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Analysis of Factors Influencing Digitalized Financial Recordkeeping and Financial Analysis in Oil Palm Farming Businesses in Tador Village

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Abstract
Smallholder oil palm farmers in Indonesia face persistent challenges in structured financial recordkeeping, which is a fundamental prerequisite for digital transformation in farm management. This study aims to analyze factors associated with financial recordkeeping practices and assess the readiness for digital adoption among oil palm smallholders in Laut Tador Village, North Sumatra. A quantitative survey was conducted with 86 respondents selected using stratified random sampling from a population of 190 farmers. The dependent variable was financial recordkeeping activity (yes/no), while independent variables included age, education, income, farming experience, land ownership status, and training experience in financial recordkeeping. Binary logistic regression was employed, complemented by descriptive analysis of digital readiness indicators (smartphone ownership, social media use, and willingness to adopt technology). The results show that only 10 farmers (11.6%) had ever participated in financial recordkeeping training, and none had implemented routine digital-based recordkeeping. Logistic regression revealed that income (p = 0.036) and training experience (p = 0.027) were significantly associated with recordkeeping activity, while age, education, farming experience, and land ownership status were not. Regarding digital readiness, 80% of farmers expressed willingness to adopt digital technology, and the majority owned smartphones and used WhatsApp or Facebook. However, a substantial gap exists between willingness and actual practice. The logistic model had limited stability due to the small number of events (n = 10), and findings should be interpreted as exploratory. This study concludes that financial recordkeeping practices among smallholder oil palm farmers remain low, and digital readiness while promising has not translated into action. Training and income enhancement are key leverage points for intervention.

Keywords: *oil palm, farmers, digitalization, recording, finance.*

1. INTRODUCTION

The palm oil industry is a strategic sector that underpins the national economy and serves as the primary source of income for the population. Palm oil plantations in Indonesia consist of three main categories: State-Owned Plantations (PBN), covering approximately 0.6 million hectares or about 3.4% of the total plantation area; second, Large-Scale Private Plantations (PBS) managed by private companies, covering 8.4 to 8.6 million hectares or about 50% of the total land area; Third, Smallholder Plantations (PR) managed by smallholder farmers under both plasma and independent schemes, covering an area of approximately 6.78 to 6.8 million hectares, equivalent to about 40% of the total oil palm plantation area in Indonesia (BPDP, 2025). However, this

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expansion of oil palm plantations has not been matched by an increase in productivity, particularly among independent smallholder farmers. In 2024, the productivity of independent smallholder oil palm farmers in Indonesia generally remained below 12 tons of Fresh Fruit Bunches (FFB) per hectare per year. This figure is notably low compared to the ideal target of 20 tons of FFB/ha/year or the much higher productivity of large-scale plantations. Smallholder farmers make a significant contribution, managing approximately 6.9 million hectares of oil palm plantations in Indonesia (InfoSawit, 2024). In fact, smallholder farmers account for 40% of the total area of oil palm plantations in Indonesia. If this 40% is developed, oil palm productivity in Indonesia will improve.

North Sumatra is one of the provinces with the largest area of oil palm plantations in Indonesia, making a significant contribution with smallholder oil palm production reaching 8.2 million tons in 2024 (Ministry of Agriculture, 2024). The village of Laut Tador in Batubara Regency serves as an example of an agricultural village that is heavily reliant on small-scale oil palm farming. The majority of the community relies on oil palm plantations for their income, with an average landholding of less than 2.5 hectares. In 2024, the productivity of oil palm plantations in Laut Tador Village, Batubara Regency, was recorded at approximately 17.8 tons of Fresh Fruit Bunches (FFB) per hectare per year. This figure is still relatively low compared to the standard productivity of plantations in Indonesia. However, based on research (Ningsih & Wahyuni, 2022), the farming business efficiency value is 2.79, which means the farming business is profitable and viable for development. Therefore, if a sustainable system utilizing technology for smallholder oil palm plantations is implemented in Laut Tador Village, productivity will continue to increase if evaluations are consistently conducted.

