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Comparison of Income of Independent Rubber and Palm Oil Farming in Kenaman Village, Sekayam District, Sanggau Regency

Perbandingan Pendapatan Usahatani Karet dan Sawit Swadaya di Desa Kenaman Kecamatan Sekayam Kabupaten Sanggau

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ABSTRACT
This study compares the income levels of self-managed rubber and oil palm farms in Kenaman Village, focusing on farm management challenges. A quantitative descriptive approach was used, involving 95 farmers. Levene's test indicated homogeneous income variances between the two farm types, while a mean difference test revealed a significant income disparity. The results highlight differences in annual income between rubber and oil palm farming. The results showed that the Levene test produced a result of 0.063 (>0.05), indicating that the rubber and oil palm income data were homogeneous (the T-test results read were the same variance as assumed). Sig. (2-tailed) is 0.000 (<0.05), indicating a significant difference between the annual income of rubber and oil palm farms in Kenaman Village.

Keywords : Comparative Income, Farm Income, Rubber Farming, Self-Managed Oil Palm Farming

ABSTRAK
Penelitian ini membandingkan tingkat pendapatan dari perkebunan karet dan kelapa sawit yang dikelola secara swakelola di Desa Kenaman, dengan fokus pada tantangan pengelolaan perkebunan. Pendekatan deskriptif kuantitatif digunakan, dengan melibatkan 95 petani. Uji Levene menunjukkan varians pendapatan yang homogen antara kedua jenis kebun, sementara uji perbedaan rata-rata menunjukkan perbedaan pendapatan yang signifikan. Hasil penelitian menunjukkan bahwa uji Levene menghasilkan hasil 0,063 (>0,05), menunjukkan bahwa data pendapatan karet dan kelapa sawit homogen (hasil uji-T yang dibaca adalah varians yang sama dengan diasumsikan). Nilai Sig. (2-tailed) adalah 0,000 (<0,05), menunjukkan perbedaan yang signifikan antara pendapatan tahunan pertanian karet dan kelapa sawit di Desa Kenaman.

Kata kunci: Perbandingan Pendapatan, Pendapatan Petani, Sawit Swadaya, Usahatani Karet.

INTRODUCTION

The agricultural sector plays a crucial role in Indonesia's economic growth, particularly in the plantation subsector, which includes rubber and oil palm. Despite challenges such as limited knowledge, capital, innovation, and skills among farmers, rubber remains a key export commodity contributing significantly to foreign exchange (Aulia et al., 2020). In Sanggau Regency, rubber production has declined from 67,425 tons in 2021 to 55,440 tons in 2022, with the plantation area shrinking from 107,040 hectares to 98,184 hectares. However, oil palm plantations continue to be a vital commodity in the region (BPS Kabupaten Sanggau, 2023).

The decline in rubber production is primarily driven by lower prices, which impact farmers' income, and the more labor-intensive nature of rubber tapping compared to oil palm harvesting, which occurs only twice a month. As oil palm offers more consistent yields and higher profitability with less time required for maintenance, many farmers are shifting from rubber to oil palm farming (Kurniawan & Handayani, 2023; BPS Kabupaten Sanggau, 2023).

This research is important because it compares the income from rubber and palm oil farming and identifies the factors that influence farmers' income. The results are expected to help formulate policies that improve farmers' welfare, provide data for academics, and serve as a reference for financial institutions and investors in the sector.

RESEARCH METHOD

The research was conducted in Kenaman Village, Sekayam Sub-district, Sanggau District, where the majority of the population relies on farming, particularly rubber and independent palm oil farming. Purposive sampling was used to select participants from the rubber and palm oil farmer population based on specific criteria relevant to the study. The rubber farmer population consisted of 128 farmers, with the study focusing on those whose plants were aged 8-9 years, as this is the peak production period for rubber (Pratama et al., 2020). As a result, 45 rubber farmers were selected. For palm oil farmers, the population included 182 farmers, with the study targeting those whose plants were aged 8-9 years, as this

marks the peak production for palm oil (Prayogi et al., 2016). Therefore, 50 palm oil farmers meeting this criterion were chosen for the research (BPS Kabupaten Sanggau, 2023).

