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Date: 1 December 2023

The Board of Directors,
Johor Plantations Group Berhad
(formerly known as Johor Plantations Berhad and Mahamurni Plantations Sdn Bhd)
Level 11, Menara KOMTAR
Johor Bahru City Centre
80000 Johor Bahru
Johor, Malaysia"

Dear Sir or Madam,

Independent Market Research Report on the Oil Palm Industry for Johor Plantations Group Berhad (formerly known as Johor Plantations Berhad and Mahamurni Plantations Sdn Bhd) ("Johor Plantations".

We Glenauk Economics Sdn Bhd ("Glenauk Economics") have prepared this Executive Summary of the Independent Market Report ("IMR Report") on the Oil Palm Industry for inclusion in Johor Plantation's Prospectus ("Prospectus") in relation to its initial public offering and listing on the Main Market of Bursa Malaysia Securities Berhad.

We are aware that this Report will be included in the Prospectus and we further confirm that we are aware of our responsibilities under Section 215 of the Capital Markets and Services Act 2007.

We acknowledge that if we are aware of any significant changes affecting the content of this Report between the date hereof and the issue date of the Prospectus, we have an on-going obligation to either cause this Report to be updated for the changes and, where applicable, cause Johor Plantations to issue a supplementary prospectus, or withdraw our consent to the inclusion of this Report in the Prospectus.

Glenauk Economics has prepared this report in an independent and objective manner and has taken adequate care to ensure the accuracy and completeness of this Report. We believe that this Report presents a true and fair view of the industry within the limitations of, among others, secondary statistics and primary research, and does not purport to be exhaustive. Our research has been conducted with an "overall industry" perspective which may not necessarily reflect the performance of individual companies in the industry. Glenauk Economics shall not be held responsible for the decisions and/or actions of the readers of this IMR Report. The IMR Report should also not be considered as a recommendation to buy or not to buy the shares of any company or companies as mentioned in the IMR Report or otherwise.

For and on behalf of Glenauk Economics:

Julian McGill
Managing Director

Dr Julian McGill completed his M.A. in Economics at the University of Edinburgh and his PhD at the University of Oxford. He is an economist focusing on the economics of crops, agricultural commodities and their value chains. A globally recognized authority on the economics of the oil palm, he is regularly quoted in both local and international media and is a sought-after speaker at conferences and management meetings.

Introduction

Johor Plantations Berhad ("Johor Plantations") is an upstream Malaysian oil palm plantation company. Its primary business is the growing, harvesting and processing of Fresh Fruit Bunches (FFB) into Crude Palm Oil (CPO) and Palm Kernels (PK).

The main factors determining the profitability of Johor Plantations are their CPO yield and the Malaysian CPO price. In addition, Johor Plantations is subject to the wider risks and opportunities inherent in the Malaysian palm oil and wider global vegetable oil sector.

To evaluate these market factors, this report is divided into four sections:

1. We **benchmark Johor Plantations** and their competitive landscape, market size and share.
2. We address **the outlook for CPO prices**, based on supply and demand**.**
3. We discuss the **prospects of the Malaysian oil palm plantation industry**.
4. We review the **industry risks and challenges,** with a particular focus on sustainability.

Benchmarking Johor Plantations

Johor Plantations accounts for a small share of the area under oil palm in Malaysia and Johor. As Table 1 demonstrates Johor Plantations accounts for around 1.0% of the planted and mature area under oil palm in Malaysia. In the state of Johor – where 22 out of 23 of its estates are located – it accounts for 8% of the area. In Pahang where there is only one estate, Johor Plantations share of both planted and mature area is a negligible 0.2%.

Area under oil palm in Malaysia is split between smallholders and estates, with 26% of planted area under smallholders. Smallholders are defined in Malaysia as farmers owning less than 40.46 ha (100 acres) of land. Johor Plantations is an estate operator (though it buys some crop from smallholders). Johor Plantations accounts for 1.0% of the total planted area in Malaysia, and 1.3% of the area under estates. In the state of Johor, Johor Plantations accounts for 13.6% of the area under estates.

Table 2 examines Johor Plantations' share of output in 2022. We distinguish between FFB output (which is the production of FFB on Johor Plantations estates), the processing of FFB (which includes crop purchased from other entities, such as smallholders) and the share of CPO (which is produced from milling the FFB). In all three cases we can see that Johor Plantations accounts for 1.4-1.6% of Malaysian output and only around 9-10% of production in the state of Johor.

Based on the above Johor Plantations accounts for a small share of the market. Johor Plantations is a price taker with a large potential market into which it can sell its products.