The efficiency of oil palm farming faces a classic challenge in financial management: poor record-keeping. Most farmers are not yet accustomed to structured financial record-keeping, making it difficult to conduct evaluations. This problem is exacerbated by low financial and digital literacy, limited access to record-keeping applications, and the continued commingling of business and personal finances in daily practice (Hidayat et al., 2025). In fact, proper financial record-keeping particularly through digitalization plays a crucial role in unlocking access to financing, improving business efficiency, and promoting transparency and accountability among farmers in the eyes of financial institutions and buyers. Since 2022, various initiatives have been implemented, such as training in digital record-keeping and the use of the BOSAWIT and Hamurni applications, which have proven to improve the accuracy of financial reports and support the traceability of palm oil products (Arta et al., 2024). However, manual financial record-keeping practices are still common among oil palm farmers, particularly smallholder farmers in rural areas such as Laut Tador Village, Batubara Regency. Many farmers are not yet accustomed to routinely recording income, expenses, or calculating profit margins, making their farming operations vulnerable to undetected losses.

Financial digitization through Android-based record-keeping apps or web-based agricultural information systems has begun to be introduced to address these issues. This technology enables farmers to record transactions in real time, monitor cash flow, and analyze the efficiency of their farming operations (Abdullahi et al., 2025). However, the adoption of digital financial record-keeping has not yet been fully optimized. There remain gaps regarding access to technology, the ability to use applications, and farmers' perceptions of the benefits (Patil et al., 2025). Therefore, it is important to identify and analyze various factors influencing digital-based financial recording and analysis at the oil palm farmer level. Factors such as education level, age, farming experience, land ownership, training received, and farm income are believed to play a role in influencing the adoption of financial digitalization.

Although various studies have addressed financial literacy and technology adoption among smallholder farmers (Hidayat et al., 2025; Patil et al., 2025), there remains a knowledge gap in three areas: (1) few studies have specifically examined factors related to financial record-keeping in smallholder oil palm production within the local context of North Sumatra; (2) most studies focus on technology adoption in general, rather than on the transition from manual record-keeping to

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digital readiness; and (3) no studies have explicitly distinguished between willingness and actual practice in digital financial record-keeping among smallholder oil palm farmers. Therefore, this study fills this gap by analyzing factors related to financial record-keeping (as the initial foundation for digitalization) while also measuring farmers' digital readiness descriptively

The objectives of this study are: (1) to map financial record-keeping and analysis activities; (2) to analyze farmers' readiness to adopt and implement digital-based financial record-keeping and analysis for their farming businesses; and (3) to analyze the factors influencing financial record-keeping and analysis.

2. METHOD

2.1 Research Location And Timeframe

This study was conducted in Laut Tador Village, Laut Tador Subdistrict, Batubara Regency, North Sumatra Province, from July to December 2025. The location was selected through purposive sampling because Laut Tador Village is a major center for smallholder oil palm plantations.

2.2 Types And Sources Of Data

This study uses primary data collected through a survey. The primary data was obtained from interviews with respondents who are smallholder oil palm farmers.

2.3 Sampling Technique

The study population consisted of 190 farmers organized into four farmer groups: Mandiri, Roha, Pekan, and Melati. The study sample comprised 86 farmers, selected using stratified random sampling. Strata were formed based on the four farmer groups (Mandiri, Roha, Pekan, and Melati). Sample allocation per group was conducted proportionally to the number of members in each farmer group. Of the total population of 190 farmers, the Mandiri farming group had 45 members (sample allocation of 20 people), Roha had 50 members (23 people), Pekan had 48 members (22 people), and Melati had 47 members (21 people). Respondents in each stratum were selected using simple random sampling.