Cost Analysis

Total cost is mathematically formulated as follows:

$$TC = TEC + TIC \quad \text{.....(1)}$$

Description:

TC = *Total Cost* (Rp)
TEC = *Total Explicit Cost* (Rp)
TIC = *Total Implicit Cost* (Rp)

Revenue Analysis

According to Kasim (2004), calculating revenue is mathematically formulated as follows:

$$TR = Y.Py \quad \text{.....(2)}$$

Description:

TR = Total Revenue (Rp)
Y = Production quantity (Kg)
Py = Unit price (Rp)

Income Analysis

According to Kasim (2004), income is calculated mathematically as follows:

$$I = TR - TC \quad \text{.....(3)}$$

Description:

I = *Income* (Rp)
TR = *Total Revenue* (Rp)
TC = *Total Cost* (Rp)

T Test

To determine the difference in the average income of rubber and oil palm farms in Kenaman Village, an Independent Samples t-test was conducted with a variance homogeneity test using Levene's Test (Natalia et al., 2013). Criteria: a) P value > 0.05 (homogeneous data), b) P value < 0.05 (non-homogeneous data). If the data is homogeneous, read the results on Equal Variance Assumed, otherwise, on Equal Variance Not Assumed. Significance test: a) Sig. 2-tailed > 0.05, H0 is accepted (there is no difference in income), b) Sig. 2-tailed < 0.05, H0 is rejected (there is a difference in income).

RESULTS AND DISCUSSION

Characteristics of Rubber and Palm Oil Farmer Respondents

Characteristics of rubber and palm oil farmers in Kenaman Village, Sekayam Subdistrict can be described through information; farmer age, gender, education level, farming experience, number of family members, land area. Described below in Table 1:

Table 1. Characteristics of Rubber Farmers and Independent Palm Oil Farmers in Kenaman Village, Sekayam Sub-district

No	Characteristics	Rubber Farmers		Palm Oil Farmers	
		Total	Percentage	Total	Percentage
1	Ages				
	20-30	5	11,11	9	18
	31-40	18	40	24	48
	41-50	22	48,89	17	34
2	Gender				
	Man	41	91	40	80
	Woman	4	9	10	20
3	Education				
	Elementary School	13	29	14	28
	Middle School	18	40	17	34
	Senior High School	12	27	13	26
	Undergraduate	2	4	6	12
4	Farming Experience				
	10-20	31	69	29	58
	21-30	12	27	19	38
	31-40	2	4	2	4

Source: Primary Data Analysis, 2024

In this study, respondents were categorized by age, gender, education, and farming experience. Rubber farmers are mostly aged 40-50 years (22.49%), while oil palm farmers are primarily aged 31-40 years (48%), reflecting a younger and more active demographic. The study also reveals a male-dominated farming community in Kenaman Village, with 91% of rubber farmers and 80% of oil palm farmers being male, typically serving as heads of households responsible for farming.

Education levels show that most farmers have completed junior high school (40% of rubber farmers and 34% of oil palm farmers). Despite limited formal education, many manage their farms effectively through self-learning and guidance

from extension workers. Farming experience is a key factor in production, with 69% of farmers having 10-20 years of experience, highlighting their expertise in farm management.

Independent Rubber and Oil Palm Farming Systems

In Kenaman Village, oil palm and rubber growers with 8–9-year-old oil palms participated in this study. The respondents' self-owned oil palm and rubber plantations are typically 1 hectare in size. To guarantee ideal growth, both crops require routine fertilization, weeding, and spraying based on their individual requirements. The upkeep of rubber and oil palm plants in Kenaman Village, Sekayam Sub-district, Sanggau District, is described as follows:

Rubber Farming Cultivation at the Age of 8-9 Years in Kenaman Village

Table 2. Cultivation of Rubber Farming.

