MINISTRY OF PLANTATION AND COMMODITIES

MPOB

PIPOC 2023

MPOB International Palm Oil Congress and Exhibition

Navigating Uncertainties Building Resilience

Officiated by

The Right Honourable Dato' Seri Anwar bin Ibrahim
Prime Minister of Malaysia

7-9 November 2023
Kuala Lumpur Convention Centre, Malaysia

Souvenir Programme

Organised by
Malaysian Palm Oil Board
Ministry of Plantation and Commodities, Malaysia
www.mpob.gov.my

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Message from the

PRIME MINISTER OF MALAYSIA

I would like to congratulate the Malaysian Palm Oil Board (MPOB) for their outstanding efforts in organising the MPOB International Palm Oil Congress and Exhibition (PIPOC 2023). The chosen theme, '*Navigating Uncertainties, Building Resilience'* is both timely and significant, reflecting the challenges and opportunities that lie ahead in the oil palm industry.

PIPOC 2023 stands as the paramount event in the oil palm industry, drawing together stakeholders from across the globe. It serves as a crucial platform for staying abreast of cutting-edge research and technological advancements while charting the course for a sustainable oil palm industry.

The world is in a state of rapid transformation, and the oil palm industry is not immune to these changes. We grapple with uncertainties stemming from climate change, evolving market dynamics, and shifting consumer preferences. Nevertheless, it is within these challenges that we unearth prospects for growth and development.

Malaysia, as a prominent palm oil producer and exporter, carries a significant responsibility. We are steadfast in our commitment to ensure the sustainability of the oil palm industry while promoting economic advancement and rural prosperity.

The Madani Economy, a concept deeply rooted in principles of ethical, sustainable, and inclusive economic growth, resonates profoundly with the oil palm sector in Malaysia. This industry, which stands as a pillar of our nation's agriculture, embodies these very principles.

Malaysia, with its rich cultural diversity and heritage, has long upheld values of social inclusivity and responsible economic development. It is only fitting that we recognise the oil palm industry as a model of the Madani Economy, one that supports rural communities, fosters economic growth, and champions environmental stewardship.

The oil palm industry's contributions extend far and wide - from uplifting the livelihoods of countless Malaysians to fulfilling global demand for sustainable vegetable oils. In embracing the tenets of a Madani Economy, we ensure that this industry continues to prosper, striking a harmonious balance between economic progress and environmental preservation.

As we convene at PIPOC 2023, a platform renowned for its role in shaping the industry's future, let us take this opportunity to delve into discussions, share insights, and forge collaborations. Together, we can chart a course that enhances the sustainability of the oil palm industry and underscores its significance within the framework of a Madani Economy.

Thank you.

THE RIGHT HONOURABLE DATO' SERI ANWAR BIN IBRAHIM

Message from the

DEPUTY PRIME MINISTER OF MALAYSIA AND MINISTER OF PLANTATION AND COMMODITIES

I would like to extend my heartiest congratulations to the Malaysian Palm Oil Board (MPOB) for successfully organising the MPOB International Palm Oil Congress and Exhibition 2023 (PIPOC 2023). This event has brought together industry leaders, experts, and prominent speakers to discuss technological advancements, market development and trends, and other crucial aspects of the oil palm industry.

The theme of PIPOC 2023, '*Navigating Uncertainties, Building Resilience*,' reflects the ongoing efforts within the industry to prepare the Malaysian oil palm sector for the challenges and ever-evolving landscape of the global supply chain.

Looking forward, the National Agricommodity Policy 2021-2030 (DAKN 2030) represents a significant milestone in our nation's commitment to sustainable development of agricommodities, with a particular focus on the oil palm industry.

Agricommodities play a pivotal role in our country's economic growth, rural development, global trade and UN Sustainable Developments Goals. The palm oil sector, as a cornerstone of Malaysia's economy, is of paramount importance, contributing significantly to the Gross Domestic Product (GDP) and the well-being of our nation. In the first half of 2023, the palm oil industry has contributed substantially, accounting for 2.6% of the Malaysian GDP and amounting to RM20 billion.

The DAKN 2030 outlines a comprehensive and forward-looking strategy to address the challenges and opportunities in the agricommodity sector. It highlights the government's commitment to sustainable practices, market diversification and the well-being of our stakeholders.

Under this policy framework, the oil palm industry is expected to embrace sustainability, innovation, and increased productivity among all industry players, ensuring that agricommodities, including palm oil, are produced sustainably and responsibly while adhering to international standards and commitments.

Finally, I would like to extend my best wishes to all the participants of PIPOC 2023 for your discussions and deliberations. May these discussions propel the oil palm industry to even greater heights.

THE RIGHT HONOURABLE DATO' SRI HAJI FADILLAH BIN HAJI YUSOF

Message from the

CHAIRMAN MALAYSIAN PALM OIL BOARD

On behalf of the Malaysian Palm Oil Board (MPOB), I record our heartfelt appreciation to The Right Honourable Dato' Seri Anwar Ibrahim, Prime Minister of Malaysia, for his support of MPOB's Palm Oil International Congress and Exhibition 2023 (PIPOC 2023).

PIPOC has grown since its inception in 1987, to become the world largest palm oil congress, attended biennially by the industry's leading players and influencers. It captures the trends and developments in the industry and its aspirations for the future. PIPOC is an important platform to update research and technology breakthroughs, propagate latest technologies and innovations, and chart the direction for a sustainable palm oil industry.

This PIPOC 2023 is particularly important to the industry because it is the first Congress to be held after the pandemic, with the resumption of global trade and economic activities. We will see a spectacular gathering of minds that includes 100 speakers and 200 poster presenters, setting the scene for a profound exchange of ideas. There will be more than 400 booths, all showcasing the latest advancements in innovation, technology, products, and services.

Over the last few decades, the palm oil industry has chartered such remarkable growth, palm oil is today the major edible oil produced, traded and consumed the world over. As the industry prospered, its success has not come without its trials. The introduction of environmental, social, and governance (ESG) criteria within the Malaysian palm oil industry has necessitated plantation companies to comply with these criteria by embracing the Malaysian Sustainable Palm Oil (MSPO) Certification. Malaysia is strongly positioned to not only fulfil these criteria but also to take a leadership role in initiatives related to ESG.

From addressing environmental issues to upholding standards and the well-being of people, the industry is confidently maneuvering through a multifaceted landscape. Through a commitment to sustainability and a focus on innovation, industry leaders are proactively addressing these challenges. They are determined to ensure a steady supply of this crucial commodity to meet global demand.

I hope that PIPOC 2023 will continue to be the platform for growth, development and innovation for a resilient and sustainable future of the palm oil industry. I wish all of you a successful and meaningful conference.

YBHG. DATUK MOHAMAD HELMY OTHMAN BASHA

Message from the

DIRECTOR GENERAL MALAYSIAN PALM OIL BOARD

It is with utmost pleasure and appreciation, that I bid a warm welcome to all guests and delegates to the MPOB International Palm Oil Congress and Exhibition 2023, famously known as PIPOC 2023.

Malaysian Palm Oil Board (MPOB) is proud and honoured to host this biennially event, the largest single palm oil event covering technological advancements and scientific breakthroughs relevant to the development of the oil palm industry.

PIPOC 2023 theme '*Navigating Uncertainties, Building Resilience*' signifies the challenges that are facing the oil palm industry, ranging from sustainability practices to the COVID-19 pandemic which have shaped changes to the global food security including palm oil.

The advancement of the Malaysian oil palm industry can be attributed in part to the committed efforts in research and development, which lies at the core of MPOB's initiatives. The emphasis on research and development across the entire spectrum of the industry optimises the interplay between economic progress, environmental responsibility, and value enhancement. This approach safeguards that forthcoming growth is conducted within a sustainable framework.

MPOB's comprehensive research and development efforts within the oil palm industry have yielded 714 applicable technologies and 194 specialised services. Notably, about 33% of these technologies have achieved successful commercialisation.

PIPOC 2023 encompasses cutting-edge technological development surrounding the oil palm industry and serves as an impetus for realising the country's vision towards higher value-added activities and technological advancement under the New Industrial Master Plan 2030 (NIMP 2030).

PIPOC 2023 consists of four concurrent conferences covering agriculture, biotechnology and sustainability; downstream and value-addition; processing, food safety and nutrition; as well as global economics and marketing in thrusting the oil palm industry to the next level. These conferences are delivered by policy makers, eminent researchers and captains of industry to congregate with participants for shaping stronger and resilient oil palm industry for the future.

Lastly, I wish to convey my solemn appreciation to all participants, session chairmen, keynote and plenary speakers, paper presenters, exhibitors, sponsors, and every committee member who made PIPOC 2023 an auspicious success.

Thank you.

YBHG. DATUK DR. AHMAD PARVEEZ HJ. GHULAM KADIR

CONGRESS
Programme

CONGRESS PROGRAMME

DAY/ DATE	ACTIVITY
SUNDAY, 5 NOVEMBER 2023	
10.00 am-6.00 pm	Congress Pre-registration
10.00 am-6.00 pm	Technical Tour Registration
1.30 pm	Golf
MONDAY, 6 NOVEMBER 2023	
7.00 am	Technical Tour
8.00 am-6.00 pm	Congress Pre-registration
4.00 pm-6.00 pm	Welcome Reception
DAY 1 - TUESDAY, 7 NOVEMBER 2023	
7.00 am	Congress Registration
8.30 am-5.30 pm	**Concurrent Conferences:** ■ Agriculture, Biotechnology & Sustainability (ABS) ■ Processing, Food Safety & Nutrition (PFSN) ■ Downstream & Value Addition (DVA) ■ Global Economics & Marketing (GEM) Exhibition/ Poster Viewing
DAY 2 - WEDNESDAY, 8 NOVEMBER 2023	
8.00 am	Congress Registration
	Official Opening PIPOC 2023
9.00 am	Arrival of Participants and Guests
9.30 am	Arrival of **The Right Honourable Dato' Sri Haji Fadillah bin Haji Yusof** Deputy Prime Minister and Minister of Plantation and Commodities
10.00 am	Arrival of **The Right Honourable Dato' Seri Anwar bin Ibrahim** Prime Minister of Malaysia Welcome Remarks by **The Right Honourable Dato' Sri Haji Fadillah bin Haji Yusof** Deputy Prime Minister and Minister of Plantation and Commodities Keynote Address by **The Right Honourable Dato' Seri Anwar bin Ibrahim** Prime Minister of Malaysia **Launching of PIPOC 2023** **Launching of Sawit Intelligent Management System (SIMS)**
11.30 am	Henri Fauconnier Lecture
12.30 pm	Lunch
1.00 pm	Scientific Lunch Talk
2.30 pm	Plenary Lectures
8.30 am-5.30 pm	Exhibition/ Poster Viewing
7.30 pm	**Congress Dinner**
DAY 3 - THURSDAY, 9 NOVEMBER 2023	
8.30 am-5.30 pm	**Concurrent Conferences:** ■ Agriculture, Biotechnology & Sustainability (ABS) ■ Processing, Food Safety & Nutrition (PFSN) ■ Downstream & Value Addition (DVA) ■ Global Economics & Marketing (GEM) Exhibition/ Poster Viewing

CONCURRENT CONFERENCES

Programme

CONCURRENT CONFERENCES
AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

DAY 1 - TUESDAY, 7 NOVEMBER 2023

Time		Activity			Venue
7.00 am		Congress Registration			**L3: Banquet Hall**
8.20 am		Welcome Remarks by **Dr. Meilina Ong Abdullah** Chairperson of Agriculture, Biotechnology and Sustainability Conference			L3: Grand Ballroom
		SESSION 1 **YIELD PERFORMANCE** Chairperson: Dr. Ravigadevi Sambanthamurthi, Fellow, Academy of Sciences Malaysia, Malaysia			
8.30 am	**LP1**	Title	:	Global Impacts of Oil Palm Genome Technologies: A Decade of Discovery and Application	L3: Grand Ballroom
		Speaker	:	i) Dr. Leslie Low Eng Ti, MPOB, Malaysia ii) Dr. Puji Lestari, National Research and Innovation Agency (BRIN), Indonesia	
		SESSION 1A **TECHNOLOGY DRIVEN INNOVATIONS ON PLANTING MATERIALS** Chairperson: Dr. Rajinder Singh, Head of Genomics Unit, Advanced Biotechnology and Breeding Centre (ABBC), MPOB, Malaysia			
9.10 am	**A1**	Title	:	Deploying New Technology in Oil Palm Crop Improvement	
		Speaker	:	Mr. Wong Choo Kien, Advanced Agriecological Research (AAR) Sdn. Bhd., Malaysia	
9.30 am	**A2**	Title	:	Genetic Determinisms of *Ganoderma* Disease Resistance and Outlook with Marker Assisted Selection	
		Speaker	:	Dr. Sébastian Tisné, French Agricultural Research Centre for International Development (CIRAD), France	
9.50 am	**A3**	Title	:	Omics-driven Crop Improvement	
		Speaker	:	Dr. Abrizah Othman, MPOB, Malaysia	
10.10 am		Discussion			
10.30 am		Refreshments/Exhibition/Poster Viewing			GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5

AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

Time		Activity			Venue
SESSION 1B **ADVANCES IN OPTIMISING YIELD AND PRODUCTIVITY** Chairperson: Mr. Ho Shui Hing, Director of Research, United Plantations Berhad, Malaysia					
11.00 am	A4	Title Speaker	: :	Modelling of Growth and FFB Yield for Increasing Oil Palm Productivity Assoc. Prof. Christopher Teh Boon Sung, Universiti Putra Malaysia (UPM), Malaysia	L3: Grand Ballroom
11.20 am	A5	Title Speaker	: :	Evidence for Precision Irrigation by Using Micro-sprayer Method and Tensiometer in Oil Palm Field Mr. Mohd Shahkhirat Norizan, FGV R&D Sdn. Bhd., Malaysia	L3: Grand Ballroom
11.40 am	A6	Title Speaker	: :	Maximising Oil Yield Potential in Oil Palm Plantations Mr. Joshua Mathews, IOI Research Centre, Malaysia	
12.00 pm	Discussion				
12.30 pm	Lunch				
1.00 pm	**Scientific Lunch Talk** Title : Nourishing with Nature-Tocotrienol & VitD3 in ALIF Cooking Oil Speaker : Dr. Teh Huey Fang, Sime Darby Plantation Berhad, Malaysia				L1: Exhibition Hall 6
SESSION 1C **MANAGEMENT STRATEGIES IN PLANT PROTECTION** Chairperson: Mr. Tey Seng Heng, Director of Research, Applied Agricultural Resources (AAR) Sdn. Bhd., Malaysia					
2.00 pm	A7	Title Speaker	: :	Basal Stem Rot Disease Detection Using Machine Learning with UAV Multispectral and Thermal Imagery Assoc. Prof. Ts. Dr. Siti Khairunniza Bejo, Universiti Putra Malaysia (UPM), Malaysia	L3: Grand Ballroom
2.20 pm	A8	Title Speaker	: :	The Outbreak of Sooty Mold and Mealybug in Sabah Oil Palm Plantations Mr. Mohd Helmay Husaini Mohd Zin, Advanced Agriecological Research (AAR) Sdn. Bhd., Malaysia	
2.40 pm	A9	Title Speaker	: :	Emerging Foliar-feeding Pests of Oil Palm in Indonesia Mr. Hari Priwiratama, Indonesian Oil Palm Research Institute (IOPRI), Indonesia	
3.00 pm	Discussion				
3.20 pm	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5

AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

Time		Activity			Venue
		SESSION 2 **SUSTAINABLE DEVELOPMENT** Chairperson: Prof. Alain Rival, Senior Project Manager, French Agricultural Research Centre for International Development (CIRAD), UMR ABSYS, Indonesia			
3.50 pm	LP2	Title	:	Realising Net Zero Goal with Agriculture 4.0	L3: Grand Ballroom
		Speaker	:	Dr. Sim Choon Cheak, Sime Darby Plantation Research Sdn. Bhd., Malaysia	
		SESSION 2A **SUSTAINABLE DEVELOPMENT FORUM**			
4.20 pm	**Theme** : **Heading Towards Deforestation Free Palm Oil and Climate Change** **Moderator : Dr. Carl Traeholt,** **Programme Director, Copenhagen Zoo, Denmark** Panels: 1. Dr. Vijaya Subramaniam, MPOB, Malaysia 2. Prof. Dr. Sumiani Yusoff, Universiti Malaya (UM), Malaysia 3. Dr. Reza Azmi, Wild Asia, Malaysia 4. Mr. Robert Cheong Chun Yuen, Independent Consultant, Malaysia			L3: Grand Ballroom

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

DAY 1 - TUESDAY, 7 NOVEMBER 2023

Time		Activity			Venue
7.00 am	Congress Registration				**L3: Banquet Hall**
8.30 am	Welcome Remarks by **Dr. Astimar Abdul Aziz** Chairperson of Processing, Food Safety and Nutrition Conference				L3: Conference Hall 3
	SESSION 1 **MILLING AND PROCESSING TECHNOLOGY** Chairperson: Dr. David Lian Keong Lim, Executive Director, Havys Oil Mill, Malaysia				
8.40 am	**LP1**	Title	:	Adopting Artificial Intelligence and IR4.0 for Sustainable Milling	L3: Conference Hall 3
		Speaker	:	Mr. Jacob Isaac, Fusionex International, Malaysia	
9.10 am	**F1**	Title	:	Oil Content and Oil Quality Parameters Quantification in Replacement of Fresh Fruit Bunches Maturity Grading	
		Speaker	:	Prof. Sr. Gs. Dr. Abdul Rashid Mohamed Shariff, Universiti Putra Malaysia (UPM), Malaysia	
9.30 am	**F2**	Title	:	Digitalise Your Quality Measurement of Your Palm Oil Through Inline Optical Sensor Technology	
		Speaker	:	Ms. Anne Lim, Endress+Hauser (M) Sdn. Bhd., Malaysia	
9.50 am	**F3**	Title	:	Automated S.M.A.R.T Mill's Algorithms with Internet of Thing (IoT)	
		Speaker	:	Mr. Hady Munsif Mohamad, Premier Credentials Sdn. Bhd., Malaysia	
10.10 am	Discussion				
10.30 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
	SESSION 2 **ENVIRONMENTAL MANAGEMENT TECHNOLOGY** Chairperson: YBhg. Prof. Dato' Ts. Dr. Rosli Mohd Yunus, Professor, Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), Malaysia				
11.00 am	**LP2**	Title	:	Advanced Colour Treatment of Palm Oil Mill Effluent by Activated Carbon Adsorption	L3: Conference Hall 3
		Speaker	:	Ts. Dr. Nahrul Hayawin Zainal, MPOB, Malaysia	
11.30 am	**F4**	Title	:	Water and Green Hydrogen from POME Electro-chemical Treatment System	
		Speaker	:	Mr. Mohd Badrul Nizam Mustafa, Apex Environmental Industries (M) Sdn. Bhd., Malaysia	

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

Time		Activity	Venue
11.50 am	F5	Title : IOI Initiative to Implement 'Circular Economy' Concept in the Management of POME for Renewable Energy and Reduce GHG Speaker : Prof. Dr. Mukesh T Pandya, Oxynol Malaysia Sdn. Bhd., Malaysia	L3: Conference Hall 3
12.10 pm	Discussion		
12.40 pm	Lunch		
1.00 pm	**Scientific Lunch Talk** Title : Nourishing with Nature-Tocotrienol & VitD3 in ALIF Cooking Oil Speaker : Dr. Teh Huey Fang, Sime Darby Plantation Berhad, Malaysia		L1: Exhibition Hall 6

SESSION 3
FOOD SAFETY AND QUALITY
Chairperson: Ir. Shyam Lakshmanan,
General Manager (Refinery), IOI Edible Oils Sdn. Bhd., Malaysia

2.00 pm	LP3	Title : Making Palm Oil Safe for the Planet and Your Plate: The Need to Embrace Change Speaker : Mr. M R Chandran, Malaysian Oil Scientists' and Technologists' Association (MOSTA), Malaysia	L3: Conference Hall 3
2.30 pm	F6	Title : NASIHAT Online System: A New Paradigm for Improving the Competitiveness of the Oil Palm Agroindustry Based on Technologies for Online Measurement of the Oil Extraction Rate and Oil Quality Parameters Speaker : Mr. Cesar A Díaz-Rangel, Cenipalma, Colombia	
2.50 pm	F7	Title : Analytical Solutions to Overcome the Recent Bottlenecks in MOSH/MOAH Determination Speaker : Dr. Marco Nestola, Axel Semrau GmbH & Co. KG, Germany	
3.10 pm	F8	Title : Quality by Design: MOSH/MOAH Avoidance Starts at the Source Speaker : Dr. David R Appleton, Sime Darby Plantation Berhad, Malaysia	
3.30 pm	Discussion		
3.50 pm	Refreshments/Exhibition/Poster Viewing		GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
4.00 pm	F9	Title : Risk Assessment on 3-MCPDE and GE in Infant Formula Using Palm Oil as Essential Ingredient Speaker : Dr. Puspo Edi Giriworo, SEAFAST Centre IPB University, Indonesia	L3: Conference Hall 3

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

Time		Activity			Venue
4.20 pm	F10	Title	:	The CPO Washing System with the POS Tank Separation System: Operational Performance, CPO Quality Improvement, and Adaptability in Palm Oil Mills and Refineries	L3: Conference Hall 3
		Speaker	:	Mr. Lee Hock Leang, Sigma Solaris Sdn. Bhd., Malaysia	
4.40 pm	F11	Title	:	Glycidyl-ester Reduction in Edible Oils with Silica Supported Catalyst	
		Speaker	:	Ms. Chelsea Grimes, W.R. Grace & Co., USA	
5.00 pm	F12	Title	:	Analysis of 3-MCPD and Glycidyl Esters and Other Oil-related Contaminants: Research Updates from the US Food and Drug Administration	
		Speaker	:	Dr. Jessica Beekman, US Food and Drug Administration (USFDA), USA	
5.20 pm	Discussion				

DOWNSTREAM & VALUE ADDITION (DVA) CONFERENCE

DAY 1 - TUESDAY, 7 NOVEMBER 2023

Time		Activity			Venue
7.00 am	Congress Registration				**L3: Banquet Hall**
8.30 am	Welcome Remarks by **Dr. Zafarizal Aldrin Azizul Hasan** Chairperson of Downstream and Value Addition Conference				L3: Plenary Theatre Auditorium
	SESSION 1 **OLEO AND SPECIALTY CHEMICALS: VALUE ADDITION PRODUCTS** Chairperson: Dr. Zainab Idris, Deputy Director-General (R&D), MPOB, Malaysia				
8.40 am	**LP1**	Title Speaker	: :	Exploring Specialty Lubricant Base Oils and Additives Derived from Palm: Advancements, Performance, and Sustainability Dr. Pieter Struelens, Oleon, Belgium	
9.10 am	**D1**	Title Speaker	: :	Utilisation of Palm Oil-based Adhesive in the Fabrication of Wood-based Panels Mr. Wong Kong Cheong, Techbond Greentech Sdn. Bhd., Malaysia	
9.30 am	**D2**	Title Speaker	: :	Specialty Chemicals for the Cosmetic Industry Mr. Neil Burns, P2 Science Inc., USA	
9.50 am	**D3**	Title Speaker	: :	Innovation in Palm-based Bio-lubricants: Estolide Esters and Amides Dr. Hoong Seng Soi, MPOB, Malaysia	
10.10 am	Discussion				
10.30 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
	SESSION 2 **OLEO AND SPECIALTY CHEMICALS: CUTTING-EDGE TECHNOLOGY** Chairperson: Mr. Neil Burns, Chief Executive Officer, P2 Science Inc., USA				
11.00 am	**LP2**	Title Speaker	: :	Digitalisation - Solutions for Oleo and Bio-diesel Plants Mr. Premanand Vettukattil, Desmet Engineering Center, India	L3: Plenary Theatre Auditorium
11.30 am	**D4**	Title Speaker	: :	Exploring Specialty Esters: From Innovative Synthesis to Thriving Market Applications in the Oleochemical Industry Mr. Eddy Chong Kim Foong, CIDOLS Sdn. Bhd., Malaysia	
11.50 am	**D5**	Title Speaker	: :	Importance of Oleochemical-based Green and Sustainable Chemistry and Applications in Turkish Chemical Industry Dr. Ahmet Özemre, Kale Care Chemicals, Turkiye	

DOWNSTREAM & VALUE ADDITION (DVA) CONFERENCE

Time	Activity	Venue
12.10 pm	Discussion	
12.30 pm	Lunch	
1.00 pm	**Scientific Lunch Talk** Title : Nourishing with Nature-Tocotrienol & VitD3 in ALIF Cooking Oil Speaker : Dr. Teh Huey Fang, Sime Darby Plantation Berhad, Malaysia	L1: Exhibition Hall 6
	SESSION 3 **BIOMASS UTILISATION** Chairperson: Prof. Ts. Dr. Lam Su Shiung, Professor, Universiti Malaysia Terengganu (UMT), Malaysia	
2.00 pm	**LP3** Title : Updates of Malaysia Oil Palm Industries – Circular Economy Business Models Speaker : YBhg. Dato' Leong Kin Mun, Malaysia Biomass Industries Confederation (MBIC), Malaysia	L3: Plenary Theatre Auditorium
2.30 pm	**D6** Title : Synthesis of Graphene and Graphene Composite from Oil Palm Biomass Speaker : Prof. Dr. Kamal Yusoh, Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), Malaysia	
2.50 pm	**D7** Title : Nanocellulose from Oil Palm Biomass as a Smart Material Speaker : Dr. Rafidah Jalil, Forest Research Institute Malaysia (FRIM), Malaysia	
3.10 pm	Discussion	
3.30 pm	Refreshments/Exhibition/Poster Viewing	GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
4.00 pm	**D8** Title : Enabling Decarbonisation by Harnessing Palm Waste for Value-added Products in Fuel and Non-fuel Applications Speaker : Mr. Hasnoel Ramly, BAC Renewable Energy Sdn. Bhd., Malaysia	L3: Plenary Theatre Auditorium
4.20 pm	**D9** Title : Green Medium-density Fibreboard from Oil Palm Biomass Speaker : Mr. Mohd Erman Syazman Che Fauzi, Panasonic Housing Solutions Co., Ltd., Japan	
4.40 pm	**D10** Title : Recent Trend and Advances in the Moulded Pulp Manufacturing and Applications Speaker : Dr. Ainun Zuriyati Mohamed@Asa'ari, Universiti Putra Malaysia (UPM), Malaysia	
5.00 pm	**D11** Title : Palm Biomass Solutions for Biofuel: Empty Fruit Bunches and Oil Palm Trunk Speaker : Mr. Kazuya Motomura, IHI Solid Biomass Sdn. Bhd., Malaysia	
5.20 pm	Discussion	

GLOBAL ECONOMICS & MARKETING (GEM) CONFERENCE

DAY 1 - TUESDAY, 7 NOVEMBER 2023

Time	Activity	Venue
7.00 am	Congress Registration	**L3: Banquet Hall**
8.30 am	Welcome Remarks by **Mr. Johari Minal** Chairperson of Global Economics and Marketing Conference	L3: Conference Hall 2

SESSION 1:
TRANSCENDING THE CHALLENGES OF THE OIL PALM INDUSTRY
Chairperson: YBhg. Dato' Zailani Hashim,
Deputy Secretary General, Ministry of Plantation and commodities, Malaysia

8.40 am	**LP1**	Title Speaker	: :	Addressing Challenges in the Palm Oil Industry YBhg. Datuk Dr. Ahmad Parveez Ghulam Kadir, MPOB, Malaysia	L3: Conference Hall 2
9.10 am	**EM1**	Title Speaker	: :	Promoting Sustainable Palm Oil Through Cooperation: The CPOPC Way Dr. Rizal Affandi Lukman, Council of Palm Oil Producing Countries (CPOPC), Indonesia	
9.30 am	**EM2**	Title Speaker	: :	Emerging Market: Opportunities and Challenges for Malaysian Palm Oil Ms. Belvinder Kaur Sron, Malaysian Palm Oil Council (MPOC), Malaysia	
9.50 am	Discussion				
10.10 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
10.40 am	**EM3**	Title Speaker	: :	Empowering Effective Value Chain Development in the Oil Palm Industry Prof. Dr. Shaufique Fahmi Ahmad Sidique, Universiti Putra Malaysia (UPM), Malaysia	L3: Conference Hall 2
11.00 am	**EM4**	Title Speaker	: :	Managing Oil Palm Plantation Amidst Rising Cost of Production Mr. Mohamad Fadzil Hitam, Incorporated Society of Planters (ISP), Malaysia	
11.20 am	**EM5**	Title Speaker	: :	Malaysian Palm Oil Industry: Review and Outlook of the Mid/Downstream Sector Mr. A Fadzli Abdul Aziz, Palm Oil Refiners Association of Malaysia (PORAM), Malaysia	
11.40 am	**EM6**	Title Speaker	: :	Transforming Smallholders Well-being Through Effective Farm Management Mr. Kamalrudin Mohamed Salleh, MPOB, Malaysia	

GLOBAL ECONOMICS & MARKETING (GEM) CONFERENCE

Time	Activity	Venue
12.00 pm	Discussion	L3: Conference Hall 2
12.30 pm	Lunch	
1.00 pm	**Scientific Lunch Talk** Title : Nourishing with Nature-Tocotrienol & VitD3 in ALIF Cooking Oil Speaker : Dr. Teh Huey Fang, Sime Darby Plantation Berhad, Malaysia	L1: Exhibition Hall 6
	SESSION 2: **ENSURING BUSINESS SUSTAINABILITY THROUGH PALM OIL** Chairperson: YBhg. Datuk Hj. Daud Amatzin, Chairman, Incorporated Society of Planters (ISP), Malaysia	
2.00 pm	**LP2** Title : Efforts and Approaches by the Government in Addressing the Issue of Forced Labour and Child Labour in Oil Palm Plantation Speaker : Mr. T Shanmugam, Department of Labour Peninsular Malaysia (JTKSM), Malaysia	L3: Conference Hall 2
2.30 pm	**EM7** Title : Advancing Workers' Rights in Malaysian Oil Palm Plantation Sector Speaker : Mr. Jude Peters, International Labour Organisation (ILO)	
2.50 pm	**EM8** Title : Forced Labour Remedies Towards Greater Trade Coherence Speaker : Ms. Leyla Strotkamp, Bureau of International Labour Affair (ILAB), USA	
3.10 pm	Discussion	
3.30 pm	Refreshments/Exhibition/Poster Viewing	GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
4.00 pm	**EM9** Title : Environment, Social and Governance (ESG) Speaker : Dr. Meenachi Muniandy (Jessica), Ministry of Investment, Trade and Industry (MITI), Malaysia	L3: Conference Hall 2
4.20 pm	**EM10** Title : Promoting Conducive Working Environment in Palm Oil Industry Speaker : Mr. Borhan Bachi, FGV Holdings Berhad, Malaysia	
4.40 pm	**EM11** Title : Responsible Sourcing for Sustainable Supply Chain Speaker : Mr. Mohd Suffian Mohd Muhili, Independent Consultant, Malaysia	
5.00 pm	Discussion	

