

PHENOMENOLOGY OF THE TRANSFER COMMODITIES: UNCOVERING ECONOMIC PERFORMANCE OF COCOA AND OIL PALM FARMING

Alman¹, Taruna S. Arzam², Hamja Abdul Halik³, Naima Haruna⁴

¹Master of Agricultural Sciences, Andi Djemma University

*alman.tamrin84@gmail.com

ABSTRAK

Alih komoditas dari kakao ke kelapa sawit merupakan fenomena yang semakin berkembang di Kabupaten Luwu Utara sebagai respons terhadap perubahan kondisi ekonomi, produktivitas, dan prospek pasar. Penelitian ini bertujuan menganalisis perbandingan kinerja ekonomi usahatani kakao dan kelapa sawit sebagai dasar memahami faktor yang mendorong petani melakukan alih komoditas. Penelitian menggunakan pendekatan kuantitatif dengan desain deskriptif-komparatif. Data dikumpulkan melalui wawancara dan kuesioner terhadap 51 responden yang terdiri atas 25 petani kakao dan 26 petani kelapa sawit. Analisis dilakukan menggunakan indikator pendapatan, R/C Ratio, dan B/C Ratio. Hasil penelitian menunjukkan bahwa kedua komoditas layak diusahakan karena memiliki nilai R/C Ratio dan B/C Ratio lebih besar dari satu. Namun, kelapa sawit memberikan kinerja ekonomi yang lebih tinggi dibandingkan kakao. Rata-rata pendapatan usahatani kelapa sawit mencapai Rp.115.452.092 per tahun, sedangkan kakao sebesar Rp.61.066.474 per tahun. Selain itu, kelapa sawit memiliki produktivitas lebih tinggi, biaya produksi lebih rendah, serta tingkat efisiensi usaha yang lebih baik dibandingkan kakao. Temuan ini menunjukkan bahwa pertimbangan ekonomi menjadi faktor utama yang mendorong petani beralih dari kakao ke kelapa sawit. Meskipun demikian, peningkatan produktivitas kakao melalui rehabilitasi tanaman, penerapan teknologi budidaya, pengendalian hama dan penyakit, serta penguatan penyuluhan masih berpotensi meningkatkan daya saing kakao sehingga keberlanjutan komoditas unggulan daerah tetap dapat dipertahankan.

Kata kunci: : alih komoditas, kakao, kelapa sawit, pendapatan usahatani, produktivitas.

ABSTRACT

The conversion of commodities from cocoa to palm oil is a growing phenomenon in North Luwu Regency in response to changing economic conditions, productivity, and market prospects. This study aims to analyze the comparison of the economic performance of cocoa and oil palm farming as a basis for understanding the factors that encourage farmers to switch commodities. The research uses a quantitative approach with a descriptive-comparative design. Data was collected through interviews and questionnaires of 51 respondents consisting of 25 cocoa farmers and 26 oil palm farmers. The analysis was carried out using revenue indicators, R/C Ratio, and B/C Ratio. The results of the study show that both commodities are worth working on because they have an R/C Ratio and B/C Ratio values greater than one. However, palm oil provides a higher economic performance than cocoa. The average income of oil palm farming reaches IDR 115,452,092 per year, while cocoa is IDR 61,066,474 per year. In addition, palm oil has higher productivity, lower production costs, and a better level of business efficiency than cocoa. These findings suggest that economic considerations are the main factor driving farmers to switch from cocoa to palm oil. However, increasing cocoa

productivity through crop rehabilitation, application of cultivation technology, pest and disease control, and strengthening counseling still has the potential to increase cocoa competitiveness so that the sustainability of the region's leading commodities can still be maintained.

Keywords: *commodity transfer, cocoa, palm oil, farm income, productivity.*

INTRODUCTION

Oil palm expansion has the potential to threaten biodiversity, accelerate deforestation, and alter ecosystem functions, including water cycles and soil quality, when plantation development is not implemented under sustainable land management practices (Erwiningsih, 2023; Ostfeld & Reiner, 2024). At the same time, oil palm expansion generates substantial socioeconomic benefits through employment and income growth, but it may also widen inequalities among farmers and increase regional dependence on a single export commodity, making local economies more vulnerable to fluctuations in global markets (Hasudungan et al., 2024; Sibhatu, 2023).