Table 1: Johor Plantations share of planted, mature and estate area, 2022/23

State	Share	Planted Area (ha)	Mature Area (ha)	Area under estates (ha)
Malaysia	Johor Plantations	55,982	52,310	55,982
	Total	5,674,742	5,127,289	4,190,766
	%	1.0%	1.0%	1.3%
Johor	Johor Plantations	54,426	50,783	54,426
	Total	676,853	631,478	400,716
	%	8.0%	8.0%	13.6%
Pahang	Johor Plantations	1,556	1,527	1,556
	Total	749,813	678,313	482,723
	%	0.2%	0.2%	0.3%

Source: Malaysian Palm Oil Board (MPOB) for 2022. Johor Plantations is from 30th of September 2023. Area under estates excludes smallholders.

8. INDUSTRY OVERVIEW (CONT'D)

Table 2: Johor Plantations share of FFB and CPO output, 2022

State	FFB Output (tonnes)	FFB Processed (tonnes)	CPO Output (tonnes)
Malaysia	79,436,331	93,649,740	18,453,420
Johor	11,145,587	15,153,297	2,969,525
Johor Plantations	1,111,496	1,428,366	289,488
Share of Malaysia	1.4%	1.5%	1.6%
Share of Johor	10.0%	9.4%	9.7%

Source: Johor Plantations and Malaysian Palm Oil Board (MPOB)

While Johor Plantations accounts for a small share of area and output, from an agronomic point of view the estates are close to the ideal size. Once plantations expand above 60,000 ha there are significant diseconomies of scale and additional layers of management required. Tables 3 benchmarks Johor Plantations performance against its Malaysian peers. We have compared Johor Plantations with two similar sized medium plantation companies (United Plantations Berhad and Boustead Plantations Berhad) as well as the largest Government linked plantation companies (Sime Darby Plantation Berhad and FGV Holdings Berhad). We find that Johor Plantations has:

- The second highest Fresh Fruit Bunch (FFB) yield after United Plantations Berhad, who are regarded as the world's best managed plantation with excellent conditions for oil palm.
- The second highest Crude Palm Oil (CPO) yields after United Plantations Berhad, which is the most important single indicator of performance for a plantation company.

Table 3: Benchmarking Johor Plantations against its peers

Company	Year	Mature Area (ha)	FFB Yield (t/ha)	OER (%)	CPO Yield (t/ha)	Revenue '000 MYR/ha	Profit '000 MYR/ha
Johor Plantations	2020	50,004	22.9	21.0%	4.8	20.4	1.0
	2021	51,510	20.1	20.8%	4.2	30.1	6.7
	2022	50,294	22.1	20.3%	4.5	33.5	9.5
United Plantations Berhad (Malaysia)	2020	33,557	27.5	22.3%	6.1	19.8	12.8
	2021	33,787	28.9	21.8%	6.3	26.4	18.5
	2022	34,828	28.4	21.4%	6.1	28.8	18.1
Boustead Plantations Berhad	2020	66,847	15.0	21.1%	3.2	11.4	0.5
	2021	67,969	13.3	21.2%	2.8	15.4	3.6
	2022	65,594	13.0	20.6%	2.7	17.9	9.0
Sime Darby Plantation Berhad (Malaysia)	2020	246,895	20.4	20.9%	4.3	13.7	3.4
	2021	256,831	18.5	21.0%	3.9	17.4	1.8
	2022	253,129	14.0	20.0%	2.8	17.8	1.3
FGV Holdings Berhad (Malaysia)	2020	275,562	15.4	20.3%	3.1	21.0	1.5
	2021	279,655	14.4	20.6%	3.0	29.8	5.7
	2022	282,807	14.6	20.4%	3.0	42.8	7.5
Johor State Average	2020	688,291	20.1	19.8%	4.0	N/A	N/A
	2021	652,568	17.7	19.8%	3.5	N/A	N/A
	2022	631,478	17.7	19.6%	3.5	M/A	N/A

Source: Johor Plantations, Malaysian Palm Oil Board (MPOB) and Company Annual Reports. Where possible we have disaggregated the numbers to show only Malaysian production. FGV Holdings Berhad revenue includes significant volumes of external FFB (which cannot be split out from the financial report).

8. INDUSTRY OVERVIEW (CONT'D)

Johor Plantations performs well in terms of revenue per ha and profitability per ha. In 2021 and 2022 profitability per hectare was second only to United Plantations Berhad. Profitability is closely linked to yields. What determines the relatively strong performance of Johor Plantations in terms of yields?