PIPOC 2023
OFFICIAL OPENING

DAY 2 - WEDNESDAY, 8 NOVEMBER 2023		
Time	**Activity**	**Venue**
8.00 am - 6.00 pm	Congress Registration	L3: Banquet Hall
9.00 am	Arrival of Participants and Guests	L1: Plenary Hall
9.30 am	Arrival of **The Right Honourable Dato' Sri Haji Fadillah bin Haji Yusof,** Deputy Prime Minister and Minister of Plantation and Commodities	L1: Plenary Hall
10.00 am	Arrival of **The Right Honourable Dato' Seri Anwar bin Ibrahim,** Prime Minister of Malaysia Welcome Remarks by **The Right Honourable Dato' Sri Haji Fadillah bin Haji Yusof** Deputy Prime Minister and Minister of Plantation and Commodities Keynote Address by **The Right Honourable Dato' Seri Anwar bin Ibrahim** Prime Minister of Malaysia **Launching of PIPOC 2023** **Launching of Sawit Intelligent Management System (SIMS)**	L1: Plenary Hall
11.30 am	**Henri Fauconnier Lecture** Title: Navigating Uncertainties, Building Resilience **YBhg. Tan Sri Datuk Dr. Yusof bin Basiron** Chairman, DIBIZ Global, Malaysia	L1: Plenary Hall
12.30 - 2.00 pm	Lunch	
1.00 - 2.00 pm	**Scientific Lunch Talk** Title : Sustainable Way of Weed Management in Oil Palm Speaker : Ts. Kamalul Adham, FGV Holdings Berhad, Malaysia	L1: Exhibition Hall 6
PLENARY SESSION		
2.30 pm	**PL1: Agriculture, Biotechnology and Sustainability (ABS) Conference** Title : Innovative Agroforestry Designs for Oil Palm-dominated Landscapes Chairperson : Dr. Ariffin Darus, Independent Consultant, Malaysia Speaker : Prof. Alain Rival, French Agricultural Research Centre for International Development (CIRAD), UMR ABSYS, Indonesia	L1: Plenary Hall

Time	Activity	Venue
3.00 pm	**PL2: Downstream and Value Addition (DVA) Conference** Title : Value Addition from Waste Biomass: A Circular Economy Approach Chairperson : Mr. Joseph Tek Choon Yee, Chief Executive, Malaysian Palm Oil Association (MPOA), Malaysia Speaker : Prof. Dr. Jonathan Wong Woon Chung, Hong Kong University, Hong Kong	L1: Plenary Hall
3.30 pm	**PL3: Processing, Food Safety and Nutrition (PFSN) Conference** Title : The Power of Palm Oil: How It Boosts Sustainable Nutrition Chairperson : Dr. Norman Mohd Norawi, Organization of Malaysia Muslim Doctors (PERDIM), Malaysia Speaker : Prof. Dr. Pietro Paganini, Competere European Union, Italy	
4.00 pm	**PL4: Global Economics and Marketing (GEM) Conference** Title : Building Resilience in a VUCA World Chairperson : Ms. Belvinder Kaur Sron, Chief Executive Officer, Malaysian Palm Oil Council (MPOC), Malaysia Speaker : YBhg. Datuk Mohamad Helmy Othman Basha, Sime Darby Plantation Berhad, Malaysia	
4.30 pm	Refreshments/Exhibition/Poster Viewing	GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
7.30 pm	**Congress Dinner** Theme : Malaysian Multicultural Heritage Attire : Office attire/ Smart Casual/ Batik	L3: Grand Ballroom
7.30 pm	Arrival of Guests/ Delegates	
8.00 pm	Opening Performance by the National Department for Culture and Arts (JKKN) Dancers	
8.15 pm	Speech by **YBhg. Datuk Mohamad Helmy Othman Basha** Chairman of Malaysian Palm Oil Board	
8.20 pm	Appreciation Plaque to Sponsors	
8.30 pm	**Dinner** Malaysian Cultures Performances	
10.30 pm	Good Night – See You in PIPOC 2025	

MPOB International Palm Oil Congress and Exhibition (PIPOC) 2023 Congress Dinner is served with the tailored made menu of Malaysian 7-Course Chinese Cuisine. Some dishes are proudly prepared using natural red palm olein, an innovative product produced from MPOB's state of the art technology that has been successfully commercialised.

CONCURRENT CONFERENCES
AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

DAY 3 - THURSDAY, 9 NOVEMBER 2023

Time		Activity			Venue
SESSION 2B **BIODIVERSITY AND CONSERVATION** Chairperson: Prof. Dr. Ahmad Ismail, Fellow, Academy of Sciences Malaysia, Malaysia					
8.30 am	A10	Title	:	Identification and Management of High Conservation Value Areas in the Palm Sector in Malaysia	L3: Grand Ballroom
		Speaker	:	Ms. Chin Sing Yun, Wilmar Plantations Sdn. Bhd., Malaysia	
8.50 am	A11	Title	:	Peatland Management and Ecosystems: Ecosystem Services from Mixed Plantation Systems on Peat	
		Speaker	:	Assoc. Prof. Dr. Peter van der Meer, Van Hall Larenstein University of Applied Sciences, The Netherlands	
9.10 am	A12	Title	:	Journey Towards Coexistence with Elephants in Oil Palm Landscapes	
		Speaker	:	Mr. Prasad Vasudevon, Earthworm Foundation, Malaysia	
9.30 am	Discussion				
SESSION 3 **MECHANISATION AND AUTOMATION IN OIL PALM PLANTATION** Chairperson: YBhg. Datuk Mohamad Nageeb Wahab, Deputy Secretary General, Council of Palm Oil Producing Countries (CPOPC), Indonesia					
9.50 am	LP3	Title	:	Advancing Mechanisation in Malaysian Oil Palm Industry: Navigating Challenges, Strategies and Future Prospects	L3: Grand Ballroom
		Speaker	:	Mr. Joseph Tek Choon Yee, Malaysian Palm Oil Association (MPOA), Malaysia	
10.20 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
SESSION 3A **MECHANISATION AND AUTOMATION IN OIL PALM PLANTATION** Chairperson: Ir. Dr. Azmi Yahya, Director, Agri and Biosystems Engineering Services, Malaysia					
10.50 am	A13	Title	:	Revolutionising Plantation Operations: Genting Plantations Berhad's (GPB) Data-driven Plantation Initiatives	L3: Grand Ballroom
		Speaker	:	Dr. Farrah Melissa Muharam, ACGT Sdn. Bhd., Malaysia	

AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

Time		Activity			Venue
11.10 am	A14	Title Speaker	: :	Towards Precision Planting for Oil Palm Plantation Dr. Guo Tao, PIESAT Information Technology Co. Ltd., China	L3: Grand Ballroom
11.30 am	A15	Title Speaker	: :	Tackling Manpower Shortage: Utilising Drone and Mechanical Innovation for Pesticide Application and Pest Management by Sime Darby Plantation Berhad Mr. Meor Badli Shah Ahmad Rafie, Sime Darby Plantation Research Sdn. Bhd., Malaysia	
11.50 am	Discussion				
12.10 pm	Prize Giving Session for Poster Presenters				L3: Grand Ballroom
12.30 pm	Lunch				L1: Exhibition Hall 6
	SESSION 4 **OIL PALM FARMER'S EMPOWERMENT** Chairperson: Dr. Reza Azmi, Executive Director and Founder Wild Asia, Malaysia				
2.00 pm	LP4	Title Speaker	: :	A Way Forward for Oil Palm Smallholders Mr. Adzmi Hassan, National Association of Smallholders (NASH), Malaysia	L3: Grand Ballroom
	SESSION 4A **THE SUSTAINABILITY OF OIL PALM FARMER** Chairperson: Assoc. Prof. Dr. Norlin Khalid, Manager, MPOB-UKM Endowment Chair, Malaysia				
2.30 pm	A16	Title Speaker	: :	Transforming Oil Palm Traditional Smallholders to High Value Farming Landowners Dr. Md Yusof Husin, Hexagon Green Sdn. Bhd., Malaysia	L3: Grand Ballroom
2.50 pm	A17	Title Speaker	: :	The Significance of Integrating Oil Palm with Livestock to Achieve the SDGs in the Midst of Diverse Global Challenges Dr. Frisco Nobilly, Universiti Putra Malaysia (UPM), Malaysia	
3.10 pm	A18	Title Speaker	: :	Successful Agriculture Cooperative Models to Empower Smallholder Mr. Amran Abdul Kadir, Suruhanjaya Koperasi Malaysia (SKM), Malaysia	
3.30 pm	Discussion				
3.50 pm	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5

AGRICULTURE, BIOTECHNOLOGY & SUSTAINABILITY (ABS) CONFERENCE

Time		Activity			Venue
		SESSION 4B **PALM OIL CERTIFICATION AND IMPLEMENTATION** Chairperson: Assoc. Prof. Dr. Abdul Rahman Abdul Rahim, Universiti Teknologi Mara (UiTM), Malaysia			
4.10 pm	**A19**	Title Speaker	: :	MS 2530: A Sustainable Approach in Managing Oil Palm Cultivation Mr. Robert Cheong Chun Yuen, Independent Consultant, Malaysia	L3: Grand Ballroom
4.30 pm	**A20**	Title Speaker	: :	Traceability in Palm Oil Supply Chain Mr. Wong Kok Seng, Fuji Oil Asia Pte. Ltd., Malaysia	
4.50 pm	**A21**	Title Speaker	: :	Cost-benefits Analysis of Palm Oil Sustainability Certification Mr. Mohd Shahrin Rahami, MPOB, Malaysia	
5.10 pm	Discussion				
5.30 pm	Closing Remarks by **Dr. Mohamad Arif Abd Manaf** Chairperson of Agriculture, Biotechnology and Sustainability Conference				
	THE END				

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

DAY 3 - THURSDAY, 9 NOVEMBER 2023

Time		Activity			Venue
SESSION 4 **LIPID RESEARCH** Chairperson: Dr. Mahenderan Appukutty, Vice President, Nutrition Society of Malaysia					
8.30 am	LP4	Title Speaker	: :	An Epidemiological Study on Palm Oil Consumption and Health in Malaysia Prof. Dr. Noor Hassim Ismail, Malaysia	L3: Conference Hall 3
9.00 am	F13	Title Speaker	: :	Impact of Interesterification of Palm Oil-based Fats on Cardiometabolic Health Dr. Sarah Berry, King's College, United Kingdom	
9.20 am	F14	Title Speaker	: :	Selective Synthesis of High Purity and Valuable Lipid for Infant Nutrition Dr. Youchun Yan, Bunge Loders Croklaan Asia, China	
9.40 am	F15	Title Speaker	: :	The Effects of Different Dietary Fats on Gut Microbiota Compositions Dr. Yap Sia Yen, MPOB, Malaysia	
10.00 am	F16	Title Speaker	: :	Effects of Diets Enriched in Palm Olein and Cocoa Butter Compared to an Unsaturated Fat Source (Olive Oil or Soybean Oil) on Lipid Markers and Liver Fat Content in Healthy Adults Prof. Dr. Welma Stonehouse, The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia	
10.20 am	Discussion				
10.40 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
SESSION 5 **DIET AND LIFESTYLE** Chairperson: Ms. Ts. Norrani Eksan, Director of Food Safety and Quality, Ministry of Health (MOH), Malaysia					
11.00 am	LP5	Title Speaker	: :	Red Palm Oil in Addressing Vitamin A Deficiency: School Programme in Malaysia Dr. Radhika Loganathan, MPOB, Malaysia	L3: Conference Hall 3
11.30 am	F17	Title Speaker	: :	Non-communicable Diseases Management in Malaysia: The Challenges from the Dietary Perspective Ms. Viola Michael, Ministry of Health (MOH), Malaysia	

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

Time		Activity			Venue
11.50 am	F18	Title	:	Dietary Behaviours, Cooking Practices and Their Associations with Body Weight Status Among Malaysians: A Nationwide Study During COVID-19 Pandemic	L3: Conference Hall 3
		Speaker	:	Prof. Dr. Chan Yoke Mun, Universiti Putra Malaysia (UPM), Malaysia	
12.10 pm	F19	Title	:	Palm Oil Nutrition Research and Palm Oil Usage in China	
		Speaker	:	Prof. Dr. Sun Guiju, Southwest University, Nanjing, China	
12.30 pm	Discussion				
12.50 pm	Prize Giving Session for Poster Presenters				L3: Conference Hall 3
1.00 pm	Lunch				L1: Exhibition Hall 6
	SESSION 6 **PHYTONUTRIENTS** Chairperson: YM Tengku Shahrir Tengku Adnan, Malaysia				
2.00 pm	LP6	Title	:	Reducing Risk of Breast Cancer in Asian Women: How Can We Design Better Prevention Trials?	L3: Conference Hall 3
		Speaker	:	YBhg. Prof. Datin Paduka Dr. Teo Soo-Hwang, Cancer Research Malaysia, Malaysia	
2.30 pm	F20	Title	:	Neuroprotective Effects of Tocotrienols: Evidence from Cell-based and Animal Models	
		Speaker	:	Prof. Dr. Ammu Kutty Radhakrishnan, Monash University, Malaysia	
2.50 pm	F21	Title	:	Tocotrienols Improve Urban Particulate Matter-induced Skin Damages by Regulating Skin Barrier Function and ROS/MAPK Signaling Pathway in Keratinocytes?	
		Speaker	:	Dr. Wei Ney Yap, Davos Life Science Pte. Ltd., Singapore	
3.10 pm	Discussion				
3.30 pm	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
4.10 pm	F22	Title	:	The Use and Benefits of Carotenoids in Functional Food and Dietary Supplements	
		Speaker	:	Dr. Charles (Chun) Hu, Nutrilite Health Institute, USA	

PROCESSING, FOOD SAFETY & NUTRITION (PFSN) CONFERENCE

Time		Activity			Venue
4.30 pm	F23	Title	:	Anti-glycation Potential of Oil Palm Phenolics (OPP)	L3: Conference Hall 3
		Speaker	:	Prof. Dr. Mahinda Abeywardena, The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia	
4.50 pm	F24	Title	:	Water-soluble Palm Fruit Extract (WSPFE) from Bench to Bedside	
		Speaker	:	Assoc. Prof. Dr. Isa Naina Mohamed, Universiti Kebangsaan Malaysia (UKM), Malaysia	
5.10 pm	Discussion				
5.30 pm	Closing Remarks by **Dr. Sivaruby Kanagaratnam** Chairperson of Processing, Food Safety and Nutrition Conference				

THE END

DOWNSTREAM & VALUE ADDITION (DVA) CONFERENCE

DAY 3 - THURSDAY, 9 NOVEMBER 2023

Time		Activity			Venue
SESSION 4 **FEED INNOVATION AND FOOD VALORISATION** Chairperson: Prof. Dr. Tan Chin Ping, Professor, Universiti Putra Malaysia (UPM), Malaysia					
8.30 am	LP4	Title Speaker	: :	Nutritional Enhancement of Palm Kernel Expeller Cake (PKE) for Livestock Through Solid Substrate Fermentation Technology Dr. Noraini Samat, Malaysian Agricultural Research and Development Institute (MARDI), Malaysia	L3: Plenary Theatre Auditorium
9.00 am	D12	Title Speaker	: :	Potential of Biologically-treated Oil Palm By-products as Feed for Goats Dr. Candyrine Su Chui Len, Universiti Malaysia Sabah (UMS), Malaysia	
9.20 am	D13	Title Speaker	: :	Meeting the Nutritional Needs of Poultry with Palm Kernel Cake Revisited YBhg. Prof. Dato. Dr. Zulkifli Idrus, Universiti Putra Malaysia (UPM), Malaysia	
9.40 am	D14	Title Speaker	: :	Palm Oil and Next-generation Aquafeed Prof. Dr. Alexander Chong Shu Chien, Universiti Sains Malaysia (USM), Malaysia	
10.00 am	Discussion				
10.20 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
10.50 am	D15	Title Speaker	: :	Production and Utilisation of Red Palm Oil in Food Matrices Dr. Sivaruby Kanagaratnam, MPOB, Malaysia	L3: Plenary Theatre Auditorium
11.10 am	D16	Title Speaker	: :	Mayonnaise Reimagined: Unleashing the Potential of Medium Chain Triglycerides (MCT) as a Healthier and Sensory-rich Fat Replacer Dr. Lim Yee Seng, KLK Oleo, Malaysia	
11.30 am	D17	Title Speaker	: :	Functionalities, Roles and Opportunities of Palm Oil in Vegan Meats Mr. Yoong Jun Hao, Palm Oil Research and Technical Service Institute of MPOB (PORTSIM), China	
11.50 am	Discussion				
12.10 pm	Prize Giving Session for Poster Presenters				L3: Plenary Theatre Auditorium
12.30 pm	Lunch				L1: Exhibition Hall 6