There is a persistent policy trade-off between national strategies promoting oil palm expansion to support economic growth and export earnings, and local government commitments to protecting sustainable agricultural land, environmental quality, and food security. Although Indonesia has established legal instruments such as Law No. 41 of 2009 on Sustainable Food Agricultural Land Protection (PLP2B) and regional spatial planning (RTRW), their implementation remains uneven across regions, allowing continued land conversion driven by market incentives and investment pressure (Chairunnisya & Jamil, 2024; Gafuraningtyas et al., 2024).

Changes in farmers' commodity choices cannot be separated from the dynamics of global agricultural commodity markets (Zhang et al., 2025). Cocoa and palm oil prices are strongly influenced by international demand, trade policies, supply chain conditions, and downstream industrial development. Palm oil remains one of the world's most strategic agricultural commodities because it is extensively used in the food, cosmetics, oleochemical, and biofuel industries, resulting in relatively stable and growing global demand despite increasing sustainability regulations (Alhaji et al., 2024).



Environmental sustainability is a critical dimension in analyzing plantation commodity conversion. The transition from cocoa to oil palm can alter agricultural landscape structure, biodiversity, carbon storage, soil functions, and other ecosystem services. Cocoa is commonly cultivated under agroforestry systems that integrate shade trees and support higher biodiversity and ecosystem resilience, whereas oil palm is predominantly established as monoculture plantations with lower structural diversity unless sustainable management or agroforestry approaches are adopted (Kaba et al., 2024; Ostfeld & Reiner, 2024).

These changes may lead to biodiversity loss, increased greenhouse gas emissions, and alterations in hydrological and biogeochemical processes when plantation expansion is not managed sustainably (Dhandapani et al., 2024). However, recent studies emphasize that the ecological impacts of oil palm cultivation largely depend on landscape context, land-use history, governance, and the implementation of sustainable management practices. Therefore, commodity conversion is not inherently synonymous with environmental degradation but rather is determined by the quality of environmental governance and adherence to sustainability principles (Dalheimer et al., 2024).

This research is important because changes in farmers' choices for commodities are not just agronomic decisions, but reflect economic, social, and environmental dynamics at the local level. The shift of commodities from cocoa to oil palm is influenced by differences in productivity, price stability, business risks, and policy and market support, which directly impact farmers' incomes and the economic structure of the region. Without data-driven comparative studies, this phenomenon has the potential to cause welfare inequality, environmental degradation, and loss of sustainability of local agricultural systems. Therefore, this research is an important scientific basis for formulating a balanced, sustainable, and contextual plantation development policy with the characteristics of the North Luwu region.

MATERIALS AND METHODS

This study employed a quantitative approach using a descriptive-comparative research design. The quantitative approach was applied to objectively measure and compare the economic performance of cocoa and oil palm farming based on measurable indicators, whereas the descriptive approach was used to describe farmers' characteristics and the factors



influencing commodity conversion decisions (Creswell & Creswell, 2022). The comparative approach was chosen because this study aims to compare the income and performance of farming between two different commodities, namely cocoa and oil palm, as a basis for assessing the rationality of commodity transfer decisions made by farmers.

This research was carried out in North Luwu Regency, South Sulawesi Province, which was chosen purposively (deliberately) considering that this area is one of the centers for cocoa and palm oil development, and has experienced a significant commodity transfer phenomenon in recent years. The research period is for 2 (two) months, namely in March – April 2026. The number of samples was determined proportionally and adjusted to field conditions, assuming the number of respondents was 25 people, which was considered quite representative for a comparative analysis of farming.

Data analysis is carried out to calculate the economic performance of each commodity with the formula (Happyana, 2017):

- Revenue (π)

$$\pi = TR - TC$$

where:

π = income

TR = total receipts

TC = total cost

- R/C Ratio

$$R/C = \frac{TR}{TC}$$

If the $R/C > 1$, then farming is declared economically viable.

- B/C Ratio (Benefit Cost Ratio)

$$B/C = \frac{TR - TC}{TC}$$

Description:

B (Benefit) = net profit (TR – TC)

C (Cost) = total cost (TC)

B/C Ratio shows how much net profit is relative to costs incurred.



