

PalmSphere



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M P O C

SD GUTHRIE: PIONEERING THE FUTURE OF AGRICULTURE WITH AI AND ROBOTICS

INNOVATIONS IN PRACTICE: NATURE IN OIL PALM

DEBUNKING MISCONCEPTIONS: UNDERSTANDING PALM OIL AND ITS ROLE IN HEALTH



MALAYSIA LEADS THE WAY: SETTING THE GLOBAL STANDARD FOR SUSTAINABLE PALM OIL AT UNFCCC COP29

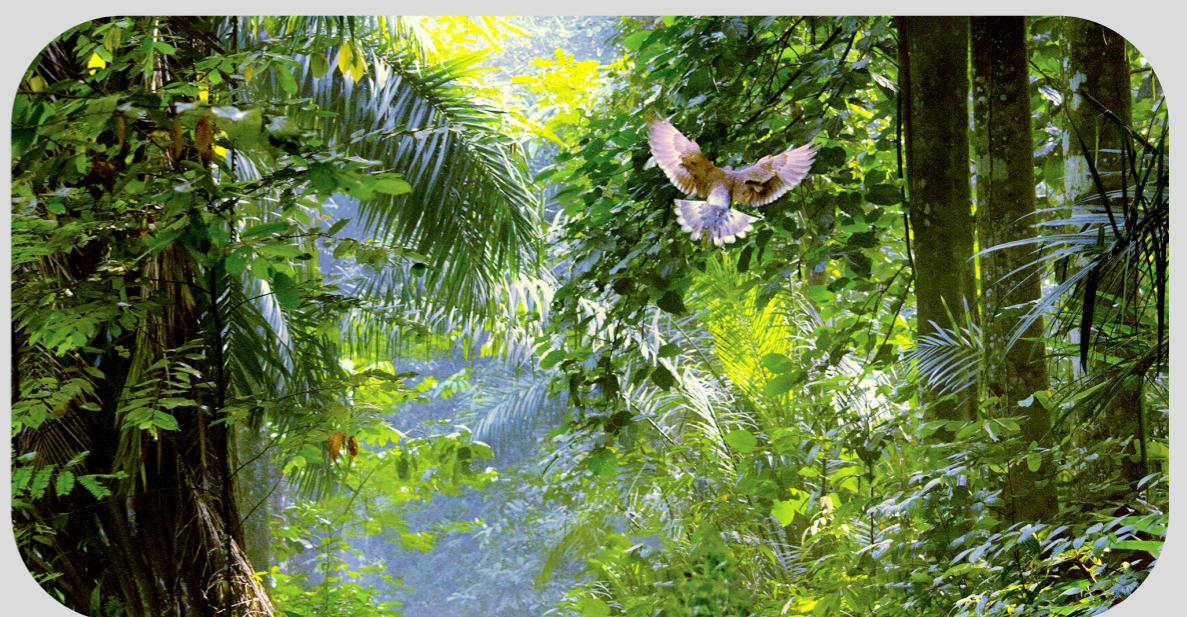


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MESSAGE FROM THE CEO



Belvinder Sron
CEO of MPOC

Dear Readers,

As we draw the year to a close, this final edition of PalmSphere for 2024 reflects the milestones achieved and serves as a testament to the promising path ahead for Malaysia's palm oil industry. It has been a transformative year marked by groundbreaking initiatives, global collaboration, and unwavering commitment to sustainability. This edition spotlights Malaysia's pivotal role at UNFCCC COP29, where the Net-Zero Transition Study was unveiled, cementing our leadership in climate-smart agriculture. Discussions on biodiversity, circular economy, and food security further demonstrate how Malaysia's palm oil sector sets a global benchmark for sustainable practices.

SD Guthrie's advancements in AI and robotics redefine how plantations operate and further exemplify our industry's innovative spirit. Our exploration of nature-based solutions highlights the dedication of MSPO-certified smallholders adopting regenerative farming practices, ensuring that agriculture remains resilient and environmentally positive. These innovations, along with palm oil's versatile applications, such as in plant-based milk, highlight the diverse and sustainable potential of Malaysian palm oil. We also tackle misconceptions about palm oil's health impacts with scientific clarity, reaffirming our commitment to transparency and informed decision-making.

As the industry evolves, the guiding principles of sustainability, innovation, and inclusivity remain at the forefront of our mission. I extend my heartfelt gratitude to all stakeholders, partners, and contributors who have been instrumental in shaping this remarkable journey. Together, let us continue to lead, innovate, and inspire—building a greener, more sustainable future for all.



Themed 'Shift for Sustainability,' Malaysia Pavilion at UNFCCC COP29 engages in discussions to emphasise the urgency of addressing climate change with immediate, bold actions.

MALAYSIA LEADS THE WAY: SETTING THE GLOBAL STANDARD FOR SUSTAINABLE PALM OIL AT UNFCCC COP29

At UNFCCC COP29, the Malaysian Palm Oil delegation led impactful discussions on sustainable palm oil production, unveiling the Net-Zero Transition Study and reaffirming Malaysia's commitment to carbon neutrality, biodiversity conservation, food security, and equitable economic growth.

MALAYSIA reinforced its commitment to sustainability with its dynamic presence at the 29th United Nations Framework Convention on Climate Change (UNFCCC COP29) in Baku, Azerbaijan. Spearheading the 'Malaysian Palm Oil' Day at the Malaysia Pavilion on 15 November 2024, the Malaysian Palm Oil Council (MPOC), in collaboration with key partners—FGV Holdings Berhad, SD Guthrie Berhad, and the Malaysian Palm Oil Green Conservation Foundation (MPOGCF), showcased the nation's leadership in sustainable palm oil production.