DOWNSTREAM & VALUE ADDITION (DVA) CONFERENCE

Time		Activity			Venue
SESSION 5 **RENEWABLE ENERGY** Chairperson: Ts. Dr. Sang Yew Ngin, Undersecretary of Biofuel Division, Ministry of Plantation and Commodities, Malaysia					
2.00 pm	**LP5**	Title Speaker	: :	Key Developments in Global Biofuel Markets Ms. Lauren Moffitt, Argus Media, Singapore	L3: Plenary Theatre Auditorium
2.30 pm	**D18**	Title Speaker	: :	Production of Platform Chemicals and Bio-jet Fuels from Empty Fruit Bunch Biomass by Combination of Chemical and Biological Processes Assoc. Prof. Dr. Zhao Xuebing, Tsinghua University, China	
2.50 pm	**D19**	Title Speaker	: :	Novel Process Technology for Upgrading Fats, Oils and Greases to Renewable Diesel (HVO) and Sustainable Aviation Fuel (SAF) Dr. Matthew Clingerman, Sulzer Singapore Pte. Ltd., Singapore	
3.10 pm	Discussion				
3.30 pm	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
3.50 pm	**D20**	Title Speaker	: :	High Blend of Biodiesel in Automobiles Mr. Tomoaki Kakihara, Japan Automobile Manufacturers Association (JAMA), Japan	L3: Plenary Theatre Auditorium
4.10 pm	**D21**	Title Speaker	: :	Microwave Processing of Oil Palm Biomass and Waste for Circular Waste Management Prof. Ts. Dr. Lam Su Shiung, Universiti Malaysia Terengganu (UMT), Malaysia	
4.30 pm	**D22**	Title Speaker	: :	Sustainable Agricultural Intensification and Bioenergy Production: An Opportunity for the Oil Palm Sector Dr. Nidia Elizabeth Ramirez-Contreras, Cenipalma, Colombia	
4.50 pm	**D23**	Title Speaker	: :	Supercritical Fluid-based Green Approach to Thermochemical Conversion of Oil Palm Biomass to Bio-oil Prof. Dr. Armando T Quitain, Kumamoto University, Japan	
5.10 pm	Discussion				
5.30 pm	Closing Remarks by **Dr. Zafarizal Aldrin Azizul Hasan** Chairperson of Downstream and Value Addition Conference				
THE END					

GLOBAL ECONOMICS & MARKETING (GEM) CONFERENCE

DAY 3 - THURSDAY, 9 NOVEMBER 2023

Time		Activity			Venue
		SESSION 3 **BUILDING RESILIENCE THROUGH INNOVATIONS** Chairperson: YBhg. Datuk Mohamad Helmy Othman Basha, Chairman, MPOB, Malaysia			
8.30 am	LP3	Title	:	How Can the Palm Oil Industry be Future-proofed? Key Lessons from Successful Agricultural Transformation Worldwide	L3: Conference Hall 2
		Speaker	:	Mr. Salman Ghazali, FGV Holdings Berhad, Malaysia	
9.00 am	EM12	Title	:	Economic and Enviromental Impact of Using Palm Kernel Expeller for Feed Meal Production	
		Speaker	:	Mr. Eur. Ing. Hong Wai Onn, Institution of Chemical Engineers (IChemE), Malaysia	
9.20 am	EM13	Title	:	Oil Palm Biomass Commercialisation: Strategy to Access Financing	
		Speaker	:	YBhg. Dato' Leong Kin Mun, Malaysia Biomass Industries Confederation, Malaysia	
9.40 am	Discussion				
10.10 am	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
10.40 am	EM14	Title	:	Opportunities for Palm Oil Waste in the Production of SAF in Malaysia	L3: Conference Hall 2
		Speaker	:	Mr. Johari Minal, MPOB, Malaysia	
11.00 am	EM15	Title	:	Practical Application of Blockchain Technology for Agriculture Supply Chain	
		Speaker	:	Ms. Kamales Lardi, Lardi and Partner Consulting GmbH, Switzerland	
11.20 am	EM16	Title	:	Innovations, Technologies and Way Forward of Hydrotreated Vegetable Oil and Biojet Fuel	
		Speaker	:	Mr. Xu Xu, Beijing Sanju Environmental Protection and New Materials Co. Ltd., China	
11.40 am	Discussion				
12.00 pm	Prize Giving Session for Poster Presenters				L3: Conference Hall 2
12.30 pm	Lunch				L1: Exhibition Hall 6

GLOBAL ECONOMICS & MARKETING (GEM) CONFERENCE

Time		Activity			Venue
SESSION 4: **THE NEW PARADIGM FOR OIL PALM INDUSTRY** Chairperson: Mr. A Fadzli Abdul Aziz, Chief Executive Officer, Palm Oil Refiners Association of Malaysia (PORAM), Malaysia					
2.00 pm	**LP4**	Title Speaker	: :	Malaysian Palm Oil Industry Roadmap in Driving Economic Development Ms. Aedreena Reeza Alwi, Ministry of Investment, Trade and Industry (MITI), Malaysia	L3: Conference Hall 2
2.30 pm	**EM17**	Title Speaker	: :	Impact of Cooking Oil Policy on Economic and Industrial Performance Mr. Tauhid Ahmad, Institute for Development of Economic and Finance (INDEF), Indonesia	
2.50 pm	**EM18**	Title Speaker	: :	Key Dynamics of India Markets and Impacts on Global Vegetable Oil Markets Mr. Sudhakar Desai, Indian Vegetable Oil Producers' Association (IVPA), India	
3.10 pm	Discussion				
3.30 pm	Refreshments/Exhibition/Poster Viewing				GL: Exhibition Hall 1, 2, 3, 4 & 5 Foyer 1, 2, 4 & 5
4.00 pm	**EM19**	Title Speaker	: :	Will 2024 Bring Roaring Success or Challenges to the Palm Oil Market? Ms. Ivy Ng, CIMB Investment Bank, Malaysia	L3: Conference Hall 2
4.20 pm	**EM20**	Title Speaker	: :	Palm and Major Vegetable Oil Price and Market Outlook 2024 Dr. Sathia Varqa, Palm Oil Analytics, Singapore	
4.40 pm	**EM21**	Title Speaker	: :	Global Vegetable Oil Supply, Demand and Price Outlook Mr. Thomas Mielke, Oil World, Germany	
5.00 pm	**EM22**	Title Speaker	: :	Palm Oil Price Drivers and Outlook for 2024 Dr. Julian McGill, Glenauk Economics Limited	
5.20 pm	Discussion				
5.40 pm	Closing Remarks by **Mr. Johari Minal** Chairperson of Global Economics and Marketing Conference				
THE END					

POSTER PRESENTATIONS

POSTER PRESENTATIONS
AGRICULTURE, BIOTECHNOLOGY AND SUSTAINABILITY (ABS) CONFERENCE

ABS1

Observation on the Effect of Palm-based Non-ionic Surfactant on Germination and Root Elongation of *Solanum lycopersicum* (Tomato) Seed Using Petri Dish Method

Asma Liyana Shaari[1], Noorazah Zolkarnain[1] and Razmah Ghazali[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

ABS2

Performance of Ulu Remis *Dura* (URD) Breeding Population Planted at MPOB Research Station Lahad Datu, Sabah

Nurazmiuddin, B[1], Marhalil, M[1], Mustakim, M[1], Mustaqim, R[1] and Zulkifli, Y[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

ABS3

A High-throughput System for Extraction of High-quality sRNA from Oil Palm for Viroid Detection

Raimathy Kanavedee[1], Tasren N Mahamooth[1] and Tey Seng Heng[1]

[1]Advanced Agriecological Research Sdn. Bhd., 11, Jalan Teknologi 3/6, Taman Sains Selangor 1, Kota Damansara, 47810 Petaling Jaya, Selangor, Malaysia.

ABS4

Genetic Diversity of *Oleifera* and OxO Materials Based on SSR Markers

Ainaa Farah Abu Safian[1], Gan Siou Ting[1], Teo Chin Jit[2], Marhalil Marjuni[3], Zulkifli Yaakub[3], Wong Wei Chee[1] and Wong Choo Kien[2]

[1]Advanced Agriecological Research Sdn. Bhd., (AARSB), AAR-UNMC Biotechnology Research Centre, Jalan Broga, 43500 Semenyih, Selangor, Malaysia.
[2]Plant Breeding Section, AARSB, Locked Bag 111, Paloh Post Office, 86609 Paloh, Johor, Malaysia.
[3]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

ABS5

Implementation of Genomewide Selection in Oil Palm Breeding: AAR's Approach

Gan Siou Ting[1], Teo Chin Jit[2], Ainaa Farah Abu Safian[1], Wong Wei Chee[1] and Wong Choo Kien[2]

[1]Advanced Agriecological Research Sdn. Bhd., (AARSB), AAR-UNMC Biotechnology Research Centre, Jalan Broga, 43500 Semenyih, Selangor, Malaysia.
[2]Plant Breeding Section, AARSB, Locked Bag 111, Paloh Post Office, 86609 Paloh, Johor, Malaysia.

ABS6

The Preliminary Performance of Second-generation Large Kernel Breeding Material in Bagan Datuk, Malaysia

Mustakim, M[1], Marhalil, M[1], Mustaqim, R[1], Nurazmiuddin, B[1] and Zulkifli, Y[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

ABS7

Yield Performance of Selfing and Intercrosses of Top 10 Deli *Dura* on Peat Land at MPOB Research Station Sessang, Sarawak

Mustaqim, R[1], Fadila, A M[1], Marhalil, M[1], Mustakim, M[1], Nurazmiuddin, B[1] and Zulkifli, Y[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

ABS8 **Review of CRISPR/Cas-mediated Nucleic Acid-based Plant Disease Detection: Advances and Challenges**

Chin Mei-Yee[1,2], Siti Nor Akmar Abdullah[2] and Lulie Melling[1]

[1]Sarawak Tropical Peat Research Institute (TROPI), Lot 6035, Kuching-Kota Samarahan Expressway, 94300 Kota Samarahan, Sarawak, Malaysia.
[2]Laboratory of Science and Technology, Institute of Plantation Studies, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

ABS9 **Filming on Germinated Oil Palm Seeds and Its Effects on Prenursery Seedling Growth**

Mohamad Arif[1], Desrahmat Zendrato[2], Masroni Asido Manik[3], Khairin Anisa[3], Befina Aprilliani[3] and Dyah Avidatul Ilma Hadi[4]

[1]Indonesian Oil Palm Research Institute, North Sumatera, Indonesia.
[2]Palangka Raya University, Central Kalimantan, Indonesia.
[3]Jambi University, Jambi, Indonesia.
[4]Jember University, East Jawa, Indonesia.

ABS10 **IAA-Zeatin Status of Oil Palm (*Elaeis guineensis* Jacq.) Explants from Several Varieties and Leaf Cabbage Position**

Arfan Nazhri Simamora[1], Diny Dinarti[2], Sudarsono[2] and Sri Wening[3]

[1]Indonesian Oil Palm Research Institute (IOPRI), Brigjen Katamso Street No. 51, Kampung Baru, Medan, 20158 North Sumatra, Indonesia.
[2]IPB University, Dramaga Road, Kampus IPB Dramaga, Bogor 16680, West Java, Indonesia.
[3]PT. Riset Perkebunan Nusantara, Salak Street No. 1A, Bogor 16128, West Java, Indonesia.

ABS11 **Oil Palm Age and Oil Extraction Rate of Different Varieties**

Hernawan Y Rahmadi[1], Sujadi[1], Yurna Yenni[1], Nanang Supena[1], Heri Adriwan Siregar[1], Arfan Nazhri Simamora[1], Mohamad Arif[1], Ernayunita[1], Sri Wening[2], Dian Rahma Pratiwi[1], Retno Diah Setiowati[1], Edy Supriyanto[2], Ikhwan Fadli Pangaribuan[1], Annisa Fadhilah Sitepu[1] and Abdul Razak Purba[1]

[1]Indonesian Oil Palm Research Institute, Jl. Brigjend. Katamso No. 51, Medan, North Sumatera, Indonesia.
[2]PT. Riset Perkebunan Nusantara, Jl. Salak No. 1A, Babakan, Bogor Tengah, Kota Bogor, West Java, Indonesia.

ABS12 **Rat Population Estimation Using Thermal Imaging in Oil Palm Plantation**

Tan Kah Wei[1], Goh Yit Kheng[1], Kee Zeng Seng[1] and Goh You Keng[1]

[1]Advanced Agriecological Research Sdn. Bhd (AARSB), No. 11 Jalan Teknologi 3/6, Taman Sains Selangor 1, Kota Damansara, 47810 Petaling Jaya, Selangor, Malaysia.

ABS13 **Increasing the Oil Palm (*Elaeis guineensis* Jacq.) Seed Germination Rate Using Container Modification**

Retno D Setiowati[1], Dian R Pratiwi[1], Ernayunita[1], Sri Wening[1], Darwin Sihombing[1], Taufiq C Hidayat[1] and Suroso Rahutomo[1]

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ABS14 **Callogenesis Optimisation from Leaf Explants of Oil Palm Seedlings Using Thin Cell Layer Technique**

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ABS15 **Seed Morphology and Biochemistry of *Elaeis oleifera*, *Elaeis guineensis* Jacq., Interspecific Hybrids (*Elaeis oleifera* x *Elaeis guineensis* Jacq.) and Backcross 1 of Oil Palm**

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ABS16 **Identification of Oil Palm Tissue Culture Contaminants by a Metagenomic Approach: A Preliminary Results**

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ABS17 **VIR Gene Mutation Variation of *Virescens* Character in Oil Palm Angola Population**

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ABS18 **Evaluation of Immature Yield Performance for FGV Clonal Material from Different Background**

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ABS19 **CRISPR/Cas9 Platform for Multiplex Genome Editing of Oil Palm High Oleic Genes**

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ABS20 **Development of an Efficient Direct Gene Transformation System in Oil Palm: An Opportunity for Genome Editing**

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ABS21 **QTL Identification of Selected Agronomic Traits in Oil Palm Germplasm Using Genotype by Sequencing Approach**

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ABS22 Characterisation of MSP-C6 and MSP-C7 Promoters as a Potential Tool for Oil Palm Transgenic Breeding

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ABS23 Genome Editing of Oil Palm *(Elaeis guineensis)* Phytoene desaturase (EgPDS) Gene via CRISPR/Cas9 System

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ABS24 Genetic Resources Management in Oil Palm Through Genomic Selection and Genome-wide Association Studies

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ABS25 Candidate Genes Related to Drought Tolerance in *Elaeis guineensis, Elaeis oleifera* and OxG Hybrid

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ABS26 Automated High-throughput Data Analysis in Oil Palm DNA Legitimacy Test

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ABS27 Development of an Efficient Particle Bombardment Transformation System for Oil Palm Through Monitoring the RFP Signals

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ABS28 Protoplast Technology Enables Identification of Efficient Promoter and gRNAs as Genome Editing Tools in Oil Palm

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ABS29 *Karma-EgDEF1* Methylation in Primary and Clonal Ortets that Generated High-mantling Rates

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ABS30 Identification of Population-specific SNPs in *Elaeis* Species via Genotyping-by-Sequencing

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ABS31 Optimisation of *Agrobacterium tumefaciens*-Mediated Transformation System of Oil Palm Calli Using Green Fluorescent Protein (GFP) as a Visual Marker Gene

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ABS32 Root-specific Promoters for Oil Palm Genetic Engineering

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ABS33 New Approach in Oil Palm Breeding: Mix Pollen to Speed up the Crossing Programme

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ABS34 **Transformation of Oil Palm Calli Targeting Oil Palm Gibberellin Acid Genes Using CRISPR/Cas9 System**

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ABS35 **Molecular Characterisation of MPOB-Cameroon Oil Palm Germplasm Using Microsatellite Markers**

