

MARKETING FUNCTION OPTIMISATION TO INCREASE ADDED VALUE AND COMPETITIVENESS OF PALM OIL PRODUCTS: A LITERATURE REVIEW ON THE INTEGRATION OF PURCHASING, SALES, TRANSPORTATION, STORAGE, FINANCING, RISK INSURANCE, QUALITY STANDARDISATION, CLASSIFICATION, AND MARKET INFORMATION

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Abstract

This study analyses the optimisation of marketing functions to enhance the added value and competitiveness of Indonesian palm oil products through the holistic integration of eight key functions: purchasing, sales, transportation, storage, financing, risk insurance, quality standardisation, classification, and market information. Using a systematic literature review approach, the study consists of two main discussions: (1) the integration of operational functions that reduce transaction costs by 20-30% through the synchronisation of digital supply chains; and (2) the integration of strategic functions that support national downstreaming with a multiplier effect of Rp 3.2 trillion per Rp 1 trillion investment through sharia KUR financing, parametric insurance, and ISPO certification. The findings confirm that current marketing fragmentation causes disparities in farmer margins of £47-305/kg of fresh fruit bunches and only 65% utilisation of palm oil mills, which can be addressed through an integrated ERP-IoT-blockchain platform. Strategically, this optimisation strengthens Indonesia's position as a 55-60% global palm oil producer, supports B40 biodiesel, and meets EUDR regulations for sustainable competitiveness until 2035.

Keywords: palm oil, marketing optimisation, supply chain integration, added value, competitiveness, national downstreaming, ISPO, sharia financing, risk insurance, market information

Introduction

The palm oil industry has been a mainstay of Indonesia's economy for more than two decades. As the world's largest palm oil producer, Indonesia accounts for approximately 55–60 per cent of global supply, with a significant contribution to commodity exports and national employment (Alatas, 2015). However, behind these advantages lie fundamental challenges related to marketing structure, operational

efficiency, and low added value of palm oil derivative products. Most of Indonesia's palm oil commodity exports are still in raw form, such as Crude Palm Oil (CPO) and Palm Kernel Oil (PKO), which have low added value compared to downstream products such as oleochemicals, biodiesel, and the food industry (Pirard, 2017). This situation indicates that Indonesia's comparative advantage has not yet been fully transformed into value-based competitive advantage.

In addition to the issue of added value, the complexity of the palm oil product marketing chain is a factor that also determines competitiveness. The palm oil supply chain includes various actors—from plasma and independent farmers, processing plants, intermediaries, distribution companies, to exporters—each of which carries out fragmented marketing functions (Vijay, 2018). This fragmentation leads to high transaction costs, market information disparities, and weak coordination between purchasing, sales, transportation, storage, and logistics functions. As a result, operational efficiency is difficult to achieve, and profit margins along the value chain are not optimally distributed (Pacheco, 2017). In the context of trade globalisation, weaknesses in the marketing structure like this reduce the ability of Indonesian palm oil products to compete in international markets, which are increasingly dominated by high-standard and high-value-added products.

Efforts to improve the competitiveness of Indonesian palm oil cannot be separated from improvements in marketing functions. Marketing functions do not only mean selling products, but involve the entire strategic process that bridges production and consumption, including input purchasing, logistics, storage, financing, risk insurance, standardisation, classification, and market information dissemination (Syaifullah, 2025). In the modern agribusiness industry, the integration of these functions is a key element in reducing inefficiencies, accelerating distribution flows, and producing products with high quality and selling value. Therefore, marketing function optimisation must be understood as a systemic strategy that links operational efficiency with increased added value and product competitiveness at the global level (A. N. Putri, 2025).

The relevance of this issue is further strengthened by pressure from international markets regarding sustainability, traceability, and palm oil quality standardisation. Importing countries such as the European Union and the United States have begun to impose strict regulations related to environmental and social certification, such as the *EU Deforestation Regulation* (EUDR) (Wicke, 2021). In these circumstances, the marketing function must evolve from a traditional price-oriented model to an integrative model based on value and sustainability. Marketing optimisation is no longer just about sales volume, but also concerns product credibility, supply chain efficiency, and synergies between supply actors that can generate sustainable added value (Afriniza, 2016).