2.4 Operational Definition Of A Variable

Variable	Definition	Category / Unit	Coding
Financial record-keeping activities (Y)	Has the farmer ever kept or is currently keeping records of farm income and expenses (either manually or digitally)?	0 = No record-keeping activities 1 = Record-keeping activities	Dummy
Age (X1)	Farmer's age at the time of the study (years) Continuous (years)	Continue	-
Education (X2)	Highest level of formal education	1=No schooling 2=Elementary school 3=Junior high school 4=Senior high school 5=Diploma 6=Bachelor's degree	Ordinal
Income (X3)	Average monthly net income from oil palm farming (Rp)	Continue (rupiah)	-
Farming experience (X4)	Length of time farming oil palm (years)	Continuous (years)	-
Land Status (X5)	Status of primary land ownership	1=Owned	Dummy

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		2=Inherited 3=Leased	(ref=Owned)
Training (X6)	Has attended training in financial record-keeping/analysis	0=Never, 1=Yes	Dummy

Note: All respondents who keep records (n=10) still use manual ledgers; none have adopted digital applications. Therefore, this dependent variable serves as an initial proxy for digitization.

2.5 Analytical Method

The analytical method used is logistic regression to describe the factors influencing farmers' financial record-keeping and analysis activities. The regression form used is as follows:

$g(x) = Ln ((\pi(x)/(1-\pi))$

where

$g(x) = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + €$

where:
X1 = Farmer's Age
X2 = Farmer's Education
X3 = Farmer's Income
X4 = Gardening Experience
X5 = Land Ownership Status
X6 = Training in Financial Record-Keeping and Analysis
g(x) = Digital-Based Financial Record-Keeping and Analysis Activities

Hypothesis:
Ho = There is no significant effect of farmer age, education, income, farming experience, land ownership status, and financial record-keeping and analysis training on digital-based financial record-keeping and analysis activities in oil palm farming (t-calculated ≤ t-table or Sig-t ≥ α).
H1: There is a significant effect of farmer age, education, income, farming experience, land ownership status, and financial record-keeping and analysis training on digital-based financial record-keeping and analysis activities in oil palm farming (t-calculated ≥ t-table or Sig-t ≤ α).

Since only 10 farmers (event rate = 11.6%) kept financial records, the logistic regression model with six predictors is at risk of overfitting and coefficient instability. Therefore, the results of this analysis are exploratory in nature, and interpretations should be made with caution. Further research with a larger sample size or using a penalized logistic regression approach (Firth) is recommended.

3. RESULT AND DISCUSSION

3.1 Characteristics Of Farmers

According to Bappeda (2000), the age range of 15–64 years is considered the productive age range. This age range is divided into two categories: the highly productive age group (15–49 years) and the productive age group (50–64 years). The youngest farmer in this study was 29 years old, and the oldest was 79 years old. Additionally, other sources broadly define the productive age as the age range between 15 and 65 years, which is the optimal period to contribute to national development through a productive and innovative workforce (Purba et al., 2024)

Table 1. Age Distribution of Respondents

Age	Number (people)	Percentage (%)
≤ 35	7	8,14
36-50	25	29,07

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51-65	40	46,51
≥ 65	14	16,28
Total	**86**	**100**

Table 1 shows that the largest age group is 51–65 years old, comprising 40 farmers (46.51%), while the smallest group is those aged ≤35, comprising 7 farmers (8.14%). Farmers over the age of 65 receive assistance from family members in managing their farming operations. This indicates that the majority of farmers still possess optimal physical ability and work capacity, which can support productivity in the field. This condition also serves as a crucial asset for adapting to new technologies or cultivation methods, as individuals in their productive years are generally more open to innovation. The level of education considered in this study refers to the formal education completed by the respondents.

Table 2. Respondents' Educational Levels

Education Level	Number (people)	Percentage (%)
No Formal Education	3	3,49
Elementary School	23	26,74
Junior High School	20	23,26
High School	33	38,37
Diploma	1	1,16
Bachelor's Degree	6	6,98
Total	**86**	**100**

Table 2 shows that the largest group of farmers in terms of educational attainment consists of high school graduates, totaling 33 farmers (38.37%), while the smallest group consists of those with a diploma, totaling 1 farmer (1.16%). This indicates that smallholder farmers in Laut Tador Village prioritize education and have a secondary school education.

