impact of rejuvenation in increasing production stated that 70.00 percent of respondent farmers had high or very good confidence in the production impact of oil palm rejuvenation, while 30.00 percent of other respondent farmers stated sufficient or good enough confidence. So the average score of the level of farmers confidence on the impact of rejuvenation for production is 2.70 with very good criteria. This shows that oil palm farmers who

are members of the Tri Bakti Sentosa KPKS have high confidence about the impact of oil palm rejuvenation will result in high production supported by the use of superior oil palm seeds of the DxP 540 NG variety from the Oil Palm Research Center. (PPKS) Medan is a seed that is recognized to be able to produce high FFB production and high yield levels because of the high mesocarp or fruit content of oil palm.

In oil palm farming activities, especially in the implementation of oil palm rejuvenation, knowledge and experience are needed for the successful implementation of oil palm rejuvenation activities. While 83.33 percent of respondent's answers stated that experience had good relationship with replanting, but there were other factors such as knowledge, in other words, most of the respondents thought that experience was not the only factor that influenced farmers to carry out oil palm rejuvenation activities.

4.4.7. Farmers' Perceptions of the Smallholder's Palm Oil Replanting Program (PSR) Based on Institutional Aspect

The institutional aspect is the aspect that looks at the access of farmers in an effort to obtain assistance. The institutions in question are the government, cooperatives, and other institutions. In this study, the related institution that plays an important role in oil palm rejuvenation in Sido Rejo Village is a village cooperative institution. As for an explanation of farmers' perceptions based on institutional aspects, it can be seen in Table 4.15.

Table 4.15. Farmers Perceptions Based on Institutional Aspects

No.	Measurement Components	Percentage of Answers (%)			Average Score	Criteria
		TB	B	SB		
1	Cooperatives can help oil palm rejuvenation	0	43.33 56.67	2.57	Very	Good
2	Training for cooperatives and farmer groups before replanting	0	63.33	36.67	2.37	Very Good
3	Management of BPDPKS funds by cooperatives	0	40.00	60.00	2.60	Very Good
Total					7.53	Very Good

Source: Primary Data, 2021.

In the process of oil palm rejuvenation, cooperatives contribute quite a lot as institutional agencies that play a role in these activities, this is in accordance with the perception of respondent farmers who state that cooperatives can help oil palm rejuvenation with a percentage of respondent's answers of 56.67 percent, this explains that cooperatives are able to assist in rejuvenation activities very well. In this case, farmers gave a good response with answers from respondent farmers as much as 43.33 percent. The average score obtained is 2.57 which means very good so that the perception of farmers says that cooperatives are able to carry out their role very well in helping oil palm farmers in the implementation of oil palm rejuvenation from pre-rejuvenation until now with the help of cooperatives, farmers have able to feel the results of oil palm rejuvenation because the planted oil palm plants have entered First Year Mature Plants.

For the measurement component regarding the training of related institutions in the implementation of oil palm rejuvenation, the percentage of answers from respondent farmers, namely 63.33 percent of respondents said it was good, while 36.67 percent of other respondents said it was very good. So the average score of the measurement components is 2.37 which means very good. Based on the results in the field, before carrying out the rejuvenation of cooperatives related to the handling of oil palm rejuvenation in Sido Rejo Village, they attended various trainings ranging from introduction to rejuvenation and technical implementation of good oil palm rejuvenation. The training was carried out by parties related to rejuvenation such as the Smallholder's Palm Oil Replanting Team, the Directorate General of Plantations, the Palm Oil Plantation Fund Management Agency (BPDPKS), and other related parties.

The implementation of oil palm rejuvenation in Sido Rejo Village is managed by Tri Bakti Sentosa KPKS, so that cooperatives play an important role in managing funds in this regard. The assessment component regarding the management of the rejuvenation aid fund from BPDPKS by cooperatives shows that 60.00 percent of respondent farmers gave a very good opinion while 40.00 percent of other respondents thought it was good. So that the results obtained an average score of 2.60 which means very good. The very good criteria were given by the farmers because the cooperative institution in Sido Rejo Village, namely

Tri Bakti Sentosa KPKS was able to manage these funds properly to be used in terms of rejuvenating oil palm. In addition to funds from BPDPKS, the funds used for oil palm rejuvenation come from farmer savings that have been prepared from the year before the palm oil was unproductive. Cooperatives are able to manage BPDPKS aid funds with added savings funds belonging to farmers well, because with these two types of funds they are sufficient to use without having to borrow additional funds from institutions such as banks. This is also evidenced by the achievement of an award by Tri Bakti Sentosa KPKS with the title of efficiency in the use of palm oil rejuvenation funds.