This landmark event emphasised Malaysia's pivotal role in producing Certified Sustainable Palm Oil (CSPO) and advancing global goals related to climate action, economic resilience, and food security.

Showcasing Leadership on a Global Stage

The Malaysia Pavilion was a focal point for critical discussions, hosting global leaders, policymakers, and sustainability experts. It underscored Malaysia’s comprehensive approach to sustainability, which balances environmental responsibility with economic empowerment.

“Our presence at UNFCCC COP29 highlights Malaysia’s position as a trailblazer in sustainable palm oil production. We aim to set a global benchmark for environmental stewardship and economic resilience through strategic partnerships and steadfast dedication to responsible practices, showing the world that sustainable palm oil can meet ecological and societal needs.”

Belvinder Sron, CEO of MPOC

The agenda reflects a commitment to addressing local and global challenges, from reforestation initiatives to empowering smallholders. Collaborators like FGV Holdings Berhad and SD Guthrie Berhad plays critical roles in advancing these efforts, showcasing the collective dedication of the Malaysian palm oil industry.



Dato’ Abdul Hadi Omar, Deputy Secretary General (Strategic Planning & Management) of the Ministry of Plantation and Commodities presents a token of appreciation to Prof. Jeffrey Sachs, President of the United Nations Sustainable Development Solutions Network (UNSDSN) at the Malaysia Pavilion, UNFCCC COP29. It symbolises Malaysia’s shared commitment with global leaders to advancing sustainable palm oil production and climate action goals.

MAJOR HIGHLIGHTS OF MALAYSIAN PALM OIL DAY

Introduction of the “Net-Zero Transition” Study

The unveiling of the Net-Zero Transition Study was a defining moment of Malaysian Palm Oil Day. In collaboration with Swinburne University of Technology (Sarawak Campus), the study charts an ambitious yet feasible roadmap for Malaysia’s palm oil sector to achieve net-zero emissions. It addresses current gaps, opportunities, and innovative technologies that can propel the industry towards carbon neutrality.

The full study is accessible for detailed review [here](#).

Key Insights and Recommendations from the Study:



Achievements to Date: The industry has already reduced emissions as much as 68.8% by leveraging existing technologies such as Combined Heat and Power (CHP) systems and biogas capture from Palm Oil Mill Effluent (POME). These practices replace fossil fuels and significantly mitigate methane emissions, showcasing the sector’s capacity to lead in climate action.



Emerging Solutions: To close the remaining gap towards net-zero, the study identifies next-generation solutions, such as processing empty fruit bunches (EFB) into briquettes or pellets. These technologies can generate energy while reducing waste when combined with existing technologies and practices. Other recommendations include biochar production to enhance carbon sequestration through soil enrichment.



Challenges and Opportunities: While the technology exists, barriers such as high capital costs, dependency on imported solutions, and logistical constraints hinder widespread adoption. The study advocates for strategic investments in research and development and local manufacturing capabilities.

Dato' Abdul Hadi Omar, Deputy Secretary General (Strategic Planning & Management) of the Ministry of Plantation and Commodities, officially unveiled the Net-Zero Transition Study, emphasising its importance as a cornerstone in Malaysia's sustainable palm oil agenda. Speaking on the industry's future direction, he remarked: "As one of the world's largest palm oil producers, Malaysia recognises that the industry's future must align with global environmental and social sustainability goals. By participating in UNFCCC COP29, we reaffirm our commitment to reducing the environmental impact of palm oil production, tackling deforestation, and promoting responsible land use practices."

In a statement from the official press release, Ir. Professor Lau Hieng Ho, Pro Vice-Chancellor and CEO of the Swinburne University of Technology Sarawak Campus, highlighted the collaborative effort's real-world impact: "Through partnering with MPOC, we have outlined a practical roadmap for sustainable practices that demonstrates Swinburne's commitment to applying academic rigour to global challenges. It is incredibly rewarding to see our expertise driving positive change for Malaysia and the broader global community, and we are eager to continue this journey towards a sustainable future." Professor Jeffrey Sachs added, "Every part of the world has to make an energy transformation to achieve a zero-carbon power system, and Malaysia is part of that journey. This region can lead sustainable energy solutions by working with ASEAN and integrating hydropower, solar, and other clean technologies."



A united front for sustainable palm oil: Dato' Abdul Hadi Omar, Deputy Secretary General (Strategic Planning & Management) of the Ministry of Plantation and Commodities, Prof. Jeffrey Sachs, UNSDSN, MPOC representatives, and collaborators including FGV Holdings Berhad, SD Guthrie Berhad, and MPOGCF join forces at UNFCCC COP29 to champion sustainability and climate action.

PANELS AND PRESENTATIONS

1. Keynote Address by Prof. Jeffrey Sachs

Global economist and sustainability advocate Prof. Sachs delivered an inspiring keynote, emphasising the importance of inclusive economic growth and sustainable development for the Global South. His address aligned with Malaysia's focus on Just Transition.

2. Panel on Just Transition and Circular Economy

Representatives from FGV Holdings Berhad, Malaysian Sustainable Palm Oil (MSPO), and Swinburne University of Technology Sarawak Campus shared forward-thinking strategies to advance Malaysia's palm oil industry. The panel highlighted initiatives creating green jobs, fostering innovation in bioenergy, and embedding circular economy practices. These discussions showcased the industry's potential to drive equitable growth while enhancing resource efficiency, emphasising Malaysia's role as a leader in sustainable development.