The majority of farmers' income in Laut Tador Village comes from oil palm farming. Research findings indicate that the monthly income of most farmers ranges from Rp3,000,000 to 4,999,999, accounting for 32 farmers (37.21%), while the lowest income below Rp1,000,000 is reported by 3 farmers (3.49%).

Table 3. Respondents' Income Ranges

Income (IDR)	Number (People)	Percentage (%)
< 1.000.000	3	3,49%
1.000.000 – 2.999.999	15	17,44%
3.000.000 – 4.999.999	32	37,21%
5.000.000 – 9.999.999	31	36,05%
≥ 10.000.000	5	5,81%
Total	**86**	**100%**

Farming experience in this study was divided into three categories: less than 10 years, 10–20 years, and more than 20 years.

Table 4. Respondents' Farming Experience

Experience	Number (people)	Percentage (%)
< 10 Tahun	11	12,79
10 - 20 Tahun	29	33,72

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> 20 Tahun	46	53,49
Total	**86**	**100%**

Table 4 shows that the largest group of farmers, comprising 46 farmers (53.49%), has over 20 years of experience. Meanwhile, the group with less than 11 years of experience consists of 11 farmers (12.79%).

The research results indicate that the majority of oil palm farmers in Laut Tador Village own their own plantation land, totaling 67 people (77.91%). Meanwhile, 18 people (20.93%) acquired land through family inheritance, and only 1 person (1.16%) manages land through a lease system.

Table 5. Land Ownership Status

Land Status	Number (people)	Percentage (%)
Owned	67	77,91
Family Inheritance	18	20,93
Leased	1	1,16
Total	**86**	**100%**

This data indicates that private land ownership remains the dominant form, which may affect farmers' autonomy in making agricultural business decisions, including in digital-based financial record-keeping and analysis.

The majority of oil palm farmers in Laut Tador Village have never participated in training related to agricultural business management or financial digitization. A total of 76 people (88.37%) have never attended training, while only 10 people (11.63%) have. This low training participation could hinder farmers' ability to fully adopt digital financial recording and analysis systems.

3.2 Technology-Based Financial Recording and Analysis Activities in Laut Tador Village

Based on field research findings, 10 farmers have received financial record-keeping training. The training involves recording all expenses and production yields during agricultural operations in a daily logbook. This logbook-based training was conducted by the Batu Bara Regency Agriculture Office. The following data shows farmers who have and have not participated in agricultural record-keeping training in Laut Tador Village.

Table 6. Financial Record-Keeping Training

Land Status	Number (people)	Percentage (%)
Training	10	11,63
No Training	76	88,37
Total	**86**	**100%**

Based on Table 6, it is evident that farmers who have participated in record-keeping are significantly different from those who have not. This can serve as a benchmark for assessing farmers' readiness to adopt farm record-keeping practices. This is because training in farm record-keeping serves as a foundation for farmers to develop the habit of documenting their farming operations. Training in financial literacy and understanding, combined with regular and structured farm record-keeping, significantly helps farmers better manage their operations and make more informed business decisions regarding their farming activities (Dolorosa et al., 2024). Additionally, periodic farm record-keeping enables monitoring of profits, transactions, and assessment of the progress of farming operations. Practical benefits include transparency, better planning, and easier access to capital or assistance (Hatibaea et al., 2025).

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3.3 Farmers' Readiness to Adopt and Apply Technology

Limitations in farmers' use of technology are largely influenced by advanced age. After conducting a logistic regression analysis on 86 oil palm farmers in Laut Tador Village, the following results were obtained:

Table 7. Actual data on farmers with and without record-keeping activities

Actual (Observed)	No Record-Keeping Activities	Record-Keeping Activities	Accuracy Percentage
No Record-Keeping Activities	76	0	100,00%
Record-Keeping Activities	10	0	0,00%
(Overall Percentage)			**88,40%**

Table 7 shows that the model failed to identify a single farmer who engaged in record-keeping activities (sensitivity = 0%). The overall accuracy of 88.4% is solely due to the dominance of the majority class (76 out of 86 respondents). This indicates that the model does not yet possess sufficient discriminatory power to predict financial record-keeping activities

Additionally, based on the survey results, 14 farmers over the age of 65 reported difficulties in understanding and operating digital devices. The intensity of technology use is also relatively low, given that the majority of farmers only use it when necessary, while most of their time is spent on routine activities in the fields. The adoption rate of internet and computer technology decreases with the age of farmers; older farmers tend to make less use of internet technology in agricultural activities (Khan et al., 2022).