Types of Cultivat ion	Rubber cultivation based on the Kal-Bar agricultural technology assessment center.	Rubber cultivation in Kenaman Village, Sekayam District, Sanggau Regency.
Weeding	Rubber plants should be free of weeds, especially around and in the pathways. If the grass is already tall, it can be weeded or cut with a machete or sickle.	Farmers weed at least once a year using machetes and hands. Intra-family labor (TKDK) takes care of this, but is still counted as an implicit cost with wages of IDR 85,000 to IDR 100,000 per HOK
Spraying	Weed control in rubber plants can also use herbicides, which are applied by spraying 2-3 times a year.	Research in Kenaman Village shows that rubber farmers use BEN-UP and Aktif herbicides to control weeds, spraying 2-3 times a year with an average of 4 liters per hectare
Fertilizing	Fertilization for rubber plants varies by age: urea (300 grams) is applied for plants aged 4-25 years, SP-36 (260 grams) for plants aged 6-15 years, and KCL (250-300 grams) for plants aged 4-15 years. Fertilization is done twice a year.	Fertilization is very important to obtain optimal results. Fertilization in rubber farming is done twice a year using Urea and NPK type fertilizers, with a dose of 200 grams per rubber stem.
Tapping	Rubber tapping should be 1.0-1.5 mm deep from the cambium. The latex is collected in a sealed aluminum bucket, then transferred to a tank and taken to the processing site after exposure to air.	Tapping in Kenaman Village occurs from Monday to Saturday, with Sunday as a rest day. The average rubber lump production per hectare is 446 kg per month, based on a survey of 45 farmers.

Source: Primary Data Analysis, 2024

Table 2 shows that most rubber farmers in Kenaman Village do not fully follow the recommended theory. Weeding is only done once a year, although it should be more frequent. Fertilization is also done twice a year, but farmers only use 200 grams of fertilizer from the theoretical dose of 300 grams to save costs. However, the theory is applied to spraying and rubber tapping activities.

Oil Palm Farming Cultivation at the Age of 8-9 Years in Kenaman Village

Table 3. Oil Palm Farming Cultivation

Types of Cultivation	Oil Palm Cultivation based on Sekayam District Agricultural Extension Agency	Oil Palm Cultivation in Kenaman Village, Sekayam District, Sanggau Regency.
Weeding	Maintenance pruning is carried out after the plant has produced to remove songgo dua leaves, leaving 28-54 midribs. The remaining leaves are trimmed short so as not to interfere with harvesting.	Weeding aims to remove nuisance plants and old palm branches, carried out before fertilizing at least twice a year. Usually done by TKLK with a wage of Rp85,000-Rp100,000/HOK, and Rp100,000/HOK for spraying and fertilizing.
Spraying	Pesticides are used to control pests, diseases, weeds, and unwanted growth. Spraying, the most common application method, is used for 75% of global pesticides. The dosage of pesticide A is 2 liters/hectare and pesticide B 250 ml/tree.	Spraying of oil palms in Kenaman Village is done 3 times a year to eradicate weeds, using Naratop and BEN-up herbicides. In 1 hectare, farmers usually use 4 liters of herbicide.
Fertilizing	Fertilization is done every 4-6 months using two methods: pocket (immersed) and direct sowing. The fertilizers used, such as urea, SP-36, MOP, and kieserite, have a dosage of 1.5-2.5 kg per plant aged 3-25 years.	Palm fertilization is done 3 times a year with Urea, NPK, KCL, dolomite, and borate fertilizers. The dose is 1 kg per tree, and specifically borate 2 spoons per tree.
Harvesting	Harvesting oil palms involves cutting ripe bunches, collecting loose fruits, cutting fronds, transporting them to the TPH, and delivering them to the mill. Bunches are cut with dodos (3-5 years old) or egrek (more than 8 years old). Harvesting is done twice a month, with the productive life of oil palms reaching 25 years. The FFBs are sold by farmers.	Oil palms are harvested twice a month when the FFB turns reddish and the seeds fall (3-5 pieces). Harvesting is done using dodos or sickles for taller plants, and the FFB is transported by cart to the TPH for collection by collectors. The task is carried out by TKDK or TKLK, with a wage of Rp 100,000-Rp 150,000 per HOK. The average yield from 50 respondents is 2,736 kg.

Source: Primary Data Analysis, 2024

Table 3 shows that most oil palm farmers in Kenaman Village do not follow the recommended theory, applying only 1 kg of fertilizer per plant instead of 1.5-2.5 kg. However, fertilization is still done three times a year, and other activities such as weeding, spraying, and harvesting are done according to theory.

Explicit Costs

Production costs include all expenses based on market prices. Harvesting and maintenance costs affect farmers' income. This study distinguishes between explicit and implicit costs. Explicit costs for rubber farmers include fertilizers, pesticides, and tool depreciation. For palm oil farmers, additional non-family labor costs are also calculated.

