

## Literature Review of Occupational Health and Safety in Oil Palm Plantations

<sup>1</sup>Aisyahfira Anidya\*, <sup>2</sup>Daru Lestantyo, <sup>3</sup>Yuliani Setyaningsih

<sup>1</sup> Health Promotion and Occupational Health and Safety Study Program, Universitas Diponegoro, Indonesia\*; email: [aisyahfiraanidya25@gmail.com](mailto:aisyahfiraanidya25@gmail.com)

<sup>2</sup> Health Promotion and Occupational Health and Safety Study Program, Universitas Diponegoro, Indonesia

<sup>3</sup> Health Promotion and Occupational Health and Safety Study Program, Universitas Diponegoro, Indonesia

\*Correspondence

### Article Information

Submitted: 13 May 2026

Accepted: 25 May 2026

Publish: 31 May 2026

**Keyword:** Occupational Health and Safety; Palm Oil Industry; Workplace Accidents; Employee Productivity;

**Copyright holder:** Aisyahfira Anidya, Daru Lestantyo, Yuliani Setyaningsih

**Year:** 2026

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



### Abstract

**Introduction:** The palm oil industry presents high occupational accident risks due to heat exposure, heavy machinery, noise, chemicals, and low compliance with personal protective equipment (PPE). Therefore, Occupational Health and Safety (OHS) implementation is essential to protect workers and support productivity.

**Objective:** This study aims to determine the overview of OHS implementation in palm oil plantations and palm oil processing factories based on previous research findings.

**Method:** This study used a literature review method. Article searches were conducted through Google Scholar, PubMed, and Science Direct databases during the period 2021–2026 using keywords related to OHS implementation in the palm oil industry. From 200 identified articles, 12 articles met the inclusion criteria and were analyzed.

**Results and Discussion:** OHS implementation reduced accident risks and improved productivity. Risk identification methods, including HAZOP, Job Safety Analysis (JSA), and HIRARC, helped identify hazards and determine controls. However, implementation barriers included low worker awareness, poor PPE compliance, limited training, weak supervision, traditional work culture, and low education. **Conclusion:** The implementation of OHS in the palm oil industry is very important in creating a safe, healthy, and productive work environment. Improving training, supervision, and workers' awareness regarding the importance of OHS should be carried out continuously

## **Introduction**

Palm oil is a key component of the agribusiness and processing industry in many countries, including Indonesia, contributing significantly to the national economy through exports, job creation, and regional development. However, despite its significant economic contribution, the industry is also known for its numerous environmental and labor-related challenges, particularly regarding Occupational Health and Safety (OHS). Workers are involved in various activities, from processing oil palm fruit and refining it to the finished product, crude palm oil (CPO). Despite their vital role in the production chain, these workers also face significant challenges and risks. Palm oil mill workers are often exposed to various physical, chemical, and ergonomic risks that can endanger their safety and health. For example, the processing of oil palm fruit, which involves heavy machinery and heat, can increase the risk of workplace accidents such as burns, cuts, or injuries from falls (Sinurat et al., 2024).

Work accidents are clearly undesirable and often unexpected events that can cause losses of time, property, or loss of life that occur in an industrial work process or related to it, especially in oil palm plantations. The role of Occupational Safety and Health (K3) is very vital, in addition to being an aspect of protection for workers, it also plays a role in protecting company assets. This is reflected in the main ideas and considerations in Law of the Republic of Indonesia No. 1 of 1970 concerning Occupational Safety, namely that every worker has the right to receive protection for safety in carrying out work and everyone else in the workplace needs to be guaranteed safety as well as every production source needs to be used and utilized safely and efficiently, so that the production process runs smoothly (Rahmadani, 2022).

Occupational Safety and Health (K3) is all activities to ensure and protect the safety and health of workers by preventing workplace accidents and occupational diseases. This must be taken into account because hazardous work or working conditions can pose potential risks. Decreased health or even death may be one of the consequences (N. E. Sinaga et al., 2024). Occupational Health and Safety (K3) issues that are not well implemented in general have resulted in 2 million workers experiencing work accidents. (Alifiani et al., 2026).

Every year, more than 160 million workers suffer from occupational diseases due to unsafe working environments. According to data from the International Labor Organization (ILO), there are 1.2 million deaths due to workplace accidents and diseases (Khairunnisa, 2024). In Indonesia, 414 workplace accidents occur daily. Workplace accidents can be triggered by excessive physical, mental, and psychological fatigue or burnout, as well as microsleep (Alifiani et al., 2026). Work accidents have an impact on material losses and productivity at work, even claiming the lives of workers. Every year, thousands of work accidents occur in the work environment (Khairunnisa, 2024).

