

## Behavioural Impacts of Workers on Performance: The Case of Malaysian Oil Palm Plantation

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### Abstract

Malaysia is the second world's largest oil palm producer after Indonesia, accounting for about 30% of the total producers. The palm oil industry also contributed significantly to the Malaysian economy as the highest contributor to the national gross domestic product (GDP) for the agriculture sector. As a huge industry in Malaysia, the palm oil industry relies heavily on workers because of the manual activities that require them to execute, like harvesting and collecting fresh fruit bunches (FFB). At the plantation level, dealing with a group of workers can be challenging owing to various issues related to workers' behaviour such as workers' efficacy, initiative, motivation, dependability, and cooperativeness. Recognising workers' behaviour is vital because it will impact how well the plantation performs. Thus, this study aimed to examine the impacts of workers' behaviour on Malaysian oil palm plantation performance. A structured questionnaire was used during in-depth interviews with 83 Malaysian oil palm plantation executive staff using simple random sampling method. The data were analysed using descriptive analysis, mean ranking analysis, and multiple regression analysis. The results revealed that workers' efficacy, initiative, motivation, dependability, and cooperativeness significantly impact the performance of Malaysian oil palm plantations. From all five variables, motivation was the most significant predictor identified as the highest contributing factor that impacted the Malaysian oil palm plantation's performance. The findings showed an important indication that the plantations need to acknowledge and handle their workers' behaviour to achieve greater performance. The framework of this research can be extended to the oil palm smallholders to capture the overall scenario of the palm oil industry players and their contribution to the Malaysian economy.

**Keywords:** Plantation Workers, Behaviour, Oil Palm Plantation, Performance, Human Resource

**Introduction**

Oil palm is an essential commodity crop, and the modernization of the Malaysian oil palm plantation has become a pillar of the country's economy (Ni et al., 2016; Alam et al., 2020). In 2020, oil palm was Malaysia's largest production contributor in agricultural commodities, with Gross Domestic Product (GDP) estimated at RM36.87 billion (DOSM, 2021). According to the Malayan Agricultural Producers Association (MAPA), Malaysian oil palm plantation is the second biggest employer after the government and today, it provides full-time employment for close to one million workforces (MAPA, 2018). The current ratio of workers to plantation area is one person to 10 hectares of oil palm area (Jasni & Othman, 2017). Despite numerous introductions of machinery and technologies to the plantation, manpower remains indispensable to the industry because many tasks require manual operation (Nawi et al., 2016). Workers in Malaysian oil palm plantations are referred to as the lowest level of employees in the hierarchy and represent the biggest pool of employees (Ahmad et al., 2017). Their involvement is critical to palm oil production because they are required to perform most of the manual activities, such as harvesting fresh fruit bunch (FFB), collecting, and loading FFB, field upkeep, fertilizing, weeding, and other general maintenance works (Ludin et al., 2014). Harvesting and collecting FFB are both the most laborious and labour-intensive activities (Azman et al., 2016; Surianshah et al., 2020).

Malaysian oil palm plantation employs massive numbers of workers, but the majority presently comprise foreign workers from Bangladesh, Indonesia, Myanmar, India, Nepal, and Sri Lanka (Ahmad et al., 2017; Mohamad et al., 2013). As Malaysia expanded its plantations, so did its reliance on foreign workers because the locals lost interest in working on the oil palm plantation estates due to the perceived 3D job, which is dirty, difficult, and dangerous (Kamaruddin et al., 2018). The challenges then befall upon the managers to deal with numerous workers from various backgrounds that resulted in a variety of worker issues (Ismail, 2013; MAPA, 2018). Specifically, issues related to workers' behaviour that may impact production and consequently, the plantation's performance (Zulkefli et al., 2018). The issues are mainly related to workers' efficacy, initiative, motivation, dependability, and cooperativeness (MAPA, 2018; NUPW, 2018). Previous studies showed that workers' behaviour is crucial in determining the performance of an organization (Wright et al., 2005; Ibitoye et al., 2011; Raza et al., 2014; Nawi et al., 2016; Johari & Jha, 2020; Truong & Le, 2020). Specifically, the studies by Zulkefli et al (2018); Syahlan et al (2020) discovered the influence of workers' behaviour in oil palm plantations on plantation productivity and business cost. To achieve an increase in output, plantations need to have a consistently skilled workforce (Ahmad et al., 2017). Losing experienced workers will impact the plantation's performance as it takes six (6) months to train the new workers (NUPW, 2018).

The plantation's reputation among the buyer and collectors is also at stake if the plantation keeps losing its workers (Saad et al., 2021). Nevertheless, problems arise inherently with new workers, particularly in terms of efficacy, when they do not know how to operate plantation equipment safely (Myzabella et al., 2019), risking accidents, disrupting plantation workflow and, as a result, affecting FFB productions (Nawi et al., 2016). Accordingly, reducing the number of safety accidents involving plantation equipment can be expected if workers learn to properly handle these instruments (Cherian et al., 2013; Saad et al., 2021). However, not all workers have the initiative to learn cutting-edge information or knowledge about plantation techniques (Johari & Jha, 2020). On top of that, some workers even procrastinate their tasks and do not actively seek out other assignments once they have completed their current tasks (MAPA, 2018). Instead, they would wait for their superior to assign them the

next task (Patro, 2013). Besides issues related to workers' efficacy and initiative, there are also issues concerning workers' motivation. Personal problems indeed influence the workers' motivation to work (Wiley, 1997). According to Malaysian law and regulations, families of foreign workers are not permitted to accompany them to work on Malaysian plantations (Immigration Department of Malaysia, 2021). The separation makes them feel lonely and causes psychological pain, affecting their work motivation (Jasni & Othman, 2017). Emotional aside, the low salary rate and poor employment benefit scheme affect the workers' standard of living (Myzabella et al., 2019). Although there is a minimum wage law that is revised every three years to protect the workers, the piece-rate payment practice, however, does not guarantee security income to the workers (Kamaruddin et al., 2018). Other compensation packages could be introduced, such as facilities and welfare management, which are critical for lifting the workers' motivation (Jasni & Othman, 2017). As stipulated by the law, the plantations are required to provide workers with accommodation that includes regular access to water and electricity (NUPW, 2018). Reducing the workers' poor living conditions with an irregular supply of clean water, limiting electricity supply, and congesting small housing quarters will result in workers feeling demoralized (Myzabella et al., 2019). Therefore, it is crucial that the workers are satisfied with living on the plantation as it will impact their morale which ultimately influences the plantation's performance (Karim, 2017).