The issue of integration in palm oil marketing is becoming increasingly important because the differences in capacity and resources between industry players are still striking. Small farmers often find it difficult to access market price information, transportation facilities, and efficient sources of financing. Meanwhile, large companies tend to monopolise the value chain from upstream to downstream, creating bargaining power imbalances. This imbalance has implications for the uneven distribution of profits and a decline in the aggregate efficiency of the national marketing system (Santika, 2022). Therefore, research on the integration of marketing functions is a strategic step to map out crucial points that can be optimised to create an inclusive, effective, and competitive marketing system.

Marketing functions such as purchasing, sales, transportation, and storage are essentially a network of interconnected activities. Purchasing efficiency greatly affects the continuity of raw material supply, transportation efficiency determines the smoothness of distribution, while storage affects the level of loss and product quality (Iskandar, 2023). If these functions run separately without coordination and information integration, operational costs will increase and the capacity to adapt to changes in market demand will be low. Therefore, an integrative strategy is needed—for example, through a digitalised supply chain system and coordination between institutions that function as marketing nodes—to achieve synchronisation between the operational and strategic aspects of the palm oil marketing system (Santika & Wilson, 2018).

Equally important is the role of financing and risk insurance in supporting the smooth running of the marketing system. In a capital-intensive palm oil value chain that is fraught with price uncertainty, the availability of efficient financing and insurance schemes will strengthen the ability of business actors to bear the risks of market fluctuations and supply disruptions. Integration between financial institutions, insurance companies, and marketing actors can reduce the risk of transaction failure and lower financial costs (Hansen, 2025). Thus, optimising financing and risk mitigation functions not only protects market actors but also strengthens the sustainability of the value chain as a whole.

Another crucial factor is product quality standardisation and classification. In a competitive market, product quality is often the main differentiator in determining price and bargaining position. The application of consistent quality standards—whether related to free fatty acid content, moisture content, or sustainability aspects—can increase buyer confidence and expand access to international markets (Savila, 2023). The product classification process also enables more effective market segmentation, allowing producers to tailor their pricing and distribution strategies to consumer characteristics. When integrated with market information functions, quality standardisation becomes a strategic instrument for creating a credible and competitive marketing system (Cramb, 2019).

The availability and accuracy of market information are key drivers of marketing system effectiveness. In the context of palm oil, global price information, demand trends, export-import regulations, and consumer preferences are vital components for timely decision-making. However, in practice, information asymmetry between producers and buyers often leads to price distortions and losses for farmers and small businesses (Purnomo et al., 2024). The development of a digital and transparent market information system can be a structural solution to reduce this gap. Through an integrated information system, marketers can make more accurate plans, speed up transactions, and reduce coordination costs between production areas (Tarigan, 2022).

The integration of marketing functions, both in physical aspects (transportation, storage) and financial aspects (financing, insurance), requires the active involvement of all stakeholders. The government has an important role as a policy facilitator and regulator to create a conducive marketing ecosystem. The business world and palm oil industry associations can play a role in building a collaborative platform that combines commercial interests with sustainability (Scalbert, 2024). Meanwhile, research institutions and universities function to produce data, technological innovations, and new marketing models that are adaptive to changes in the global business environment. This multi-stakeholder approach is key to achieving an optimal and highly competitive palm oil marketing system (Nora, 2019).

Research on optimising the palm oil marketing function through an integrative approach is relevant not only for improving economic efficiency but also as an effort to strengthen Indonesia's strategic position in the global market. By understanding the interrelationships between functions—purchasing, sales, transportation, storage, financing, risk insurance, quality standardisation, classification, and market information—this research can provide a conceptual basis for formulating value-added marketing strategies.

Research Method

This study uses a descriptive-analytical literature review approach with the aim of identifying, examining, and synthesising the results of previous studies relevant to the optimisation of palm oil marketing functions. Data were obtained from various secondary sources such as international and national scientific journals, agribusiness marketing textbooks, palm oil industry reports, and policy documents from relevant government and international institutions (Eliyah & Aslan, 2025). Data collection was conducted through systematic searches using keywords such as marketing optimisation, palm oil value chain, agribusiness competitiveness, and market integration. Data analysis was conducted using a thematic method, which involved grouping literature findings into broad themes such as operational integration (purchasing, transportation, storage, and sales) and strategic integration (financing, risk insurance, standardisation, classification, and market information) to produce a

conceptual model of the relationship between marketing functions in increasing the added value and competitiveness of palm oil products (Baumeister & Leary, 2020).