Workers' low level of occupational safety awareness and weak company oversight exacerbate this situation. The lack of implementation of occupational safety and health policies in the field makes plantation workers highly vulnerable to long-term health and safety risks. Therefore, a comprehensive literature review is needed to identify and evaluate occupational health risks related to health and workplace accidents in the palm oil plantation sector (Hidayat et al., 2026). The purpose of this study is to conduct an in-depth literature review on the implementation of occupational safety and health (K3) in oil palm plantations. Data and conclusions from previous studies related to this topic will be collected, examined, and summarized in this literature review. The findings of this

literature review are expected to contribute to a better understanding of the variables influencing the risk of occupational accidents among employees in palm oil mills.

### **Method**

In this study, the design used is Literature Review. The method in searching for article data sources is carried out through the Google Scholar database in the period 2022-2026 (the last 5 years) to retrieve relevant articles published in Indonesian. The keywords used in Indonesian are discussing the implementation of K3 in palm oil plantation factories. The search results obtained 200 articles which were then screened further, there were 188 articles that were not appropriate, because they were not accredited by Sinta or Scopus, error files and could not be accessed, so there were 12 articles accepted for analysis after going through a feasibility test. The following are the steps that will be taken in this research method:

1. **Identifying Research Objectives:** The first step in this method is identifying the research objectives, which in this case is to explore information contained in relevant journals regarding the implementation of OHS in palm oil mills. This objective will guide the literature review process.
2. **Selecting Relevant Journals:** Next, journals relevant to the research topic are selected. The selected journals must be related to the implementation of OHS in palm oil mills. Journal selection can be done using academic databases, such as PubMed, Google Scholar, or other relevant databases.
3. **Identifying Keywords and Literature Search:** After selecting relevant journals, the next step is to identify keywords that align with the research topic. These keywords can include "OHS Implementation, Palm Oil Mills, Workplace Accidents" and other relevant keyword variations. A literature search is then conducted using these keywords in the selected academic databases.
4. **Literature Selection:** After the relevant literature has been identified, a selection is conducted based on predetermined inclusion and exclusion criteria. Inclusion criteria may include research focused on OHS implementation, palm oil mills, and occupational accidents. Exclusion criteria may include irrelevant studies, studies with low methodological quality, or studies conducted on irrelevant populations.
5. **Data Analysis:** After the literature has been selected, a systematic data analysis will be conducted. Relevant data, such as key findings, research methods, sample populations, and research results, will be extracted from each journal article. This data will then be synthesized and analyzed to identify common patterns or findings regarding OHS implementation in palm oil mills.
6. **Writing the Literature Review:** The results of the data analysis will be used to write a literature review. This literature review will contain a brief overview of relevant previous studies, including the main findings, conclusions, and recommendations from these studies.

### **Results and Discussion**

Twelve articles meeting the inclusion criteria for research published between 2021 and 2026 were found after searching scientific articles through Google Scholar, PubMed, and Science Direct. These 12 articles are as follows:

Aisyahfira Anidya, Daru Lestantyo, Yuliani Setyaningsih/KESANS  
**Literature Review of Occupational Health and Safety in Oil Palm Plantations**

**Table 1**  
**Characteristics of the Analyzed Articles**

<b>Researcher's Name and Title</b>	<b>Purpose</b>	<b>Sample</b>	<b>Method</b>	<b>Results</b>
(Kasmayanti et al., 2024)  Analysis of the Implementation of K3 Using the Hazop Method in Order to Reduce Work Risks in the KSO Plantation Production Department at PTPN XIV Luwu PKS Unit	Identifying the potential for work hazards for employees to anticipate the impact of work accidents	This study involved 255 employees at PTPN XIV PKS Luwu Unit	HAZOP method	The research results indicate that increased work productivity can be achieved, among other things, by reducing the risk of workplace accidents in the production department. Several key findings from the company related to this include hazard identification and analysis, control measures, productivity improvement, constraints and solutions, and worker perceptions. Based on the HAZOP analysis results, the implemented control measures were able to reduce the risk of workplace accidents and incidents. Some obstacles to implementing the HAZOP method include a lack of worker awareness and resistance due to limited human resources.
(Tauwi & Pagala, 2022)  Implementation of the Occupational Safety and Health (K3) Program on Employee Productivity at PT. Tani Prima Makmur, Palm Oil Processing Factory (PKS) Unit, Konawe Regency	Creating an occupational safety and health management system within the company scope by involving management elements	Employees of PT Tani Prima Makmur Palm Oil Processing Factory Unit	Library research and quantitative studies	Occupational safety and health have a positive and significant impact on the productivity of PT Tani Prima Makmur Palm Oil Processing Unit (PKS) employees, occupational safety and health with productivity are closely related for employees. The company's strength lies in its human resources must be prioritized, starting from the procurement of labor, improving human resources, to attention to occupational safety and health aspects, both physical and psychological in nature of the employees themselves.
(Khairunnisa, 2024)  Literature Review: Analysis of Occupational Health and Safety Implementation in Palm Oil Plantations	The implementation of K3 in palm oil mills will be reviewed in full in the literature	5 articles	Literature review method	Risks associated with work processes in the factory need to be identified, for example through site inspections, worker interviews, and analysis of previous workplace accident data. Next, a risk assessment must be conducted to evaluate the level of danger and the likelihood of an accident or occupational