4.5. Palm Oil Farming Income Smallholder's Palm Oil Rejuvenation Program

4.5.1. Production Cost of Oil Palm Farming

4.5.1.1. Fixed Costs or Equipment Depreciation Costs in Oil Palm Farming

Fixed costs are costs that continue and are always incurred in farming activities and do not depend on changes in the amount of production in farming activities. Fixed costs in oil palm farming in this study were obtained by looking for depreciation of the equipment used in oil palm farming. The tools used in this oil palm farming are machetes, pickaxe, dodos knife, sprayers , and baskets. The machete in oil palm farming activities is used to slash woody weeds around the oil palm plantation area so as not to interfere with the growth of oil palm plants and interfere with the process of harvesting fresh fruit bunches when they are about to be harvested. The dodos knife is used in castration or sand fruit disposal activities and also as a tool for harvesting fresh fruit bunches. The reason for choosing the dodos tool is because the age of oil palm is currently approximately 3 years so that the oil palm plant is not high enough. Pickaxe are used to hook or take bunches at the time of harvest. The solo sprayer is used to hold pesticides in spraying weeds in oil palm plantation areas, usually the sprayer tank is filled with pesticides that will be used to eradicate weeds. Furthermore, the basket is used to transport fresh fruit bunches that have been harvested to the Produce Collection Place (TPH). The depreciation costs for the tools used in oil palm farming in Sido Rejo Village are as shown in Table 4.16. following.

Table 4.16. Average Fixed Cost or Equipment Depreciation of Coconut Farming Palm Oil in Sido Rejo Village

No	Information	Average Cost (IDR/arable area/year)	Percentage (%)
1	Machetes	28,000.00	8.40
2	Dodos Knife	19.000,00	5.70
3	Pickaxe	6.400.00	1.92
4	<i>Sprayer</i> Solo	120.000 ,00	35.99
5	Baskets	160,000.00	47.99
Total		333,400.00	100.00

Source: Primary Data, 2021.

Based on Table 4.16. the average cost of a machete is IDR 28.000,00/arable area /year with a percentage of 8.40 percent, for dodos it is IDR 19.000,00/ arable area/year with a percentage of 5.70 percent, gancu with an average cost of IDR 6 .400.00 and the percentage is 1.92 percent, *sprayer* is IDR 120,000.00/ arable area/year and the percentage is 35.99 percent, and the last is the basket with an average cost of IDR 160,000.00 with a percentage of 47, 99 percent. As for the total average fixed costs of oil palm farming, the smallholder's oil palm rejuvenation program in Sido Rejo Village is IDR 333,400.00/arable area /year. The tools used in oil palm farming activities are tools provided by the Tri Bakti Sentosa KPKS, so that farmers no longer need to buy these tools independently because plantation activities are managed by cooperatives.

4.5.1.2. Variable Costs of Oil Palm Farming

Variable costs are costs that run out on each production. In this study, the variable costs in oil palm farming are fertilizers, pesticides, labor, and cooperative discounts.

Table 4.17. Average Variable Cost of Oil Palm Farming in Sido Rejo Village

No.	Type of Cost	Average Cost (Rp/Arable Area/th)	Percentage
1	Fertilizer	21,001,500	47.05
2	Pesticide	292,500	0.66
3	Labor	18,429,888	41.29
4	Pieces	4,909,176	11.00
Total		44,633,064	100.00

Source: Primary Data, 2021.

Based on Table 4.17. The average number of variable costs incurred in oil palm farming in Sido Rejo Village, especially oil palm farmers who are members of the Tri Bakti Sentosa KPKS, is IDR 44,633,046.00/arable area/year. The variable costs consist of the cost of fertilizers, pesticides, the cost of labor wages, and the cost of deductions from the cooperative. The fertilizers used in oil palm farming consist of Urea, Rock Phosphate (RP), Potassium Chloride (KCL), Borate, Dolomite, and Organic fertilizers. With details of the funds spent for the cost of purchasing fertilizers, namely with an average amount of IDR 21,001,500/arable area/year. The intensity of fertilizer application in oil palm farming is for Urea, Rock Phosphate (RP), and Potassium Chloride (KCL) fertilizers, which are twice a year. As for fertilizers of the Borate, Dolomite, and Organic types, only once a year. For the time of application of fertilizer is carried out based on the schedule that has been determined in the general program for the plantation sector.