Workers' behaviour is also related to dependability, which can be measured by assessing punctuality and absenteeism (NUPW, 2018). Workers' dependability is questionable when they do not adhere to their working hours (Michon et al., 2006). In this context, FFBs must be harvested as soon as they are ripe for high-oil-value extraction (Myzabella et al., 2019). A punctual, dependable worker will harvest the FFBs on time as they are able to understand the importance of the actions. Dependability is also related to responsibility. The workers must be held accountable for their actions. For example, facing disciplinary and misconduct charges for an illegal strike to protest when they are underpaid, or a miscalculation is detected in their salary (MAPA, 2018). Meanwhile, one of the main essences to achieve a higher productivity rate is a cooperation between multinational workers (Khalifah et al., 2008). Different backgrounds and the language barrier can limit the worker's cooperativeness. Problems in communication may hinder the transmission of a message; for instance, miscommunication results in safety incidents and causes the management to lose control of plantation activities (Cherian and Jacob, 2013; MAPA, 2018). Conflicts, disagreements, and accidents are a few of the difficult situations that workers must face. The way they respond to the situation and the projected behaviour may have an impact on the performance of the plantation. Therefore, the objectives of this study are established as follows:

1. To investigate the impacts of workers' behaviour on Malaysian oil palm plantation performance.
2. To determine the highest contributing variable of workers' behaviour on Malaysian oil palm plantation performance.

### **Literature Review**

Performance measurement is integral to the organization to attain better decision-making (Mohamad et al., 2013). It depends heavily on its valued human resource management as the workers design and support an organization's entire system (Gupta, 2022). Organizational performance refers to a company's performance based on achieving its goals and objectives (Cho & Dansereau, 2010). Tomal and Jones (2015) described the organizational performance

as the actual results or output of an organization measured against that organization's intended outputs. Measuring performance is critical for organizations to stay in business and remain competitive (Iveta, 2012). The key to organizational performance is its employees as they work towards achieving the organization's goals (Almatrooshi et al., 2016; El-Ghorra et al., 2023). Workers with positive behaviour will, therefore, lead to improved performance and greater organizational success (Truong and Le, 2020). Workers' role expectation is about them knowing what is required in their job or known as task efficacy (Michon et al., 2006). Efficacy is the belief that you can achieve a specific goal or perform a specific task (Cherian & Jacob, 2013). It is the ability to perform a task to an expected degree of satisfaction and will lead to increased performance and productivity (Nafei, 2017). The effectiveness of an organization consists of the efficiency of each employee (Mastrangelo et al., 2014). Many researchers used efficacy to measure workers' behaviour, such as (Tsang and Chui, 2000; Michon et al., 2006; Cherian and Jacob, 2013; Pavalache-Ilie, 2014; Davidescu et al., 2020).

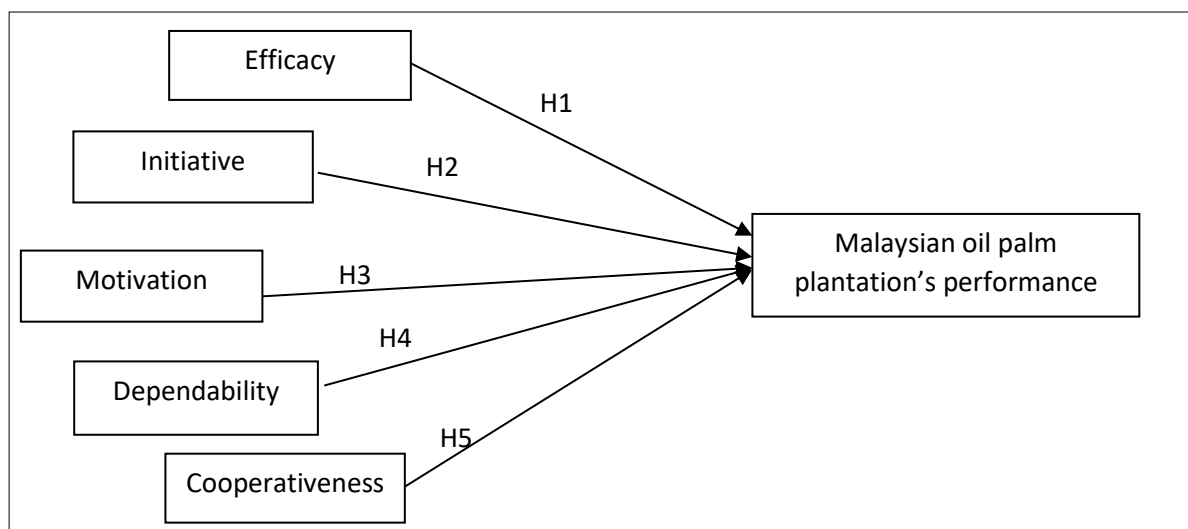
Workers' initiative towards their jobs is increasingly important as it can predict organizational performance (Groen et al., 2012). Worker's initiative is described as doing the right thing without being told, the ability to act first or on one's own, and is much relatable with self-confidence (Michon et al., 2006). It is an anticipatory action that employees take to impact themselves and their environment (Wihler et al., 2017). An initiative worker is characterized as a proactive worker actively searching for opportunities to contribute to organizational success and can be considered as the organization's asset (Asari et al., 2014). Workers' initiative is measured by using their abilities to work continuously, independently looking for more work once finished with their current task, being willing to improve their working skills, eager to work and make their contribution. Motivation is the degree to which an individual wants to achieve something and chooses to engage in his or her behaviour (Mitchell, 1982). It is an incentive or reason for doing something, especially in behaviour (Truong & Le, 2020). Employees tend to perform better when they are motivated because of the compensation received afterwards (Islam & Ismail, 2008). Motivated employees are eager to do their work, which could translate to improved performance. Salary, recognition, compensation, workload, performance, and personal issues are the indicators used to measure motivation (Iveta, 2012). However, non-financial rewards, such as appreciation and recognition, are just as important as financial rewards (Davidescu et al., 2020). Motivation is a very popular variable associated with performance, as studied by Vliet (2017); Davidescu et al (2020); Truong and Le (2020) and others.