Aisyahfira Anidya, Daru Lestantyo, Yuliani Setyaningsih/KESANS  
**Literature Review of Occupational Health and Safety in Oil Palm Plantations**

(Ndraha et al., 2025)	Finding obstacles in implementing the K3 management system at PT. Bumi Mas Agro	30 samples	metode deskriptif	illness. The results of the risk assessment will form the basis for planning and implementing appropriate OHS measures. The company's obstacle to the occupational safety and health management system is that employee awareness of all types of PPE has not yet reached 100% and zero accidents have not yet been achieved.
Occupational Health and Safety Management of PT. Bumi Mas Agro's Oil Palm Plantation, East Kalimantan (Sinurat et al., 2024)	Analyzing the implementation of legal aspects of K3 in the palm oil processing industry, especially at PT S in North Sumatra	All employees at PT X	qualitative with cross-sectional design	The company has identified risks and implemented preventive measures, but still needs to increase the number of OHS experts and OHS training for employees. OHS facilities and infrastructure such as fire extinguishers, hydrants, and smoke detectors are already available, but the OHS laboratory is still obtained from a third party. Performance monitoring and evaluation have been carried out through internal and external audits. In addition, through performance monitoring and evaluation based on legal standards, the company continues to improve its OHS system, ensuring compliance with applicable regulations, but employee participation in OHSMS training remains low.
Occupational Safety and Health in the Palm Oil Processing Industry: Evaluation, Optimization of Regulatory Compliance, and Implementation at PT S				
(Alfarezy et al., 2025)	identifying farm workers' understanding of K3 principles and analyzing the urgency of legal counseling as a preventive measure against occupational risks	farm laborers on oil palm plantations	Qualitative descriptive approach	Most workers do not understand their rights regarding occupational health and safety (K3), rarely use personal protective equipment (PPE), and have never received occupational safety training. Key barriers include low levels of education, limited access to labor law information, and a strong traditional work culture. These findings underscore the need for community-based legal outreach programs to increase legal awareness and the implementation of K3.
The Urgency of Increasing Occupational Safety and Health (K3) Awareness for Palm Oil Farm Workers in Teluk Merempan Village				
(Ulfah et al., 2024)	To find out the influence of health facilities and this research aims to explain the	30 employees harvest at PT. Perkebunan Nusantara III Batang Toru	quantitative methods	Occupational safety has a significant impact. This is demonstrated by the simultaneous test results, which obtained a significance
The Influence of Occupational Safety on the Productivity				

Aisyahfira Anidya, Daru Lestantyo, Yuliani Setyaningsih/KESANS  
**Literature Review of Occupational Health and Safety in Oil Palm Plantations**