3. Presentation on Biodiversity and Conservation

The MPOGCF showcased Malaysia's robust efforts in reforestation and wildlife conservation. Initiatives to restore biodiversity and protect endangered species demonstrated how sustainable palm oil production can coexist with ecological preservation.

4. Panel on Securing Food for Tomorrow

Representatives from the United Nations Sustainable Development Solutions Network (UN SDSN), FGV Holdings Berhad and SD Guthrie Berhad explored Malaysia's critical contributions to global food security. The panel highlighted the role of high-yield sustainable palm oil production in addressing food challenges while emphasising industry efforts to empower smallholders and adopt innovative, sustainable farming practices.



Live session during Malaysian Palm Oil Day at UNFCCC COP29 highlighted efforts in reforestation, habitat restoration, and sustainable land management by representatives from the Malaysian palm oil industry.

Commitment to Sustainability

The Malaysian palm oil industry's engagement at UNFCCC COP29 underscored the nation's leadership in integrating sustainability into industrial practices. Malaysia's palm oil industry continues to set a global standard for sustainable agriculture through industry-wide collaboration, with support from partners such as FGV Holdings Berhad, SD Guthrie Berhad, MPOGCF, and many others. These collective efforts exemplify the sector's shared dedication to meeting global sustainability benchmarks. The Malaysian Sustainable Palm Oil (MSPO) certification further strengthens this commitment by ensuring that production aligns with global environmental and social benchmarks.

As Prof. Sachs aptly remarked, "East Asia and Southeast Asia are the world's most dynamic regions. With the technologies, biodiversity, and the will to act, Malaysia and its neighbours have the opportunity to set a global benchmark for sustainable development and prosperity." Malaysia's efforts serve as a model for addressing climate challenges while fostering socio-economic growth.

By implementing the recommendations of the *Net-Zero Transition Study* and continuing to innovate, Malaysia is paving the way for a greener, more sustainable future for the palm oil industry and beyond.



Malaysia Pavilion's booth filled with visitors to learn more about sustainable palm oil production.



SD GUTHRIE: PIONEERING THE FUTURE OF AGRICULTURE WITH AI AND ROBOTICS

To tackle the dependency on manual labour and greater demand for productivity, SD Guthrie is on a journey to revolutionise oil palm plantations. The company currently employs new solutions such as drones and GPS-enabled machinery, whilst developing innovative approaches such as unmanned ground vehicles to further boost efficiency.

THE palm oil sector has long been known for its labour-intensive plantation operations. But the economic shocks and labour shortages caused by the pandemic, as well as rapid population growth, have magnified the risk of food scarcity, placing food producers under pressure to find smart, sustainable and effective solutions that reduce manual labour dependency while optimising crop growth and tackling climate change.

SD Guthrie, one of the world's largest producers of sustainable palm oil, is developing cutting-edge technology to address its dependency on manual labour, driving a new phase of change and growth in its 200-year history. By reimagining how plantations operate, the company is working on and has enjoyed some early successes in its efforts to mechanise, automate and digitalise traditional practices, changing the face of the plantation sector.

Cutting-Edge Mechanisation and AI Integration

Advanced technological solutions could in the future, significantly alleviate the impact of labour shortages and improve operational efficiency.

Although SD Guthrie's work in this area is still in its early stages, it has already had early successes. Drones have been deployed for agricultural use, such as pesticide applications for immature palms in flat, undulating, and terraced areas. They provide extended area coverage while maintaining the desired efficacy using high-accuracy real-time kinematic positioning (RTK)-Global Positioning System (GPS) technology. Drones are more precise and can cover 8 hectares daily, whereas it would take three workers to do the same.

Another drone sprayer used in pest and disease management at nurseries has shown the capability to cover 15,000 seedlings daily, vastly outpacing the 1,800 seedlings if managed manually.

In addition, SD Guthrie's dedicated robotics unit has been developing innovative concepts to mechanise key processes on oil palm plantations.



A drone is applying pesticides to SD Guthrie's plantations, enhancing efficiency and productivity.

One key innovation is the integration of Palm Digital Drives into machines used for spraying pesticides, herbicides and fertiliser in 51 estates in Peninsular Malaysia. This innovation leverages GPS technology and data analytics to meticulously track productivity metrics, driving profitability and sustainability across the plantation. These advanced systems are seamlessly coordinated and monitored through a centralised Robot Operations Centre, ensuring streamlined operations and enhanced oversight.

The robotics unit also explores concepts like an innovative drone system designed to handle the challenging task of cutting oil palm fruit bunches from tall palms. Complementing this are innovations in the *In Situ* Black Bunch Counting and Mapping technology, which is still under development. This technology will enable under-canopy drones with advanced imaging technology to accurately identify and map black and ripe fruit bunches.

The robotics unit is also working on concepts such as unmanned ground vehicles that can spread fertiliser in flat and undulating areas. This robotic system aims to increase the efficiency of fertiliser application. Both systems leverage the latest AI technology to understand their environment and navigate safely with minimal input from human operators.



SD Guthrie's Project *Lokal* is an initiative to attract skilled local talent to manage the company's increasingly mechanised and automated plantation operations.

Project Infinity and Project *Lokal*

Launched in 2020, Project Infinity leverages mechanisation, automation, and digitalisation to tackle labour shortages. By integrating advanced technologies, this project aims to transform plantation operations and reduce reliance on manual labour, targeting an improved land-to-man ratio of one worker per 17.5 hectares by the end of 2027, compared to the current industry average of 8-10 hectares per worker.

SD Guthrie's Project *Lokal* complements Project Infinity by attracting skilled local talent to manage the new mechanised systems on its plantations. It has created new roles, such as machine specialists and drone operators.