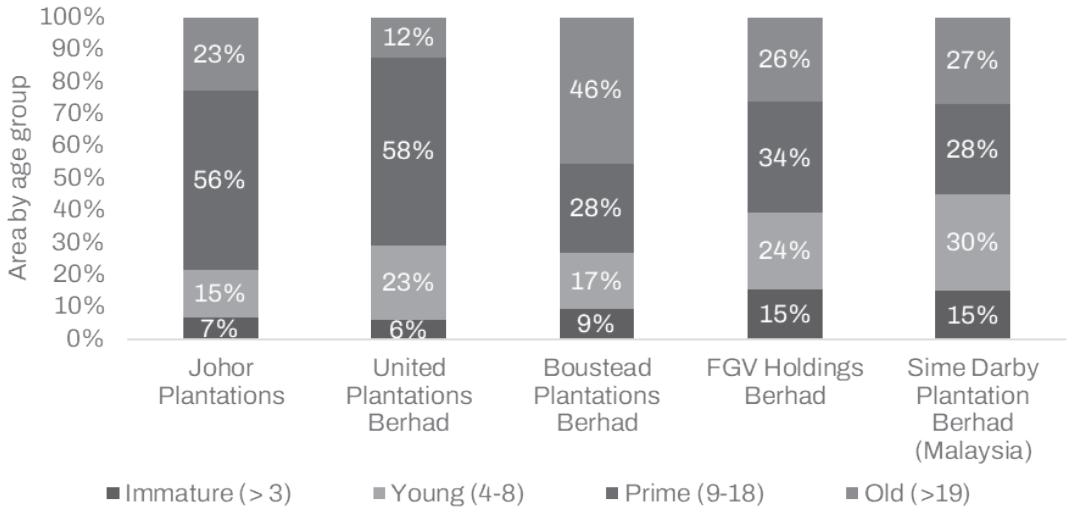
- The output from oil palm trees depends in part on their **age profile**. As oil palm trees become taller harvesting become increasingly difficult and yields decline. Best practice in plantation companies is to begin replanting trees after 20-25 years. However, the high capital outlay and absence of revenue during the three-year period of immaturity, while waiting for the young oil palm trees to come into production, means companies often fail to replant. Diagram 1 shows that Johor Plantations has a favourable age profile suggesting good discipline in terms of replanting. Once again, only United Plantations Berhad has a higher share of mature area in prime condition.

- To achieve high yields in oil palm operations requires **disciplined management**. This includes ensuring that only high-quality materials are planted, that access to the estates and trees is unimpeded, that the trees receive their required nutrients, that ground cover is well maintained, that excess fronds are pruned and pest and diseases are monitored and kept under control. FFB harvested from the trees need to be processed within 24 hours requiring consistent harvesting rounds, well maintained roads and co-ordination between the mill and field. The natural seasonal variability in output and potential for heavy rainfall in the tropics adds to the challenges of ensuring prompt milling. Only if all tasks are performed consistently can a plantation hope to obtain high yields from its land, requiring that plantation managers combine agronomic, logistical and engineering excellence all while dealing with potential disruption from the weather.

- Another central element of a successful plantation company is the **management of workers**. Oil palm estates in aggregate require large numbers of workers almost all of which in Malaysia are migrant workers. While most tasks on the plantation are low skilled, bunch cutting is a highly skilled task. Having sufficient workers for bunch cutting is critically important to ensure that the FFB are harvested from the oil palm trees. Johor Plantations has managed to develop long term relationship with workers from Java and Lombok who chose to return to work at Johor Plantations. Being able to attract and retain these workers, is crucially important for plantations today.

- Johor Plantations also benefits from their own **in-house seed production**. This ensures both that the quality of seedlings is high and that the trees are adapted to the same climatic and soil conditions as the progeny of palms which have thrived in the same conditions. (It also generates additional revenue through the sale of germinated seeds).

Diagram 1: Area by age profile for Johor Plantations and its peers

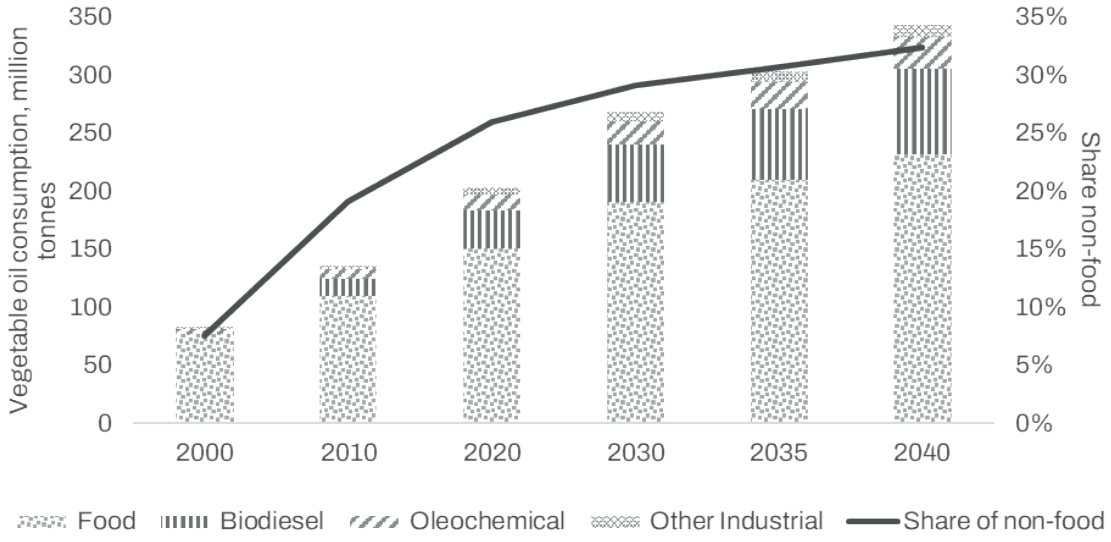


Source: Company Annual Reports. Note for Boustead Plantations young is defined as 4-9 years and prime as 10-20. For FGV prime is defined as 9-20 years. Data for Johor Plantations is from 30th of September 2023.

