

# Workforce in the Malaysian Oil Palm Nursery

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## ABSTRACT

*This article attempts to estimate workforce, labour shortage as well as land to labour ratio by job category in oil palm nursery sector in Malaysia since labour is a major concerns in the oil palm industry especially in oil palm nursery and plantation. Survey technique was used for data collection. Questionnaires were designed and distributed to 739 oil palm nurseries in Malaysia which registered with MPOB. Total labour requirement and shortage according to job categories namely manager, assistant manager, clerk, supervisor, operator and general worker were identified. Operator with the job scopes of planting seedlings in polybags, spraying insecticide, fertilising and watering the plant was the highest labour required by oil palm nursery. The second highest number of workers required falls under the general worker such as driver, co-driver and others. In Peninsular Malaysia and Sabah, operators and general worker were dominated by foreign workers, meanwhile in Sarawak only job category as operator is dominated by foreign workers. As in oil palm plantation sector, oil palm nursery also faces labour shortage problem especially for job category such as operator and general worker.*

**Keywords:** oil palm nursery, labour, shortage, land-labour ratio,

## INTRODUCTION

Oil palm were originally planted as ornamental plants and have become an important crop since the early sixties. This is so after the government launched the diversification of agricultural crops to reduce dependency on rubber and cocoa crops. Currently, oil palm is the main commodity in this country, planted in a vast area of more than 5 million hectares.

It is the largest contributor to the country's Gross Domestic Product (GDP) for the agricultural sector. In 2013, 25.7 million tonnes of oil palm products valued at RM 61.4 million have been exported mainly as processed oil and crude palm oil. The government has made many efforts to elevate the export of oil palm products.

One of the efforts is to increase the production of crude palm oil by increasing the productivity of

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the fresh fruit bunches (FFB) at the plantation level. The productivity of an oil palm plantation depends on many factors, and the most important starting point is the quality of the oil palm seedlings derived from cross pollination of selected parent palms for use in planting (Halimah *et al.*, 2010) and superior planting material is one of the basic factors affecting the success of an oil palm plantation (Heriansyah, 2001). Special attention must be observed from the seed production to the management of oil palm nurseries to ensure that only quality oil palm are planted in the fields. The production of superior oil palm planting materials is fully dependent on attention to details at all stages in the nursery management and this entails following closely, proven standards and procedures (Heriansyah and Tan, 2005).

In 2013, 716 oil palm nurseries were registered with MPOB (Table 1). Out of this, 429 or 59.9% oil palm nurseries were located in Peninsular Malaysia, 172 or 24.0% were in Sarawak and the remaining 115 or 16.1% in Sabah.

MPOB has imposed licensing condition that all nursery owners are subjected to mandatory Code of Good Nursery Practice for Oil Palm Nurseries (CoPN) in order to ensure that all nurseries produced high quality seedling. CoPN provides guidelines to nursery operators for producing high quality oil palm. In 2013, 91 nursery operators had CoPN.

One of the major concerns in the oil palm industry is the labour requirement (Mathews *et al.*, 2010). As in oil palm plantation sector, oil palm nursery sector is also labour intensive. In a nursery, labour is basically required to carry out all the operations in the nursery, which comprise soil filling, lining, planting, watering, manuring, weeding, control of pests and diseases, selection, culling, loading and unloading of seedlings to main nurseries. Shortage of labour will affect productivity as well as oil palm nursery's activities. Therefore, this article attempts to estimate workforce, labour shortage as well as land to labour ratio according to job category in oil palm nursery sector in Malaysia since labour plays an important role in the development of oil palm nursery sector.

#### METHODOLOGY

For data collection, questionnaires were designed and distributed by fax and post to all oil palm nursery operators registered with MPOB throughout Malaysia. Information required was to determine the number of workers (local and foreign) and labour shortage in this sector according to the job category in 2012. Three months were given to all the nursery operators to fill up and submit the questionnaires. All data obtained were stored using Microsoft Excel software and analysed using SPSS version 20 software.

## RESULTS

### Responds Rate

A total of 739 questionnaires were distributed to all oil palm nurseries. Seventy-seven percent or 569 responded to the survey (Table 2). The highest percentage or 80% of the respondents were from Sarawak, followed by Sabah (79%) and Peninsular Malaysia (75%). Fifty-six nurseries were found inactive and have ceased operations. Majority of the nurseries are owned by oil palm plantation companies that only operate during the replanting period.