Classically, a dependable worker is one that the employer can place confidence in or rely upon them (Dudycha, 1941). It is a quality of being able to be counted on and doing what is required (Michon et al., 2006). The behaviour indicators for a dependable worker are abilities to recognize the relative importance of certain tasks and demonstrate commitment and reliability. In this study, workers' dependability level is measured based on their punctuality in finishing the task, presenting themselves for work, attendance, persistency in carrying their task to completion despite difficulties, and their capabilities to follow the rules and keep agreements. Cooperativeness is about how someone gets along and the degree to which a person is generally agreeable in their relations with other people (Lu et al., 2012). Cooperativeness is related to the working environment, communication skills, and the workers' social relationships (Asari et al., 2014). Workers' cooperativeness has a direct impact on the organization's productivity, success, and performance (Patro, 2013; Aktar, 2016). It is measured based on a worker's capability to get along with co-workers, fitting in easily, readiness to take colleagues' tasks into consideration, and ability to converse with colleagues.

## Methodology

### *Conceptual Framework and Hypotheses*

Figure 1 illustrates the connection between workers' behaviour and the performance of Malaysian oil palm plantation. Based on the literature review, performance was measured based on workers' task efficacy, initiative, motivation, dependability, and cooperativeness. Thus, the conceptual framework for this study was established as follows:



*Figure 1: Conceptual framework of the study*

*Source:* (Mitchell, 1982; Michon et al., 2006; Cherian and Jacob, 2013; Pavalache-Ilie, 2014; Davidescu et al., 2020; Truong and Le, 2020)

According to the conceptual framework above, the hypotheses tested for this study were as follows:

H<sub>0</sub>: Workers' efficacy does not impact the performance of Malaysian oil palm plantation.

H<sub>1</sub>: Workers' efficacy does impact the performance of Malaysian oil palm plantation.

H<sub>0</sub>: Workers' initiative does not impact the performance of Malaysian oil palm plantation.

H<sub>2</sub>: Workers' initiative does impact the performance of Malaysian oil palm plantation.

H<sub>0</sub>: Workers' motivation does not impact the performance of Malaysian oil palm plantation.

H<sub>3</sub>: Workers' motivation does impact the performance of Malaysian oil palm plantation.

H<sub>0</sub>: Workers' dependability does not impact the performance of Malaysian oil palm plantation.

H<sub>4</sub>: Workers' dependability does impact the performance of Malaysian oil palm plantation.

H<sub>0</sub>: Workers' cooperativeness does not impact the performance of Malaysian oil palm plantation.

H<sub>5</sub>: Worker's cooperativeness does impact the performance of Malaysian oil palm plantation.

### *Questionnaire Development and Data Collection*

Worker's behaviour can be measured through supervisor intervention by using a behavioural survey (Michon et al., 2006; Johari & Jha, 2020). In this study, all workers in Malaysian oil palm plantations were considered as a single culture since their nationality did not impact productivity (Ahmad et al., 2017). The merger of workers' different backgrounds is known as a single cultural model (Raza et al., 2014). To understand the impact of workers' behaviour on Malaysian oil palm plantation's performance, this study approached the Malaysian oil

palm plantation executive staff that is considered an expert in evaluating the workers' behaviour. Geographically, Malaysia is divided into two regions: Peninsular Malaysia and East Malaysia. Peninsular Malaysia is further divided into four regions - the Southern Region (Johor, Melaka, Negeri Sembilan), the East Coast Region (Pahang, Terengganu, Kelantan), the Northern Region (Kedah, Penang, Perlis, Perak) and the Central Region while East Malaysia is divided into Sabah and Sarawak. Thus, the questionnaire was distributed among the executive staff in these six regions.

In this study, simple random sampling was employed to select the respondent. A structured questionnaire was used during interviews that required the executive staff to respond to questions regarding the workers' behaviour at their plantations. The structured questionnaire was divided into three sections: Section A, Section B, and Section C. Section A consisted of open-ended and close-ended questions regarding plantation profiles. Using 5-point Likert scales, the questions in Section B and Section C were established to measure workers' behaviour and the impacts of their behaviour on plantation performance, respectively. The scales ranged from 1 to 5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree. All questions established in both sections were very reliable for supervisor reports (Michon et al., 2006).