The total cost of the average pesticide spent on the farm is IDR 292,500.00 /arable area/year. The type of pesticide used is Startup with the frequency of application adjusted to field conditions. If the weeds are disturbing enough, weed control will be carried out, but usually done three times a year. The costs incurred for labor wages are with an average amount of IDR 18,429,888.00/arable area/year. The types of wages are harvesting fresh fruit bunches (FFB), fertilizing wages, spraying wages for controlling weeds that interfere with oil palm plantations and roads for harvesting, wages for maintaining oil palm plants, and wages for transporting fresh fruit bunches from the collection point to trucks. which will later be brought to the palm oil mill.

The discounted fee is the discounted cost from the cooperative, where the average amount of discounted costs incurred is IDR4,909,176.00/arable area/year. The details of the discounted costs are the cooperative fee with the provisions of IDR 25.00/tonnage, the management fee is IDR 20.00/tonnage, and transportation costs of fresh fruit bunches to the factory are IDR 78.00/kg, the transport is used to pay transport trucks where the trucks are used in collaboration with the Village-Owned Enterprises (BUMDes) Sumber Rejo in Sido Rejo Village, Keluang District and the community that provides truck contract services. The cost of the

discount had previously been mutually agreed upon during a joint meeting with farmer members of the cooperative and also the cooperative management.

4.5.1.3. Total Cost of Oil Palm Farming Production

The total cost of production in this study is all costs used in oil palm farming activities obtained from the addition of fixed costs with variable costs. Production costs in oil palm farming are operational costs in farming, not including investment costs. The total production costs incurred in oil palm farming in Sido Rejo Village can be seen in Table 4.18.

Table 4.18. Average Production Cost of Oil Palm Farming in Sido Rejo Village

No.	Components	IDR/Arable area/Year
1	Fixed Costs	333,400.00
2	Variable Costs	44,633,064.00
	Total	44,966,464.00

Source: Primary Data, 2021.

The average production cost of oil palm farming in one year from the smallholder palm oil rejuvenation program in Sido Rejo Village, Keluang District, which is currently entering the First Year of Mature Crops, is IDR 44,966,464.00/arable area/year. These costs are the sum of fixed costs which amount to IDR 333,400.00/arable area/year with variable costs which amount to IDR 44,633,064.00/arable area/year.

4.5.2. Palm Oil Farming Revenue

Oil palm farming revenue is the result of multiplying the selling price of fresh fruit bunches with the amount of fresh fruit bunches produced. The revenue of oil palm farming in Sido Rejo Village, Keluang District, the oil palm rejuvenation program which is currently entering the 1st Year of Mature Plants can be seen in Table 4.20. following.

Table 4.19. Average Revenue of Oil Palm Farming in Sido Rejo Village

No.	Components	Arable area/Year
1	Production 1 (Kg)	20,294
2	Price 1 (Rp)	2,404
3	Production 2 (Kg)	19,618
4	Price 2 (Rp)	2,576
Revenue (Rp)		99,329,568

Source: Primary Data, 2021.

Oil palm in Sido Rejo Village, Keluang District, is harvested twice per month. So that the production obtained is twice a month and at different prices. The price is determined by the Plantation Service. So that the receipt of oil palm farming from the oil palm rejuvenation program in one year is IDR99,329,568/arable area/year. This gain is obtained from the average production 1, which is 20,294 kg/arable area/year which is multiplied by the price of 1, which is IDR 2,404.00/kg then added up with the result of the multiplication of production 2 which amounts to 19,618 kg/arable area/tg with the price of 2 being IDR 2,576/kg so that the average total revenue obtained from oil palm farming is IDR99,329,568/arable area/year.

4.5.3. Palm Oil Farming Income

Income is the difference between total revenue and costs incurred from oil palm farming activities in Sido Rejo Village. The average income of oil palm farming can be seen in Table 4.20. following.