of Harvesting Employees at PT. Perkebunan Nusantara III Batang Toru Plantation, North Sumatra	influence of Occupational Safety on the Productivity of Harvest Employees at PT. Perkebunan Nusantara III Batang Toru Plantation, North Sumatra	Plantation, North Sumatra		value of 0.000, less than 0.05, which significantly influences the productivity variable. The partial test results showed a value of 0.002, less than 0.05, indicating a significant impact on the productivity of harvest employees.
(Sabran et al., 2021)	to determine and analyze the influence of the Work Environment and Work Safety and to determine the dominant variables that influence the Work Environment and Work Safety on the Risk of Work Accidents in Palm Oil Plantation Companies	91 samples	kuantitatif	The Work Environment and Occupational Safety variables have a simultaneous influence on the Risk of Occupational Accidents. The Work Environment and Occupational Safety variables have a partial influence on the Risk of Occupational Accidents at PT. Niagamas Gemilang. In addition, the occupational safety variable has a dominant influence on the risk of occupational accidents at PT. Niagamas Gemilang..
The Influence of Work Environment and Occupational Safety on the Risk of Work Accidents at the Palm Oil Plantation Company PT. Niagamas Gemilang, Kutai Kartanegara Regency				
(Yuliana, 2023)	to determine the influence of compensation, Occupational Safety (K3) literacy, and work monitoring on the performance of oil palm plantation employees at PT Sinar Dinamika Kapuas-1.	73 respondents are employees of PT Sinar Dinamika Kapuas-1	quantitative research methods	The results of this study indicate a positive and significant effect between the compensation variable (X1) and employee performance (Y), with a calculated t-value of 3.505 and a significance value of 0.001. Occupational safety and health (K3) literacy (X2) has a negative and insignificant effect on employee performance (Y), with a calculated t-value of -1.891 and a significance value of 0.60. Work monitoring (X3) has a positive and significant effect on employee performance (Y), with a calculated t-value of 23.308 and a significance value of 0.000.
The Influence of Compensation, Occupational Safety and Health (K3) Literacy, and Work Monitoring on the Performance of Palm Oil Plantation Employees (Case Study of PT. Sinar Dinamika Kapus-1)				
(Pratiwi & Fariscy, 2022)	To determine the relationship between knowledge and attitudes with the behavior of PPE use among oil palm harvesters at PT. X Rokan Hulu.	52 samples	analytical observational study design, with a cross-sectional research design.	The results of this study found a relationship between knowledge of PPE use and PPE use behavior in harvesters (p-value = 0.002), and a relationship between attitudes towards PPE use and PPE use behavior (p-value = 0.047).
The Relationship Between Knowledge and Attitudes with the Behavior of Using Personal Protective Equipment (PPE) of Oil Palm Harvesters at PT. X Rokan Hulu				

Aisyahfira Anidya, Daru Lestantyo, Yuliani Setyaningsih/KESANS  
**Literature Review of Occupational Health and Safety in Oil Palm Plantations**

(G. Sinaga et al., 2024)	anticipating work accidents that occur at the PTPN III PKS Rambutan boiling station.	Employees at the Boiling Station of the PTPN III PKS Rambutan Factory (Persero)	Analisis menggunakan JSA dan HIRARC berhasil mengidentifikasi tingkat risiko pada masing-masing aktivitas.	Six activities at the boiling station pose potential workplace accident risks, including a truck falling due to slippery rails, workers being sprayed with hot steam, hands getting caught in doors, falling from ladders, and excessive noise. These findings are expected to serve as a reference for other companies implementing similar strategies to improve workplace safety.
Implementation of Job Safety Analysis and Hazard Identification Risk Assessment and Determining Control to minimize the Hazard of Work Accidents at the Boiling Station of the PTPN III PKS Rambutan (Persero) Factory				
(Romadiah et al., 2025)	to find out the relationship between the implementation of occupational safety and health and employee work productivity at PT X	177 samples	Quantitative cross-sectional research method	Occupational Health has a relationship with Work Productivity with a p value of 0.002. Work Motivation has a relationship with Work Productivity with a p value of 0.002. Work Compensation has a relationship with Work Productivity with a p value of 0.001. Work Ability has a relationship with Work Productivity with a p value of 0.001.
The Relationship between the Implementation of Occupational Safety and Health Programs and Employee Productivity at the Oil Palm Plantation (PKS) of PT X in Indragiri Hilir Regency, Riau				

Based on the 12 articles analyzed, the discussion was synthesized thematically rather than described article by article. The main findings show that OHS implementation in palm oil plantations and mills depends on systematic risk identification, PPE compliance, productivity support, implementation barriers, and improvement strategies. Risk identification methods such as HAZOP, JSA, HIRARC, workplace inspection, interviews, and accident data analysis help identify hazards and determine control measures. PPE compliance is influenced by knowledge, attitude, education, training, supervision, and work culture. OHS implementation is also related to productivity because a safer workplace can reduce accidents, absenteeism, and work disruption. However, implementation is still limited by low worker awareness, lack of OHS experts, low training participation, resistance to safety procedures, and incomplete PPE use. Therefore, improvement efforts should focus on regular risk assessment, continuous training, stronger supervision, competent OHS personnel, periodic audits, and the development of a stronger safety culture