RESULTS AND DISCUSSION

Results

Analysis of Cocoa and Oil Palm Farming Business

The analysis of farming aims to measure the level of profit obtained by farmers from the management of cocoa and palm oil commodities. Based on the results of data processing from 25 cocoa farmers and 26 oil palm farmers in North Luwu Regency, a comparative picture of the business performance of the two commodities was obtained as follows.

Analysis of Cocoa Farming Business

Table 1. Analysis of Cocoa Farming Business

No	Name	TR (Rp)	TC (Rp)	π (Rp)	R/C Ratio	B/C Ratio	Remarks
1	Masse	108.000.000	2.100.000	105.900.000	51,43	50,43	Highly Worth It
2	Rita	36.000.000	1.725.000	34.275.000	20,87	19,87	Highly Worth It
3	Pratiwi	57.000.000	2.440.000	54.560.000	23,36	22,36	Highly Worth It
4	Onna	66.000.000	17.600.000	48.400.000	3,75	2,75	Highly Worth It
5	Lucky	21.000.000	1.340.000	19.660.000	15,67	14,67	Highly Worth It
6	Baba	45.000.000	12.100.000	32.900.000	3,72	2,72	Highly Worth It
7	Hasanuddin	33.000.000	14.861.894	18.138.106	2,22	1,22	Highly Worth It
8	St. Mariama	72.000.000	19.077.872	52.922.128	3,77	2,77	Highly Worth It



9	Rahma wati	72.000.000	5.275.543	66.724.457	13,65	12,65	Highly Worth It
10	Yusran	103.680.000	16.698.107	86.981.893	6,21	5,21	Highly Worth It
11	Samsul	150.000.000	18.309.682	131.690.318	8,19	7,19	Highly Worth It
12	Jumardi	36.000.000	1.725.000	34.275.000	20,87	19,87	Highly Worth It
13	Firman	102.000.000	5.893.310	96.106.690	17,31	16,31	Highly Worth It
14	Sukma wati	90.000.000	9.234.925	80.765.075	9,75	8,75	Highly Worth It
15	Kamalu ddin	27.600.000	7.839.002	19.760.998	3,52	2,52	Highly Worth It
16	H. Kama	360.000.000	62.000.000	298.000.000	5,81	4,81	Highly Worth It
17	Ambo Tuo	57.000.000	19.097.640	37.902.360	2,98	1,98	Highly Worth It
18	Rosdian a	53.160.000	10.866.330	42.293.670	4,89	3,89	Highly Worth It
19	Johan	48.000.000	14.035.517	33.964.483	3,42	2,42	Worthy
20	Mursali m	18.000.000	16.255.458	1.744.542	1,11	0,11	Decent (thin)
21	H. Lafi	54.000.000	9.490.744	44.509.256	5,69	4,69	Highly Worth It
22	H. Mantari	45.000.000	17.905.202	27.094.798	2,51	1,51	Worthy



23	Anto	39.000.000	8.854.812	30.145.188	4,40	3,40	Highly Worth It
24	Silling	45.000.000	17.719.029	27.280.971	2,54	1,54	Worthy
25	Meki	15.000.000	12.098.155	2.901.845	1,24	0,24	Decent (thin)
<i>Average</i>		<i>74.028.000</i>	<i>12.961.526</i>	<i>61.066.474</i>	<i>10,65</i>	<i>9,65</i>	<i>Highly Worth It</i>

The results of the analysis in Table 1 show that the average land area cultivated by cocoa farmers is 1.6 hectares with an average productivity level of 753 kg per hectare. The average production per farmer reaches 1,129 kg with an average gross income of Rp. 108,000,000 per year. However, after deducting the total average production cost of Rp. 12,961,526, the average net income obtained by cocoa farmers is Rp. 52,708,532 per year.

A considerable variation in income can be seen from the data where the highest income was obtained by H. Kama of Rp. 298,000,000 with a land area of 8.5 hectares and a productivity of 706 kg/ha, while the lowest income was only Rp. 1,744,542 for Mursalim with a land area of 1.6 hectares and very low productivity (188 kg/ha). This condition indicates that productivity is a key factor that differentiates the level of welfare among cocoa farmers, where pest and disease attacks and low maintenance can drastically reduce productivity.