This initiative aims to make plantation work more inclusive and less physically demanding, paving the way for greater gender diversity in the workforce.

Traditionally a male-dominated industry, SD Guthrie is paving the way for more women to take on operational and leadership roles. Today, the company employs 21 female machine specialists, a female Chief Operating Officer for Papua New Guinea and the Solomon Islands, three estate managers, and one mill manager. While workforce diversification is still in its early stages, these advancements reflect the company's commitment to fostering diversity and inclusion across all levels of its operations.

A Vision for the Future

Looking ahead, SD Guthrie will continue to push the boundaries of mechanisation, automation, and digitalisation to boost operational efficiency further and optimise the land-to-man ratio. The potential for change in the palm oil industry is immense, and SD Guthrie is leading the way by embracing these opportunities. As SD Guthrie continues to pioneer these advancements, it invites others to collaborate and innovate to ensure a stronger, more resilient future for palm oil production.



Robber flies found on Monkey's potato (*Coleus monostachyus*), one of the beneficial plants for habitat islands.

Photo Credit @ Norhisham Razi 2024

INNOVATIONS IN PRACTICE: NATURE IN OIL PALM

Wild Asia collaborates with various partners to develop nature-based solutions that support smallholders' and growers' sustainable oil palm journeys.

A bagworm outbreak is the biggest nightmare for oil palm farmers. One of the most destructive pests, these leaf-eating insects (common species: *Metisa plana* and *Pteroma pendula*), can reduce oil palm yields by up to 40%. A conventional practice to control bagworm outbreaks is to inject the tree trunks with chemical insecticides.

"When I think about the costs (of chemicals) and the potential damage to the trees and environment in the long-term, the 'weaver-ant tactic' seems a better option," says independent smallholder Long Tijah Dongkin. Using weaver ants to combat bagworms is common amongst Long Tijah's Semai Orang Asli (indigenous) community in Perak. They would forage for weaver ant nests in the forest and haul them to their farms.

Less than 10 km from Long Tijah's farm, farmer Chow Chan Hoi from Kampung Sungai Kroh intercroops his oil palm with 10 soursop (*Annona muricata*) fruit trees to attract weaver ants to combat bagworms. He learned this technique by word of mouth.

“I don’t know how effective it is. But I’ve been spared from bagworm attacks so far. Also, we can savour the soursops during the fruiting season,” says Chow, smiling. He does manual weed control and hasn’t applied pesticides on his farm for four years.

“It’s good to let the soil ‘breathe’ and regenerate,” he asserts.

A five-minute drive from Chow’s farm, Mat Jailani Arshad’s farm resembles a verdant oasis thrumming with insects. Pockets of woody shrubs like coral-pink pagoda flowers and purplish-red straits rhododendrons nestle amidst the palm trees as butterflies, bees, and wasps hover about. These native flowers draw beneficial insects such as wasps and other predators of bagworms. He also grows coral vines (*Antigonon leptopus*), a non-native beneficial plant, to attract stingless bees (*Heterotrigona itama*) for his honey enterprise. His farm has been chemical-free for eight years. His palm trees and soil are nourished with homemade compost and enzyme liquid fertilisers instead of synthetic fertilisers.

“My farming costs are low, and my yields are high,” declares Mat Jailani. “More importantly, I enjoy pottering around my lush farm every morning.”



Mat Jailani’s habitat island, a 3m-by-9m plot planted with selected flowering/beneficial plants.

Nature-Positive Farming Approach

What these farmers have in common is their espousal of nature-friendly fixes in their farm management. They learn from decades of experience that 'conventional' farming practices with excessive chemicals lead to degraded soil, affecting crop yields and biodiversity loss. Pest control solutions like using weaver ants to control bagworms are not merely old wives' tales. **Studies** have revealed that Asian weaver ants (*Oecophylla smaragdina*) are a successful biological control agent (BCA) against damaging pest infestations on oil palm plantations.

These MSPO (**Malaysian Sustainable Palm Oil**) - certified smallholders are members of Wild Asia's **WAGS BIO** scheme, a production system designed to help oil palm farmers switch from 'conventional' agriculture to regenerative agriculture. As WAGS BIO farmers, they receive training and support to adopt regenerative farming practices.

Over the years, Wild Asia has collaborated with partners like the **UK Centre for Ecology & Hydrology** (UKCEH), **Rainforest Alliance**, and **CarbonSpace**, which help support and validate these nature-positive approaches.

Two recent projects involved collaborations with **Sustainable Agriculture Network** (SAN), a coalition of non-profit organisations in America, Africa, Europe, and Asia, and **the University of Cambridge** to design nature-based solutions for managing oil palm.



These projects help us better understand things on two levels: firstly, we can support our work on increasing soil biodiversity and health and increase farmers' livelihoods. Secondly, we can explore and show how regenerative agriculture in oil palm can contribute to landscape diversity and connectivity."



Wild Asia Technical Advisor and Ecologist, John Howes

The SAN-Ferrero Project

In 2020, Wild Asia teamed up with SAN on a **project** to promote practical, nature-based solutions for integrated pest management (IPM), biodiversity-friendly farming practices and profitability of oil palm producers.

Funded by **Ferrero**, one of the largest confectionery producers in the world, the project involves an international team of entomologists, ecotoxicologists, botanists and ecologists from Wild Asia, **Universiti Putra Malaysia** (UPM), UK-based **CABI**, US-based **Oregon State University** and Costa Rica-based **Scrum Agroecologia**.

The project aims to introduce habitat islands for “beneficial” insects that prey on pests (defoliating insects like bagworms) that harm palm trees.