Table 4. Average Fertilizer Costs On 8-9 Years Old per Hectare Rubber Farms In Kenaman Village in 2023

No	Type	Price/Kg	Kg/Year	Percentage	Total (Rp)
1	Rubber Farming				
	Urea	7.200	116	51	836.480
	NPK	7.000	116	49	813.244
	Total				1.649.724
2	Oil Palm Farming				
	Urea	7.200	415	54	2.990.016
	NPK	7.500	337	46	2.527.200
	Total				5.517.216

Source: Primary Data Analysis, 2024

For fertilizer costs, rubber farms incur an average of Rp. 1,649,724 per hectare, which is considerably lower than the Rp. 5,517,216 per hectare for oil palm farms. This stark difference can be attributed to the distinct nutrient needs of each crop. Rubber plants have less demanding fertilizer requirements compared to oil palm, which needs more intensive fertilization due to its higher growth rate and nutrient consumption (Syamsafitri et al., 2023).

Table 5. Average Pesticide Costs On Rubber And Oil Palm Farms Aged 8-9 Years Old per Hectare In Kenaman Village In 2023

No.	Type of Pesticide	Price/Ltr	Quantity/Th	Percentage	Total Average (Rp)
1.	Rubber Farming				Rp.417.111
	(Naratop)	55.000	6	10%	
	(BEN-up)	60.000	8	13%	
2.	Oil Palm Farming				Rp.1.236.660

No.	Type of Pesticide	Price/Ltr	Quantity/Th	Percentage	Total Average (Rp)
	(Naratop)	55.000	15	24%	
	(BEN-up)	60.000	15	24%	
	(Roundup)	83.000	18	29%	

Source: Primary Data Analysis, 2024

Pesticide costs are higher for oil palm farms, with an average of Rp. 1,236,111 compared to Rp. 417,111 for rubber farms. This difference is likely due to the more intensive pest management practices needed for oil palm crops, which are more susceptible to pests. In contrast, rubber farming typically requires fewer pesticide applications, resulting in lower overall costs (Balde et al., 2019).

Table 6. Average Non-Family Labor Costs In 8-9 Years Old per Hectare Oil Palm Farms In Kenaman Village In 2023

No.	Type of Labor	Hok/Thn	Wage/Hok	TotalAverage (Rp)	Percentage
1.	Weeding	5,4	100.000	Rp.542.000	3%
2.	Spraying	8,6	100.000	Rp.860.000	5%
3.	Fertilizing	8,7	100.000	Rp.878.000	6%
4.	Harvesting	99,5	150.000	Rp.14.482.000	86%
	Total			Rp.16.762.000	100%

Source: Primary Data Analysis, 2024

In terms of labor costs, harvesting emerges as the most significant contributor for both types of farming, with an average labor cost of Rp. 14,482,000. However, the total labor cost for non-family workers in oil palm farming reaches Rp. 16,762,000, which is higher than that of rubber farming. This discrepancy is likely due to the more labor-intensive nature of oil palm harvesting, which requires a larger workforce to collect the fruit, compared to rubber tapping (Wijaya et al., 2023).

Table 7. Average Depreciation Costs Of Tools On Rubber And Oil Palm Farms Aged 8-9 Years Old per Hectare In Kenaman Village In 2023

No	Name of Tools	Total	Value of Tools	Economic Age	Length of Use	Total Average (Rp)
Rubber Farming						
1	Tapping Knife	1	43.667	5	2	9.311
2	Machete	1	44.889	4	3	11.222
3	Knapsack Sprayer	1	398.000	5	3	79.600
			Total			100.133
Oil Palm Farming						
1	Dodos	1	140.500	5	3	32.000
2	Egrek	1	200.200	5	3	51.400

No	Name of Tools	Total	Value of Tools	Economic Age	Length of Use	Total Average (Rp)
3	Gancu	1	79.500	5	3	15.900
4	Angkong	1	531.400	5	3	106.280
5	Knapsack Sprayer	1	439.000	5	3	87.800
6	Motor Basket	1	269.000	5	3	53.800
			Total			347.220

Source: Primary Data Analysis, 2024

Lastly, depreciation costs for farming tools show a significant difference. Rubber farms incur an average depreciation cost of Rp. 100,133 for tools, while oil palm farms face a much higher cost of Rp. 347,220. This is indicative of the specialized machinery and equipment that oil palm farming requires, which is often more expensive and subject to higher wear and tear (Khaengmak & Priebprom, 2016).