Table 4.20. Average Income of Oil Palm Farming in Sido Rejo Village

No.	Description	Average (IDR/arable area/year)	Average (IDR/ha/year)	Average (IDR/arable area/month)	Average (IDR/ha/month)
1	Revenue	99,329,568	49,664,784	8,277.464	4,138,732
2	Production Costs	44,966,464	22,483,232	3,747,205	1,873,603
Revenue		54,363,104	27,181,552	4,530,259	2,265,129

Source: Primary Data, 2021.

It can be seen that the average income of oil palm farming in a year from the smallholder oil palm rejuvenation program in Sido Rejo Village and currently entering the first year of mature plantations is IDR 27,181,552/ha/year or IDR 2,265,129/ ha/year. The average area of oil palm plantations owned by farmers who are members of cooperatives is 2 ha. So that the income obtained by farmers from oil palm farming, the community oil palm rejuvenation program, which currently has first year of mature plantable area is IDR 54,363,104/arable area/year or IDR 4,530,259/arable area/month. So, the income of oil palm farmers in Sido Rejo Village is in the medium category. Considering that oil palm plantations are at TM 1 or are still young, the income obtained is satisfactory. This can happen because of the support from the use of superior quality seeds, namely the DXP 540 NG variety which is claimed to be able to produce high production of fresh fruit bunches.

4.6. The Relationship of Farmer's Perceptions to the Smallholder's Palm Oil Replanting Program (PSR) with Oil Palm Farming Income Level

The relationship between farmer's perceptions of the smallholder oil palm rejuvenation program and the level of income from oil palm farming is assessed through five indicators, namely input, market, financial, technology, and institutional aspects, which can be seen in Table 4.21. following.

Table 4.21. The Relationship of Farmer's Perceptions to the Oil Palm Replanting Program Smallholder with Oil Palm Farming Income

Correlations				
			Perception	Income
Spearman's rho	Perception	Correlation Coefficient	1,000	,438*
		Sig. (2-tailed)	.	,015
		N	30	30
	Revenue	Correlation Coefficient	,438*	1,000
		Sig. (2-tailed)	,015	.
		N	30	30

Note: *Correlation is significant at the 0.05 level (2-tailed).

Source: *Output IBM Statistics 25* Based on Primary Data Analysis, 2021.

The results of non-parametric statistical tests using the *Spearman Rank correlation coefficient statistical test*, obtained a significant value or Sig. (2-tailed) of 0.015. The significant value is less than 0.050, meaning that there is a significant relationship between farmer's perceptions of the smallholder oil palm rejuvenation program and the income of oil palm farming. The correlation coefficient in the *Spearman Rank* 0.438*, meaning that the relationship between farmer's perceptions of the oil palm rejuvenation program and oil palm farming income is quite strong. The result of the positive correlation coefficient is 0.438*, it is concluded that the relationship between farmer's perceptions of smallholder oil palm rejuvenation and farming income in Sido Rejo Village is directly proportional or unidirectional, which means that the higher the farmer's perception of the oil palm rejuvenation program, the higher the income of oil palm farming.

CHAPTER 5

CONCLUSIONS AND SUGGESTIONS

5.1. Conclusion

The conclusions obtained from the research that have been carried out are as follows:

1. Perceptions of farmer members of Tri Bakti Sentosa KPKS towards the community oil palm rejuvenation program in Sido Rejo Village when viewed with several aspects including input, market, financial, technology, and institutions are classified as very good. The very good aspect was achieved because of the support and good cooperation between farmers and cooperatives.
2. The income level of oil palm farming from the smallholder's oil palm rejuvenation program in Sido Rejo Village is an average of IDR 54,363,104/arable area/year or IDR 4,530,259/arable area/month.
3. There is a significant relationship between the perception of farmer members of Tri Bakti Sentosa KPKS on the oil palm rejuvenation program and the level of income from oil palm farming in Sido Rejo Village.

5.2. Suggestion

The suggestions that will be given according to the results of research in the field are as follows:

1. In terms of oil palm production in the same cultivated area, there are quite clear differences in the production results of several farmer groups, that must be considered more intensely so the productions are not much different from other groups so farmer's income will increase later.
2. Oil palm rejuvenation is an activity that gives sufficient results both in terms of production and income, it is hoped that in rejuvenation activities, farmers and cooperatives will continue to work hand in hand to improve things that are still lacking, so that later rejuvenation activities will be even better and provide impact on all parties.

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