The average perception score of cocoa farmers is 31.4 out of a maximum scale of 45. This score reflects the level of satisfaction and confidence of farmers in cocoa commodities, where farmers with high perception scores (Lucky, Sukmawati, Kamaluddin, H. Kama with a score of 38-42) actually have varied incomes, indicating that non-financial factors also affect farmers' assessment of their farming.

The findings indicate that productivity is the primary determinant of farmers' income and welfare. Smallholder cocoa farms with higher productivity generally generate higher household incomes, whereas pest and disease incidence, ageing trees, and inadequate crop management substantially reduce yields and profitability (Hancock et al., 2022). Furthermore, farmers' perceptions of cocoa farming are shaped not only by financial returns but also by



production risks, extension services, farming experience, and long-term sustainability considerations (Harahap & Yeniwati, 2023; Izzatin et al., 2023). These findings are consistent with the (ICCO, 2023; Risnayanti & Achmad, 2024), which highlights productivity improvement as the key strategy for enhancing cocoa farmers' livelihoods.

Analysis of Oil Palm Farming Business

Table 2. Analysis of Oil Palm Farming Business

No	Name	TR (Rp)	TC (Rp)	π (Rp)	R/C Ratio	B/C Ratio	Remarks
1	Amran	144.000.000	8.100.000	135.900.000	17,78	16,78	Highly Worth It
2	Hermawati	118.800.000	3.960.000	114.840.000	30,00	29,00	Highly Worth It
3	Onna	55.000.000	3.960.000	51.040.000	13,89	12,89	Highly Worth It
4	Gunawan	21.600.000	1.574.400	20.025.600	13,72	12,72	Highly Worth It
5	Andi Baso	180.000.000	8.100.000	171.900.000	22,22	21,22	Highly Worth It
6	Firman	165.440.000	11.041.200	154.398.800	14,98	13,98	Highly Worth It
7	Ismail	177.100.000	8.370.000	168.730.000	21,16	20,16	Highly Worth It
8	Yohanis Allo	135.000.000	9.031.500	125.968.500	14,95	13,95	Highly Worth It
9	Samsuddin	85.500.000	6.480.000	79.020.000	13,19	12,19	Highly Worth It
10	H. Asse	118.800.000	3.960.000	114.840.000	30,00	29,00	Highly Worth It



11	Komang	126.000.000	4.320.000	121.680.000	29,17	28,17	Highly Worth It
12	Sumianti	58.245.000	3.240.000	55.005.000	17,98	16,98	Highly Worth It
13	Subhan	176.000.000	10.370.000	165.630.000	16,97	15,97	Highly Worth It
14	Arwin	129.950.000	4.590.000	125.360.000	28,31	27,31	Highly Worth It
15	H. Ambo Upe	77.000.000	2.178.000	74.822.000	35,35	34,35	Highly Worth It
16	Abdul Rahman	118.800.000	3.960.000	114.840.000	30,00	29,00	Highly Worth It
17	Basri	129.720.000	3.438.000	126.282.000	37,73	36,73	Highly Worth It
18	Muhammad Ridwan	156.000.000	10.035.000	145.965.000	15,55	14,55	Highly Worth It
19	H. Ansar	121.000.000	3.960.000	117.040.000	30,56	29,56	Highly Worth It
20	Rustan	32.400.000	1.574.400	30.825.600	20,58	19,58	Highly Worth It
21	Kamaruddin	99.000.000	6.336.000	92.664.000	15,63	14,63	Highly Worth It
22	La Upe	143.000.000	4.860.000	138.140.000	29,42	28,42	Highly Worth It
23	Burhan	88.800.000	2.760.000	86.040.000	32,17	31,17	Highly Worth It
24	H. Hasan	187.000.000	9.027.000	177.973.000	20,72	19,72	Highly Worth It



25	Markus Limbong	27.000.000	3.600.000	23.400.000	7,50	6,50	Highly Worth It
26	Hasnawati	50.600.000	1.980.000	48.620.000	25,56	24,56	Highly Worth It
Average		121.409.231	5.957.138	115.452.092	22,05	21,05	Highly Worth It

Table 2 shows that for oil palm commodities, the average land area cultivated by farmers is 2.3 hectares with an average productivity of 23,186 kg per hectare—more than 30 times the productivity of cocoa per unit area. The average production per farmer reaches 53,318 kg with an average gross income of Rp. 121,409,231 per year. The total average production cost incurred by oil palm farmers is Rp. 5,957,138, so that the average net income obtained reaches Rp. 102,486,638 per year.