### Nursery Area

The total area of oil palm nurseries in Malaysia was not available in MPOB. This data was not collected or required during registration with MPOB. From the survey, the total area of oil palm nurseries in 2012 was 3875.80 ha (Table 3). Out of the total 2064.23 ha or 53.3% were located in Peninsular Malaysia, 976.03 ha (25.2%) in Sarawak and Sabah remaining (835.63 ha or 21.5%). On the average, hectareage for a nursery in Malaysia was 7.5 ha. On a regional basis, an oil palm nursery in Sabah had the highest compared to other region. On the average, hectareage for a nursery in Sabah was 10.1 ha while in Sarawak and Peninsular Malaysia were 8.4 and 6.6 ha respectively.

### Types of Nursery (single or double stages)

An oil palm nursery is raised either in single or double stages. A single stage nursery uses only the one-size polybag starting from the germination process until the planting process in the field. There are two ways commonly practiced. For the first method, all

**TABLE 1. NUMBER OF OIL PALM NURSERY BY REGION IN 2013**

Region	Total	Percentage
P. Malaysia	429	59.9
Sarawak	172	24.0
Sabah	115	16.15
Malaysia	716	100.0

**TABLE 2. NUMBER OF NURSERY RESPONDED TO THE SURVEY BY REGION**

Region	No. of nursery	Status of nursery		Total	Response rate (%)
		Active	Not active		
P. Malaysia	428	314	7	321	75.0
Sabah	126	83	17	100	79.4
Sarawak	185	116	32	148	80.0
Malaysia	739	513	56	569	77.0

**TABLE 3. AREA AND PERCENTAGE AREA FOR OIL PALM NURSERY (active) BY REGION**

Region	No. of oil palm nursery	Area	% Area	Average area
P. Malaysia	314	2 064.23	53.3	6.57
Sabah	83	835.63	21.5	10.07
Sarawak	116	976.03	25.2	8.41
Malaysia	513	3 875.89	100.0	7.56

the germinated seeds are planted in polybags measuring at 38 cm x 45 cm x 0.15 mm. Then the polybags are arranged, four polybags in width and 25 polybags lengthwise. After three months, these polybags are arranged into a triangular shape of 0.9 m. Whereas in the second method, germinated seeds are planted in big polybags arranged into triangle 0.9 m and allowed to grow until they are replanted in the field. *Figure 1* shows that the single stage nursery is adopted by 122 nurseries which are 23.8% of active nurseries. Out of 122 nurseries, 83 are from Peninsular Malaysia, 22 from Sarawak and the rest from Sabah.

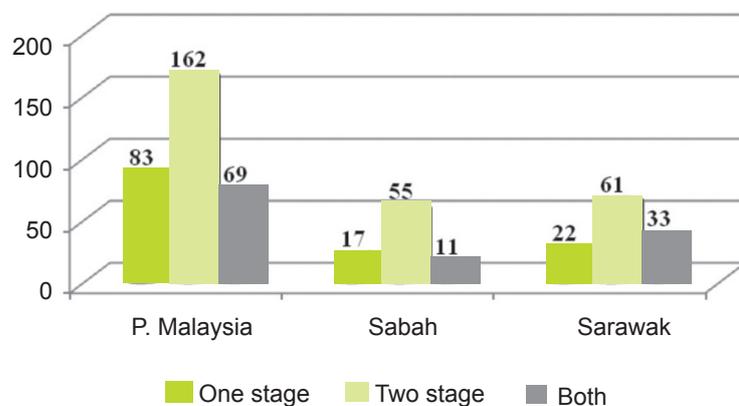
Besides single stage nursery, there is also double stages nursery where the germinated seeds are sown in smaller polybags (15 cm wide and 23 cm in height). After two to three months, seedlings are transferred into bigger polybags and placed in a bigger nursery. Of the responses received, this type of nursery had the highest number that was a total of 278 nurseries which represented 54.2% of the total nurseries. Most of the

double stage nurseries or 162 oil palm nurseries are located in Peninsular Malaysia, Sarawak has 61 and Sabah has 55. Based on the study, it was found that there were few nurseries opted for both single and double stage nursery. There were 113 nurseries like this, and mostly were located in Peninsular Malaysia.

**Workforce in Oil Palm Nursery**

The results of the study found that the total employment of

513 active nurseries in Malaysia amounted to 5420 workers (*Table 4*). Most of them were in Peninsular Malaysia (2803 workers) which represented about 51.7%, Sarawak 26.1% (1416 workers) and Sabah 22.3% (1201 workers). In terms of the nationality of the workforce in the nursery, locals still outnumber foreigners whereby 53.1% of the total workforce was locals. However, Sabah had been dominated by foreign workers comprising 64.6% of the total workers in Sabah.