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ABS36 **Genetic Diversity of MPOB-Gambia Oil Palm (*Elaeis guineensis* Jacq.) Germplasm as Revealed by Quantitative Traits**

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ABS37 **Preliminary Expression of Oil Palm FLL1 Recombinant Protein in *E. coli***

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ABS38 **Methylation of Flowering Genes in Ortets Producing High-mantling Rates**

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ABS39 **Metabolome Analysis of Oil Palm *In vitro* Shoot from Liquid Culture System**

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ABS40 **Precision Phenotyping Through Understanding of Diurnal Changes in Oil Palm *(Elaeis guineensis* Jacq.)**

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ABS41 **A Reproductive-associated Abnormality in Oil Palm Clones**

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ABS42 **Utilisation of Cervus Software for Legitimacy Analysis in FGV**

Zaiton Abdul Kadir[1], Sharmilah Vetaryan[1], Feodora Grace Japanis[1], Nurul Hafiza Ramli[1], Nur Syafiqah Muhammed[1], Siti Khadijah Abdullah[1], Siti Mardhiah Mustafha[1] and Siti Hazirah Zolkafli[2]

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ABS43 **Callogenesis of Oil Palm (*Elaeis guineensis* Jacq.) from Inflorescence Explant Culture**

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ABS44 **Genomic Selection of Vegetative- and Yield-related Traits in Oil Palm (*Elaeis guineensis* Jacq.): A Case Study of PT. Astra Agro Lestari Tbk Breeding Program**

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ABS45 **Induction and Initiation of Suspension Cultures from *Dura* for Oil Palm Transformation**

Abang Masli Dayang Izawati[1], Meilina Ong Abdullah[1], Mohd Puad Abdullah[2], Mat Yunus Abdul Masani[1], Noor Azmi Shaharuddin[2], Janna Ong Abdullah[2], Abd Rasid Omar[1] and Ghulam Kadir Ahmad Parveez[1]

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ABS46 **The Progeny Performance of Introgressed Tanzanian Prospectus Materials (TPM) - Deli *Dura* Motherpalms**

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ABS47 **Cloning of *Dura* and *Pisifera* Palms (*Elaeis guineensis* Jacq.) Through Somatic Embryogenesis of Immature Inflorescence Tissues**

Nurul Asyikin Mohd-Zim[1], Nurul Syafika Muhammad Fauzi[1], Abdul Fatah Daud[1], Mohd Hazim Zakaria[1], Noramiza Sabturani[1], Mohd Azinuddin Ahmad Mokhtar[1], Muhammad Nazmi Burhan[1] and Siti Habsah Roowi[1]

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ABS48 **Yield Evaluation of Chimera Palms: A Comparative Study**

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ABS49 **Exploring 'Masculine' Oil Palm Clones Towards Increasing Productivity in Oil Palm Plantation – A Preliminary Result**

Mohd Isa Zainol Abidin[1], Noorfarahin Mohamad[1], Siti Rahmah Abdul Rahman[2], Marhalil Marjuni[2], Nurul Nabilah Zainudin[1] and Muhammad Zia Hul Haq Din[1]

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ABS50 **Genetic Profiling for Detection of Copy Number Variation (CNV) in Oil Palm**

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ABS51 **Preliminary Performance of Surea DxP on Peatland in Sarawak**

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ABS52 **Performance of Different Sources of Oil Palm Hybrids at Peddapuram, East Godavari District, Andhra Pradesh, India**

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ABS53 **Generation of Overexpression Vectors Carrying Oil Palm DELLA Gene for Functional Analysis in *Arabidopsis***

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ABS54 **Inoculation of *Enterobacter cloacae* as Biofertiliser to Improve the Growth Performance of Oil Palm Seedling**

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ABS55 **Additional Pollination with Hatch and Carry Mobile Technology on High-yielding Oil Palm Planting Materials**

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ABS56 **Exploring the Effect of Introducing a Consortium of Biocontrol Agents on Root and Soil Mycobiome Under Nursery Study**

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ABS57 **Evaluating the Accuracy of 9-Spikelets and 18-Spikelets Counting Method to Estimate Pollinating Weevil Population in Oil Palm Plantation**

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ABS58 **Difference in Beneficial Insect Count and Diversity in Areas Planted with and Without Beneficial Plants**

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ABS59 **Phosphate Solubilising Bacteria and Their Potential in Unlocking Phosphates in Soil for Oil Palm Growth: Research-based Support on the Role of Bacterial Derived Organic Acids on Phosphate Solubilisation**

Muhammad Zaid Feeney[1], Nor Fazhilah Jumri[1], Nur Hafizah Norhata[1], Raimathy Kanavedee[1], Tasren N Mahamooth[1] and Tey Seng Heng[1]

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ABS60 **Supplementation of Ground Magnesium Limestone in Acidic Soils for Control of Basal Stem Rot Caused by *Ganoderma boninense***

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ABS61 **N Fertilisation of Oil Palms Planted with Different Ground Covers on Gleyic Cambisols in Sabah**

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ABS62 **Mill By-products as Alternative Sources of Nutrients in the Oil Palm Plantation**

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ABS63 Nutrient Management: Potassium (K) Losses in Oil Palm Plantation Under Different Agro-management Practices

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ABS64 AA+ Mulch™: A Smart Labour-saving System to Achieve Optimum Growth and High Early Yields in Oil Palm Replants

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ABS65 The Effects of Legume Establishment During the Immature Phase of Oil Palm Cultivation on Soil Biotic Parameters

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ABS66 Increasing the Nutrients Efficiency of Oil Palm Planted on Peat Using Bacterial Communities Assessment

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ABS67 Shoot and Root Responses of Drought Stressed Oil Palm in Nursery Phase

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ABS68 Improving Nitrogen Use Efficiency in Oil Palm Through Ammonium Nutrition

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ABS69 Oil Palm Water Use: Thermal Dissipation for Measuring Sap Flux Density in Oil Palm Plantation Planted on Deep Peat

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ABS70 Oil Palm Performance on Different Types of Peat in Sarawak, Malaysia

Hasimah Mos[1], Farawahida Mohd Darus[1], Nur Amanina Shahabuddin[1], Nor Liyana Zin Zawawi[1], Nur Maisarah Jantan[1], Zahidah Ayob[1], Nordiana Abdul Aziz[1], Ahmad Afandi Murdi[1] and Meilina Ong Abdullah[1]

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ABS71 Interactions Between Male Oil Palm Inflorescences (*E. guineensis* Jacquin) and Its Pollinator *E. kamerunicus* Faust (Coleoptera: Curculionidae) Comparison Between Two Planting Materials in North Sumatra

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ABS72 Alteration in Microbial Community Mediated by Soil Sterilisation and Chemical Fertilisation in *Elaeis guineensis*

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ABS73 A Highly-continuous Genome Assembly of Male and Female Oil Palm Pollinator, *Elaeidobius kamerunicus*

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ABS74 Screening of Oil Palm Water Use Efficiency Using Carbon Isotope Discrimination

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ABS75 The Rachis Analysis is Less Influenced by Genetic Origins than the Leaflet Analysis to Steer Potassium Nutrition of Oil Palm

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ABS76

Nutrient Requirements in OxG Hybrid Cultivars (*Elaeis oleifera* x *Elaeis guineensis*): A Commitment to the Efficient Use of Nutrients in Oil Palm

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ABS77

Development of Nuclear DNA Markers for Applications in Genetic Diversity Study of *Elaeidobius kamerunicus*

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ABS78

Potential of Controlled Release Fertiliser for Leguminous Cover Crop Establishment

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ABS79

Design of a Manual Format of Water Balance for Small and Medium-sized Producers in the Northern Palm-growing Region of Colombia, A Case Study

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ABS80

Enhancement By-product of Oil Palm into Bio-organic Pellet Fertiliser and Their Effect on *Elaeis guineensis* Jacq. Biomass Growth in the Nursery

Didik Wahyu Prasetyo[1], Lujian Kurniawan[1], Melly Andriani[1], Gempur Irawan Supena Putra[1], Fizrul Indra Lubis[1] and Aris Primayuda[1]

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ABS81 **Pyrolysis of Oil Palm Wastes Offers Opportunities for Disease Management**

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ABS82 **How Biochar Can Almost Double Profitability of Palm Oil Companies, Regenerate Soils and Help Reduce Climate Change**

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ABS83 **Control of *Secamone elleptica* for Oil Palm Plantations in Kalimantan Barat**

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ABS84 **Effective Water Management Initiatives for Acid Sulphate Soils in South Sumatera**

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ABS85 **The Effectiveness and Impact of Extended Harvesting Interval on Oil Palm Yield Component, Oil Quality and Productivity**

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ABS86 **Boosting Oil Production and Quality in Young Mature Oil Palm with Polyhalite**

Yih Ping Khor[1], Azlina Othman[2], Kamal Ariff[3], Norhazela Shahbudin[2], Cong Rong Cheng[3,4], Fang Wen Ng[5], Chin Ping Tan[1] and Choon Cheak Sim[2]

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ABS87 **Oil Palm Performance from Different Planting Densities, Progenies and Nitrogen Inputs**

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ABS88

The Effect of Oil Palm Frond Removal on Soil Nutrient Dynamics

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ABS89

Comparative Study on the Lignocellulosic Components in Oil Palm Trunk Biomass at Early Replanting Ages

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ABS90

Breeding Success of Introduced Eastern Barn Owl, *Tyto javanica javanica* in Oil Palm Plantations on the East Coast of Sabah

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ABS91

Effectiveness of Pesticide Spraying via Drone for Controlling Bagworm Outbreaks at Commercial Scale

Yusdayati Rashid[1], Muhammad Dzulhelmi Muhammad Nasir[1], Shahrul Azman Bakar[2], Che Ahmad Hafiz Che Manan[3], Wan Nurul Syuhada Wan Hamzah[4] and Cik Mohd Rizuan Zainal Abidin[1]

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ABS92

White-rot Species and Its Utilisation in Agriculture and Biotechnology

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ABS93

Shelf Life and Stored Product Pests of Rodenticides in Different Containers

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ABS94

A Cross-sectional Survey on Integrated Pest Management Practices Among Oil Palm Plantations in Perak and Johor

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ABS95 **Molecular Cloning and Characterisation of Putative Virulence Factors of *Ganoderma boninense***

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ABS96 **Transfer of Soil Suppressiveness as a Strategy for Biological Management of *Ganoderma* Basal Stem Rot Disease of Oil Palms**

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ABS97 **Optimisation of *In-vitro* Method for Infection of *Ganoderma boninense* in Oil Palm**

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ABS98 **Effects of *Ganoderma* Management Practices on Infection Incidences in Subsequent Replant**

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ABS99 **The Effect of Environmental Factor Towards Bagworm Population, *Metisa plana*, Walker (Lepidoptera: Psychidae) in Oil Palm Plantation in Perak**

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ABS100 **Macro Observations and Molecular-based Approaches in Determining *Oryctes* Nudivirus Infection in Relation to the Population of *Oryctes rhinoceros* in a Replanting Area**

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ABS101 ***De Novo* Transcriptome Analysis of Oil Palm Pest Bagworm (*Metisa plana*) Reveals Biopesticide Response Genes**

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ABS102

DNA Barcoding of *Ganoderma boninense* Pat. Isolated from Oil Palm Plantation in South Sumatera, Indonesia

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ABS103

Bacterial Community of Oil Palm Rizosphere Infected with *Ganoderma boninense* with Excessive Phosphate Fertilisation

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ABS104

Identification and Diversity of *Ganoderma boninense* Pat., the Causal Agent of Stem Rot Disease on Oil Palm in PT. Binasawit Makmur, Indonesia

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ABS105

Insect Visitors' Communities Associated with Flowering Beneficial Plant *Turnera subulata* (Passifloraceae) in an Oil Palm Plantation in Perak, Malaysia

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ABS106 RNAi-mediated Gene Silencing of *Ganoderma boninense* Lanosterol 14α-Demethylase (GbERG11) Gene

Fook-Hwa Lim[1,2], Omar Abd Rasid[1], Abu Seman Idris[1], Abdul Wahab Mohd As'wad[2], Ganesan Vadamalai[2,3], Ghulam Kadir Ahmad Parveez[1] and Mui-Yun Wong[2,3]

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ABS107 Phytotoxicity Assessment of Several Herbicides on Oil Palm Seedlings-post Topical Canopy Spray

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ABS108 Chemical Control of Weed: How Does It Impact the Fungi Microbiome in the Soil?

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ABS109 Spheroplast Liberation from *Ganoderma boninense*

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ABS110 Evaluation of Potential Oil Palm Reference Genes for Normalising Real-time Quantitative PCR Analysis in *Ganoderma*-infected Oil Palm Roots at Multiple Infection Time Points

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ABS111 Development of Molecular Markers Specific to *Trichoderma asperellum* Strain M103

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ABS112 **Evaluating the Efficiency of Gene Editing Using CRISPR/Cas9 Approach in *Ganoderma boninense***

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ABS113 **Bagworm Outbreaks: A Forecasting Study Based on Climatic Variables**

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ABS114 **Determination and Identification of Upper Stem Rot Disease of Oil Palm at PT Bina Sawit Makmur Plantation in South Sumatra**

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ABS115 **Brown Leaf Spots in Oil Palm Hybrids in Colombia**

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ABS116 **Efficacy of Chromafenozide Insecticide to Control *Tirathaba rufivena* and Its Impacts on Oil Palm Pollinator *E. kamerunicus***

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ABS117 **Comparison of *Ganoderma boninense* Isolate's Aggressiveness Using Infected Oil Palm Seedlings**

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ABS118 **Life Cycle, Foliar Consumption, and Population Fluctuation of *Phobetron hipparchia* Cramer, 1777 (Lepidoptera: Limacodidae) an Emerging Pest of Oil Palm**

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ABS119 **Conservational Biological Control of *Loxotoma elegans* Zeller, 1854 (Lepidoptera, Depressariidae) a Defoliating Insect Pest in Oil Palm Cultivation**

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ABS120 **Genetic Diversity of Field Isolates of *Ganoderma boninense* from Oil Palms in Papua New Guinea**

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ABS121 ***Metarhizium anisopliae* Entomopathogenic Fungi: A Prospect for the Biocontrol of Red Palm Weevil, *Rhynchophorus ferrugineus***

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ABS122 **Glyphosate Isopropylamine Versus Glyphosate Potassium: Any Differences in Bioefficacy?**

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ABS123 **Effectiveness of *Metarhizium majus* (ORBOX™) at Ruffled Debris Replanting Area for the Control of *Oryctes rhinoceros* Beetle in Immature Oil Palm**

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ABS124 **Biological Control of Oil Palm Bagworms Using Entomopathogenic Fungi: Evaluation of *Beauveria bassiana* Infectivity Against *Metisa plana* and *Pteroma pendula***

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ABS125 **Field Evaluation on the Efficacy of Different Bio-control Agent for the Prevention of Basal Stem Rot Disease in Oil Palm During Replanting Programme**

Shih Hao Tony-Peng[1], Ramli Nur-Rashyeda[2], Abu Seman Idris[2], Mohd Hefni Rusli[2], Chee Kong Yap[3], Ee Wen Chai[1], Tan Alex[1], Wan Azha Wan Mustapha[1] and Charles Then[1]

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ABS126 **Isolation and Characterisation of *Ganoderma* spp. from Basal Stem Rot (BSR)-afflicted Palm Trees**

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ABS127 **Effectiveness of Biocontrol Agent and Chemical Fertiliser Against *Ganoderma boninense* at Early Stage of Infection of Oil Palm via Microscopic Analysis**

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ABS128 **Biodegradation Pattern of Plasticisers in Freshwater as a Way to Monitor and Control the Formation of Their Hazardous Substances in the Environment**

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ABS129 **Life Cycle Assessment of Fatty Acids Production at Oleochemical Plant in Malaysia Using Midpoint Approach**

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ABS130 **Evaluation of Monthly and Seasonal Rainfall Pattern Anomalies Using Spatial Analysis (Case Study: East Coast of North Sumatera)**