The highest income was achieved by H. Hasan with Rp. 177,973,000 from 2.7 hectares of land and productivity of 31,481 kg/ha, while the lowest income was achieved by Markus Limbong with Rp. 23,400,000 from 3 hectares of land but very low productivity (5,000 kg/ha). The average perception score of oil palm farmers was 34.5, higher than cocoa, indicating a greater level of satisfaction with palm oil commodities.

The higher productivity and income observed among oil palm farmers indicate that productivity is a major determinant of farm profitability and household welfare. Previous studies have shown that oil palm cultivation generally generates higher and more stable incomes than many alternative crops due to its high yield potential and relatively efficient production system (Hasudungan et al., 2024; Tabe-Ojong et al., 2023). Nevertheless, substantial variation in farmers' incomes remains, largely reflecting differences in plantation age, planting materials, fertilizer application, and farm management practices (Petri et al., 2024). The higher perception scores among oil palm farmers also suggest that farmers' satisfaction is influenced by income stability, market opportunities, and long-term economic expectations associated with oil palm cultivation (Sibhatu, 2023; Sibhatu et al., 2022).

Comparison of Farm Income



Table 3. Average Comparison

Variabel	Cocoa (Rp.)	Palm Oil (Rp.)	Differences (Rp.)	Remarks
Total Revenue (TR)	74.028.000	121.409.231	47.381.231	Higher palm 64%
Total Cost (TC)	12.961.526	5.957.138	7.004.388	Cocoa higher 118%
Revenue (π)	61.066.474	115.452.092	54.385.618	Higher palm 89%
R/C Ratio	10,65	22,05	11,40	Higher palm 107%
B/C Ratio	9,65	21,05	11,40	Higher palm 118%

Table 3 shows that the comparison between the two commodities shows a very significant difference. The average net income of oil palm farmers (Rp. 102,486,638) is almost twice as high as that of cocoa farmers (Rp. 52,708,532). This difference is even sharper when viewed from the productivity per hectare, where palm oil reaches 23,186 kg/ha compared to cocoa which is only 753 kg/ha.

This finding is in line with the results of Muhammad Akbar Anwar's (2025) research which concluded that the conversion of land from cocoa to oil palm has a positive impact on farmers' income because the cost of oil palm production is relatively lower and the harvest is more profitable, with an average income level per year of Rp. 35,836,397 per farmer. A similar study in Tanjung Aru Village also found that farmers' income after switching to palm oil increased compared to before the transfer of functions.

However, it should be noted that these findings are different from the results of a study in North Kluet District, South Aceh, which shows that there is no significant difference between the income of cocoa farming (Rp. 14,720,325/ha/year) and oil palm (Rp.



11,295,134/ha/year). These differences can be explained by differences in regional characteristics, plant age, and technology adoption rates between regions.

The substantially higher income and productivity of oil palm farming observed in this study are consistent with recent evidence showing that oil palm cultivation generally provides greater economic returns than many traditional perennial crops because of its higher yield potential and relatively lower production costs (Hasudungan et al., 2024; Tabe-Ojong et al., 2023). Nevertheless, considerable income variation among farmers remains, reflecting differences in plantation age, farm management, input use, and technology adoption (Petri et al., 2024). Conversely, cocoa productivity is highly influenced by pest and disease incidence, ageing trees, and management intensity, which explains the lower productivity and income observed among cocoa farmers (Kongor et al., 2024). Differences between the findings of this study and those reported in other regions may also be attributed to variations in agroecological conditions, plantation age, production technology, and farmers' access to extension services and markets (FAO, 2024).

Managerial Implications

The results of this study imply that local governments need to formulate plantation development policies that are more balanced between improving the welfare of farmers and the sustainability of the cocoa sector. These efforts can be carried out through cocoa plant rehabilitation programs, the provision of superior seeds, integrated pest and disease control, increasing the capacity of farmers through continuous counseling, and strengthening access to cultivation and post-harvest technology so that cocoa productivity increases again and is able to compete with palm oil.

For farmers, the decision to transfer commodities should not only be based on short-term economic benefits, but also consider aspects of business sustainability, risk of price fluctuations, economic life of crops, agroecological conditions of the land, and opportunities for future market development. Thus, the investment decisions taken will be more rational and oriented towards the sustainability of farmers' household incomes.