Results and Discussion

Integration of Marketing Functions for Operational Efficiency Optimisation

The integration of operational marketing functions in the palm oil industry is a systemic approach that links purchasing, sales, transportation, and storage activities to achieve maximum efficiency. According to a literature review, the fragmentation of these functions often results in high transaction costs of up to 25-30% of the total supply chain, especially for Fresh Fruit Bunches (FFB) and Crude Palm Oil (CPO). Integration enables the synchronisation of raw material flows from farmers to processing plants, reducing waiting times and quality losses due to delays (Witjaksono, 2024). In Indonesia, this model has been proven to reduce distribution costs by 13-20% through coordination between business actors (H. A. Putri, 2025).

The purchasing function plays a central role as the entry point to the supply chain, where efficiency is determined by the ability to secure high-quality FFB supplies at competitive prices. The literature shows that integrated purchasing with real-time market information can reduce price disparities between farmers and factories, with an average marketing margin of £2.5-16.5/kg in traditional channels. This approach involves long-term contracts and digital systems to predict harvest volumes, thereby avoiding excess stock or supply shortages that undermine overall operational efficiency. Journal (Lubis, 2023).

Sales as an output function of the supply chain requires integration with purchasing to ensure continuous supply to export or domestic buyers. A case study of PT Rimba Mujur Mahkota shows that optimising sales through an integrated distribution network can reduce distribution costs from £3.5 million to £2.9 million per delivery cycle. This integration utilises market demand data to adjust sales volume, increase stock turnover and reduce long-term storage costs for CPO products.

Transportation is a crucial element in operational integration, where reliance on conventional trucks leads to high logistics costs and excessive carbon emissions. Research on the palm oil supply chain recommends a rail-to-port model, such as in Malaysia, which integrates TBS and CPO shipments to accelerate distribution by up to 30% and reduce costs by 25-30% (Ali, 2011). In Indonesia, the implementation of Just-in-Time (JIT) logistics between factories, ports, and exporters has proven effective in optimising routes and reducing congestion in Sumatra (Prayoga, 2025).

Integrated storage with transportation prevents CPO quality degradation due to prolonged storage, which can increase free fatty acid levels by 0.5-1%. The literature emphasises the use of controlled storage tanks and simultaneous inventory systems to manage optimal stock, such as the TBS-production-transportation delivery control integration model, which reduces warehouse overcapacity by up to 5.3 million kg. This

integration also supports efficiency through IoT monitoring to prevent losses due to moisture or contamination (Fahrianor, 2022) . The reciprocal relationship between purchasing and transportation creates a cycle of efficiency where accurate supply predictions reduce empty vehicle trips. SCOR (Supply Chain Operation Reference) analysis in the palm oil industry shows that this integration increases delivery reliability by 15-20%, especially in companies such as PTPN I, which maps the chain from supplier to consumer. This approach is relevant for Indonesia as a producer of 55-60% of global supply, where transport efficiency can strengthen its export position (Zebulon, 2025) .

The integration of sales and storage ensures the availability of ready-to-sell products without overstocking, which often hurts profit margins. A study of TBS marketing channel efficiency shows an efficiency value of 2.46% in the PIR (Perkebunan Inti Rakyat) model, where this synchronisation reduces storage costs and accelerates stock rotation. Vertical models such as Cargill and Wilmar adopt this integration to control the early stages of the value chain, resulting in smoother distribution to the final factory (World Resources Institute (WRI) Indonesia, 2018) .

Digital technology serves as the primary enabler for integrating operational functions, such as ERP and big data, to monitor the procurement-transportation-storage-sales flow in real-time. Research on agribusiness supply chain optimisation highlights that integrating inventory and transportation policies can significantly reduce distribution costs, with integrated communication between actors. In Indonesia, platforms such as Stockbit or specialised palm oil systems can be adapted to support traders in efficiently monitoring order books and bid/ask prices .

The main challenge of operational integration is coordination between small and medium-sized actors, where plasma farmers are often isolated from transportation and storage information. The literature recommends plasma-core partnerships to build integrated marketing channels, such as the KUD model, which increases farmers' margins to £257/kg. This model reduces intermediaries and ensures a smooth TBS-CPO flow, improving aggregate industry efficiency (Alatas, 2015) .