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ABS131 **Identification of Palm Oil Mill Effluent Metabolite Using Liquid Chromatography-mass Spectrometry (LC-MS) Based Metabolomics**

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ABS132 **Above Ground Biomass and Carbon Flux from Oil Palm Cultivated on Mineral Soil at a Selected Site in Pahang, Malaysia**

Nur Maisarah Jantan[1], Zahidah Ayob[1], Law Mei Ching[1], Izzati Mohamad Noor[1], Tiara Nales[1], Elisa Rumpang[1], Hasimah Mos[1] and Vijaya Subramaniam[1]

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ABS133 **Environmental Management Accounting (EMA) Practices in Palm Oil Production**

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ABS134 **The Subsidence Dynamics of Cultivated Tropical Peatland in Riau, Indonesia**

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ABS135 **Agroforestry Alley-cropping Improves Oil Palm Plantation Biological Pest Control**

Kamil Tohiran[1,2], Dzulhelmi Muhammad Nasir[3], Frisco Nobilly[2], Raja Zulkifli[1], Muhammad Syafiq Yahya[2], Ahmad Razi Norhisham[2], Norkaspi Khasim[1], Irman Fareez Kadir[1] and Badrul Azhar[2,4]

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ABS136 **Three Decades of Silent Revolution of Sustainable Irrigated Oil Palm Development in India - No Deforestation, No Destruction of Biodiversity-Eco and Environment-friendly**

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ABS137 **11 Years Later: Characterisation of Malaysian Peat Soil Microbial Communities After Conversion to Oil Palm Plantation**

Zahidah Ayob[1], Nor Azizah Kusai[1], Nur Maisarah Jantan[1], Ahmad Afandi Murdi[1], Law Mei Ching[1], Hasimah Mos[1], Leslie Low Eng Ti[1], Meilina Ong Abdullah[1] and Vijaya Subramaniam[1]

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ABS138 **Diversity of Flora and Bird Species in High Conservation Value Areas of Oil Palm Plantation at Ogan Komering Ilir, South Sumatera**

Yusi Rosalina[1], Sandy Lesmana[1], Arzyana Sungkar[2], Iwan Hilwan[2], Lin Nuriah Ginoga[2], Yanto Santosa[2], Mika Asri Selian[1] and Tanjung Trimurti[1]

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ABS139 **Oil Palm Plantations with Natural Habitat Gain More Benefits from Birds**

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ABS140 **Evaluation of the Diversity of Plants Associated with the Understory of the Oil Palm Agroecosystem in the Department of Cesar, Colombia**

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ABS141 **Assessing the Growth of Fish Fauna in Oil Palm Dominated Landscapes in Sarawak**

Angie Sapis[1], Nik Sasha Khatrina Khairuddin[1], Bettycopa Amit[1], Jongkar Grinang[1], Jacqleen Mik[2], Ivan Chiron Yaman[3] and Marcie Elene Marcus[3]

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ABS142 **Sustainable Management of Barn Owl to Control Rat Population in Oil Palm Plantation**

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ABS143 **Performance of Coffee Integration in Oil Palm Planting Area**

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ABS144 **The Papua New Guinea Smallholder Oil Palm: 54 Years on - Its Challenges and Opportunities**

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ABS145 National Initiatives for Sustainable and Climate-smart Oil Palm Smallholders: Yield Gaps and Livelihood Vulnerability

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ABS146 Innovative Government-Government Partnerships for Implementing the National Initiatives for Sustainable and Climate Smart Oil Palm Smallholders (NI-SCOPS) Programme

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ABS147 Climate Vulnerability Assessment of Oil Palm Smallholders in Malaysia

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ABS148 National Initiative for Sustainable and Climate-smart Oil Palm Smallholders: Complexities of Integrated Farming in Sabah

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ABS149 **Suitability of Turmeric Integration with Oil Palm Plantings**

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ABS150 **Modeling Replanting Scenarios of Oil Palm Smallholder Farmers: A Case Study in the Jambi Province, Indonesia**

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ABS151 **Insights from RISS Execution for a Smallholder Association for Oil Palm**

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ABS152 **Achieving Sustainable Development Goals - An NDPE and Certification Strategy for Independent Smallholder Farmers for Oil Palm**

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ABS153 **Toward Indonesian Palm Oil Sustainability: Assessing the Productivity, Economic and Sustainability Impacts of *SHELL* DNA Testing in Indonesian Oil Palm Independent Smallholdings in Musi Banyuasin and Pelalawan Regencies**

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ABS154 **Prototype Development and Evaluation of an Exosuit for Oil Palm Harvesting**

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ABS155 **Computer Vision and NIR Spectroscopy: An Intelligent Solution to Optimise the Fresh Fruit Bunches Quality Assessment**

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ABS156 **Data Digitalisation in Oil Palm Research**

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ABS157 **Phenosawit: Oil Palm Web-based Phenotype-genotype Database**

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ABS158 **Tool Application for Potential Biodiversity Database Management System in Malaysian Oil Palm Ecosystem**

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ABS159 **Smart Culling: A Deep Learning Approach for Automated Detection of Abnormal Oil Palm Seedlings**

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ABS160 **Definition of Technological Extension Strategies Based on Exploratory Analysis of the Sustainability Index Using Artificial Intelligence: The Case of Oil Palm Producers in Colombia**

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ABS161 **Geospatial Based Oil Palm Replanting Design and Planning: Straight Planting Blueprint**

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ABS162 **SMART: An Integrated Geospatial System for Oil Palm Management**

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ABS163 **Automated Grabber for Oil Palm Fresh Fruit Bunch Evacuation**

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ABS164 **Mechanised Rat Bait Applicator for Oil Palm Rat Infestation**

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ABS165 **Remote Sensing for Leaf Nutrient Content Prediction Towards Precision Agriculture in Oil Palm Plantation: Technology, Agronomy and Economic Evaluation**

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ABS166 **Unmanned Aerial Vehicle Point-to-Point (UAVPTP) Spraying for *Oryctes rhinoceros* Beetle Control: Development and Critical Success Factors**

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ABS167 **A Potential Game Changer for *Ganoderma* Census in Oil Palm Plantation Using the Unmanned Aerial Vehicle (UAV) Image Analytics**

Normahnani Md Noh[1], Abdullah Abbas[1], Mohamad Akmal Abdul Razak[1], Meor Badli Shah Ahmad Rafie[1] and Samsudin Amit[1]

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ABS168 **R-Drop Unmanned Aerial Vehicle Rodenticide Applicator (R-Drop Drone): New Technology for Rodenticide Application in Oil Palm Plantation**

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ABS169 **Isometric Mapping via Drone for Palm Growth Monitoring**

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ABS170 **Morphological and Molecular Identification of *Ganoderma* Isolates from Southern-East Sabah, Malaysia**

Intan Nur Ainni Mohamed Azni[1], Nur Diyana Roslan[1], Lee Pei Lee Angel[1], Salwa Abdullah Sirajuddin[1], Mohd Hefni Rusli[1], Idris Abu Seman[1] and Shamala Sundram[1]

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PFSN1 **Creating Wealth out of POME (Palm Oil Mill Effluent) Through Zero Liquid Discharge (ZLD) Technology**

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PFSN2 **Validation of Enzyme Application for Increased Oil Extraction Rate in Palm Oil Milling: A Dual-line Processing Study**

Hemavathi Silvamany[1], *Nik Mohd Farid Mat Yasin*[1], *Muliadi Mustaner*[1], *Aiman Hakim Roslan*[1], *Noor Irma Nazashida Mohd Hakimi*[1], *Muhammad Izhar Kairi*[1], *Nik Suhaimi Mat Hassan*[1], *Mohammed Faisal Mohammed Yunus*[1] *and Mohd Shiraz Aris*[1]

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PFSN3 **Postharvest Enhancement of Fruit Detachment in Oil Palm Bunches Using Ethylene Gas**

Lim Chin Ming[1]

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PFSN4 **Minimising Bio-sludge Built-up in Effluent Pond and Attaining BOD20 for Discharge**

Andrew Liew[1], *Lam Sze Mun*[2] *and Sin Jin Chung*[2]

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PFSN5 **Separate Oil Recovery System for Crude Palm Oil Quality Enhancement**

Rahmat Ngteni[1], *Syed Mohd Hadi, S H*[1], *Norliza, S*[1], *Syahril Anuar, M R*[1], *Yosri, M S*[1], *Mohammed Faisal, M Y*[1] *and Mohd Shiraz, A*[1]

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PFSN6 **Packed Bed Electro Reactor for High Efficiency Wastewater Treatment of Organics from Palm Oil Refinery Effluent (PORE)**

Muhamad Farhan Haqeem Othman[1] *and Razam Abdul Latip*[1]

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PFSN7 **Detection of Organochlorine in Vegetable Oils Using 35-Cl Nuclear Magnetic Resonance**

Ng Mei Han[1], *Nuzul Amri Ibrahim*[1], *Che Rahmat Che Mat*[1], *Nu'man Abdul Hadi*[1], *Hasliyanti Alias*[1] *and Rohaya Mohamed Halim*[1]

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PFSN8 **Effect of Operational Parameters on POME Colour and Pollutants Removal by Electrocoagulation**

Nor Faizah Jalani[1], Muzzammil Ngatiman[1], Andrew Yap Kian Chung[1], Rohaya Mohamed Halim[1] and Mohd Badrul Nizam Mustafa[2]

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PFSN9 **Evaluation of Social Performance Using Social Life Cycle Assessment: A Case Study from the Malaysian Oil Palm Industry**

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PFSN10 **Phosphatides Removal in Palm Oil and Palm-pressed Mesocarp Fibre Oil by Enzymatic Degumming**

Harrison Lik Nang Lau[1], Soek Sin Teh[1] and Nur Sulihatimarsyila Abdul Wafti[1]

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PFSN11 **Hotspot Identification and Proposed Remediation in Palm Oil Refining and Biodiesel Production**

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PFSN12 **The Challenge of Pressing OxG Hybrid Fresh Fruit Bunches in Colombian Palm Oil Mills**

Jesus Alberto Garcia-Nunez[1], Kennyher Caballero Blanco[1], Ingrid Liliana Cortes Barrero[1], y Cesar Augusto Diaz Range[1], Alexis Gonzalez-Diaz[1] and Nidia E Ramirez-Contreras[1]

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PFSN13 **Evaluation on the Performance of DesureGum as a Degumming Agent in Palm Oil Refining**

Derrick Choo[1], Choo Be Be[1], Muhamad Roddy Ramli[2] and Abdul Niefaizal Abdul Hammid[2]

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PFSN14 **Chloride Content in Crude Palm Oil Production: A Comparative Study of Mill Operating Conditions and Steriliser Types**

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PFSN15 **Partitioning of Phytonutrients in Fractional Crystallisation of Crude Palm Oil**

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PFSN16 **Colour Calibration and Conformance**

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PFSN17 **Sustainability in the Palm Oil Processing Industry**

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PFSN18 **Mineral Oil Analysis: Instrument Configuration for Quantitative and Qualitative Results**

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PFSN19 **Development and Validation of RP-HPLC-Fluorescence Method for Quantification of Palm Oil Tocotrienol-rich Fraction in Beverage Products**

Pung Chew Hui[1], Chong Kam Weng[2], Khor Yih Ping[1], Mohd Zairey Md Zain[1], Syed Zain Syed Idros[1], Dalina Adan[1] and Teh Huey Fang[1]

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PFSN20 **Evaluation of Mineral Oil Saturated Hydrocarbon (MOSH) Concentration Levels at Critical Control Point (CCP) in the Palm Oil Processing Chain**

Maznah Zainol[1], Azmil Haizam Ahmad Tarmizi[1], Muhamad Roddy Ramli[1], Rohaya Mohamed Halim[1], Che Rahmat Che Mat[1] and Abdul Niefaizal Abdul Hammid[1]

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PFSN21 **A Simple Liquid-liquid Extraction Method for the Determination of Glyphosate and Its Metabolite in Oil Palm Matrices Using Liquid Chromatography-tandem Mass Spectrometry (LC-MS/MS) Detection**

Norizah Halim[1], Mohd Hefni Rosli[1] and Maizatul Suriza Mohammed[1]

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PFSN22 **Verification of Indirect Analysis of Process Contaminants 2-MCPDE, 3-MCPDE and GE in Glycerine Using GC-MS**

Nur Aainaa Syahirah Ramli[1], Nur Azmina Roslan[1], Fadzlina Abdullah[1], Razmah Ghazali[1], Raznim Arni Abd. Razak[1], Azmil Haizam Ahmad Tarmizi[1] and Bahriah Bilal[1]

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PFSN23 **An LC-MS/MS Method for Determination of Residual 2,4-Dichlorophenoxyacetic Acid Herbicide in Crude Palm Kernel Oil**

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PFSN24 **Computer Vision and NIR Spectroscopy: An Intelligent Solution to Optimise the Fresh Fruit Bunches Quality Assessment**

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PFSN25 **NIRS Technology in Colombian Oil Palm Agroindustry: Improving the Productivity and Profitability Through Prediction Models Developed for Controlling Palm Oil Mills Extraction Process**

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PFSN26 **Production of Low MOSH/MOAH Contaminant in Refined Palm Oil via Deodorisation at Different Temperatures**

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PFSN27 **Detection and Relative Quantification of 3-Monochloropropane-1,2-Diol Esters (3-MCPDE) and Glycidyl Ester (GE) in Frying Oils, and Acrylamide in Fried by Nuclear Magnetic Resonance (NMR)**

Raznim Arni Abd. Razak[1], Azmil Haizam Ahmad Tarmizi[1], Ainie Kuntom[2,3], Maimunah Sanny[4,5] and Intan Safinar Ismail[4]

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PFSN28 Tocotrienol-rich Fraction Attenuates Blue Light-induced Oxidative Stress and Melanogenesis in B16-F1 Melanocytes via Anti-oxidative and Anti-tyrosinase Properties

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PFSN29 Consumers' Awareness of Nutritional Benefits and Sustainability Aspects of Malaysian Palm Oil

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PFSN30 Palm-based Cellulose Nanofibre Isolated from Mechano-chemical Processing as Sustainable Rheological Modifier in Reduced Fat Mayonnaise

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PFSN31 Green Production of Nanocrystal Cellulose from Palm-pressed Fibre and Their Roles on the Lipid- and Cholesterol-lowering Effect

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PFSN32 RNA-Sequencing and Gene Expression Analysis of Nile Rat Livers Pinpoint Plausible Anti-diabetic Mechanisms of Water-soluble Palm Fruit Extract

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PFSN33 **Elucidating the Mechanisms of Combination Therapy Using Palm Vitamin E and Commercial Anti Leukemic Drug (Cytarabine) in Cell-based Models of Acute Myeloid Leukaemia**

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PFSN34 **Growth and Metastasis of 4T1 Mouse Mammary Cancer Cells with Knocked Down SATB1 Gene was Suppressed in a Syngeneic Mouse Model of Breast Cancer in the Presence or Absence of Tocotrienol-rich Fraction (TRF)**

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PFSN35 **Potential Protective Effects of Red Palm Olein-enriched Biscuit Supplementation on *Ascaris lumbricoides* Reinfection Among Vitamin A Deficient Primary Schoolchildren**

Tan Pei Yee[1,2], Radhika Loganathan[1], Teng Kim Tiu[1], Kanga Rani Selvaduray[1], Yvonne Ai-Lian Lim[2], Lee Soo Ching[2], Syahirah Nadiah Mohd Johari[2] and Romano Ngui[2]

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PFSN36 **Can Palm Tocotrienol-rich Fraction Alleviate Rheumatoid Arthritis Symptoms by Lowering Joint Inflammation?**

Zaida Zainal[1], Afiqah Abdul Rahim[1], Ammu Kutty Radhakrishnan[2], Huzwah Kazaai[3], Fu Ju Yen[1] and Puvaneswari Meganathan[1]

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PFSN37 **Influence of Nanoencapsulation on Bioavailability and Tissue Biodistribution of Vitamin E Tocotrienols**

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PFSN38 **Exploring the Effects of Varying Fat: Carbohydrate Diet Permutations on Gastric Emptying and Metabolic Status Using the Human Postprandial Model**

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PFSN39 **Utilisation of Activated Carbon Potential for Protection of Food Quality**

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PFSN40 **Assessing the Impact of Lauric Acid-riched Oils on the Nutritional Profile of Mouse Pellets: A Comparative Analysis**

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DOWNSTREAM & VALUE ADDITION (DVA) CONFERENCE

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Physicochemical and Tribological Properties of Low Viscosity 2-Ethylhexyl Alkyl Ethers Made from Palm-based Esters as Potential Biolubricant

Tang Sook Wah[1], Chan Chung Hung[1], Noor Khairin Mohd[1], Lim Wen Huei[1], Hoong Seng Soi[1] and Tuan Noor Maznee Tuan Ismail[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA2

Production of Heterogeneous Acid Catalyst: Approaches for Value-addition of Biodiesel/ Oleochemical Waste

Noor Armylisas Abu Hassan[1], Hoong Seng Soi[1], Tuan Noor Maznee Tuan Ismail[1], Noor Azeerah Abas[1], Mohd Azri Sukiran[1] and Loh Soh Kheang[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA3

Catalytic Activity and Regioselectivity of *Thermomyces lanuginosus* Lipase in Synthesis of Palm-based Sugar Alcohol Esters

Arniza Mohd Zan[1], Hoong Seng Soi[1], Nik Siti Mariam Nek Mat Din[1] and Muhammad Rahimi Yusop[2]

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[2]School of Chemical Sciences and Food Technology, Faculty of Science and Technology, Universiti Kebangsaan Malaysia (UKM), 43600 UKM, Bangi, Selangor, Malaysia.