For local governments, the results of this research can also be the basis for the formulation of plantation governance policies that control the conversion of commodity functions proportionately so that the expansion of oil palm continues to provide economic



benefits without reducing the sustainability of cocoa commodities as one of the leading commodities of North Luwu Regency. These policies need to be supported through incentives to increase cocoa productivity, strengthen farmer institutions, ease of access to financing, and develop cocoa-based downstream industries to increase competitiveness and added value of regional products.

KESIMPULAN

This study shows that cocoa and oil palm farming in North Luwu Regency are both feasible to be cultivated because both have an R/C Ratio and a B/C Ratio value greater than one. However, palm oil commodities provide higher economic performance than cocoa. The average income, net income, productivity, and efficiency of oil palm farming are higher, while the production costs incurred are relatively lower than cocoa farming. This condition causes some farmers to view oil palm as a more economically profitable commodity, so it is one of the driving factors for the conversion of commodities from cocoa to oil palm in North Luwu Regency.

However, the results of the study also show that cocoa farming still has prospects to be maintained if its productivity and efficiency can be increased. The low productivity of cocoa is more influenced by pest and disease attacks, limited plant maintenance, and low application of cultivation and post-harvest technology. Therefore, farmers' decisions to switch commodities are not only influenced by income differences, but also influenced by productivity levels, business risks, and ease of commodity management.

DAFTAR PUSTAKA

- Alhaji, A. M., Almeida, E. S., Carneiro, C. R., da Silva, C. A. S., Monteiro, S., & Coimbra, J. S. dos R. (2024). Palm Oil (*Elaeis guineensis*): A Journey through Sustainability, Processing, and Utilization. *Foods* 2024, Vol. 13, Page 2814, 13(17), 2814. <https://doi.org/10.3390/FOODS13172814>
- Chairunnisya, R. A., & Jamil, A. (2024). Developing food security with sustainable agricultural land policies: A systematic review. *E3S Web of Conferences*, 479, 07022. <https://doi.org/10.1051/E3SCONF/202447907022>



- Creswell, J. W., & Creswell, J. D. (2022). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches 6th edition - John W. Creswell, J. David Creswell - SAGE. In *SAGE Publications, Inc.*
- Dalheimer, B., Parikoglou, I., Brambach, F., Yanita, M., Kreft, H., & Brümmer, B. (2024). On the palm oil-biodiversity trade-off: Environmental performance of smallholder producers. *Journal of Environmental Economics and Management*, 125, 102975. <https://doi.org/10.1016/J.JEEM.2024.102975>
- Dhandapani, S., Yule, C. M., & Drewer, J. (2024). Editorial: Biogeochemical and biodiversity impacts of oil palm land-use in Southeast Asia. *Frontiers in Forests and Global Change*, 7, 1441266. <https://doi.org/10.3389/FFGC.2024.1441266/TEXT>
- Erwiningsih, W. (2023). Analyzing Drivers and Mitigation of Deforestation for Oil Palm Expansion in Indonesia, 2000-2020. *International Journal of Sustainable Development and Planning*, 18(11), 3657–3664. <https://doi.org/10.18280/IJSDP.181132>
- FAO. (2024). *Impact evaluation of agricultural interventions – A technical guide*. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS . <https://doi.org/https://doi.org/10.4060/cd1828en>
- Gafuraningtyas, D., Setiadi, H., & Manessa, M. D. M. (2024). Analyzing Farmers' Engagement with Sustainable Agricultural Policies: Insights from Indonesia's LP2B Initiatives. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan (Journal of Natural Resources and Environmental Management)*, 14(2), 241–241. <https://doi.org/10.29244/JPSL.14.2.241>
- Hancock, A. D., Formation, A. F., Armstrong, N., Le, F., Faso, B., Le, F., On, F., Le, L. L. L. P. L., Kone, I., Ou, I., Laquelle, I., Quelle, T., Scheme, N. G., Pizer, W. A., Weintraub, S., Formation, A. F., On, F., Bolt, U., Les, F., ... Gh, E. (2022). Boosting Smallholder Farmers' Productivity To Feed Africa Against The Looming Food Crisis. *Journal of Economic Perspectives*, 2(1).
- Happyana, D. (2017). Analysis of Operating Profit Small Fattening Beef Cattle in Wonogiri District. In *Jurnal Ilmiah Peternakan Terpadu* (Vol. 5, Number 2).
- Harahap, A. M., & Yeniwati, Y. (2023). Faktor – Faktor Yang Mempengaruhi Ekspor Cocoa Powder Indonesia Ke China. *Jurnal Kajian Ekonomi Dan Pembangunan*, 5(1). <https://doi.org/10.24036/jkep.v5i1.14415>
- Hasudungan, A., Raeskyesa, D. G. S., & Fromm, I. (2024). Analysis of the foreign direct investment, oil palm expansion, and food security in Indonesia: Sumatra and Kalimantan case studies. *Discover Sustainability* 2024 5:1, 5(1), 287-. <https://doi.org/10.1007/S43621-024-00452-7>