The Outlook for Crude Palm Oil (CPO) price

To understand the outlook for the CPO price we need to place the oil palm into the wider supply and demand balance for vegetable oils. This is due to the fact, that there is substantial substitution between different vegetable oils based on price. As a result, palm oil is always competing for market share with the other major oil crops (soybean, rapeseed and sunflower).

Diagram 2: Global vegetable oil consumption by main end use, 2000 to 2040



Source: Glenauk Economics

Table 4: Global vegetable oil consumption by end use 2000 to 2040, million tonnes

End Use	2000	2010	2020	2030	2035	2040	CAGR 2000-2020	CAGR 2020-2030	CAGR 2030-2040
Food	77	110	151	191	210	232	3.4%	2.3%	2.0%
Biodiesel	0	15	32	50	60	73	33.4%	4.5%	4.0%
Oleochemical	4	8	14	20	24	27	6.2%	3.8%	3.0%
Other Industrial	2	3	7	9	10	10	6.5%	2.1%	2.0%
SUM	**83**	**136**	**204**	**269**	**304**	**344**	**4.6%**	**2.8%**	**2.5%**

Source: Glenauk Economics

Demand for vegetable oils

We separate demand into four different main end-uses:

1. In all cultures and countries, **food use** of vegetable oils increases with higher incomes. In part this is due to an almost universal preference for frying foods which enhances flavour and texture. Increased urbanization also results in greater consumption of processed food, as well as food from restaurants, both of which use more vegetable oil.

2. **Biodiesel use** refers to the use of vegetable oils in transport fuel predominantly in the form of Fatty Acid Methyl Ester (FAME) or Renewable Diesel blended with diesel. This demand is supported by government mandates in the European Union and the United States as well as in South East Asia and Latin America. While electrification of vehicles and reduced diesel consumption will temper the use of biodiesel in road transport, ambitious targets for Sustainable Aviation Fuel (SAF) will increase demand out to 2040. While the focus is on low carbon feedstocks, such as waste, the limited supply of waste will mean increased use of

vegetable oils to meet the targets. This is particularly noticeable in the US where soybean oil is expected to be diverted in large quantities to renewable diesel and Sustainable Aviation Fuel (SAF) production.

3. **Oleochemical demand** grows with GDP per capita, alongside consumer's willingness to spend more on home and personal care products.

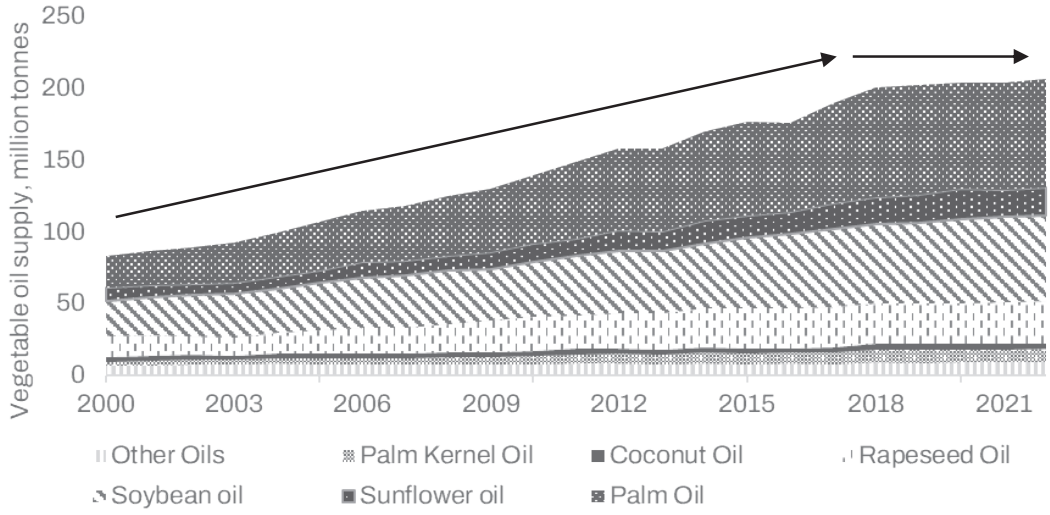
4. **Other industrial uses**, are predominantly feed for which vegetable oils are a cost effective source of calories. As meat consumption increases, the livestock industry requires more oil.