DVA4

Synthesis and Physicochemical Properties of Estolide Ester and Amide Made from RBD Palm Olein as Biolubricant Basestock

Hoong Seng Soi[1], Arniza Mohd Zan[1], Nik Siti Mariam Nek Mat Din[1], Noor Armylisas Abu Hassan[1], Tang Sook Wah[1] and Tuan Noor Maznee Tuan Ismail[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA5

Physical Properties of Dihydroxystearic Acid Organogels with Different Types of Vegetable Oil

Norashikin Ahmad[1], Lim Wen Huei[1], Yusrabbil Amiyati Yusof[1] and Zafarizal Aldrin Azizul Hasan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA6

***In Vitro* Test of Palm Tocotrienol Rich Fraction as Skin Lightening Agent**

Nur Anis Albakry[1], Nor Zuliana Yusof[1] and Yusrabbil Amiyati Yusof[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA7

Effect of Isocyanate Indices on Mechanical Properties of Moulded Bio-based Memory Foams Produced via High-pressure Polyurethane Machine

Nurul 'Ain Hanzah[1], Mohd Norhisham Sattar[1], Tuan Noor Maznee Tuan Ismail[1], Kosheela Devi Poo Palam[1], Srihanum Adnan[1] and Norhayati Mohd Noor[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA8 **Palm-based Polyurethane Binders for Bonded Wood Fibre and Scrap Foam**

Mohd Norhisham Sattar[1], Kosheela Dewi Poo Palam[1], Nurul 'Ain Hanzah[1], Srihanum Adnan[1], Norhayati Mohd Noor[1], Tuan Noor Maznee Tuan Ismail[1] and Zafarizal Aldrin Azizul Hasan[1]

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DVA9 **Thin Films and Coatings Made from Water-borne Polyurethane Dispersion of Bio-based Polyester Polyols**

Norhayati Mohd Noor[1], Kosheela Devi Poo Palam[1], Tuan Noor Maznee Tuan Ismail[1], Nurul 'Ain Hanzah[1], Mohd Norhisham Sattar[1] and Srihanum Adnan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA10 **Separation and Identification of Ethylene Oxide (EO) Distribution in Palm-based Alkoxylated Products**

Fadzlina Abdullah[1], Nur Aainaa Syahirah[1], Fumiya Niikura[2] and Zulina Abd Maurad[1]

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[2]Functional Material Science Research Laboratory, Lion Corporation, 2-1 Hirai 7-Chome, Edogawa-ku, Tokyo 132-0035, Japan.

DVA11 **Potential of Solketal Levulinate as Biodiesel Cold Flow Improver**

Nik Siti Mariam Nek Mat Din[1], Hoong Seng Soi[1], Tuan Noor Maznee Tuan Ismail[1] and Arniza Mohd Zan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA12 **Development of Polyurethane Biocomposite for Lightweight Structural Materials for Automotive Application**

Srihanum Adnan[1], Kosheela Devi Poo Palam[1], Tuan Noor Maznee Tuan Ismail[1], Nurul 'Ain Hanzah[1], Mohd Norhisham Sattar[1], Norhayati Mohd Noor[1] and Zafarizal Aldrin Azizul Hasan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA13 **Performance Evaluation of Palm Oils and Palm Oleochemicals as Dielectric Insulating Oils for Oil-filled Transformers**

Noor Khairin Mohd[1], Haliza Abd Aziz[1], Noor Armylisas Abu Hassan[1], Yanuar Zulardiyanshah Arief[2], Nor Asiah Muhammad[2], Noor Azeerah Abas[1] and Nik Nurfatma Pz Nik Pauzi[1]

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DVA14 **Palm-carboxymethyl Cellulose as a Viscosity Modifier in Oil-in-water Emulsion**

Nor Zuliana Yusof[1], Yusrabbil Amiyati Yusof[1] and Zafarizal Aldrin Azizul Hasan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA15 **Production of Triethanolamine-based Esterquats via Heterogeneous Transesterification of Palm Methyl Ester**

Haliza Abdul Aziz[1], Noor Azeerah Abas[1] and Zainab Idris[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA16 **Enhanced Photocatalytic Performance of Spent Bleaching Earth (SBE)-Titanium Dioxide Photocatalysts for Removal of Aniline**

Nur Azmina Roslan[1], Fadzlina Abdullah[1], Nur Aainaa Syahirah Ramli[1], Noorazah Zolkarnain[1] and Razmah Ghazali[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA17 **Sustainable Synthesis of Palm Epoxidised Methyl Ester and Its Application as a Bio-plasticiser for Polyvinyl Chloride Films**

Zulina Abd Maurad[1], Ahmad Syafiq Ahmad Hazmi[1], Zailan Abu Bakar[1], Siti Afida Ishak[1], Noorazah Zolkarnain[1], Haliza Abdul Aziz[1] and Zafarizal Aldrin Azizul Hasan[1]

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DVA18 **Utilising 3-Hydroxypicolinic Acid as a Matrix for Structural Analysis of Sophorolipids via MALDI-TOF Mass Spectrometry**

Wan Nur Fatihah Wan Muhammad Zulkifli[1], Abdul Rashid M Yatim[2], Amin Malik Shah Majid[2], John Leslie Foster[3] and Douglas Gordon Hayes[4]

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[4]Department of Biosystems Engineering and Soil Science, The University of Tennessee Institute of Agriculture, Knoxville, TN 37996, USA.

DVA19 **The Effect of Commercial Pour Point Depressants on Palm Oil-based Biolubricants**

Lim Wen Huei[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA20 **Catalytic Performance of Various Types of Heterogeneous Acid Catalysts on Glycol Ester Production as a New Bio-lubricant Base Oil**

Noor Azeerah Abas[1], Noor Khairin Mohd[1], Zulina Abd Maurad[1], Chan Chung Hung[1], Nik Nurfatmah Pz Nik Pauzi[1] and Haliza Abdul Aziz[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA21 **A Direct GC-FID Method for Analysis of Palm-based Fatty Alcohol Carbon Chain Distribution**

Bonnie Tay Yen Ping[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA22 **Characterisation and Efficacy Assessment of Plant-based Short Chain Alcohols as a Potential Substitute for Petroleum-based Propylene Glycol in Space Spray Formulations**

Sumaiyah Megat Nabil Mohsin[1] and Zafarizal Aldrin Azizul Hasan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA23 **Identification Influential Parameter on Thermal Risk of Palm Oil Epoxidation Process**

Zailan Abu Bakar[1], Felicia Goh Xuan Wei[2], Zulina Abd Maurad[1], Haliza Abdul Aziz[1] and Parthiban Siwayanan[2]

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[2]Xiamen Universiti Malaysia, Jalan Sunsuria, Bandar Sunsuria, 43900 Sepang, Selangor, Malaysia.

DVA24 **Palm Tocotrienol Rich Fraction Nanoemulsion with Monocaprylin for Wound Healing Application**

Chua Siaw Kim[1], Fu Ju Yen[1], Mohd Hanif Zulfakar[2], Zafarizal Aldrin Azizul Hasan[1] and Ng Shiow Fern[2]

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[2]Centre for Drug Delivery Technology, Faculty of Pharmacy, Universiti Kebangsaan Malaysia (UKM), 50300 Kuala Lumpur, Malaysia.

DVA25 **Optimisation and Characterisation of Biochar Produced from *Elaeis guineensis* Leaves Using Fixed Bed Reactor**

Nik Nurfatmah Pz Nik Pauzi[1,2], Chan Chung Hung[2], Rozita Yusoff[1] and Mohd Usman Mohd Junaidi[1]

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DVA26 **Evaluation of the Genotoxicity Properties of Palm $C_{16:18}$ Methyl Ester Sulphonate**

Yusrabbil Amiyati Yusof[1] and Zafarizal Aldrin Azizul Hasan[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA27 **Selective Synthesis of Alpha Monoglycerides by Clean Method: Techno-economic and Environmental Assessment**

Ahmad Mustafa[1], Fumiya Niikura[2], Luigi di Bitonto[3] and Carlo Pastore[3]

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[2]Process Engineering Research Laboratories, Lion Corporation, 7-2-1 Hirai, Edogawa-ku, Tokyo 132-0035, Japan.
[3]Water Research Institute (IRSA), National Research Council (CNR), Via F. de Blasio 5, 70132, Bari, Italy.

DVA28 **Glycerin Waste to Value-added Products**

Maryam Solehah[1], Wan Nazwanie Wan Abdullah[1] and Loh Soh Kheang[2]

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DVA29 **Compatibility and Stability Study of Palm-based Sodium Carboxymethyl Cellulose with Organic Solvent**

Nur Eliyanti Ali Othman[1], Fatiha Ismail[1] and Noorshamsiana Abdul Wahab[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA30 **Assessment of Lignin Properties from Oil Palm Biomass**

Stasha Eleanor Rosland Abel[1], Loh Soh Kheang[1], Noorshamsiana Abdul Wahab[1] and Nur Iffa Rizuan[2]

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DVA31 **Synthesis of Biodegradable Lubricant by Continuous Enzymatic Transesterification of High Oleic Palm Methyl Ester in Packed-bed Reactor**

Nur Sulihatimarsyila Abd Wafti[1,2], Harrison Lau Lik Nang[1], Thomas Choong Shean Yaw[2], Robiah Yunus[2] and Suraini Abd Aziz[3]

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DVA32 **Effect of Ball Milling on the Production of Nanocellulose from Oil Palm Biomass**

Fatiha Ismail[1], Nur Eliyanti Ali Othman[1] and Noorshamsiana Abdul Wahab[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA33 **Lutropur® MSA for a Wide Range of FFA Feedstocks in Biodiesel Production**

Benjamin D Lindner[1]

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DVA34 **Deacetylation to Mitigate the Inhibitory Effect in Lignocellulosic Oil Palm Biomass Hydrolysates for an Improved Fermentation Process**

Nurul Adela Bukhari[1], Mohamad Azri Sukiran[1], Nasrin Abu Bakar[1] and Loh Soh Kheang[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

DVA35 **Post-crank Glow Plug Duration and Pressure Drop Across Fuel Filter of Diesel Engine Using Palm Biodiesel Blends at Cold Temperatures**

Nursyairah Jalil[1,2], Harrison Lau Lik Nang[1] and Rifqi Irzuan Abdul Jalal[2]

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DVA36 **Purification with Adsorbents of Challenging Feedstocks for Renewable Fuel Production**

Vinicius Ribeiro Celinski[1], Marla Ruby Quintine[2] and Dedy Ricardo[2]

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DVA37 **Hydrothermal Carbonisation of Empty Fruit Bunch: Effects of Process Parameters on the Fuel Properties of Hydrochar**

Mohamad Azri Sukiran[1], Nasrin Abu Bakar[1], Nurul Adela Bukhari[1], Astimar Abdul Aziz[1] and Loh Soh Kheang[1]

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DVA38 **Production of Bio-jet Fuel with Bio-butanol from Empty Fruit Bunch**

Wu Jing[1], Qi Xuejin[2], Wu Pengfei[3], Zhou Yujie[2], Liu Hongjuan[2], Astimar Abdul Aziz[4], Harrison Lau Lik Nang[4], Teh Soek Sin[4], Nursyairah Jalil[4] and Zhang Jianan[2]

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DVA39 **Production of Bio-lipid by *Rhodotorula glutinis* from Corncob**

Liu Yating[1], Lin Zhangnan[2], Wu Jing[3], Wu Pengfei[4], Liu Hongjuan[1], Zhou Yujie[1] and Zhang Jianan[1]

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[4]School of Advanced Agriculture and Bioengineering, Yangtze Normal University, Chongqing 408100, China.

DVA40 **The Conversion of Oil Palm Trunks (OPT) to Useful Wood Products Using Patented German Technology and Machinery**

Liew Ching Seng[1] and Stefan Moehringer[2]

[1]Pacific Agriscience Pte Ltd., 15 Toh Crescent, Singapore 507923.
[2]Simon Moehringer Anlagenbau GMBH, Industriestrasse 1, 97353 Wiesentheid, Germany.

DVA41 **Development of Free Fatty Acids and Iodine Value Determination in Feed Oils and Frying Oil Samples Using Fourier Transform-Near Infrared Spectroscopy (FT-NIR)**

Mohd Fadlly Jumadi[1], Nur Azwani Ab Karim[1] and Ahmadilfitri Md Noor[1]

[1]Oils & Fats, Processing Technology, Sime Darby Plantation Research Sdn. Bhd., Lot 2664, Jalan Pulau Carey, 42960 Carey Island, Selangor, Malaysia.

DVA42 **Enhanced Natural Antioxidant Compounds in Red Palm Olein-based Shortening Developed for Sandwich Cookie Cream**

Nur Azwani Ab Karim[1], Mohamad Shah, N K[4], Maimunah Sanny[2,3] and Masni Mat Yusoff[4]

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DVA43 **Performance of Palm Shortenings as Plant-based Meat Fat**

Amelia Najwa Ahmad Hairi[1], Nurul Shamimy Filza Fadzli[1] and Norliza Saparin[1]

[1]Sime Darby Plantation Research Sdn. Bhd., 42960 Carey Island, Selangor, Malaysia.

DVA44 **Ethylene-induced Fruit Detachment for Cold-pressed Virgin Palm Oil**

Kua Shwu Fun[1], Tan Bee Aik[1], Jaime Low Yoke Sum[1] and Lim Chin Ming[1]

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DVA45 **Enzymatic Extraction of Palm Kernel Seed Protein and Development of Plant-based Milk Alternative**

Tong Shi Cheng[1], Siow Lee Fong[1], Tang Teck Kim[2] and Lee Yee Ying[1,3]

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[3]Monash Industry Plant Oils Research Laboratory (MIPO), Monash University Malaysia, Jalan Lagoon Selatan, Bandar Sunway, 47500 Subang Jaya, Selangor, Malaysia.

DVA46 **Oil Application in Pea Protein Milk**

Maslia Manja Badrul Zaman[1], Norliza Saparin[1] and Ahmadilfitri Md Noor[1]

[1]Oils & Fats, Processing Technology, Sime Darby Plantation Research Sdn. Bhd., Lot 2664, Jalan Pulau Carey, 42960, Carey Island, Selangor, Malaysia.