Each ‘habitat island’ is a 3m-by-9m plot planted with selected flowering/beneficial plants. These plants serve as a food source or provide refuge for a wide variety of beneficial insects, such as parasitoids and scavengers, which are predators of bagworms or other pests. These habitat islands or plant beds are placed between palm trees, borders of canals, or internal roads, therefore not reducing farming areas.



The original idea for this nature-based solutions programme was born in Costa Rica in a study (Mexzón & Chinchilla, 1999)* that reveals certain understory (layer of trees and shrubs between the forest canopy and ground cover) plant species are attractive to beneficial insects (of specific region/environment) in oil palm plantations. This approach was up to 90% effective in controlling insect pests without synthetic insecticide use.”



SAN Senior Technical Advisor, Oliver Bach

However, the conditions for a stable population of beneficial insects depend on nutritional resources, refuge sites, and microclimates. The SAN-Ferrero project includes a module on Malaysia-specific pesticide data to identify lower-risk pesticides as alternatives to hazardous chemicals that protect and benefit farmers and the environment.

“SAN has observed, for example, in *Costa Rica, Ghana and Malaysia that oil palm smallholders with low or no chemical use and diverse understory do not suffer from significant insect pest attacks. Farm productivity is more stable and more resilient,” adds Bach.

The Local Context

UPM's participation in the SAN project is instrumental because it is the leading research university conducting ongoing studies in oil palm sustainability and provides the Malaysian context.

“Over the years, our team has conducted numerous studies related to landscape diversification in oil palm plantations,” says Entomologist and Biodiversity Scientist from UPM's Department of Forestry Science and Biodiversity, Dr Norhisham Razi.

His team's research ranges from introducing polyculture and **livestock integration** in oil palm to enhance biodiversity, to investigating the **effectiveness** of natural predators like insects, birds and mammals in controlling pest insect species in oil palm plantations.

One exemplary **case study** was conducted on the MPOB Keratong (Pahang) plantation.

“By intercropping oil palm with secondary crops such as pineapple, bamboo and black pepper, the findings revealed significant increases in insect diversity and population within the plots compared to monoculture plots,” Norhisham explains.

“This case study underscores the potential of polyculture approaches to enhance biodiversity and ecosystem services in agricultural landscapes.”

For the SAN project, Dr Norhisham’s team conducted surveys of insect biodiversity in smallholder palm farms and estates, compared local understory plants with introduced habitat islands, identified suitable local plant species and established plant beds within the oil palm understory to attract and maintain insect diversity.

Although **MPOB** (Malaysian Palm Oil Board) has introduced non-native beneficial flowering plants like *Cassia cobanensis* and *Turnera sp* under its **IPM for bagworms** guidelines, the SAN project focuses on using native plants already present in the Malaysian oil palm landscape.

Outcomes and Status

The SAN-Ferrero project’s fieldwork began in early 2021 and was divided into several phases. In the early stages, the research team mapped out the farming practices of selected farmers in Perak and conducted a comprehensive survey of insects and plants to better understand the farm ecosystem. The survey findings identified 89 insect species and 121 host plant species (58% native plants), as well as the presence of crop-damaging pests like bagworms, rhinoceros beetles, and rats.

The research team discovered that certain plant species were associated with higher proportions of specific insect groups, Norhisham says.

For example, plants like straits rhododendron or *sendudok* (*Melastoma malabathricum*) and monkey’s potato (*Coleus monostachyus*) are associated with higher numbers of predatory insects like assassin bugs (*Reduviidae*), long-legged flies (*Dolichopodidae*) and scavengers, which indicate the plants’ potential to support natural pest control mechanisms. Parasitoid wasps like *Cotesia metasae* and *Paraphylax sp.* are potential biological control agents for bagworms.

“Essentially, integrating non-crop plant mixtures significantly enhanced insect diversity, stressing the importance of habitat complexity for natural enemies and increasing the resilience of the agricultural land’s ecosystem (agroecosystem) within monoculture plantations.”

Between 2021 and 2022, the UPM-Wild Asia team constructed habitat islands on four independent smallholders’ farm plots. During a bagworm outbreak in Perak in early 2023, Wild Asia found that rows of palms bordering or adjacent to the habitat islands on smallholder Neoh Ah Seng’s farm had far less bagworm infestation than neighbouring rows or farms. Neoh has been practising chemical-free farming on his Sg Kroh farm for over seven years. He is one of the earliest champions of WAGS BIO farming, dating back to 2018.

“Whilst we can’t equivocally say this (indicators from Neoh’s farm) is a result of the habitat islands and the wasps living in them, it is something that we need to try and design a way of testing,” Howes shares.

In phase three of the project, the team will finalise the tool package with the six best plant species (out of 20 trialled) for the habitat islands.

“We’ve built insect networks that showcase which beneficial insects are associated with these six plants and, in turn, which oil palm pests are controlled by these beneficial insects (predators and parasitoids),” says Bach.



Photo Credit @ Norhisham Razi 2024

Weaver ants on sendudok
(*Melastoma malabathricum*) flower.

Howes adds that one of the upshots from this project for Wild Asia is realising the need to develop cost-effective ways and means to deliver these beneficial plant habitat islands for smallholder farms and larger estates. Phase three also includes planting 14 habitat islands, totalling 350 sqm, in a 35-ha block in an oil palm estate in Johor.

“So far, the collection and propagation of wild seeds seem to be a cost-effective approach, rather than buying seeds and seedlings from nurseries,” Howes explains. “We’re also looking at ways farmers can use existing habitat islands within their fields and the potential for “frond stack” rows to be a natural beneficial plant reservoir.”

UPM’s findings prove that maintaining understory plants within oil palm plantations is crucial for enhancing biodiversity and promoting natural pest control.