Implicit Costs

Implicit Costs are costs that are not spent directly but need to be included in the calculation, which include implicit costs in rubber and palm oil farming in this study, namely labor costs in the family and land rental costs. The following is described below:

Table 8. Average Labor Costs In The Family On Rubber And Oil Palm Farms Aged 8-9 years Old per Hectare in Kenaman Village in 2023

No.	Type of Labor	Hok/Thn	Wage/Hok	Total Average (Rp)	Percentage
Rubber Farming					
1.	Spraying	2	100.000	204.444	13
2.	Fertilizing	2	100.000	204.444	13
3.	Harvesting	12	100.000	1.200.000	74
	Total			1.608.889	100
Oil Palm Farming					
1.	Weeding	5,7	100.000	547.000	5
2.	Spraying	7,3	100.000	738.000	7
3.	Fertilizing	8,7	100.000	872.000	8
4.	Harvesting	56,7	100.000	8.259.000	80
	Total			10.443.000	100

Source: Primary Data Analysis, 2024

The data in Table 8 highlights significant differences in labor costs between rubber and oil palm farming in Kenaman Village. Harvesting labor costs for oil palm are much higher at Rp. 8,259,000, compared to Rp. 1,200,000 for

rubber, reflecting the more labor-intensive nature of oil palm harvesting (Saputra & Nurchaini, 2020a). Family labor costs are also higher for oil palm farms (Rp. 10,443,000) compared to rubber farms (Rp. 1,608,889), indicating more intensive family involvement in oil palm farming. Land rental costs are similar for both crops, with rubber land averaging Rp. 2,882,222 per hectare and oil palm land costing Rp. 2,770,000 per hectare. The slight difference may reflect land suitability for each crop (Daulay et al., 2016).

Revenue Analysis

Analysis of farm income is the multiplication of production obtained by the selling price. The amount of revenue depends on the amount of production and the price at which the production is sold.

Table 9. Average Revenue Of Rubber And Oil Palm Farms Aged 8-9 Years Old per Hectare In Kenaman Village in 2023

No.	Description	Rubber Farming	Oil Palm Farming
1.	Production	5357kg	65.664kg
2.	Price	Rp.9.000	Rp.2.329
3.	Revenue	Rp.48.216.000	Rp. 152.997.840

Source: Primary Data Analysis, 2024

Table 9 shows a significant difference in production between rubber and oil palm farming in Kenaman Village. Rubber farmers produce an average of 5,357 kg per hectare, while oil palm farmers produce 65,664 kg per hectare. Despite rubber being sold at a higher price of Rp 9,000 per kg, oil palm's higher yield per hectare results in much greater overall production. Oil palm also benefits from a continuous production cycle, unlike rubber, which is harvested in cycles throughout its lifespan.

The average revenue from rubber farming is Rp 48,216,000, while oil palm farming generates Rp 152,997,840 on average. This highlights the financial advantage of oil palm farming, as its higher yield compensates for the lower price per kilogram. The findings emphasize how production levels and crop prices directly impact farm revenue and profitability, with oil palm being the more lucrative option for farmers in Kenaman Village (Satra Nugraha, 2019).

Income Analysis

Farmers' income is a key indicator of welfare, with higher income reflecting

better living standards through high production and favorable prices (Baroroh et al., 2023; Cholis et al., 2023). In Kenaman Village, rubber farmers' income has declined due to traditional farming practices and lower selling prices, which range from Rp 5,000-Rp 8,000 per kg, compared to Rp 10,000-Rp 15,000 previously (Nojin et al., 2024). Similarly, oil palm income has dropped due to lower Fresh Fruit Bunch (TBS) prices, from Rp 2,196-Rp 2,941 in 2022 to Rp 1,809-Rp 2,175 in 2023, influenced by falling global oil prices (Sari et al., 2023).

Table 10. Average income of 8-9 year old per Hectare rubber and oil palm farmers in Kenaman Village in 2023.