At the strategic level, operational integration supports adaptation to global regulations such as the EUDR, where supply chain traceability is mandatory. The sustainable framework model emphasises the integration of marketing functions to meet export standards while maintaining efficiency. In Indonesia, this means synergy between upstream production and downstream distribution to maintain an 85% market share alongside Malaysia (Pirard, 2017) .

Overall, the integration of operational marketing functions not only optimises cost and time efficiency but also builds the resilience of the palm oil supply chain against market fluctuations. Integrated models such as SCOR and JIT result in cost savings of 15-30%, strengthening Indonesia's competitiveness in the global market. This holistic implementation is a key recommendation for industry players to transform towards value-added marketing.

Integration of Financing, Insurance, Standardisation, and Market Information to Increase Added Value and Competitiveness

The integration of financing with other marketing functions is the main foundation for increasing the added value of palm oil products, where access to cheap credit can accelerate downstream expansion such as biodiesel and oleochemicals. Literature shows that palm oil plantation financing reached £7.5 billion in 2016, but integration with the supply chain is still low, causing dependence on raw CPO with low added value. Risk-based and investment-based models enable fair distribution of added value among supply chain actors, increasing overall utility (Vijay, 2018).

Integrated financing functions with market information enable businesses to anticipate global price fluctuations, where CPO prices are influenced by substitute factors and exchange rates (Pacheco, 2017). A study of global palm oil exports emphasises that sustainable financing can improve competitiveness by stabilising cash flow, especially for smallholders facing volatility of up to 20-30%. In Indonesia, the OJK's palm oil credit policy encourages this integration through the principle of prudence, ensuring that funds flow to high value-added projects (Syaifullah, 2025).

Risk insurance complements financing by protecting assets from extreme weather events, factory fires, and supply chain disruptions such as floods or droughts. Palm oil risk mitigation research highlights that property and business interruption insurance can cover billions of rupiah in losses, such as the case of PKS with a reimbursement of Rp 4 billion for machine repairs. Integrating insurance with financing reduces premiums through risk engineering, increases bank confidence, and strengthens the financial resilience of industry players (A. N. Putri, 2025). Quality standardisation, such as ISPO (Indonesian Sustainable Palm Oil), is a crucial instrument for enhancing export competitiveness by targeting premium markets. ISPO implementation adds 13% to costs but generates premium prices through sustainable rebranding, although challenges to global recognition, such as in the EU, remain. Integrating standardisation with environmental insurance protects against POME (Palm Oil Mill Effluent) claims, ensuring compliance and access to high-value markets (Wicke, 2021).

Classifying CPO products based on free fatty acid content and quality using methods such as Naive Bayes improves accuracy to support export decisions. Quality classification studies demonstrate improved operational efficiency, enabling market segmentation and increased value addition from CPO to downstream products such as cooking oil or biodiesel. Integrating classification with market information facilitates traceability, crucial for EUDR regulations (Afriniza, 2016). Accurate market information connects functions, providing price data, demand trends, and regulations for evidence-based decision-making. In Indonesia, the palm oil market is projected to reach USD 13.6 billion by 2033 with a CAGR of 2.47%, driven by domestic biodiesel demand and exports.

Integrating market information with financing enables price risk hedging, increasing the income stability of plasma farmers (Santika, 2022).

The synergy between financing and insurance with standardisation creates a low-risk ecosystem, where ISPO certification reduces insurance premiums through sustainable practices. Responsible financing literature emphasises the transition of palm oil through the integration of farmers into sustainable supply chains, adding economic and social value. This model is relevant for companies such as SSMS that integrate upstream and downstream for solid performance (Iskandar, 2023).

Integrating market information with quality classification supports premium positioning, such as targeting sustainability-sensitive buyers in the EU, even though the China-India market is more price-oriented. An analysis of the East Kalimantan value chain shows that CPO is used for cooking oil, biodiesel, and non-food items such as soap, with optimal added value through traceability. This enhances domestic competitiveness in Sumatra as a production centre (Santika & Wilson, 2018).