“By implementing IPM strategies and promoting landscape diversification, we can reduce reliance on agrochemical inputs and mitigate environmental impacts, aligning with sustainable development goals and ensuring the long-term viability of Malaysia’s oil palm industry,” Norhisham concludes.

Keep an eye out for the second project, the BEFTA project, which will be featured in our upcoming edition, along with the [Innovation in Practice](#) video.

* In a 2021 [project](#) in Costa Rica, SAN helped build the capacity and skills of smallholder farmers from an oil palm and cocoa cooperative to implement sustainable agricultural practices.

** An epiphyte is a plant, like ferns and orchids, that grows on another plant (e.g., on tree trunks).

The results of SAN Phase 1 and 2 are now published in the journal **Cogent Food & Agriculture** (OFA):

A. R. Norhisham, M. S. Yahya, S. N. Atikah, J. Syari, O. Bach, Mona McCord, J. Howes, and B. Azha. (2024).

Non-crop plant beds can improve arthropod diversity, including beneficial insects in chemical-free oil palm agroecosystems. **Article ID:** OFA (2367383). <https://doi.org/10.1080/23311932.2024.2367383>.

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- i. *Mexzón, R.G. and Chinchilla, C.M. (1999) Plant species attractive to beneficial entomofauna in oil palm (*Elaeis guineensis* Jacq.) plantations in Costa Rica. **ASD Oil Palm Papers** (Costa Rica) No.19 (pp. 23-29)
- ii. MPOB (2016) Standard Operating Procedure (SOP) Guidelines for Bagworm Control. Malaysian Palm Oil Board, Bangi. 41 pp.
- iii. Sustainable Agriculture Network (SAN)’s [IPM Resources](#) include presentations relevant to the SAN-Ferrero project.



DEBUNKING MISCONCEPTIONS: UNDERSTANDING PALM OIL AND ITS ROLE IN HEALTH

Two pharmaceutical and clinical research experts provide their perspectives in an informed analysis of a recent study regarding palm oil that warrants a closer look at the findings.

A recent article published on [NeuroScience News.com](#) by [Shawn Rea](#) (CUNY) claimed that a palm oil-rich diet may exacerbate multiple sclerosis (MS) symptoms through a neurotoxic pathway. Based on the research paper titled *"Neuroprotective effect of neuron-specific deletion of the C16 ceramide synthetic enzymes in an animal model of multiple sclerosis"* by Amatruda Mario and colleagues, this assertion warrants a closer look to clarify the findings and provide balanced information.

What the Research Explains

The study explored the role of ceramide C16, a fat molecule found in cell membranes, particularly in the brain and spinal cord. While the data highlighted the impact of ceramide C16 on MS severity in mice, it did not establish that palm oil alone worsens MS symptoms. Instead, the experiments examined the effects of a high-fat palm and olive oil diet. The data do not support the claim that palm oil was uniquely responsible for adverse outcomes.

EXPERT PERSPECTIVES

Two pharmaceutical and clinical research experts, Dr. Fung Wai Yee and Emeritus Professor Dr. Yuen Kah Hay, were consulted to provide an informed analysis. They noted several key points:

- **Dietary Impact Misrepresented:** In isolation, the experiments measured the effects of a high-fat diet, not palm oil. In fact, NeuroScience News' report omitted the inclusion of olive oil in the diet, creating a misleading narrative that unfairly singles out palm oil.
- **Lack of Control Comparisons:** The study did not compare the outcomes of palm oil diets against other specific diets, making it impossible to conclude that palm oil was the sole contributor to the observed effects.
- **Ceramide C16 and Oxidative Stress:** The experiments demonstrated that oxidative stress, triggered by hydrogen peroxide (H₂O₂), played a role in ceramide synthesis. However, palmitic acid, a key component of palm oil, was not tested independently, leaving its role ambiguous.

Understanding Palmitic Acid

Palmitic acid is the most abundant saturated fatty acid in humans and animals, and is essential in maintaining tissue integrity. It is found in various foods, including dairy and meat products, not just palm oil. Misrepresenting palm oil as the primary source of ceramide C16 could mislead consumers into believing it is uniquely harmful while consuming palmitic acid from other sources.

The Importance of Accurate Reporting

Scientific studies undergo rigorous peer review to ensure credible findings. However, simplified interpretations in media can often distort the truth, propagating misinformation. In this case, the NeuroScience News article unfairly associates palm oil with negative health outcomes without presenting the full context of the research.

Why It Matters

Palm oil is a vital ingredient in the global food supply and is known for its balanced composition and versatility. Misrepresenting palm oil based on incomplete or biased data will undermine efforts to promote sustainable and ethical palm oil production, such as through the Malaysian Sustainable Palm Oil (MSPO) certification.



Making Informed Choices

Consumers deserve accurate, balanced information to make informed dietary and lifestyle decisions. By contextualising scientific findings and addressing misinformation, we can empower individuals to choose based on facts rather than fear.



Accurate reporting in palm oil research is paramount as the general public should be provided unbiased information.

Technical input provided by:

- **Dr. Fung Wai Yee**, Expert in clinical research and pharmaceutical technology
- **Emeritus Professor Dr. Yuen Kah Hay**, Expert in biopharmaceutical studies, drug therapy and pharmaceutical technology



FREQUENTLY ASKED QUESTIONS (FAQ)

Your go-to guide for understanding the palm oil industry and gaining insights into nutrition and health, sustainability, environmental impact, and industry practices.

QUESTION:

What is the role of Malaysian sustainable palm oil in global nutrition?