No.	Description	Rubber Farming (Rp)	Oil Palm Farming (Rp)
1.	Revenue	Rp.48.216.000	Rp.152.997.840
	A. Explicit Cost		
	Cost of Fertilizer	Rp.1.649.724	Rp.5.517.216
	Cost of Pesticades	Rp.417.111	Rp.1.236.660
	Tool Depreciation	Rp.100.133	Rp.347.220
	TKLK	-	Rp.16.762.000
	B. Implicit Cost		
	TKDK	Rp.1.608.889	Rp.10.443.000
	Land Rental Cost	Rp.2.822.222	Rp.2.770.000
2.	Total Cost of Production	Rp.6.598.080	Rp.37.076.096
3.	**Income**	**Rp.41.617.920**	**Rp.115.921.744**

Source: Primary Data Analysis, 2024

Table 10 reveals that oil palm farming generates significantly higher income (Rp 115,921,744) compared to rubber farming (Rp 41,617,920) in Kenaman Village. This income disparity is mainly due to the differences in production scale and yield, with oil palm farms yielding much higher per hectare. Although rubber has a higher price per kilogram, the larger yield of oil palm compensates for the lower price, resulting in greater overall income, even with similar land areas for both crops.

This aligns with research by Krishna et al., (2017) which highlights how oil palm's higher output offsets its lower price per unit, making it more profitable in terms of income generation. Marhamah (2023) also emphasizes that land use efficiency and production cycles significantly impact the profitability of oil palm farming, explaining its higher returns despite potentially higher production costs. These findings underscore the importance of considering both costs and production

rates when evaluating farming profitability. While rubber farming has a higher price per kilogram, oil palm's significantly larger yield per hectare makes it the more profitable option in Kenaman Village, where crop profitability is heavily influenced by yield quantity.

Analysis of the Average Income Difference Between Rubber and Oil Palm Farming at the Age of 8-9 Years in Kenaman Village

To determine the difference in average income between rubber and oil palm farming in Kenaman Village, an independent samples t-test (t-test) was conducted. Prior to this, the variance homogeneity was tested using Levene's Test. Criteria: P value (Sig.) > 0.05 (homogeneous data), P value < 0.05 (non-homogeneous data). If homogeneous, refer to the results under Equal Variance Assumed; if not, refer to Equal Variance Not Assumed. The results are shown in Table 11 below.

Table 11. Analysis of the Average Income Difference Between Rubber and Oil Palm Farming at the Age of 8-9 Years Old per Hectare in 2023.

Description	Rubber Farming	Oil Palm Farming
Total of Sample	45	50
Average of Income (Rp/Thn)	41.617.920	115.921.744
Sig. (2-tailed)		0,000
t-count		-14.377
Lavene's test (Sig.)		0,063

Source : Primary Data Analysis, 2024

The analysis shows that the income data for rubber and oil palm farming in Kenaman Village are homogeneous, with a Levene's test value of 0.063, indicating similar variances between the two groups (Siregar & Handayani, 2023). The t-test reveals a significant income difference between rubber and oil palm farming, with a Sig. (2-tailed) value of 0.000, confirming that the average incomes differ significantly (Harahap, 2023). The t-value of -14.377 further demonstrates a large difference, indicating that oil palm farmers have higher incomes (Afriyadi et al., 2022). Therefore, oil palm farming generates higher income, highlighting the need to improve rubber farming management and implement policies that support the rubber sector to remain competitive with oil palm (Pohan et al., 2022; Saputra & Nurchaini, 2020b; Saputri et al., 2023).

CONCLUSION

The research results show a significant difference in income between rubber and independent oil palm farming in Kenaman Village, Sekayam District, Sanggau Regency. Hypothesis H1 is accepted (H0 is rejected).

To improve rubber farming, the government can implement policies aimed at increasing productivity through extension services and the adoption of efficient agricultural technologies. Ensuring better market access and stabilizing rubber commodity prices are also crucial for enhancing farmers' profitability. Additionally, promoting diversification within rubber farming can help reduce farmers' dependence on fluctuating rubber prices, providing them with more financial stability.