*Figure 1. Types of nursery by region.*

Table 5 shows the number of workforce in oil palm nursery according to job category in Malaysia. Out of the total, 2754 or 50.8% were operator and 888 or 16.4% were general worker. The remaining, 28% were manager, supervisor, clerk and assistant manager. Majority of the workers hired in oil palm nursery in Malaysia was locals (2876 or 53.1%) and all job categories except for operator and general worker were conquered by locals.

On a regional basis, out of 2803, 49.9% or 1399 workers were hired

as operator and 931 or 66.5% were foreigner (Table 6). All job categories except for operator and general worker were dominated by locals and percentage of locals in the oil palm nursery in Peninsular Malaysia was 57.2

In Sabah, most of the labourers were employed as operator and general worker which represented about 50.1% (602 workers) and 27.1% (325) respectively (Table 7). Foreign workers dominated in the both job categories and percentage of foreign worker in the oil palm nursery in Sabah was 64.6%. It

means that oil palm nurseries in Sabah depended more on foreign workers especially for job category as general worker and operator.

The same pattern in Sabah can be observed in Sarawak whereby the general worker was dominated by foreign workers with 82.4% (Table 8). However in Sarawak, all job categories were conquered by locals except for general worker. As in Peninsular Malaysia, percentage of locals worked in oil palm nursery in Sarawak was still higher than foreign workers. In Sarawak, the state government

**TABLE 4. NUMBER OF WORKFORCE IN OIL PALM NURSERY BY REGION**

Region	Local	Foreign	Total	% Total	% Foreign
P. Malaysia	1 604	1 199	2 803	51.7	42.8
Sabah	425	776	1 201	22.2	64.6
Sarawak	847	569	1 416	26.1	40.2
Malaysia	2 876	2 544	5 420	100.0	46.9

**TABLE 5. NUMBER OF WORKFORCE IN OIL PALM NURSERY BY JOB CATEGORIES: MALAYSIA**

Job categories	Local	Foreign	Total	%Total	% Foreign
Manager	462	28	490	9.0	5.7
Assistant manager	339	10	349	6.4	2.9
Clerk	440	12	452	8.3	2.6
Supervisor	379	108	487	9.0	22.2
Operator	1 018	1 736	2 754	50.8	63.0
General worker	238	650	888	16.4	73.2
Total	2 876	2 544	5 420	100.0	46.9

**TABLE 6. NUMBER OF WORKFORCE IN OIL PALM NURSERY BY JOB CATEGORIES: PENINSULAR MALAYSIA**

Job categories	Local	Foreign	Total	% Total	% Foreign
Manager	285	15	300	10.7	5.0
Assistant manager	190	8	198	7.1	4.0
Clerk	285	3	288	10.3	1.0
Supervisor	224	64	288	10.3	22.2
Operator	468	931	1 399	49.9	66.5
Others	152	178	330	11.8	53.9
Total	1 604	1,199	2 803	100.0	42.8

**TABLE 7. NUMBER OF WORKFORCE IN OIL PALM NURSERY  
BY JOB CATEGORIES: SABAH**

Job categories	Local	Foreign	Total	% Total	% Foreign
Manager	68	1	69	5.7	1.4
Assistant manager	59	1	60	5.0	1.7
Clerk	58	4	62	5.2	6.4
Supervisor	64	19	83	6.9	22.9
Operator	131	471	602	50.1	78.2
General worker	45	280	325	27.1	86.1
Total	425	776	1 201	100.0	64.6

**TABLE 8. NUMBER OF WORKFORCE IN OIL PALM NURSERY BY JOB CATEGORIES:  
SARAWAK**

Job categories	Local	Foreign	Total	% Total	% Foreign
Manager	109	12	121	8.5	9.9
Assistant manager	90	1	91	6.4	1.1
Clerk	97	5	102	7.2	4.9
Supervisor	91	25	116	8.2	21.5
Operator	419	334	753	53.2	44.4
General worker	41	192	233	16.5	82.4
Total	847	569	1 416	100.0	40.2

only allows foreign workers from Indonesia to work in agricultural sector. To prevent the influx of foreign workers to Sarawak, the state government has to work closely with the oil palm nursery in attracting locals to work in the sector especially for general workers so that the sector is not too dependent on foreign workers from Indonesia.

On overall, the Malaysian oil palm nursery sector required more operator to work in the sector as compared to other job categories followed by general worker. Percentage of foreign workers worked in the oil palm nursery sector was lower than oil palm plantation. In the oil palm nursery sector, percentage of foreign worker was only 46.9% as compared to 77% in the oil palm plantation sector.

On a regional basis, the highest foreign workers were employed in Sabah, *i.e.* 64.6%. In Peninsular Malaysia and Sarawak, percentage of foreign worker employed in the oil palm nursery was only 42.8% and 40.2% respectively. By job category, foreign workers who worked as operators and general worker were employed the most in Peninsular Malaysia and Sabah while in Sarawak most of the foreign workers were employed as general workers.