### Data Analysis

Descriptive analysis is generally used to describe the basic features of the data in a study. It provides simple summaries of the sample and other important information regarding the plantation profiles with data commonly expressed as maximum, minimum, and mean. Mean ranking analysis was used to measure and describe the independent and dependent variables, namely efficacy, initiative, motivation, dependability, cooperativeness, and organizational performance. The results of these variables were then used as part of the variables in multiple regression analysis, and it was used to analyse the relationship between multiple independent variables and a single dependent variable (Morrissey & Ruxton, 2018). Five independent variables were selected as predictors of the dependent variable, which is Malaysian oil palm plantation performance. The five independent variables are efficacy, initiative, motivation, dependability, and cooperativeness. The workers' behavioural variables were incorporated into a multiple linear regression model that could explain the variation in performance in Malaysian oil palm plantations. Thus, the multiple regression model for this study is written as:

$$\text{Plantation performance} = \beta_0 + \beta_1(\text{efficacy}) + \beta_2(\text{initiative}) + \beta_3(\text{motivation}) \\ + \beta_4(\text{dependability}) + \beta_5(\text{cooperativeness}) + \varepsilon$$

With  $\beta_0$  = Y-intercept

$\beta_1$  = regression coefficient for efficacy

$\beta_2$  = regression coefficient for initiative

$\beta_3$  = regression coefficient for motivation

$\beta_4$  = regression coefficient for dependability

$\beta_5$  = regression coefficient for cooperativeness

$\varepsilon$  = error term

## Results and Discussions

### Respondents' Socio-Demographic Profiles, Firmographic Profiles, and Plantation Performance Status

The descriptive analysis was employed to review the socio-demographic profiles of 83 respondents (Table 1). In terms of the designation, one of the respondents was the company CEO, 27 were plantation managers, 36 were assistant managers, 13 were supervisors, and six (6) were field assistants. Most of the respondents, 35 (42.2%), have graduated with a bachelor's degree, followed by diploma graduates with 31 respondents (37.3%). There were 11 respondents (13.3%) with a master's degree and only six (6) respondents (7.2%) who graduated from secondary school. In terms of working experience, 27 respondents (32.5%) have accumulated at least 11 to 15 years of working experience with the plantation, followed by 22 respondents (26.5%) with a working experience between 6 to 10 years and 17 respondents (20.5%) with less than five (5) years of working experience. There were 11 respondents (13.3%) with working experience between 16 to 20 years, and only six respondents (7.2%) have been working at the plantation for more than 21 years. Most of the respondents, 31 respondents (37.3%), were aged between 31 to 40 years old, followed by 23 respondents (27.7%) of age between 41 to 50 years old. There were 19 respondents (22.9%) aged less than 30 years old, and 10 respondents (12.1%) aged more than 51 years old. A large majority of the respondents (82 respondents, 98.8%) were male, while only one respondent (1.2%) was female. This finding is expected, given the nature of work for plantation workers where it is mostly dominated by men.

Table 1

#### *Respondents' socio-demographic profiles*

	<b>Profile</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Designation</b>	CEO	1	1.2
	Manager	27	32.5
	Assistant Manager	36	43.4
	Supervisor	13	15.7
	Field Assistant	6	7.2
<b>Level of Education</b>	Master's Degree	11	13.3
	Bachelor's Degree	35	42.2
	Diploma	31	37.3
	Secondary School	6	7.2
<b>Working Experience</b>	≤ 5 years	17	20.5
	6-10 years	22	26.5
	11-15 years	27	32.5
	16-20 years	11	13.3
	≥ 21 years	6	7.2
<b>Age</b>	≤ 30 years	19	22.9
	31 - 40 years	31	37.3
	41-50 years	23	27.7
	≥ 51 years	10	12.1
<b>Gender</b>	Male	82	98.8
	Female	1	1.2
<b>n=83</b>			

The firmographics of the Malaysian oil palm plantation were described in Table 2. The first profile in Table 2 is the plantation location, which was divided into six regions. The results revealed that most of the plantations involved in this study were located in the Southern Region (32, 38.6%), followed by the East Coast Region (28, 33.7%). The Northern and Central Region accounted for (6, 7.2%) and (10, 12.1%), respectively, while only two plantations (2.4%) in Sabah and five (6.0%) in Sarawak. The ownership structures of the plantations comprised 36 plantations under the government scheme, such as the Federal Land Development Authority (FELDA) and Federal Land Consolidation and Rehabilitation Authority (FELCRA), while about 18 plantations were the government-link company (GLC). The percentage was 43.4% and 21.7%, respectively. 17 plantations were state-owned (20.5%), and only 12 (14.4%) were foreign-owned. The results also revealed that almost half of the plantation size was between 1,001 hectares to 2,000 hectares (38 plantations, 45.8%), followed by 20 plantations (24.1%) under 1,000 hectares. Most of the plantations (58 plantations, 69.9%) had operated for less than 30 years, 18 plantations (21.7%) operated between 31 to 60 years and only seven plantations (8.4%) operated for more than 61 years. In this study, most of the plantations employed less than 100 local workers (77, 92.8%). The low number of local workers employed was expected because locals are less attracted to working at the plantation due to the 3D jobs perspective, which is a dirty, dangerous and demeaning job (Kumar et al., 2014). The majority of the plantations employed a greater proportion of foreign workers than local workers.