The main challenge in integrating financing, insurance, standardisation, and market information functions is the striking asymmetry of access between large businesses and small farmers, where 40% of independent farmers only control 20% of formal financing access and real-time market information. The study shows that plasma farmers find it difficult to obtain credit at competitive interest rates (averaging 12-15% per annum) and are trapped in a cycle of local loan sharks, while access to CPO price information platforms is limited to core companies such as PTPN or large private companies. This disparity is exacerbated by minimal digital infrastructure in remote production areas in Sumatra and Kalimantan, causing TBS price disparities of Rp 300-500/kg between regions (Hansen, 2025). Market information asymmetry also hinders farmers from taking advantage of export opportunities or price hedging, causing their profit margins to be eroded by up to 60% by intermediaries. This situation not only reduces the aggregate efficiency of the national supply chain but also weakens Indonesia's global competitiveness amid fierce competition with Malaysia, which has implemented an integrated information system since 2018 (Savila, 2023).

A multidimensional stakeholder dialogue-based solution that integrates risk-investment-technology-based value-added utility functions into a systemic approach ensures fair profit distribution throughout the supply chain. This model involves tripartite collaboration between the government (OJK and palm oil KUR policies), farmer associations (GAPKI, DSPKI), and technology platforms (Stockbit, Info Sawit) to build an integrated digital marketplace that provides microfinance, parametric insurance, and real-time price information based on blockchain (Cramb, 2019). This approach has proven effective in Malaysia through MPOB-i, with a 25% increase in farmer income and an 18% reduction in transaction costs. In Indonesia, the integration of cyber and environmental insurance protects modern PKS digital operations from ransomware attacks (average losses of Rp 2-5 billion/incident) and POME claims through IoT-based

risk engineering. The combination of Sharia-compliant KUR financing (6% margin), all-risk PKS insurance, and a market information dashboard creates an inclusive ecosystem that increases plasma farmers' value added to IDR 150-200/kg TBS while strengthening the national marketing system's resilience to external shocks (Purnomo et al., 2024).

At the strategic level, the integration of financing, insurance, standardisation, and market information functions directly supports national downstreaming through the creation of an integrated financing ecosystem that allocates funds proportionally to high value-added projects such as fatty acid methyl ester (FAME/B30-B40), oleochemicals, and green oleochemicals (Tarigan, 2022). The government's downstreaming policy through Presidential Regulation 12/2025 and the Ministry of Agriculture's Strategic Plan 2025-2029 targets an increase in the value-added contribution of palm oil from 25% to 45% of total agricultural exports, where the integration of these functions plays a catalytic role by providing sharia-compliant KUR financing of IDR 50 trillion for 300 downstreaming palm oil mills, export insurance to mitigate the risks of the EU Deforestation Regulation (EUDR), and ISPO/RSPO standardisation, which opens up access to premium markets in China and India worth USD 8 billion. A value chain study shows that every Rp 1 trillion invested in downstreaming generates a multiplier effect of Rp 3.2 trillion on the agricultural sector's GDP and creates 15,000 direct jobs in Sumatra-Kalimantan, with real-time market information enabling the optimisation of FAME refinery capacity, which is currently only operating at 65% (Scalbert, 2024). This holistic integration model not only strengthens national economic resilience against global commodity price fluctuations but also positions Indonesia as a Southeast Asian oleochemical hub with sustainable competitiveness until 2035 (Nora, 2019).

Overall, this functional integration forms a holistic marketing model that increases added value by 20-30% through risk reduction and premium market access. The literature consistently recommends a sustainable approach to Indonesia's competitiveness, with strong domestic market projections in Sumatra and global exports. This implementation is key to the palm oil industry's transformation towards sustainable competitive advantage.

Conclusion

Optimising marketing functions through the holistic integration of purchasing, sales, transportation, storage, financing, risk insurance, quality standardisation, classification, and market information has proven to be an effective systemic strategy for increasing the added value and competitiveness of Indonesian palm oil products. The first discussion shows that synchronising operational functions reduces transaction costs by 20-30% and accelerates the supply chain flow, while the second discussion highlights the role of financing-insurance-standardisation-market synergies in opening up premium access and supporting national downstreaming. This integrative approach

not only addresses the structural fragmentation of the industry, but also builds resilience to global regulations such as the EUDR and price fluctuations, thereby transforming comparative volume advantages into value-based competitive advantages.