DUE to its versatility and high nutrient content, sustainable Malaysian palm oil is essential for supporting various food applications and dietary requirements. It plays a significant role in global food and nutrition. Strict adherence to social and environmental regulations throughout the entire palm oil supply chain ensures sustainability, minimises ecological impact, and fosters economic development in producing regions.

QUESTION:

Is there a rise in demand for plant-based milk (PBM)? What are its nutritional benefits?

The need for sustainable dietary choices and health-conscious customers are driving up the demand for PBM simultaneously. From 2018 to 2022, a study (1) found that, on average, customer attitudes towards product claims related to environmental sustainability are reflected in their purchasing behaviour.

Health advantages of PBM:

- Lactose and cholesterol-free.
- Frequently supplemented with vital vitamins and minerals.
- Aligns with consumer preferences for healthier and sustainable dietary choices.

**QUESTION:**

What is the use of palm oil and its derivatives in PBM formulations?

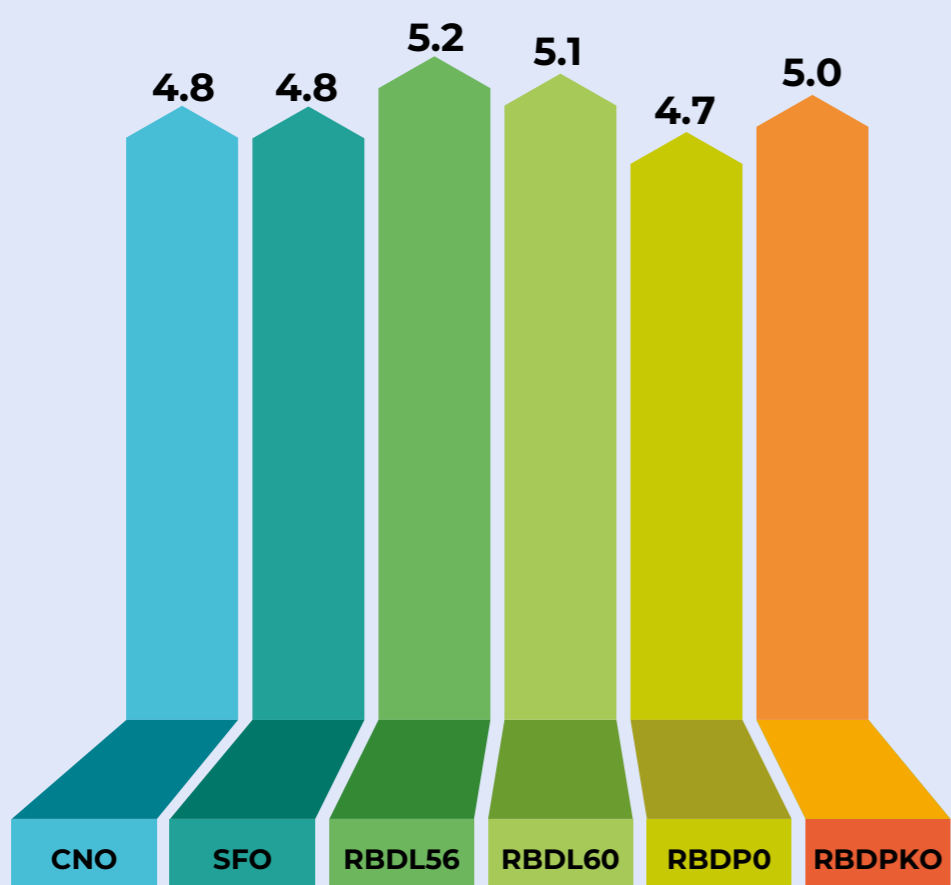
Oil, water, emulsifiers, and other additives are ingredients in PBM (2). Oil is added to create a stable emulsion and good mouthfeel (3). Oils typically used vary in composition, physico-chemical properties, sensory attributes, and nutritional profile. Coconut, sunflower, and canola oil, to name a few, are commonly used in PBM formulations.

In PBM, creaminess refers to a smooth, velvety texture resembling dairy milk, providing a richer, more satisfying consistency that enhances the sensory experience. A study (graph 1) examined the role of various oils, including palm oil, in influencing the sensory properties such as texture of pea protein milk.

The findings revealed that palm oil and its liquid fractions, such as palm olein, could effectively replace oils like coconut oil (CNO) and sunflower oil (SFO) without affecting the milk’s texture quality. These results underline palm oil's ability to deliver comparable creaminess and indulgence, making it a suitable alternative for plant-based milk formulations.

A consumer sensory study (graph 2) involving 50 participants further validated these findings. Over 80% of respondents preferred hot and cold lattes made with pea milk formulated using palm-based oil. In contrast, only 17 - 19% favoured lattes prepared with pea milk using canola oil. This strong preference highlights the adaptability of palm oil in providing creamy textures and appealing mouthfeel across different temperature profiles, making it an ideal ingredient for various plant-based beverages.