Nevertheless, as many as 80% of farmers expressed their willingness to adopt technology in their farming practices, whether in the form of digital record-keeping, information technology, or other innovations. This level of readiness is reflected in the ownership and use of smartphones, which are already quite common among farmers in Laut Tador Village. Many of them are already familiar with using communication apps like WhatsApp and Facebook to exchange information, monitor market prices, and quickly and easily access various agricultural updates. Smartphone ownership and the habit of using social media platforms like WhatsApp and Facebook play a crucial role as gateways to digital literacy for farmers (Kolapo & Didunyemi, 2024).

3.4 Factors Associated with Financial Record-Keeping and Analysis Activities

This study used binary logistic regression to analyze the influence of several factors on farmers' engagement in digital-based financial record-keeping and analysis activities. The dependent variable was record-keeping activity (present/absent), while the independent variables included age, education, income, farming experience, and land tenure status

The logistic regression model used in this study shows an adequate fit to the data, as indicated by the results of the Hosmer and Lemeshow test with a significance value of p = 0.477 (> 0.05). This indicates that the model does not differ significantly from the empirical data, so it can be said that the model fits the observed data. The following are the results of the analysis of these independent variables:

Table 8. Results of the Logistic Regression

Variables	B	S.E.	Wald	Sig.	Exp(B)
Age (X1)	-0.015	0.041	0.139	0.709	0.985
Farmers' Education (X2)	1.101	1.403	0.823	0.486	3.026
Farmers' Income (X3)	0.01	0.019	4.402	0.036	1.010

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Farmers' Experience (X4)	0.005	0.037	0.019	0.890	1.005
Land Status (X5)	0.669	1.257	0.284	0.594	1.953
Training X6)	2,157	0.000	4.902	0.027	8,647
Constant (Konstanta)	-2.057	2.405	0.731	0.392	0.128

The logit model used in this study is as follows:
$\ln(p/(1-p)) = -2.057 - 0.015X_1 + 1.101X_2 + 0.01X_3 + 0.005X_4 + 0.669X_5 + 2,157X_6 + e$

Of the results above, only farmers' income was found to be statistically significant ($p = 0.036$), although the value of Exp(B) remained at 1.010 due to the large scale of monthly income. This indicates that even a small increase in income will influence farmers' willingness to keep financial records.

The results of the analysis indicate that the income variable has a significant relationship with farmers' decisions to implement digital-based financial record-keeping and analysis. The significance value for the income variable is 0.036 ($p < 0.05$), indicating a statistically significant relationship. This suggests that as farmers' income increases, their tendency to implement digital-based financial record-keeping and analysis also increases. Field observations revealed that farmers with higher incomes have greater capacity to allocate funds for digital devices, thereby gaining better access to digital training and information. Higher income also motivates farmers to understand their farm's cash flow in greater detail to optimize financial management. This aligns with the argument by Amoako et al. (2021), which shows that higher income correlates with a greater level of adoption of digital financial technology in rural areas. Furthermore, income and financial capacity serve as key mediators in farmers' adoption of digital green technologies. Farmers with access to digital finance (e.g., e-payments) are better prepared to adopt environmentally friendly agricultural technologies due to lower financial barriers (Liu et al., 2024)

In addition to income, the results of the logistic regression also indicate that experience with training in financial record-keeping and analysis has a significant effect on the implementation of digital technology in financial record-keeping. The training variable (X6) has a significance value of 0.027 ($p < 0.05$) with Exp(B) = 8.647. This means that farmers who have attended financial record-keeping training are 8.6 times more likely to keep financial records than farmers who have never attended such training. This training experience provides farmers with an understanding of the importance of financial bookkeeping, systematic profit and loss calculations, and more focused long-term financial planning.