Supply of vegetable oils

Historically the substantial growth in demand for vegetable oils was met by increased volumes of palm oil, principally from Indonesia. Diagram 3, demonstrates, however, that since 2019 vegetable oil supplies have stagnated as palm oil output has stopped growing.

The reason for this is a slow-down in planting in Indonesia, shown in Table 5. Sustainability pressures and difficulties finding appropriate land have made planting oil palm increasingly difficult. The slowdown in area growth has been coupled with stagnant to declining yields causing output to plateau.

Diagram 3: Global vegetable oil supply by main crop, 2000 to 2023



Source: Glenauk Economics

Table 4: Forecast of global vegetable oil supply by main crop to 2040, million tonnes

Crop	2000	2010	2020	2030	2035	2040	CAGR 2000-2020	CAGR 2020-2030	CAGR 2030-2040
Palm Oil	22	47	74	84	90	96	6.3%	1.2%	1.4%
Soybean oil	25	39	59	83	103	129	4.4%	3.5%	4.6%
Sunflower oil	9	12	21	27	30	33	4.2%	2.6%	2.0%
Rapeseed Oil	15	23	28	36	41	46	3.4%	2.5%	2.4%
Palm Kernel Oil	3	6	9	10	11	12	6.0%	1.2%	1.4%
Coconut Oil	3	3	4	4	4	4	0.5%	0.7%	0.5%
Other Oils	7	8	9	10	10	11	1.6%	0.4%	1.1%
SUM	**83**	**139**	**204**	**254**	**290**	**332**	**4.6%**	**2.2%**	**2.7%**

Source: Glenauk Economics

8. INDUSTRY OVERVIEW (CONT'D)

The slowdown in expansion of palm oil production, means that growth will have to come from other oil crops. Though both sunflowerseed and rapeseed have seen strong yield growth, this is now slowing and there is limited scope for area expansion due to agronomic constraints. Both sunflowerseed and rapeseed are pressing against their limits in terms of suitable land as well restrictions as to the frequency with which they can be included in the crop rotation. (Planting either crop too frequently, without a break crop, results in disease outbreaks). The growth in vegetable oil output therefore will rely on soybean oil. In order to encourage the further expansion of area under soybean in Brazil, however, will require higher vegetable oil prices to compensate Brazilian farmers for the high cost of transportation and oversupply of soybean meal as a co-product.

Supply and demand of palm oil

Table 5 demonstrates that after a period of very rapid growth from 2010 to 2020, palm oil production is forecast to slow.

- The main slowdown will be in **Indonesia** where limits to area expansion have meant much slower output growth.
- **Malaysia**, the second-largest producer, will see no growth up to 2030 as it continues to deal with labour shortages, underinvestment in maintenance, over-age trees and the spread of Ganoderma.
- Other countries are seeing faster growth in palm oil production, albeit from a low base. **Thailand** will continue to see replanting of rubber to oil palm, helping lift its production, more of which will be exported. It is likely that oil palm area will also expand in the **southern Philippines** which is climatically similar to Southern Thailand.
- **Latin America** – notably Colombia as well as Brazil – will continue to expand production but have limited area available and very high labour costs which prevents the industry from growing very quickly.

As replanting accelerates over the next 5 years that will mean that output growth improves slightly from 2030 to 2040, though growth will remain far below historical levels.

Table 5: Forecast of global palm oil supply by main producer to 2040, million tonnes

Country	2010	2020	2030	2035	2040	CAGR 2010-2020	CAGR 2020-2030	CAGR 2030-2040
Indonesia	24	44	50	53	56	6.2%	1.3%	1.2%
Malaysia	17	19	19	20	22	1.2%	0.0%	1.3%
Thailand	1	3	4	5	5	7.5%	4.7%	2.7%
Colombia	1	2	2	2	3	7.5%	3.4%	2.0%
Rest of World	4	7	9	9	10	4.7%	2.3%	2.0%
SUM	**47**	**74**	**84**	**90**	**96**	**4.6%**	**1.2%**	**1.4%**

Source: Glenauk Economics

Table 6: Forecast of global palm oil demand by end-use to 2040, million tonnes

End Use	2010	2020	2030	2035	2040	CAGR 2000-2020	CAGR 2020-2030	CAGR 2030-2040
Food	41	55	60	63	66	2.9%	0.8%	1.0%
Biodiesel	3	12	16	17	17	16.5%	2.8%	0.6%
Oleochemical	3	6	9	10	12	8.0%	3.5%	3.2%
Other Industrial	1	1	1	1	1	0.0%	0.7%	1.0%
SUM	**47**	**74**	**85**	**90**	**95**	**4.6%**	**1.4%**	**1.2%**

Source: Glenauk Economics

8. INDUSTRY OVERVIEW (CONT'D)

While supply growth slows, demand for palm oil will continue to grow:

- In **food use**, despite some consumers concerns, palm oil is difficult to substitute in part due to its higher oxidative stability in frying but mainly as its balance of saturated and unsaturated fats means it can be used as a hard stock in margarine and shortenings, without hydrogenation.