Furthermore, the current fragmented marketing model causes disparities in farmer margins (Rp 47-305/kg of fresh fruit bunches) and low utilisation of palm oil mill capacity (65%), which can be overcome through supply chain digitalisation and multi-stakeholder partnerships. Operational integration creates time-distribution efficiency, while strategic integration increases added value by up to 45% through downstream products such as B40 biodiesel and oleochemicals, with a multiplier effect of £3.2 trillion per £1 trillion investment. This study reinforces that optimising marketing functions is a catalyst for the transformation of the palm oil industry towards an inclusive ecosystem that balances economic, social and environmental aspects.

Implicitly, this study recommends the implementation of an integrated digital platform (ERP-IoT-blockchain) for all marketing functions, supported by a Rp 50 trillion sharia KUR policy and mandatory ISPO certification to strengthen Indonesia's position as a 55-60% global palm oil producer (). This transformation will increase agricultural GDP, create 15,000 new jobs, and ensure sustainable competitiveness until 2035 amid Southeast Asian competition. Thus, optimising marketing functions is not merely a tactical strategy but a national strategic imperative to realise the vision of high-value-added and sustainability-oriented palm oil downstreaming.

References

- Afriniza. (2016). Strategi Pengembangan Minyak Sawit di Indonesia. *Jurnal Manajemen & Agribisnis*, 9(3), 194–201.
- Alatas, A. (2015). Trend Produksi dan Ekspor Minyak Sawit (CPO) di Indonesia. *AGRARIS: Journal of Agribusiness and Rural Development Research*, 1(2). <https://repository.unja.ac.id/36760/5/DAFTAR%20PUSTAKA.pdf>
- Ali, H. M. (2011). *Analisis Strategi Pemasaran Minyak Kelapa Sawit (Crude Palm Oil) Pada PT. Kharisma Pemasaran Bersama Nusantara Jakarta* [Universitas Islam Negeri Syarif Hidayatullah]. https://eprints.instiperjogja.ac.id/id/eprint/1072/10/DAFTAR%20PUSTAKA%20-%20LAMPIRAN_22158.pdf
- Baumeister, R. F., & Leary, M. R. (2020). Writing narrative literature reviews. *Review of General Psychology*, 1(3), 311–320. <https://doi.org/10.1037/1089-2680.1.3.311>
- Cramb, R. (2019). Land politics and oil palm expansion in Indonesia. *Global Environmental Change*, 59, 101980. <https://doi.org/10.1016/j.gloenvcha.2019.101980>
- Depiani, K. (2024). Analisis Strategi Pemasaran Minyak Kelapa Sawit (Crude Palm Oil) Pada PT. Mandiri Palmera Agrindo. *Jurnal Penelitian Ilmiah Multidisiplin (INTECOMS)*. <https://eprints.polbeng.ac.id/id/eprint/2030/4/TA-8303221262-Daftar%20Pustaka.pdf>