These findings align with innovation adoption theory, which states that experience and access to training are among the key factors driving farmers to adopt new technologies. Farmers who have received training are generally better prepared to face the challenges of digitalization and are better able to periodically evaluate the financial performance of their oil palm farms. Therefore, capacity building through training and strengthening farmers' economic well-being through increased income are two crucial aspects that need to be promoted to ensure that the digitalization of financial record-keeping can be implemented effectively among oil palm farmers, particularly in Laut Tador Village. Digital record-keeping can improve decision-making efficiency, data interoperability, and financial accuracy, which ultimately supports better planning and the potential for increased income (Basir et al., 2024).

Interestingly, the variables of age and level of formal education were not found to be significant in this study. This finding differs from several previous studies (Khan et al., 2022) that suggest a link between younger age and technology adoption. One potential explanation is that factors more closely tied to behavioral decisions—such as practical exposure through training and economic pressures related to cash flow management—are more dominant than static demographic

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characteristics. In other words, even an elderly farmer may be motivated to keep records if they have attended training and have sufficient income.

This study found that although 80% of farmers stated they were willing to adopt digital technology, only 11.6% had ever attended training, and actual record-keeping practices remain very low. This finding indicates a gap between willingness and actual practice. This aligns with the intention-behavior gap theory in the technology adoption literature (Basir et al., 2024). In other words, psychological readiness alone is insufficient without the support of technical training and supporting infrastructure.

This study has several limitations. First, the number of farmers who keep financial records was only 10 (event rate 11.6%), making the logistic regression model with six predictors susceptible to overfitting and coefficient instability. Second, the cross-sectional design does not allow for causal inferences. Third, the dependent variable measures manual record-keeping as a proxy for digitalization because no farmers are currently using digital applications. Fourth, the measurement of digital readiness remains rudimentary (smartphone ownership and willingness) and does not utilize standardized instruments such as the Digital Readiness Index. Further research with a larger sample, a longitudinal design, and standardized instruments is needed to confirm these findings.

4. CONCLUSION AND RECOMMENDATIONS

This study shows that structured financial record-keeping practices among smallholder oil palm farmers in Laut Tador Village remain low (only 11.6% have ever attended training). Initial readiness for digital adoption is relatively high (80% expressed willingness, and the majority own smartphones), but there is a gap between willingness and actual practice. Income and prior training experience were found to be significantly associated with financial record-keeping activities. Non-significant findings regarding age and formal education suggest that behavioral (training) and economic (income) factors are more dominant than static demographic characteristics. A limitation of the study is the very small number of farmers engaged in record-keeping (n=10), which limits the stability of the logistic regression model. Further research with a larger sample and measurements of actual digital application usage is needed to confirm these findings.

5. REFERENCE

Abdullahi, H. O., Mahmud, M., & Rahim, E. E. A. (2025). Mobile Technology in Agriculture: A Systematic Literature Review of Emerging Trends and Future Research Directions. In *Ingenierie des Systemes d'Information* (Vol. 30, Issue 2, pp. 307–315). International Information and Engineering Technology Association. https://doi.org/10.18280/isi.300202

Amoako, G., Omari, P., Kumi, D. K., Agbemabiase, G. C., & Asamoah, G. (2021). Conceptual Framework—Artificial Intelligence and Better Entrepreneurial Decision-Making: The Influence of Customer Preference, Industry Benchmark, and Employee Involvement in an Emerging Market. *Journal of Risk and Financial Management*, *14*(12). https://doi.org/10.3390/jrfm14120604

Arta, Y., Setiawan, H., Suryani, D., Indra Pratama, H., & Edison, H. (2024). *Penggunaan Aplikasi Mobile BOSAWIT untuk Membantu Perhitungan Hasil Panen Pada Perkebunan Sawit Desa Segati Kecamatan Langgam*. *5*.