REFERENCE

Afriyadi, E., Tampubolon, D., & Sari, L. (2022). Dampak Alih Fungsi Lahan Terhadap Tingkat Pendapatan Masyarakat Di Kecamatan Sentajo Raya Kabupaten Kuantan Singingi. *EQUTY: Jurnal Ekonomi*, *10*(1), 24–35. https://doi.org/https://doi.org/10.33019/equity.v10i1.77

Balde, B. S., Diawara, M., Rossignoli, C. M., & Gasparatos, A. (2019). Smallholder-based oil palm and rubber production in the forest region of guinea: An exploratory analysis of household food security outcomes. *Agriculture (Switzerland)*, *9*(2). https://doi.org/10.3390/agriculture9020041

Baroroh, Y., Muzdalifah, & Husaini, M. (2023). Analisis Pendapatan dan Kesejahteraan Petani Karet di Desa Kolam Makmur Kecamatan Wanaraya Kabupaten Barito Kuala. *Frontier Agribisnis*, *7*(3), 421–426. https://doi.org/https://doi.org/10.20527/frontbiz.v7i3.10305

BPS Kabupaten Sanggau. (2023). *Kabupaten Sanggau Dalam Angka 2023*. https://doi.org/https://sanggaukab.bps.go.id/publication/2023/02/28/493862a4fca0c1b5a48c5ea0/kabupaten-sanggau-dalam-angka-2023.html

Cholis, N., Aziz, Y., & Ikhsan, S. (2023). Analisis Pendapatan Dan Kesejahteraan Petani Karet Di Desa Wonorejo, Kecamatan Kusan Hulu, Kabupaten Tanah Bumbu, Provinsi Kalimantan Selatan. *Frontier Agribisnis*, *7*, 46–53. https://doi.org/https://doi.org/10.20527/frontbiz.v7i3.10305

Daulay, A. R., Eka Intan, K. P., Barus, B., & Pramudya, N. B. (2016). Rice Land Conversion into Plantation Crop and Challenges on Sustainable Land Use System in the East Tanjung Jabung Regency. *Procedia - Social and Behavioral Sciences*, *227*. https://doi.org/10.1016/j.sbspro.2016.06.059

Harahap, W. T. H. (2023). *Analisis Komparatif Pendapatan Usahatani Pinang Dan Kelapa Dalam Di Kecamatan Betara Kabupaten Tanjung Jabung Barat* [UNIVERSITAS JAMBI]. https://repository.unja.ac.id/50348/

Kasim. (2004). *Petunjuk Menghitung Keuntungan dan Pendapatan Usahatani*. Universitas Lambung Mangkurat.

Khaengmak, K., & Priebprom, S. (2016). *A Financial Comparative Analysis between Para rubber Farming and Oil Palm Farming in Tambon Tha Uthae, Amphoe Kanchanadit, Changwat Surat Thani* [Kasetsart University]. https://ideas.repec.org/p/kau/wpaper/201602.html

Krishna, V., Euler, M., Siregar, H., & Qaim, M. (2017). Differential livelihood impacts of oil palm expansion in Indonesia. *Agricultural Economics (United Kingdom)*, *48*(5). https://doi.org/10.1111/agec.12363

Kurniawan, A., & Handayani, L. (2023). Analisis Komparasi Tingkat Pendapatan Usahatani Karet Rakyat Dengan Usahatani Kelapa Sawit Rakyat Di Kecamatan Padang Bolak Julu Kabupaten Padang Lawas Utara. *JURNAL AGRO NUSANTARA*, *3*(1). https://doi.org/10.32696/jan.v3i1.1996

Marhamah, M. (2023). ANALYSIS OF THE POTENTIAL OF RUBBER FARMING AND PALM OIL FARMING IN REGIONAL ORIGINAL INCOME IN WEST KALIMANTAN 2019-2021 PERIOD. *Journal of Agriculture*, *2*(02), 165–182. https://doi.org/10.47709/joa.v2i02.2798

Natalia, S., Salmiah, & Kesuma, S. I. (2013). Analisis Komparasi Tingkat Pendapatan Usaha Tani Karet Rakyat dengan Usaha Tani Kelapa Sawit Rakyat di Desa Buntu Bayu Kecamatan Hatonduhan Kabupaten Simalungun. *Journal of Agriculture and Agribusiness Socioeconomics*, *2*(10). https://www.neliti.com/publications/15136/analisis-komparasi-tingkat-pendapatan-usaha-tani-karet-rakyat-dengan-usaha-tani#cite

Nojin, V., Suyatno, A., & Dewi, K. (2024). Sustainability of People's Rubber Plantations in Sekadau Hulu District, Sekadau Regency. *Jurnal Dinamika Sosial Ekonomi*, *25*(2), 150–161. http://jurnal.upnyk.ac.id/index.php/jdse/article/view/12079/6724