- ICCO. (2023). INTERNATIONAL COCOA ORGANIZATION 1 MARKET REPORT 1 FEBRUARY 2023 COCOA MARKET REPORT. In *INTERNATIONAL COCOA ORGANIZATION*.
- Izzatin, N. R., Durroh, B., & Masahid, M. (2023). Analisis Daya Saing Ekspor Kakao Indonesia di Pasar Internasional. *Agro Bali: Agricultural Journal*, 6(2). <https://doi.org/10.37637/ab.v6i2.1266>
- Kaba, J. S., Agyei, E. K., Avilineni, M. K. C., Yamoah, F. A., Issahaku, I., Ntiamoah, P., Acquah, E., & Mas-Ud, M. (2024). Agroforestry as an old approach to a new challenge of combating climate change: a critical analysis of the cocoa sector. *Discover Agriculture 2024 2:1*, 2(1), 92-. <https://doi.org/10.1007/S44279-024-00120-4>
- Kongor, J. E., Owusu, M., & Oduro-Yeboah, C. (2024). Cocoa production in the 2020s: challenges and solutions. *CABI Agriculture and Bioscience 2024 5:1*, 5(1), 1–28. <https://doi.org/10.1186/S43170-024-00310-6>
- Ostfeld, R., & Reiner, D. M. (2024). Seeing the forest through the palms: developments in environmentally sustainable palm oil production and zero-deforestation efforts. *Frontiers in Sustainable Food Systems*, 8, 1398877. <https://doi.org/10.3389/FSUFS.2024.1398877/TEXT>
- Petri, H., Hendrawan, D., Bähr, T., Musshoff, O., Wollni, M., Asnawi, R., & Faust, H. (2024). Replanting challenges among Indonesian oil palm smallholders: a narrative review. In *Environment, Development and Sustainability* (Vol. 26, Number 8). <https://doi.org/10.1007/s10668-023-03527-z>
- Risnayanti, N. G., & Achmad. (2024). Strategi Ekspor Kakao Olahan Indonesia melalui International Cocoa Organization (ICCO) ke Uni Eropa. *Review of International Relations*, 6(2). <https://doi.org/10.24252/rir.v6i2.51054>
- Sibhatu, K. T. (2023). Oil palm boom: its socioeconomic use and abuse. *Frontiers in Sustainable Food Systems*, 7, 1083022. <https://doi.org/10.3389/FSUFS.2023.1083022/FULL>
- Sibhatu, K. T., Arslan, A., & Zucchini, E. (2022). The effect of agricultural programs on dietary diversity and food security: Insights from the smallholder productivity promotion program in Zambia. *Food Policy*, 113, 102268. <https://doi.org/10.1016/J.FOODPOL.2022.102268>
- Tabe-Ojong, M. P., Heckelei, T., Baylis, K., & Rasch, S. (2023). Cooperative membership and exposure to role models: Implications for income and asset aspirations. *Journal of*



Behavioral and Experimental Economics, 107, 102119.
<https://doi.org/10.1016/J.SOCEC.2023.102119>

Zhang, S., Chen, Z., Chen, Y., & Yang, S. (2025). The Structure and Influencing Mechanisms of the Global Palm Oil Trade: A Complex Network Perspective. *Sustainability* 2025, Vol. 17, Page 3062, 17(7), 3062. <https://doi.org/10.3390/SU17073062>