Basir, M. S., Buckmaster, D., Raturi, A., & Zhang, Y. (2024). From pen and paper to digital precision: a comprehensive review of on-farm recordkeeping. In *Precision Agriculture* (Vol. 25, Issue 5, pp. 2643–2682). Springer. https://doi.org/10.1007/s11119-024-10172-7

Jurnal Bisnis Tani
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https://jurnal.utu.ac.id/jbtani
ISSN 2477-3468 (print), 2714-7479 (online)
DOI: 10.35308/jbt

BPDP. (2025, June 3). *Berita Mencermati Perkebunan Kelapa Sawit Indonesia yang Sangat Strategis!* Www.Bpdp.or.Id.

Dolorosa, E., Dewi Kurniati, & Siti Sawerah. (2024). Pelatihan Pembuatan Catatan Usahatani Dan Literasi Keuangan Bagi Petani Kopi. *JMM (Jurnal Masyarakat Mandiri)*. http://journal.ummat.ac.id/index.php/jmm

Hatibaea, A., Amir Arhamb, & Sahmin Noholoc. (2025). Pengaruh Pengelolaan Keuangan dan Optimalisasi Sumber Daya Terhadap Pendapatan Petani Jagung. *Jambura Accounting Review Journal Homepage*, *6*(1). http//:jar.fe.ung.ac.id/index.php/jar

Hidayat, D., Okri Handoko, D., Isyraq Ramadhan, F., Dwi Rahmalan, F., & Islam Riau, U. (2025). Preparation of Palm Business Financial Reports on Palm Farmer Groups in Rambah Hilir Village, Rambah District, Rokan Hulu Regency. *ARSY: Aplikasi Riset Kepada Masyarakat*, *6*(1), 279–283. http://journal.al-matani.com/index.php/

InfoSawit. (2024, November). *Petani Sawit Swadaya di Konawe Utara Dapat Pelatihan Budidaya Sawit dari SPKS*. Www.Infosawit.Com.

Kementrian Pertanian. (2024). *OUTLOOK KOMODITAS PERKEBUNAN KELAPA SAWIT* (MSi. R. K. W. , S. Si. , M. AppStat. Dr. Ir. Anna A. Susanti, Ed.). Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal - Kementerian Pertanian 2024.

Khan, N., Ray, R. L., Kassem, H. S., & Zhang, S. (2022). Mobile Internet Technology Adoption for Sustainable Agriculture: Evidence from Wheat Farmers. *Applied Sciences (Switzerland)*, *12*(10). https://doi.org/10.3390/app12104902

Kolapo, A., & Didunyemi, A. J. (2024). Effects of exposure on adoption of agricultural smartphone apps among smallholder farmers in Southwest, Nigeria: implications on farm-level-efficiency. *Agriculture and Food Security*, *13*(1). https://doi.org/10.1186/s40066-024-00485-1

Liu, Z., Qi, Z., Tian, Q., Clark, J. S., & Zhang, Z. (2024). The Impact of Digital Finance on Farmers' Adoption of Eco-Agricultural Technology: Evidence from Rice-Crayfish Co-Cultivation Technology in China. *Agriculture (Switzerland)*, *14*(4). https://doi.org/10.3390/agriculture14040611

Ningsih, T., & Wahyuni, M. (2022). Analisa Usaha Tani Kelapa Sawit Perkebunan Rakyat Di Desa Laut Tador Kecamatan Laut Tador Kabupaten Batubara. *JASc (Journal of Agribusiness Sciences)*, *6*(1). https://doi.org/10.30596/jasc.v6i1.11710

Patil, P., Hattigote, S., Bhatungade, S., & Suryawanshi, M. A. L. (2025). Farmers Network. *International Journal of Advanced Research in Computer and Communication Engineering Impact Factor*, *8*. https://doi.org/10.17148/IJARCCE.2025.14380

Purba, A. A., Mahardika Tampubolon, A., Lumban Gaol, R. Y., Ashari Siregar, I., & Hidayat, N. (2024). Mengoptimalkan Penduduk Usia Produktif Sebagai Aktor Utama Dalam Pembangunan Nasional. *Jurnal Sosial Humaniora Sigli (JSH)*, *7*(1), 460. https://doi.org/10.47647/jsh.v7i1.2433