- While the use of palm oil in **biodiesel** in the EU is being phased out by 2030, growth in the volume of biodiesel used in Indonesia means biodiesel demand for palm oil continues to grow. The Indonesian government's mandate, requiring a certain blend of palm biodiesel in diesel, has been critically important in controlling the volume of palm oil stocks. If South East Asian countries adopt Sustainable Aviation Fuel (SAF) mandates they will be based on palm oil.

- At the same time, with increased use of tallow as biodiesel feedstocks in the US, the use of **palm oil in oleochemicals** is forecast to expand as palm oil/stearin become a larger share of fatty acid production.

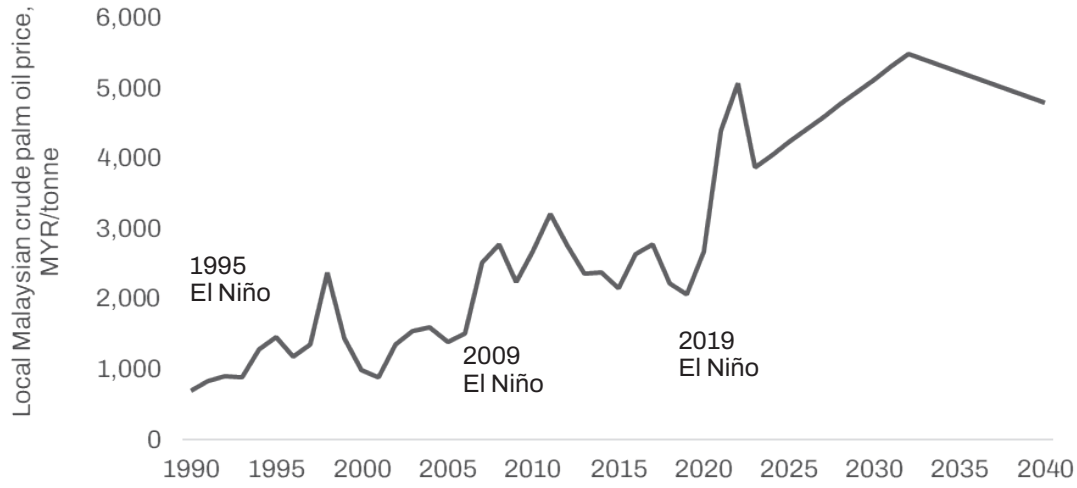
Overall, therefore demand for palm oil will grow at a faster rate than supply, which is being held back by an inability to expand area under oil palm, until 2032. From 2032 onwards the growth in supply will be slightly faster than demand as higher soybean oil supplies remove some of the pressure from palm oil and replanting helps to increase production. Nonetheless stocks will remain tight.

Price outlook

As with all agricultural commodities, the weather is the main determinant of annual fluctuations in the crude palm oil price. There have been three major price rallies since 1990 caused by strong El Niño weather events in 1995, 2009 and 2019. An El Niño usually causes droughts in South East Asia. As the oil palm requires consistent and high rainfall, this reduces palm oil production with a lag.

Prices reached an all time high in 2022, averaging over 5,000 MYR per tonne in Malaysia. Since 2022 prices have come down, though they remain at much higher than historical levels. Our supply and demand calculations suggest that there is a fundamental shortage of palm oil, therefore we expect prices to rise in 2024 to just above 4,000 MYR/tonne and continue to increase until 2032 when a combination of higher output from replanting, slowing biodiesel demand and more supply of soybean oil will relieve some of the pressure on CPO prices allowing them to decline, though remaining at historically very high levels. Tables 5 and 6 demonstrate that the supply and demand will be balanced by 2035.