Table 2

*Malaysian oil palm plantation firmographic profiles*

	<b>Profile</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Location</b>	Southern Region	32	38.6
	East Coast Region	28	33.7
	Northern Region	6	7.2
	Central Region	10	12.1
	Sabah	2	2.4
	Sarawak	5	6.0
<b>Ownership Structure</b>	Government Scheme	36	43.4
	Government-Linked Company (GLC)	18	21.7
	State-Owned	17	20.5
	Foreign-Owned	12	14.4
<b>Total Size (hectares)</b>	≤ 1,000	20	24.1
	1,001 - 2,000	38	45.8
	2,001 - 3,000	14	16.9
	≥ 3,001	11	13.2
<b>Total Years of Operating</b>	≤ 30 years	58	69.9
	31 - 60 years	18	21.7
	≥ 61 years	7	8.4
<b>Local Workers</b>	Below than 100	77	92.8
	101 - 200	5	6.0
	More than 201	1	1.2
<b>Foreign Workers</b>	Below than 200	66	79.5
	201 - 400	11	13.3
	More than 401	6	7.2
<b>n=83</b>			

The descriptive analysis was also employed to review the performance status of Malaysian oil palm plantation for the past three years, and the findings are presented in Table 3. The total harvested FFB indicated that 56 plantations (67.5%) produced FFB between 21 MT/ha to 30 MT/ha, and only 27 plantations (32.5%) produced FFB below 20 MT/ha. The suggested productivity for oil palm plantations by the Malaysian government is 25 MT/ha. All respondents agreed that there was an improvement in their plantation performance in the past three years. The analysis also highlighted the plantation performance in terms of return on investment (ROI). The majority of the respondents, with 60 respondents (72.3%), agreed that their plantation ROI had substantially improved, while 18 respondents (21.7%) said that their plantation ROI had moderately improved, and only five respondents (6.0%) claimed that their plantation ROI had slightly improved. In terms of workers' productivity rate, 57 plantations (68.7%) had highly improved, 15 plantations (18.1%) had moderately improved, 11 plantations (13.2%) had slightly improved, and none that have claimed no improvement. Out of 83 plantations, 54 plantations (65.0%) agreed that their worker turnover rate issue had substantial improvement for the past three years, 16 plantations (19.3%) had the issue moderately improved, while only 13 plantations (15.7%) had the issue slightly improved, and

zero percent had no improvement. From the reported number of safety incidents perspective, all respondents agreed that the reported safety incidents at their plantations had decreased over the past three years.

The majority of the respondents (54, 65.0%) agreed that their plantations managed to vastly decrease the issue over the past three years, while 14 plantations (16.9%) had moderately decreased it and 15 plantations (18.1%) reported a slight decrease situation. The foreign workers' shortage issue is also one of the indicators used to measure plantation performance. Out of 83 respondents, 54 (65.0%) agreed that their plantation had substantially improved the issue, 12 plantations (14.5%) agreed that it had moderately improved, and 17 (20.5%) plantations had it slightly improved. In addition, 50 respondents (60.2%) agreed that their customer and buyer trusts towards their plantation had improved substantially over the past three years, while 20 respondents (24.1%) claimed moderate improvement and only 13 respondents (15.7%) claimed slight improvement. In terms of the plantation ability to consistently produce a quality FFB, most of the respondents (58, 69.9%) agreed that it had substantial improvement, 18 plantations (21.7%) had moderate improvement, and seven plantations (78.4%) had slight improvement. In this study, Malaysian oil palm plantation performance is also measured based on the workers' satisfaction with their management. Results in Table 3 show that 58 plantations (69.9%) had their workers' satisfaction improved substantially, 12 plantations (14.5%) had moderate improvement and 13 plantations (15.7%) had slight improvement. From the plantation's ability to control their activity perspective, 60 plantations (72.3%) claimed substantial improvement in their abilities, 14 plantations (16.9%) had moderate improvement, and the remaining nine plantations (10.8%) had slightly improved their abilities over the past three years. Most of the respondents (56 respondents, 67.4%) agreed that the number of potential FFB buyers had improved greatly, 10 respondents (12.1%) had a moderate improvement, and 17 respondents (20.5%) had a slight improvement.

Table 3

*Performance status of Malaysian oil palm plantation*

	<b>Profile</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Total harvested FFB</b>	≤ 20 MT/ha	27	32.5
	21 - 30 MT/ha	56	67.5
<b>Return on investment (ROI)</b>	No improvement	0	0
	Slightly improved	5	6.0
	Moderately improved	18	21.7
	Highly improved	60	72.3
<b>Workers' productivity rate</b>	No improvement	0	0
	Slightly improved	11	13.2
	Moderately improved	15	18.1
	Highly improved	57	68.7
<b>Workers' turnover rate (lost headcount)</b>	No improvement	0	0
	Slightly improved	13	15.7
	Moderately improved	16	19.3
	Highly improved	54	65.0

	Highly improved		
<b>Number of safety incident</b>	No improvement	0	0
	Slightly improved	15	18.1
	Moderately improved	14	16.9
	improved	54	65.0
	Highly improved		
<b>Foreign workers shortage issue</b>	No improvement	0	0
	Slightly improved	17	20.5
	Moderately improved	12	14.5
	improved	54	65.0
	Highly improved		
<b>Collector and buyer's trusts</b>	No improvement	0	0
	Slightly improved	13	15.7
	Moderately improved	20	24.1
	improved	50	60.2
	Highly improved		
<b>Consistent quality production of FFB</b>	No improvement	0	0
	Slightly improved	7	8.4
	Moderately improved	18	21.7
	improved	58	69.9
	Highly improved		
<b>Workers' satisfaction with management</b>	No improvement	0	0
	Slightly improved	13	15.7
	Moderately improved	12	14.4
	improved	58	69.9
	Highly improved		
<b>Ability to control plantation activity</b>	No improvement	0	0
	Slightly improved	9	10.8
	Moderately improved	14	16.9
	improved	60	72.3
	Highly improved		
<b>Number of potential FFB buyer</b>	No improvement	0	0
	Slightly improved	17	20.5
	Moderately improved	10	12.1
	improved	56	67.4
	Highly improved		
<b>n=83</b>			

### Mean Ranking Analysis

Mean ranking analysis was conducted to describe the responses using mean and standard deviation (SD) for each question. The mean is a measure of the central tendency that provides a general view of the data while standard deviation refers to a measure of dispersion that provides an estimate of data spread or variability (Sekaran & Bougie, 2013). Mean ranking analysis results were then used as part of the variables in multiple regression analysis. The mean ranking analysis in Table 4 shows that the SD values range from 0.862 to 1.297. These values indicate a narrow spread around the mean. The mean values of all the items ranged from 3.67 to 4.18 and were greater than the mean score of the scale, which is three (3). The

mean values were ranked according to the five ranges, as suggested by Aqqad et al (2019): very low from 1.00 to 1.80, low from 1.81 to 2.61, moderate from 2.62 to 3.42, high from 3.43 to 4.23 and very high for ranges 4.24 to 5. All data were ranked in the 'high' range, showing that all respondents responded in the same direction.