#### Land to Labour Ratio

Land to labour ratio is one of the indicators for labour productivity. Based on the survey, we found that on average the ratio of land to labour in the oil palm nursery in Malaysia in 2012 was 0.72:1 which means

the total area that can be covered by a labour is 0.72 ha (*Table 9*). An operator and general worker can cover 1.41 and 4.36 ha respectively. On a regional basis, on overall the ratio of land to labour in Peninsular Malaysia was the highest *i.e.* 0.74:1 while in Sabah and Sarawak, the ratios almost the same, *i.e.* 0.70:1 and 0.69 respectively. It means that oil palm nursery in Peninsular Malaysia employed less labour as compared to Sabah and Sarawak. According to job category, the ratio of land to labour for operator was the lowest for each region. It means that this job category is required more for running an oil palm nursery. The ratio of land to labour in Peninsular Malaysia (1.48:1) recorded the highest as compared to other regions (1.39:1 in Sabah and 1.30:1 in Sarawak).

Job categories	P. Malaysia	Sabah	Sarawak	Malaysia
Manager	6.88:1	12.11:1	8.07:1	7.91:1
Assistant manager	10.43:1	13.93:1	10.73:1	11.11:1
Clerk	7.17:1	13.48:1	9.57:1	8.58:1
Supervisor	7.17:1	10.07:1	8.41:1	7.96:1
Operator	1.48:1	1.39:1	1.30:1	1.41:1
General worker	6.26:1	2.57:1	4.19:1	4.36:1
Total land-labour ratio	0.74:1	0.70:1	0.69:1	0.72:1

It means that oil palm nursery in Peninsular Malaysia employed less operator as compared to other regions.

#### Shortage of Workforce

In our survey, we also asked oil palm nursery to declare labour shortage by job category. From the feedback given, it was found that oil palm nursery in Malaysia faced a labour shortage of 507 workers or

9.3% of the total labour employed in the oil palm nursery in Malaysia (Table 10). The most serious job categories experiencing shortage is operators with 391 workers or 77.1% of the total labour shortage followed by general worker with the total of 78 (15.4%). In addition, administrative personnel that consist of managers, assistant managers and clerks were also experiencing a labour shortage of 2.8%.

By considering the labour shortage, requirement land-labour ratio can be identified as shown in Table 11. On overall, the ratio of land to labour in oil palm nursery in Malaysia was 0.65:1. It means that on the average, a worker can cover 0.65 ha or in other words for every 1 ha, oil palm nursery required 1.54 worker. On a regional basis, the ratio of land to labour in Peninsular Malaysia, Sabah and Sarawak were 0.64:1,

Job categories	P. Malaysia	Sabah	Sarawak	Malaysia	%
Manager	3	1	4	8	1.6
Assistant manager	1	1	0	2	0.4
Clerk	1	1	2	4	0.8
Supervisor	20	2	2	24	4.7
Operator	313	29	49	391	77.1
General worker	68	6	4	78	15.4
Total	406	40	61	507	100.0

Job categories	P. Malaysia	Sabah	Sarawak	Malaysia
Manager	6.81:1	11.94:1	7.81:1	7.78:1
Assistant manager	10.37:1	13.70:1	10.73:1	11.04:1
Clerk	7.14:1	13.26:1	9.38:1	8.50:1
Supervisor	6.70:1	9.83:1	8.27:1	7.58:1
Operator	1.21:1	1.32:1	1.22:1	1.23:1
General worker	5.19:1	2.52:1	4.12:1	4.01:1
Total land-labour ratio	0.64:1	0.67:1	0.66:1	0.65:1

0.67:1 and 0.66:1 respectively. Based on the ratios, labour required for every hectare in Peninsular Malaysia, Sabah and Sarawak were 1.56, 1.49 and 1.51 worker. It shows that Sabah required less labour as compared to other regions or in other words labour in Sabah was more productive compared to other regions.

### CONCLUSION

On average, hectareage of an oil palm nursery in Malaysia was 7.56 ha and oil palm nursery in

Sabah recorded the highest, *i.e.* 10.07 ha compared with 8.41 and 6.57 ha in Sarawak and Peninsular Malaysia respectively. Like oil palm plantation sector, oil palm nursery also faced labour shortage problem and mostly for operator and general worker. Majority of the operators were foreign or migrant workers and the average area that can be covered by an operator considering the shortage was 1.23 ha. Taking into account all the categories of work, on average a worker in oil palm nursery could only cover less than 1 ha, or precisely 0.65 ha.

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