Research conducted by Kasmayanti et al. (2024) demonstrated that the application of the HAZOP method in the production department of PTPN XIV Luwu PKS Unit was able to identify various potential occupational hazards and help reduce the risk of workplace accidents. However, several obstacles remain in its implementation, such as low worker awareness of the importance of OHS and limited human resources. A similar finding was found in a study by Sinaga et al. (2024), which used the Job Safety Analysis (JSA) and HIRARC methods to identify potential occupational hazards at a palm oil mill's

boiling station. The study identified several accident risks, including exposure to hot steam, hands caught in doors, falls from ladders, and excessive noise. In addition to its relevance to occupational safety, several studies have also shown that OHS implementation is associated with increased employee productivity. Research by Tauwi and Pagala (2022), Ulfah et al. (2024), and Romadiah et al. (2025) found that occupational safety and health have a positive and significant impact on employee productivity. Employees who feel safe and protected at work tend to have better motivation and performance. Good OHS implementation can also reduce absenteeism due to accidents and work fatigue.

The literature review also indicates that workers' knowledge and awareness regarding the use of PPE remains relatively low. Research by Pratiwi and Fariscy (2022) found a relationship between worker knowledge and attitudes and PPE use among oil palm harvesters. Workers with good knowledge and attitudes toward OHS tend to be more compliant with PPE use. However, research by Alfarezy et al. (2025) and Ndraha et al. (2025) shows that many workers still do not use complete PPE and do not understand their rights related to occupational safety. Low levels of education, traditional work culture, and lack of training are the main causes of low OHS awareness.

From a company management perspective, several companies have implemented OHS management systems and conduct regular evaluations. However, implementation remains suboptimal. Research by Sinurat et al. (2024) noted that companies have provided OHS facilities such as fire extinguishers, hydrants, and smoke detectors, but worker participation in OHS training remains low and the number of OHS experts is limited. This indicates that the success of OHS implementation depends not only on the availability of facilities but also on the company's commitment and employee involvement in upholding a work safety culture.

Overall, the results of this literature review indicate that implementing OHS in the palm oil industry is crucial for preventing workplace accidents, improving worker safety, and supporting company productivity. However, improvements are still needed in supervision, training, compliance with PPE use, and increasing worker awareness of the importance of occupational safety and health.

## **Conclusion**

Based on the literature review conducted, it can be concluded that the implementation of OHS in palm oil plantation factories is very important and several points can be taken from various studies showing that the work environment in the palm oil industry has a fairly high risk of danger, such as exposure to heat, heavy machinery, disturbances, slippery floors, and low use of personal protective equipment (PPE). The application of risk elimination and control methods such as HAZOP, Job Safety Analysis (JSA), and HIRARC has been proven to be able to help companies reduce the potential for workplace accidents. In addition, the implementation of a good OHS program also has a positive impact on worker productivity and performance. However, there are still several obstacles in the implementation of OHS, such as low worker awareness of the importance of occupational safety, insufficient use of PPE, limited OHS training, and suboptimal supervision from the company. Therefore, companies need to improve the OHS management system through regular training, stricter supervision, provision of adequate safety facilities, and increased worker participation in the work safety culture. With optimal OHS implementation, it is hoped that a safe, healthy, and productive work environment will be created for all workers in the palm oil plantation industry.