Table 4

*Mean ranking analysis for workers' efficacy, initiative, motivation, dependability, cooperativeness, and plantation performance*

No	Construct/Items	Mean	SD	Order
<i>Efficacy</i>				
1	(E1) Workers can grasp instructions easily.	3.96	1.184	4
2	(E2) Workers use plantation equipment safely.	3.90	1.100	5
3	(E3) Workers are comfortable performing their tasks.	4.10	0.970	2
4	(E4) Workers are confident in performing their tasks.	3.84	1.110	6
5	(E5) Workers are capable of achieving production goals.	4.06	0.954	3
6	(E6) Experiences help workers to complete similar tasks well.	4.12	0.968	1
7	(E7) Workers can perform a new task by observing co-workers.	3.81	1.109	7
8	(E8) Workers can perform better with encouragement.	3.77	1.272	8
	<b>Average mean and standard deviation</b>	<b>3.95</b>	<b>1.083</b>	
<i>Initiative</i>				
1	(I1) Workers can perform their tasks continuously.	3.84	1.099	5
2	(I2) Workers look for more tasks independently once they finished their current tasks.	3.78	1.127	6
3	(I3) Workers take the initiative in improving their skills and performance.	4.12	0.980	2
4	(I4) Workers are proactive and creative in finding solutions.	4.14	0.912	1
5	(I5) Workers wait for the superior to give them the next task.	4.04	0.981	3
6	(I6) Workers speak up and share ideas in solving problems.	3.78	1.083	7
7	(I7) Workers are cautious while performing their tasks.	3.84	1.184	4
8	(I8) Workers depend on instructions to start doing their tasks.	3.76	1.122	8
	<b>Average mean and standard deviation</b>	<b>3.91</b>	<b>1.061</b>	
<i>Motivation</i>				
1	M1. Workers are more motivated to work if the employer shows empathy for their personal problems.	3.73	1.049	7
2	M2. Workers often compare their earnings with their co-workers.	3.92	1.038	4
3	M3. Workers work better when their performance is recognized.	3.72	1.223	8
4	M4. Piece-rate payment made workers willing to work more.	3.92	1.084	3
5	M5. A safe working environment increases the worker's productivity.	3.76	0.97	6
6	M6. Workers are willing to work more if they are paid for it.	4.04	0.862	1
7	M7. Workers are more productive when they received full appreciation for the work done.	3.82	1.106	5
8	M8. Workers who work using PPE (Personal Protective Equipment) are more productive.	3.94	0.929	2
	<b>Average mean and standard deviation</b>	<b>3.86</b>	<b>1.033</b>	
<i>Dependability</i>				

1	D1. Workers are punctual in their working hours.	3.84	1.076	3
2	D2. Workers came on time on their morning roll call/morning muster.	4.02	1.297	1
3	D3. Workers can perform their tasks safely.	3.67	1.149	8
4	D4. Workers did not absent from their work.	3.80	1.009	6
5	D5. Workers are responsible for the tasks given.	3.83	1.208	4
6	D6. Workers did not take unnecessary breaks while working.	3.78	1.105	7
7	D7. Workers did not go to break longer than they should.	3.82	1.106	5
8	D8. Workers can finish their tasks on time.	3.93	1.218	2
	<b>Average mean and standard deviation</b>	<b>3.84</b>	<b>1.146</b>	
<i>Cooperativeness</i>				
1	C1. Workers can get along with their colleagues easily.	3.83	0.985	6
2	C2. Workers are considerate, polite, and respectful to co-workers.	4.01	1.194	3
3	C3. Workers are pleased to work alongside their co-workers.	4.18	1.002	1
4	C4. Workers consider their co-workers' tasks.	3.69	1.189	8
5	C5. Workers solve problems without asking for help from co-workers.	3.92	1.212	5
6	C6. Workers are patient and agreeable with co-workers.	3.78	1.180	7
7	C7. Workers can work together in ensuring safety while performing their tasks.	4.02	1.179	2
8	C8. Workers chat easily even though they came from different countries.	3.94	1.086	4
	<b>Average mean and standard deviation</b>	<b>3.92</b>	<b>1.128</b>	
<i>Plantation Performance</i>				
1	OP1. The return on investment (ROI) has increased.	4.01	0.904	2
2	OP2. The workers' productivity rate (man/hour) has increased.	3.94	1.119	3
3	OP3. The workers' turnover rate (lost headcount) has decreased.	3.73	1.17	9
4	OP4. The number of safety incidents has decreased.	3.77	1.233	7
5	OP5. The foreign workers' shortage issue has improved.	3.66	1.232	10
6	OP6. Collector and buyer's trust have improved.	3.77	1.172	6
7	OP7. The plantation was able to produce a consistent quality of FFB.	4.17	1.046	1
8	OP8. The workers' satisfaction with management has improved.	3.78	1.159	5
9	OP9. The ability to control plantation activities has increased.	3.90	1.055	4
10	OP10. The number of potential FFB buyers has increased.	3.75	1.267	8
	<b>Average mean and standard deviation</b>	<b>3.85</b>	<b>1.136</b>	