Graph 1: Consumer Likeness on Texture of Pea Protein Milk Using Different Oils

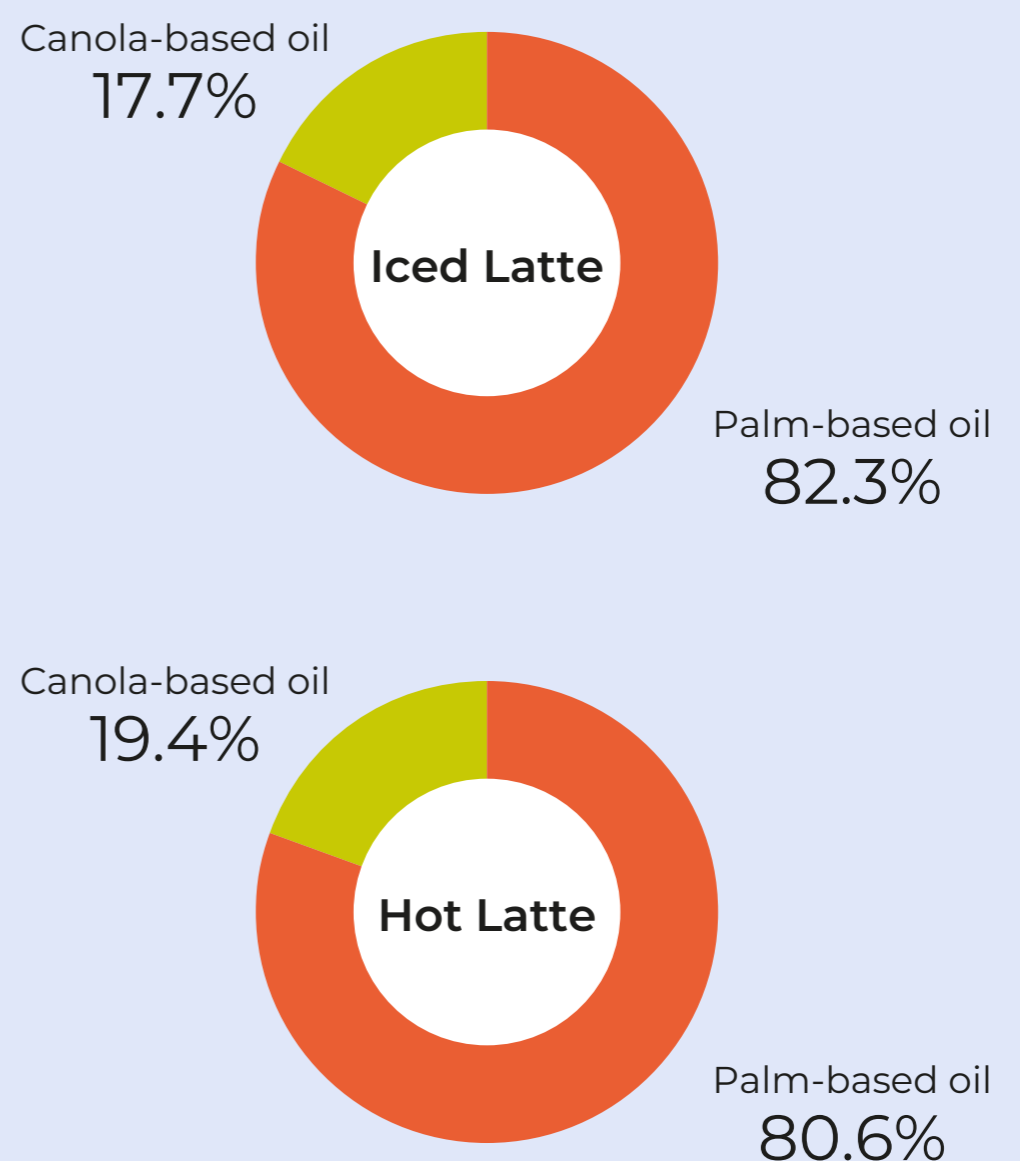


- CNO – coconut oil
- SFO – sunflower oil
- RBDL56 – palm olein IV 56
- RBDL60 – palm olein IV 60
- RBDPO – palm oil
- RBDPKO – palm kernel oil

The scoring was conducted using a 7-point hedonic scale, anchored by the following descriptors:

1. Strongly disliked	5. Slightly liked
2. Moderately disliked	6. Moderately liked
3. Slightly disliked	7. Strongly liked
4. Indifferent	

Graph 2: Consumer Preferences for Hot and Iced Latte using Pea Milk with Canola-based Oil and Palm-based Oil as Ingredient



As the demand for sustainable and versatile ingredients continues to rise, palm oil is playing a vital role in the development of innovative plant-based beverages. Its ability to enhance texture and overall sensory appeal makes it a reliable choice for crafting dairy-free alternatives that meet both industry standards and consumer preferences.



Results in Graph 2 showcased the adaptability of palm oil in providing creamy textures and appealing mouthfeel across different temperature profiles, making it an ideal ingredient for various plant-based beverages.

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Empowering Agriculture, Enriching Lives

An MPOC, SOPPOA, and TV Sarawak Collaboration

Sawit Tales



FIRMLY rooted in sustainability, the Malaysian palm oil industry exemplifies the harmony between economic progress, community enrichment, and environmental preservation. Highlighting Sarawak's contribution to the sector, the Sawit Tales media campaign brings to life powerful stories of the people and communities intertwined with sustainable palm oil production.

What is Sawit Tales?

A five-episode branded content series designed to:

- Spotlight real stories of individuals who rely on palm oil for their livelihoods.
- Showcase sustainable practices, reforestation, and biodiversity efforts.
- Highlight community growth such as educational opportunities, infrastructure development, and economic empowerment driven by the palm oil sector.

Be Part of the Journey

Catch Sawit Tales exclusively on TV Sarawak and across its digital platforms starting April/May 2025.

This campaign is designed to make a significant impact, reaching a potential audience of over 10 million viewers across television and digital platforms. This will be supplemented by the viewership of MYTV, ASTRO, and Unifi TV, along with TVS social media platforms which have an estimated 1.4 million followers and strong engagement on Instagram, Facebook, TikTok, and Twitter, Sawit Tales ensures these powerful stories resonate far and wide.

Stay tuned as we unveil these inspiring stories of Sawit Tales!

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