Diagram 4: Malaysian CPO price and forecast

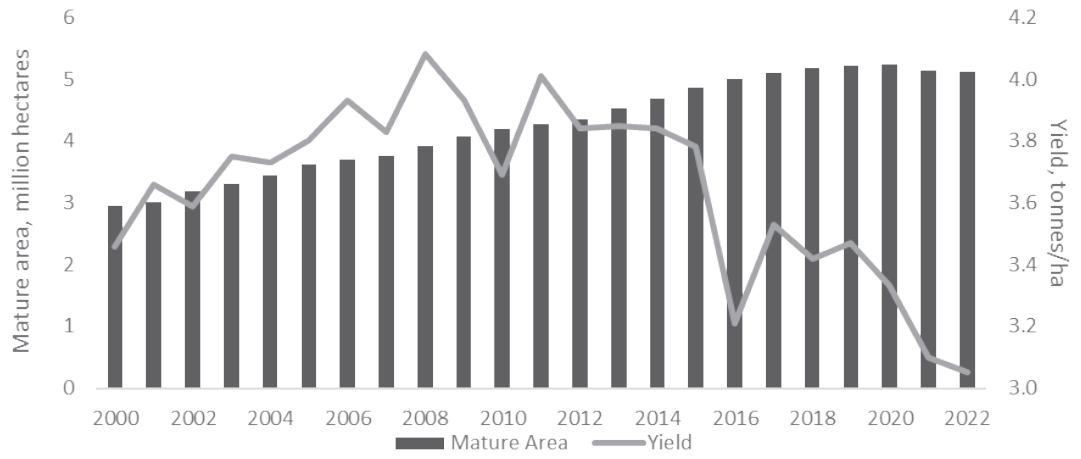


Source: Historical data from MPOB, forecasts from Glenauk Economics

Prospects of the Malaysian Palm Oil Sector

From 1975 to 2019 the planted area under oil palm in Malaysia increased almost 10 fold, from 0.6 million hectares to a peak of 5.9 million hectares, as oil palm area expanded and replaced rubber. Production of palm oil increased from 1.2 million tonnes to a peak of 19.9 million tonnes, reaching this level in both 2017 and 2019. This expansion was initially focused on Peninsular Malaysia (which still accounts for 45% of planted area) but from the 1990s onwards Sabah and later Sarawak began to grow more quickly.

Diagram 5: Mature area under oil palm and yield in Malaysia



Source: Malaysian Palm Oil Board annual reports

Since 2019, as Diagram 5 demonstrates, the mature area in Malaysia has been declining alongside a pronounce decline in yields. The decline in mature area has been driven by oil palm areas being converted into urban uses as well as difficulties in replanting certain areas due to environmental restrictions.

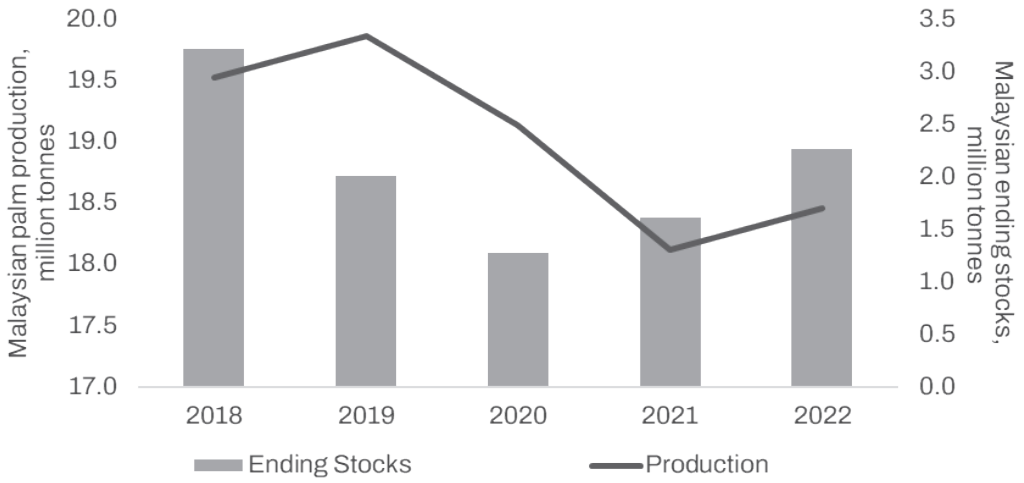
The decline in yields is the combination of a number of factors:

- The **poor age profile** of many Malaysian estates who have not replanted sufficiently. As a result, many trees are over-age and finding harvesters is becoming very difficult.
- The **spread of Ganoderma** (a fungal root infection) which reduces yields and eventually kills the trees. (Fewer trees per hectare reduces yields).
- The discovery that large numbers of **seedlings were contaminated** with lower yielding dura material.
- **Widespread labour shortages** exacerbated by the COVID-19 pandemic which made recruiting workers extremely difficult. As a result in many estates field upkeep has been neglected (most notably the pruning of palms).

The major concern for plantation companies today is to find sufficient workers to rehabilitate areas that have been neglected while ensuring that they have the skilled workers necessary to work harvesters. Companies are also looking at mechanisation, in part to reduce their reliance on manual labour but also to attempt to improve the productivity of their workers and attractiveness of the job.

Plantation companies have also tried to attract Malaysians to work on the estates, which has proven extremely difficult due to the widespread perception that the work is dirty, dangerous and degrading.

Diagram 6: Malaysian production of palm oil and ending stocks



Source: Malaysian Palm Oil Board

The decline in Malaysian output has helped reduce stocks, as measured by MPOB and shown in Diagram 6. As Indonesia is today the much larger producer, however, Malaysian stocks are also determined by competition from Indonesia on the export market as well as imports of palm oil into Malaysia from Indonesia.