### Impacts of Workers' Behaviour on Plantation Performance

Multiple regression analysis was performed to address the second and third objectives, which are to investigate the impact of workers' behaviour on Malaysian oil palm plantation performance and to identify the highest contributing factor. Table 5 presents the model summary of multiple regression analysis. The first statistic, R, known as the multiple correlation coefficients between workers' behaviour predictor with Malaysian oil palm plantation performance yielded a figure of 0.648. The coefficient of determination ( $R^2$ ) provides information regarding the goodness of fit of the regression model (Aqqad et al.,

2019). In other words, it shows the proportion of the variance in the dependent variable explained by the variation in the independent variable. The value for  $R^2$  should be more than 40% for the model to be accepted (Ibitoye et al., 2011). In this study, the  $R^2$  value of 0.420 explains that 42% of the variance in Malaysian oil palm plantation performance is explained by workers' efficacy, initiative, motivation, dependability, and cooperativeness while the other remaining 58% is explained by other variables. Hence, it can be assumed that these independent variables have adequate power for the explanation. The next statistic is adjusted  $R^2$ , a modified version of  $R^2$ , that calculates  $R^2$ , using only those independent variables, which was significant for predicting the dependent variable. In this study, the adjusted  $R^2$  value (0.382) indicated that the significant predictor variables simultaneously explained 38.2% of the total variance of Malaysian oil palm plantation performance. Alternatively, 61.8% of the total variation in plantation performance was not accounted for in this study. Therefore, it can be assumed that the regression model of the current study has explained a significant percentage of total variation that occurs in the performance of the Malaysian oil palm plantation.

Table 5

*Model Summary of Impact of Workers' Behaviour on Malaysian oil palm plantation Performance*

Model	R	R squared ( $R^2$ )	Adjusted $R^2$	Standard Error	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	p	
1	0.648	0.420	0.382	0.75668	0.420	11.129	5	77	.000*	1.446

Significant: \*  $p < 0.05$

The value of the F-test was 11.129, which is significant at  $p < 0.05$ . It implies that the multiple linear regression model has a significant influence over the dependent variable of the study. In other words, it could be said that the combination of workers' efficacy, initiative, motivation, dependability, and cooperativeness as a predictor has a significant contribution to Malaysian oil palm plantation performance. Thus, the regression model was considered a good fit in predicting the contributions of independent variables. The Durbin-Watson value is 1.446, clarifying that no autocorrelation between each of the independent variables, with the value for the Durbin-Watson analysis should lie between 1 and 3. These findings are in line with Zulkefli et al (2020), where the regression model explained 52.9% of the total variation of oil palm estate productivity in Melaka. A similar trend was also observed by Shah (2016) and Bagum et al. (2021) where their regression model explained 55% and 44.8%, respectively.

Table 6 shows the unstandardized regression coefficient (b) and standardized regression coefficients ( $\beta$ ) taken to examine the contributions of selected independent variables on plantation performance. The strength of the contribution of the respected independent variables was compared to each other based on their standardized coefficient ( $\beta$ ). Standardize coefficient ( $\beta$ ) was estimated in units of standard deviation and not in a unit of the respected independent variables. It was calculated by multiplying the unstandardized coefficient (b) with the standard deviation of the independent and dependent variables. Thus, the standardized coefficient ( $\beta$ ) becomes normalized as a unit-less coefficient, also known as the z-score. According to Table 6, workers' motivation had the largest standardized coefficient ( $\beta$ ) value of 0.317. It implies that the workers' motivation had the highest contribution to predicting the plantation's performance. The value of the  $\beta$  coefficient for motivation

suggests that with one standard deviation change in workers' motivation, their plantation performance will be increased by 0.317 standard deviations. It indicates that workers' motivation, driven by wages, benefits, and appreciation, mainly regulates the performance of their plantation. Marcus et al (2021); Saad et al (2021); Shah (2016) indeed discovered that wages and benefits are the main factors that influence a worker's productivity. This classical finding is expected as many researchers attribute the monetary aspect as the workers' primary motivation to work and perform their tasks (Wiley, 1997; Patro, 2013; Jasni & Othman, 2017; Troung & Le, 2020; Zulkefli et al., 2020). Motivated workers tend to perform effectively in the organization and improve organizational performance at will (Selvanathan et al., 2016). Therefore, it can be implied that salary, benefits, and rewards are critical motivations driving the workers' behaviour. Vliet (2017); Davidescu et al (2020) also reported the same findings in their studies. The results indicate that workers' motivation, driven by salary, rewards, and benefits, contributes to the performance of the Malaysian oil palm plantation. These findings are consistent with those of Jasni and Othman (2017); Troung and Le (2020), who found that salary is the most important factor influencing workers' behaviour that impacts organizational performance. According to Selvanathan et al (2016), motivated workers enjoy their work, which improves performance greatly.

The second highest  $\beta$  value was efficacy (0.253), followed by cooperativeness (0.225), initiative (0.224) and dependability (0.196). Workers' efficacy is related to their capabilities in performing their tasks. In line with the definition of efficacy, the result shows that the way workers work is important in determining plantation performance, which is predicated on the workers' capabilities to achieve production goals, as well as their level of confidence and experience. Experience can help workers produce better job quality, which leads to better performance (Ayu, 2020). A study by Michon et al (2006); Cherian and Jacob (2013); Pavalache-Ilie (2014); Marcus et al (2021) found that efficacy has proven to be a good measurement to predict workers' behaviour that impacts organizational performance. Workers' cooperativeness is the third significant contributor to plantation performance. The finding is supported by earlier studies suggesting that cooperativeness is one of the important elements in measuring performance (Patro, 2013; Aktar, 2016). The workers in Malaysian oil palm plantation comes from different background, granted the majority are foreign workers with different nationalities. Workers capable of working together cooperatively are an asset for the plantations. High cooperation between workers makes it easier for them to work together, thus contributing to the plantation's performance (El-Ghorra et al., 2023). These findings are similar to those by Lu et al (2012); Aktar (2016), where cooperativeness can enhance the level of performance.