### Reference

- Alfarezy, M., Andrikasmi, S., Simarmata, L. Q., & Ramadhan, Z. (2025). Urgensi Peningkatan Kesadaran Keselamatan dan Kesehatan Kerja ( K3 ) bagi Buruh Tani Kelapa Sawit di Kampung Teluk Merempan. *Unri Conference Series: Community Engagement*, 7, 305–310.
- Alifiani, A. D., Ramdan, I. M., Hardianti, D. N., Sultan, M., Ayu, I., & Dwika, I. (2026). The Coreelation Between Work Burnout and Microsleep With Work Accidents in PT X East Kalimantan. *HSEJ : Health Safety and Environment Journal*, 5(1), 185–191.
- Hidayat, A. N., Agusti, R. K., & Prasetyo, J. (2026). Evaluasi Risiko Kesehatan Kerja Akibat Pestisida Dan Pupuk Di Industri Kelapa Sawit Occupational Health Risk Evaluation from Pesticide and Fertilizer Use in Palm Oil Industry. *The Journal of Indonesian Industrial Hygiene Association*, 2(1), 51–60.
- Kasmayanti, I., Utomo, S. B., Khoiriyah, N., Studi, P., Industri, T., Islam, U., Agung, S., & Assessment, R. (2024). Analisis Penerapan K3 Menggunakan Metode HAZOP dalam Rangka Mengurangi Resiko Kerja Departemen Produksi KSO Kebun di PTPN XIV Unit PKS Luwu. *Journal of Research and Technology Studies*, 3(2), 55–61.
- Khairunnisa, R. (2024). Literature Review : Analisis Penerapan K3 di Pabrik Perkebunan Kelapa Sawit. *Journal of Health and Medical Science*, 4(1), 368–377.
- Ndraha, S., Suswatiningsih, T. E., & Purwandari, I. (2025). Manajemen K3 Perkebunan Kelapa Sawit PT. Bumi Mas Agro, Kalimantan Timur. *Manajemen Agribisnis*, 25(13), 127–134.
- Pratiwi, Y., & Fariscy, A. (2022). Hubungan pengetahuan dan sikap dengan perilaku penggunaan apd pemanen kelapa sawit pt. x rokan hulu. *Collaborative Medical Journal*, 5(1), 1–6.
- Rahmadani, S. (2022). Analisis Perilaku Penggunaan APD Terhadap Kecelakaan Kerja Pada Pekerja Pablik Kelapa Sawit : Literature Review. *Journal of Health and Medical Science*, 1(4), 112–122.
- Romadhiah, U., Rahayu, E. P., & Herniwanti. (2025). Hubungan Penerapan Program Keselamatan dan Kesehatan Kerja Terhadap Produktivitas Karyawan pada Perkebunan Kelapa Sawit ( PKS ) PT X di Kabupaten Indragiri Hilir Riau. *Jurnal Sosial Dan Teknologi*, 5(4), 1211–1226.
- Sabran, Fathurrahman, A., & Fahmi. (2021). Pengaruh Lingkungan Kerja Dan Keselamatan Kerja Terhadap Resiko Kecelakaan Kerja Di Perusahaan Perkebunan Kelapa Sawit Pt. Niagamas Gemilang Kabupaten Kutai Kartanegara. *JEMI*, 21(2).
- Sinaga, G., Ruth, I., & Christine, A. (2024). Implementasi Job Safety Analysis dan Hazard Identification Risk Assessment and Determining Control untuk meminimalkan Bahaya Kecelakaan Kerja di Stasiun Rebusan Pabrik PTPN III PKS Rambutan ( Persero ). *Junal Ilmiah Teknik Industri Prima*, 7(2), 7–14.
- Sinaga, N. E., Sintia, T. R., Aulia, R., & Purba, S. H. (2024). Analisis Penerapan K3 di Pabrik Perkebunan Sawit ( Literatur Review ). *Jurnal Anestesi: Jurnal Ilmu Kesehatan Dan Kedokteran*, 2(3).
- Sinurat, F. W., Yusuf, F. H., Rahmadani, F., Khaila, S. N., Malau, U. C., & Ramanda, Y. (2024). Keselamatan dan Kesehatan Kerja di Industri Pengolahan Kelapa Sawit: Evaluasi, Optimalisasi Kepatuhan Regulasi, dan Implementasinya di PT S. *Talenta Conference Series*, 7(1). <https://doi.org/10.32734/ee.v7i1.2208>

- Tauwi, & Pagala, I. (2022). Implementasi Program Keselamatan Dan Kesehatan Kerja ( K 3 ) Terhadap Produktivitas Karyawan Pada PT . Tani Prima Makmur Unit Pabrik Pengolahan Kelapa Sawit ( PKS) Kabupaten Konawe. *Jurnal Imliah Bidang Sosial, Ekonomi, Budaya, Teknologi Dan Pendidikan*, 1(2), 31–40.
- Ulfah, F., Batubara, S., Puruhito, D. D., Rahmawati, S., & Agribisnis, P. S. (2024). Pengaruh Keselamatan Kerja terhadap Produktivitas Karyawan Panen di PT . Perkebunan Nusantara III Kebun Batang Toru Sumatera Utara. *Agroforetech*, 2(8), 1785–1791.
- Yuliana, M. (2023). Pengaruh Kompensasi , Literas Keselamatan Dan Kesehatan Kerja ( K3 ), Dan Work Monitoring Terhadap Kinerja Karyawan Perkebunan Kelapa Sawit ( Studi Kasus PT . Sinar Dinamika Kapus-1 ). *Journal Of Social Science Research Volume*, 3(6), 5829–5836.