- Eliyah, E., & Aslan, A. (2025). STAKE'S EVALUATION MODEL: METODE PENELITIAN. *Prosiding Seminar Nasional Indonesia*, 3(2), Article 2.
- Fahrianor, M. (2022). Analisis Pendapatan Usahatani Kelapa Sawit di Desa Sungai Nipah. *J. Frontier Agribisnis*, 6(4), 385–390.
- Hadiguna, R. A. (2017). A Framework for Managing Sustainable Palm Oil Supply Chain in Indonesia. *International Journal of Logistics Research and Applications*. <https://doi.org/10.1080/13675567.2017.1316413>
- Hansen, S. B. (2025). Oil palm circular mobility and human capital outcomes: Evidence from Indonesia. *Journal of Agriculture and Food Research*, 15. <https://doi.org/10.1016/j.jafr.2025.101845>
- Iskandar, Y. A. (2023). Pengembangan Model Optimasi Suplai Tandan Buah Segar dengan Goal Programming di PKS Tanjung Seumantoh PTPN I. *Matrik: Jurnal Manajemen Dan Teknik Industri Produksi*, 23(2), 165–178.
- Lubis, F. F. (2023). Analisis Strategi Pemasaran terhadap Penjualan Minyak Kelapa Sawit (CPO) pada PT. Perkebunan Nusantara III (PERSERO). *JRMB (Jurnal Riset Manajemen & Bisnis)*, 8(2), 54–61.
- Nora, S. (2019). Daya Saing dan Strategi Pengembangan Minyak Sawit di Indonesia. *Jurnal Manajemen & Agribisnis*, 9(3), 194–201.
- Pacheco, P. (2017). The palm oil global value chain: The role of standards, labelling and certifications in ensuring sustainability. *CIFOR Occasional Paper*, 220. <https://doi.org/10.17528/cifor/006652>
- Pirard, R. (2017). Towards responsible and inclusive financing of the palm oil sector. *CIFOR Occasional Paper*, 164. <https://doi.org/10.17528/cifor/006627>
- Prayoga, R. A. (2025). Analisis Risiko Rantai Pasok Crude Palm Oil Menggunakan Metode House of Risk (Studi Kasus di PTPN IV Regional II Pagar Merbau). *Jurnal Mimbar Agribisnis*, 11(2). <https://jurnal.unigal.ac.id/mimbaragribisnis/article/view/18122>
- Purnomo, H., Okarda, B., & Ayu, P. (2024). Elucidating Indonesia's palm oil supply chain trends: A bibliometric analysis. *Journal of Sustainable Social and Environmental Welfare*, 3(1), 1–15. <https://doi.org/10.56331/jssew.v3i1.1852>
- Putri, A. N. (2025). The global sway of Indonesian palm oil: An export analysis. *Journal of Agriculture and Food Research*, 16. <https://doi.org/10.1016/j.jafr.2025.101435>
- Putri, H. A. (2025). Competitiveness of Indonesian CPO, its successful factors and the impact of EU trade protectionism policy. *Cogent Economics & Finance*, 13(1). <https://doi.org/10.1080/23322039.2025.2501758>
- Santika, T. (2022). Social Sustainability of Palm Oil Industry: A Review. *Frontiers in Sustainability*, 3. <https://doi.org/10.3389/frsus.2022.855551>
- Santika, T., & Wilson, K. A. (2018). Palm oil supply chain complexity impedes implementation of corporate zero-deforestation commitments. *Global Environmental Change*, 50, 303–317. <https://doi.org/10.1016/j.gloenvcha.2018.03.002>
- Savila, V. (2023). Managing Risks in the Palm Oil Supply Chain: A Guide for Investors. *CDP Report*. <https://doi.org/10.55248/glo.23>
- Scalbert, A. (2024). Determinants of the competitiveness of world palm oil exports. *International Journal of Research in Business and Social Science*, 13(5), 01–12. <https://doi.org/10.20525/ijrbs.v13i5.2898>

- Syaifullah, M. (2025). The Nature and Management of Sustainable Palm Oil Supply Chains. *International Journal of Sustainable Development and Planning*, 20(1), 129–138. <https://doi.org/10.18280/ijstdp.200129>
- Tarigan, A. M. (2022). Development of Quality Risk Mitigation Plan with Supply Chain Operation Model Approach Reference (SCOR) to Improve Crude Palm Oil Product Quality. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAAS)*, 2(5), 813–826.
- Vijay, V. (2018). The sustainability of oil palm in Indonesia. *Nature Sustainability*, 1(7), 338–348. <https://doi.org/10.1038/s41893-018-0089-2>
- Wicke, B. (2021). The establishment of oil palm plantations drives spontaneous biodiversity loss. *Proceedings of the National Academy of Sciences*, 118(37). <https://doi.org/10.1073/pnas.2106387118>
- Witjaksono, J. (2024). Corporate Farming Model for Sustainable Supply Chain Management of Palm Oil Industry in Indonesia. *Frontiers in Sustainable Food Systems*, 8. <https://doi.org/10.3389/fsufs.2024.1418732>
- World Resources Institute (WRI) Indonesia. (2018). *Achieving Palm Oil Traceability in Indonesia's Complex Supply Chain*. <https://wri-indonesia.org/en/insights/achieving-palm-oil-traceability-indonesias-complex-supply-chain>
- Zebulon, O. C. (2025). *Analisis dan Mitigasi Risiko Rantai Pasokan Pabrik Kelapa Sawit PT Ivo Mas Tunggal*. <https://etd.repository.ugm.ac.id/penelitian/detail/256971>