The competition with Indonesia explains why, despite the relatively modest increase in production, in 2022 Malaysian stocks rose more substantially. 2022 saw the Indonesian government ban exports in an attempt to control the local cooking oil price. This resulted in a large build up of stocks inside Indonesia and a sharp decline in the local crude palm oil price. Following protest from farmers, exports were once again allowed (though they continued to be regulated under a system of export permits). As these exports flooded onto the market Indonesia claimed large amounts of market share from Malaysia, reducing Malaysian exports and pushing up stocks towards the end of the year.

Nonetheless, stocks finished the year at a relatively low level of 2.26 million tonnes, demonstrating the general shortage of palm oil due to the slowdown in production.

Industry risks and challenges

As we have seen the main factors determining the profitability of an oil palm plantation are the CPO price and their yield. While the plantation company has no control over the CPO price, their actions influence the CPO yield, albeit with annual fluctuations caused by changes in the climate over which they do not have control.

Operational risks

The main threats to plantation companies, in terms of maintaining their yields, are the potential for disease outbreaks, inclement weather leading to flooding and an insufficient and/or poorly trained workforce neglecting their duties. The skill of a planter has always been in managing these risks by ensuring that they can minimize the impact of any disruptions on production, by preparing for all eventualities with a well-trained and highly disciplined workforce committed to a culture of excellence.

8. INDUSTRY OVERVIEW (CONT'D)

Sustainability risks

More recently, the oil palm industry has become the focus of sustainability issues. The specific issues have varied, from environmental concern over deforestation to concern over the treatment of potentially vulnerable migrant workers. In all cases, however, the need to demonstrate the sustainability of plantations has become a major component of the risk management for plantation companies. Leading oil palm plantation companies are aware of the reputational risk for themselves as well as the counterparty risk for their buyers, processors, consumer goods producers and investors.

In response to these risks, a number of policies, processes and procedures have been developed to ensure plantation companies demonstrate a credible commitment to acting in a transparent and ethical manner. One such process has been the development of certification and traceability to demonstrate that plantation companies have not contributed to deforestation. Johor Plantations is certified under the Roundtable for Sustainable Palm Oil (RSPO), Malaysian Sustainable Palm Oil (MSPO) and International Sustainability & Carbon Certification (ISCC)

The RSPO is a voluntary scheme. Globally in 2022 only 20.5% of CPO produced was RSPO certified, which places Johor Plantations among a small group of very environmentally conscious suppliers. Today all of Johor Plantations mills are RSPO certified as is all of their estate area. Four out of five mills use the highest identity preserved (IP) chain of custody system which means that they can fully trace all of their FFB back to the field. The remaining mill uses the RSPO Mass Balance (MB) certification system, in order to be able to continue to accept smallholder crop.

Due to the relatively high cost and complicated nature of certification, smallholders usually are unable to become certified without assistance from plantation companies. Johor Plantations is working on ensuring that more of its smallholder suppliers become RSPO certified as part of its Smallholder Inclusion Program. As part of this program smallholders will be provided with pecuniary incentives to sell RSPO certified FFB. Finally, to ensure that there is no deforestation in the Johor Plantation's supply chain it also subscribes to a satellite monitoring process (Global Forest Watch).

Johor Plantation provides this external evidence to buyers so that they can be reassured no palm oil from deforestation will enter their supply chain. This also places Johor Plantations in a better position to comply with the EU's Deforestation Regulation (EUDR), the exact details of which are not yet clear, but which will require that all production be traced back to the location of production and assurances that there has been no deforestation since 2020.

Focus on oil quality and reducing contaminants

3-Monochloropropane-1,2-diol (3-MCPD) content in palm is limited at 2.5 ppm in the EU and Johor plantations has introduced CPO washing to comply. A small number of high-quality buyers are also seeking to reduce mineral oil in palm oil. The European Food Safey Authority (EFSA) believe Mineral Oil Aromatic Hydrocarbons (MOAH) may cause cancer and have agreed in principle to limit MOAH content. Johor Plantations have introduced biobased lubricants to reduce the MOAH content.

Focus on carbon emissions

Increasingly, companies are committed to reporting and reducing their carbon emissions. For many producers involved in processing or buying agricultural commodities, they represent a large share of their scope 3 emissions. Increasingly therefore the focus is on finding suppliers who can demonstrate low carbon emissions.

The main source of carbon emissions on plantations is from the methane released from the mill effluent. Johor Plantations has already installed biogas facilities on all five of their mills thus capturing these emissions. (The recent fire in the biomethane plant at one of the mills will cause some additional methane to be released into the atmosphere temporarily). As a result, the carbon emissions from Johor Plantations are low at around 1.13 tonnes of carbon per tonne of CPO according to their 2021 RSPO submission (prior to the fire). This compared favourably with the average GHG emissions declared by RSPO members which are around 3.2 tonnes of carbon per tonne of CPO in 2021. In addition, RSPO members have lower GHG emissions compared with non-members.