A worker with a high level of initiative will always find a way to solve their work problems by generating new ideas that will benefit the organization. The plantation can also benefit from workers who take initiative to improve their skills and performance, as highly skilled workers will contribute to the plantation's better performance. The present findings are consistent with Michon et al (2006); Wihler et al (2017), in which the researchers highlighted the importance of workers' initiative towards performance, given the positive association between initiative and performance. The findings are aligned with the meaning of dependability, where the manager feels like they can rely on the workers, as Michon et al (2006) reported. Earlier et al (2000); Michon et al (2006) found that dependability can be used as a factor in evaluating organizational performance, and it is similar to the finding in this study. Johari and Jha (2020) claimed that responsible and dependable workers can ensure better quality production, thus contributing to greater performance. Therefore, it is

important for the plantations to invest in their human resource through the cultivation of dependable and responsible behaviour among workers.

Table 8

*Coefficients of multiple linear regression for workers' behaviour towards plantation performance*

<b>(Y) Plantation Performance</b>					
<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>p</b>
	<b>b</b>	<b>Std. Error</b>	<b>Beta (<math>\beta</math>)</b>		
<b>Independent Variables</b>					
(Constant)	-1.116	0.687		-1.623	0.109
(X <sub>1</sub> ) Efficacy	0.252	0.089	0.253	2.845	0.006***
(X <sub>2</sub> ) Initiative	0.250	0.100	0.224	2.503	0.014**
(X <sub>3</sub> ) Motivation	0.357	0.102	0.317	3.498	0.001***
(X <sub>4</sub> ) Dependability	0.187	0.086	0.196	2.176	0.033**
(X <sub>5</sub> ) Cooperativeness	0.221	0.088	0.225	2.506	0.014**

Note: \*\*\*significant at 1% (0.01) significance level

\*\*significant at 5% (0.05) significance level

The values of the unstandardized coefficients for workers' efficacy, initiative, motivation, dependability, and cooperativeness were 0.252, 0.250, 0.357, 0.187 and 0.221, respectively (Table 8). The unstandardized coefficients (b) value of the respected variables indicated the change amount in the dependent variable (Y) by the change of one unit of an independent variable (X). Thus, based on the estimated unstandardized coefficients (b), the multiple linear regression model is as follows

$$Y = -1.116 + 0.252 (\text{efficacy}) + 0.250 (\text{initiative}) + 0.357 (\text{motivation}) + 0.187 (\text{dependability}) + 0.221 (\text{cooperativeness}) + \varepsilon$$

Table 8 also reveals that workers' efficacy ( $t = 2.845$ ,  $p = 0.006$ ), initiative ( $t = 2.503$ ,  $p = 0.014$ ), motivation ( $t = 3.498$ ,  $p = 0.001$ ), dependability ( $t = 2.176$ ,  $p = 0.033$ ), and cooperativeness ( $t = 2.506$ ,  $p = 0.014$ ), significantly explained Malaysian oil palm plantation performance.

### **Implications, Limitations, and Conclusion**

This study provides insight into how workers' behaviour will impact the performance of Malaysian oil palm plantations. The plantations must be aware and address any workers' behaviour issues and exercise urgency to resolve the issues as their behaviour will impact the plantations' performance. This research asserts that to achieve superior performance, Malaysian oil palm plantations should manage their workers' behaviour because workers are an important asset to the plantations, and their behaviours do impact the plantations' performance. Theoretically, this study will enhance the opportunity to execute new studies in the field of plantation performance by providing critical literature support based on the significant contribution of workers' behaviour. Academically, this study provides insight into the measurement level of workers' behaviour and plantation performance. With all the variables have been identified, it could provide researchers with other avenues for further examination, based on the tested framework. This study has pointed out that there should be



industry, trade unions and university collaboration efforts to provide a better understanding of the issues and to provide a solution to the challenges faced by Malaysian oil palm plantation. The policymakers, the oil palm plantations, and the trade union can use the findings of this study to enhance the current policy, especially those related to workers' affairs and management.

Nevertheless, this study has several limitations. The study is only limited to oil palm plantations, whereas it does not include the oil palm smallholders. Workers' profiles and workers' management for the oil palm smallholders are different from the plantations, thus the results were also limited and not adequately relevant to represent Malaysia's oil palm estate. Hence, it is suggested that future research should be held for oil palm smallholders and increase the sample size to increase the adequacy of the findings. Based on this study, it can be concluded that workers' efficacy, initiative, motivation, dependability, and cooperativeness do impact the performance of Malaysian oil palm plantations, which could contribute to enhancing the nation's economic growth. The motivation was one of the significant predictors identified as the highest contributing factor to workers' behaviour in explaining Malaysian oil palm plantation performance.

Hence, it can be suggested that greater emphasis should be placed on motivating the workers to improve plantation performance. Accordingly, the plantation can use the information on workers' efficacy, initiative, motivation, dependability, and cooperativeness as the right tool to enhance their capacity to achieve greater performance. Thus, the plantation can benefit from using these behaviour variables to bring out the best in their workers and reap the benefits. In conclusion, understanding the workers' behaviour is essential as their behaviour will lead to the performance of the plantation. Despite the introduction of numerous machinery and technologies to enhance operation in the oil palm plantation, the importance of manpower remains undisputed because many other tasks require hands-on and must be performed by the workers. The present study has illuminated how workers' behaviour could be utilized as a tool to achieve greater performance. Although this study only highlights five variables of workers' behaviour that impact plantation performance, it is suggested that further research should be undertaken with other potential variables to explore plantation performance.

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