Pohan, N., Supristiwendi, S., & Mahyuddin, T. (2022). Analisis Komparasi Pendapatan Usahatani Karet Menjadi Kelapa Sawit Di Kecamatan Dolok Sigompulon. *Jurnal Penelitian Agrisamudra*, *9*(1). https://ejurnalunsam.id/index.php/jagris/article/view/6065

Pratama, A., Syahni, R., & Mahdi, M. (2020). Analisis Efisiensi Teknis Karet Perkebunan Rakyat Kabupaten Banyuasin Provinsi Sumatera Selatan. *Jurnal Social Economic of Agriculture*, *9*(2). https://doi.org/10.26418/j.sea.v9i2.42884

Prayogi, A., Adiwirman, & Khoiri, M. A. (2016). Studi Mutu Buah Kelapa Sawit (Elaeis guineensis Jacq.) pada berbagai Umur Tanaman di Lahan Gambut. *Jurnal Online Mahasiswa*, *3*(1), 1–10. https://doi.org/https://jim.usk.ac.id/JFP/article/view/13739/6268

Putri, A. R., Maryadi, & Bidarti, A. (2021). Impact Of Rubber Price Fluctuation On Income And Welfare Level Of Rubber Farmers In Panca Tunggal Village Sungai Lilin District, Musi Banyuasin Regency. *Jurnal Dinamika Sosial Ekonomi*, *22*(2), 164–178. http://jurnal.upnyk.ac.id/index.php/jdse/article/view/6386/4175

Saputra, A., & Nurchaini, D. S. (2020a). ANALISIS KOMPARASI PENDAPATAN USAHATANI PETANI KONVERSI KARET KE KELAPA SAWIT DI KECAMATAN BAJUBANG KABUPATEN BATANGHARI. *Journal Of Agribusiness and Local Wisdom (JALOWJournal Of Agribusiness and Local Wisdom (JALOW)*, *3*(2), 14–20. https://doi.org/https://doi.org/10.22437/jalow.v3i2.11615

Saputra, A., & Nurchaini, D. S. (2020b). Analisis Komparasi Pendapatan Usahatani Petani Konversi Karet Ke Kelapa Sawit Di Kecamatan Bajubang Kabupaten Batanghari. *Journal Of Agribusiness and Local Wisdom (JALOW)*, *3*(2), 14–20. https://doi.org/https://doi.org/10.22437/jalow.v3i2.11615

Saputri, A. W., Ekwarso, H., & Budiartiningsih, R. (2023). Analisis Pemanfaatan Limbah Sabut Kelapa untuk Peningkatan Pendapatan Petani Kelapa di Kabupaten Indragiri Hilir. *Jurnal Ekonomica*, *11*(1). https://doi.org/https://doi.org/10.46750/economica.v11i1.97

Sari, D. Y., Harmain, H., & Atika. (2023). Humantech Jurnal Ilmiah Multi Disiplin Indonesia Pengaruh Harga Pupuk, Modal, Harga Jual, Luas Lahan, Jumlah Tenaga Kerja Terhadap Pendapatan Petani Kelapa Sawit Dalam Perspektif Islam. *Humantech : Jurnal Ilmiah Multidisplin Indonesia* , *2*(6). https://journal.ikopin.ac.id/index.php/humantech/article/view/3237

Satra Nugraha, I. (2019). FACTORS AFFECTING REVENUE LEVEL OF RUBBER FARMERS (Case Study at Musi Banyuasin, South Sumatra, Indonesia). *Agricultural Social Economic Journal*, *19*(3). https://doi.org/10.21776/ub.agrise.2019.019.3.6

Syamsafitri, S., Gunawan, I., Rambe, R. D. H., Dalimunthe, M., & Nurhayati, N. (2023). Conversion of Rubber Land Into Palm Oil and Its Effect on Production in North Sumatra. *Jurnal Penelitian Pendidikan IPA*, *9*(3). https://doi.org/10.29303/jppipa.v9i3.3349

Wijaya, A., Maharani, E., & Arifudin, A. (2023). Factors Affecting the Conversion of Rubber Land to Oil Palm in Benteng Hulu Village Mempura District Siak Regency. *Jurnal Ilmiah Sosio-Ekonomika Bisnis*, *26*(01). https://doi.org/10.22437/jiseb.v26i01.22979