DVA47 ***In Vitro* Rumen Fermentation Characteristics of Urea-treated Oil Palm Frond Silage and Oil Palm-based Concentrate as a Total Mixed Ration for Dairy Goat**

Saminathan Mookiah[1], Wan Nooraida Wan Mohamed[1], 'Abidah Md Noh[1], Nur Atikah Ibrahim[1] and Muhammad Amirul Fuat[1]

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DVA48 **Total Carotenoids and Astaxanthin Contents in Giant Freshwater Prawns Supplemented with Dietary Oil Palm Carotenes**

'Abidah Md Noh[1], Wan Nooraida Wan Mohamed[1], Nur Atikah Ibrahim[1], Saminathan Mookiah[1] and Muhammad Amirul Asraf Fuat[1]

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DVA49 **Meeting Animal Feed Requirements with PURAFEX**

Jaime Low Yoke Sum[1], Tan Bee Aik[1], Kua Shwu Fun[1] and Lim Chin Ming[1]

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DVA50 **Continuous Palm Olein-stearin Separation in the Solvent Extraction Process**

Oskar Sieking[1]

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DVA51 **MPOB Grease Technology: Strategising Product Development from Prototype to Production**

Chan Chung Hung[1]

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POSTER PRESENTATIONS
GLOBAL ECONOMICS & MARKETING (GEM) CONFERENCE

GEM1

A Study on the Relationship Between Demographic and Smartphone Usage Among Independent Oil Palm Smallholders in Malaysia

Tan Say Peng[1], Humaira Mat Taib[1], Nur Hana Basaruddin[1], Zaki Aman[1], Novel Lyndon[2] and Gan Sin Yee[1]

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GEM2

Harmonising Human–wildlife Conflict: MSPO Certification Among Orang Asli Oil Palm Smallholders in Peninsular Malaysia

Nursuhana Dahari[1], Siti Zulaikha Rusmadi[1], Mohd Shahrin Rahami[1] and Hasmiza Desa[1]

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GEM3

Financial Well-being Among Oil Palm Independent Smallholders

Nazirah Che Jaafar[1], Mohd Haidhar Abdul Hamid[1], Mohd Noor Izuddin Zanal Bidin[1], Mohd Shahrin Rahami[1], Hasmiza Desa[1] and Rahmahwati Rasuddin[1]

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GEM4

Technical Efficiency of the Oil Palm Private Sector in Producing Fresh Fruit Bunch in Malaysia

Azman Ismail[1], Rosearnida Senawi[1], Nurain Hassani[1], Nur Nadia Kamil[1] and Norhazifah Suhani[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

GEM5

Female Consumers' Perception of Skin Care Products in East Malaysia

Norhidayu Abdullah[1], Kamalrudin Mohamed Salleh[1], Kalsom Zakaria[1], Zafarizal Aldrin Azizul Hasan[1] and Chua Siaw Kim[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

GEM6

The Impact of Optimal Fertiliser Application During Low CPO Prices on Oil Palm Independent Smallholders' Yield and Income: A Case Study of Peninsular Malaysia

Kamalrudin Mohamed Salleh[1], Rosearnida Senawi[1], Ahmad Afandi Murdi[1] and Nur Zuhaili Harris Abidin[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

GEM7

Comparison of Production Costs Between Crops Planted with *E. guineensis* and Crops Planted with OxG Hybrid Crossings in Colombia for Year 2022

Mauricio Mosquera-Montoya[1], Elizabeth Ruiz-Álvarez[1] and Daniel Eduardo Munévar-Martínez[1]

[1]Research Results Validation Unit, Cenipalma Bogotá, Colombia.

GEM8 **Mechanisation Services Model for Oil Palm Independent Smallholders by Co-operatives**

Rosearnida Senawi[1], Azman Ismail[1] and Nur Nadia Kamil[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

GEM9 **Economic Input-output Life Cycle Assessment of the Malaysian Palm Oil Production**

Kalsom Zakaria[1], Vijaya Subramanian[1], Kamalrudin Mohamed Salleh[1] and Law Mei Ching[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.

GEM10 **Determinants of Malaysian Palm Kernel Shell (PKS) Export Demand to Japan**

Siti Mashani Ahmad[1], Zaiton Samdin[2] and Kalsom Zakaria[1]

[1]Malaysian Palm Oil Board (MPOB), 6 Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia.
[2]Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

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MS2530:2022 states that information shall be collected within or adjacent to the management area and appropriate measures are taken for the protection of the species or habitat following the HCV approach and relevant local authorities' requirements.

Principle 5, Criterion 6 Indicator 2: If High Conservation Values, rare, threatened or endangered species are present, a management plan shall be established, effectively implemented.

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MS2530:2022 strictly restricts open burning, except in situations allowed under the legalframework. Response and mitigation plans shall be established to prevent fire.

Principle 1, Criterion 2 Indicator 1: No conversion of natural forest, protected areas and High Conservation Value areas after 31 December 2019

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LEAVE YOUR MARK, NOT A CARBON FOOTPRINT

MS 2530: 2022 states that comprehensive HCV, environmental and social impact assessments are undertaken prior to new plantings or establishments, and a management plan is implemented, monitored and regularly updated in ongoing operations.

Principle 5, Criterion 4: In contributing to the national commitment for climate change, all actors along the value chain shall identify the sources of GHG emissions, monitors, and plans for reductions, whenever applicable.

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MS2530:2022 strictly state that "No forms of forced or trafficked labour as well as child labour are used".
Principle 4, Criterion 3 Indicator 2: There shall be no forms of forced or trafficked labour whereby all work is voluntary following the 11 ILO indicators of forced labour.
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MS 2530: 2022 prohibits any form of discrimination and harassment. The organisation shall provide equal opportunity and treatment regardless of race, colour, gender, religion, political opinion, nationality, social origin or any other distinguishing characteristics.
Principle 1, Criterion 2 Indicator 5: No new plantings shall be established on customary land without the owners' free, prior and informed consent (FPIC), dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions.
MPOCC

MS2530:2022

Malaysian Sustainable Palm Oil Certification Scheme

The Malaysian Sustainable Palm Oil (MSPO) started from a humble beginning in 2016 as a voluntary scheme for sustainable palm oil certification in Malaysia. To demonstrate its commitment towards production of sustainable palm oil, the Malaysian Government announced in May 2017 the mandatory implementation of MSPO beginning 1st January 2020. This means that all oil palm plantations, organised smallholdings and palm oil mill must be certified against the requirements of the MSPO Standards by aforementioned date.

The first version of the MSPO standards (MS2530:2013) have undergone a multi-stakeholder review process from 2019 – 2021, which culminated with the launching of the revised MSPO standards (MS2530:2022) in March 2022. The MSPO 2022 standards have improved and strengthened the environmental, social and economic requirements to be in line with global sustainability norms. Besides certification requirements for mills, smallholders and plantations, the MSPO 2022 standards now includes requirements for processing facilities and dealers to become certified and part of the MSPO traceability.

The development of MSPO 2022 standards took into consideration the changes in the global sustainability requirements and has considered its applicability to the Malaysian palm oil industry. Requirements such as the United Nation Sustainable Development Goals (UNSDGs) were considered and incorporated into the MSPO requirements. This resulted in the inclusion of High Conservation Value (HCV) which address environmental and social aspects that should be conserved. Besides that, a cut-off date of 31 December 2019 has been introduced to discourage conversion of natural forest, protected areas, and HCV areas to oil palm plantings.

The MSPO 2022 standards also highlights the ILO Forced labour indicators and prohibits any forms of discrimination in the palm oil industry. Other social requirements that were strengthened is the prohibition of child labour, the introduction of decent living conditions and avoidance of triangular employment.

Malaysia will continue with the journey towards full implementation of MSPO certification. In addition, MPOCC will also embark on promotional measures in major importing markets on the benefits of MSPO certified palm oil. As a long-term measure, we will continue strengthening the principles and criteria of the MSPO Standards to reflect evolving international best practices.

To find out more about MSPO, contact us at:

MALAYSIAN PALM OIL CERTIFICATION COUNCIL (MPOCC)

WEBSITE
www.mpocc.org.my

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Prime Minister of Malaysia

The Right Honourable Dato' Sri Haji Fadillah bin Haji Yusof
Deputy Prime Minister and Minister of Plantation and Commodities

session chairpersons, speakers, poster presenters, exhibitors, delegates, MPOB staff and all others who have contributed to the success of PIPOC 2023.

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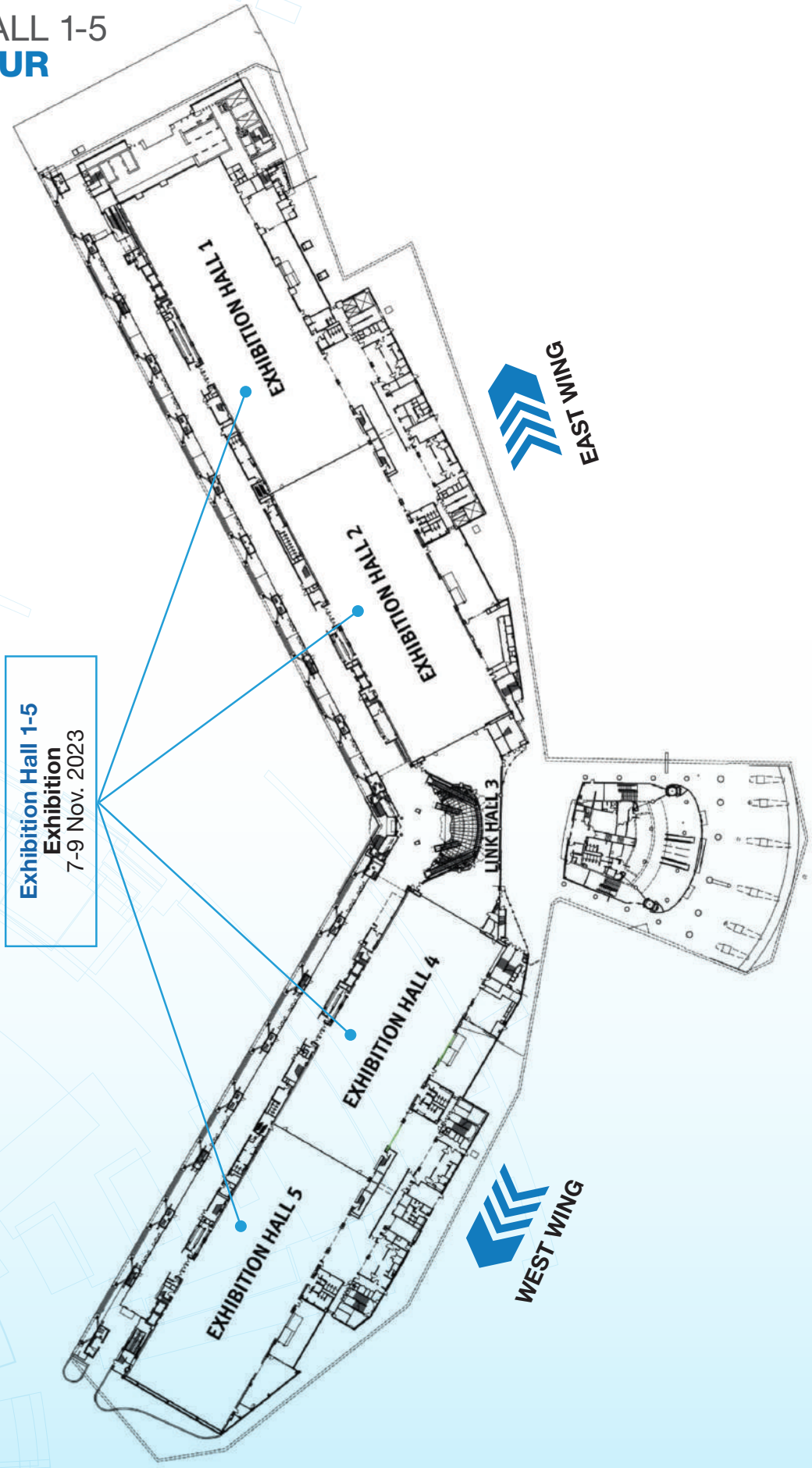

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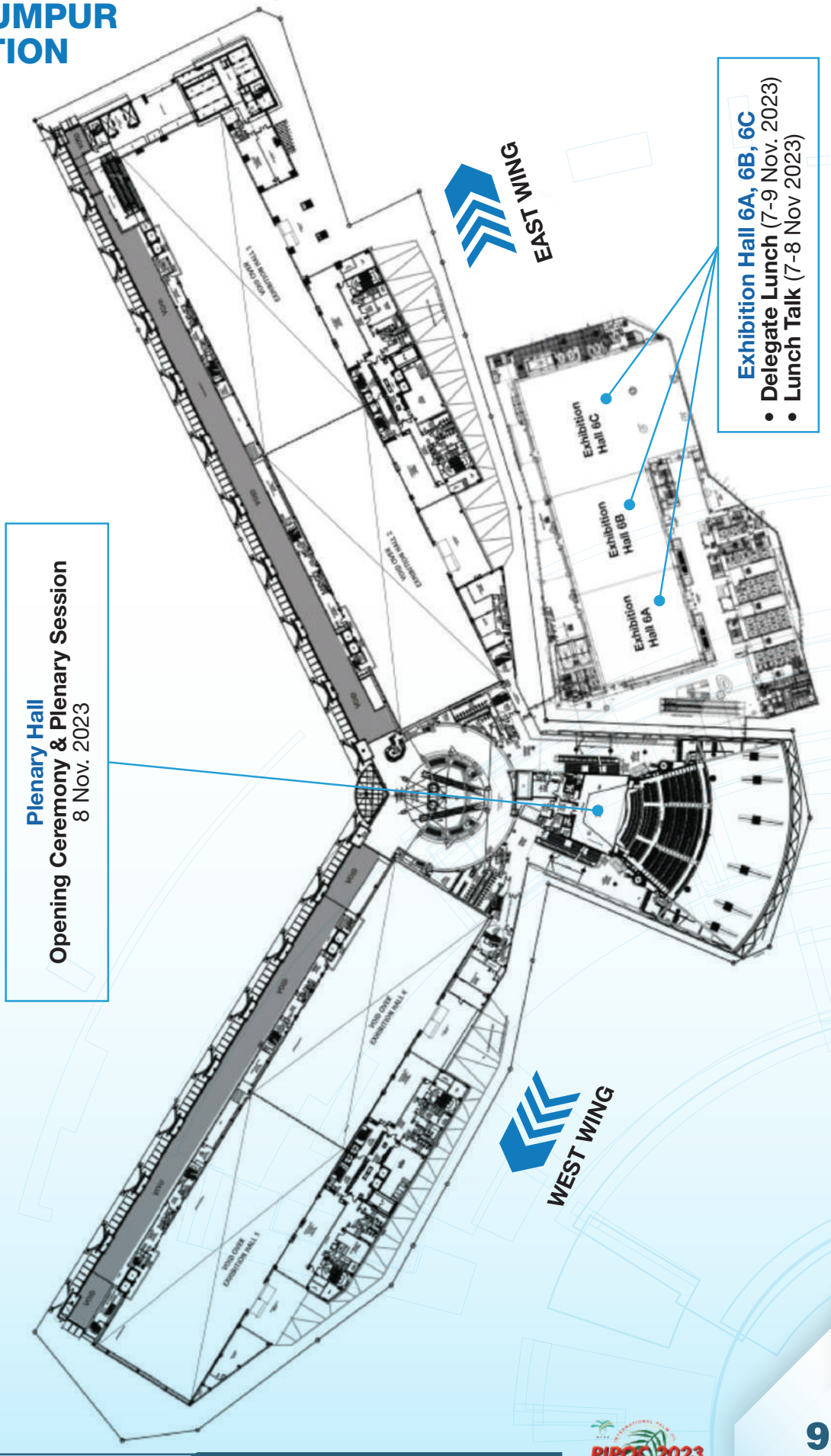

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LEVEL 3

Plenary Theatre Auditorium
Downstream & Value Addition (DVA) Conference
7 & 9 Nov. 2023

Conference Hall 3
Processing, Food Safety & Nutrition (PFSN) Conference
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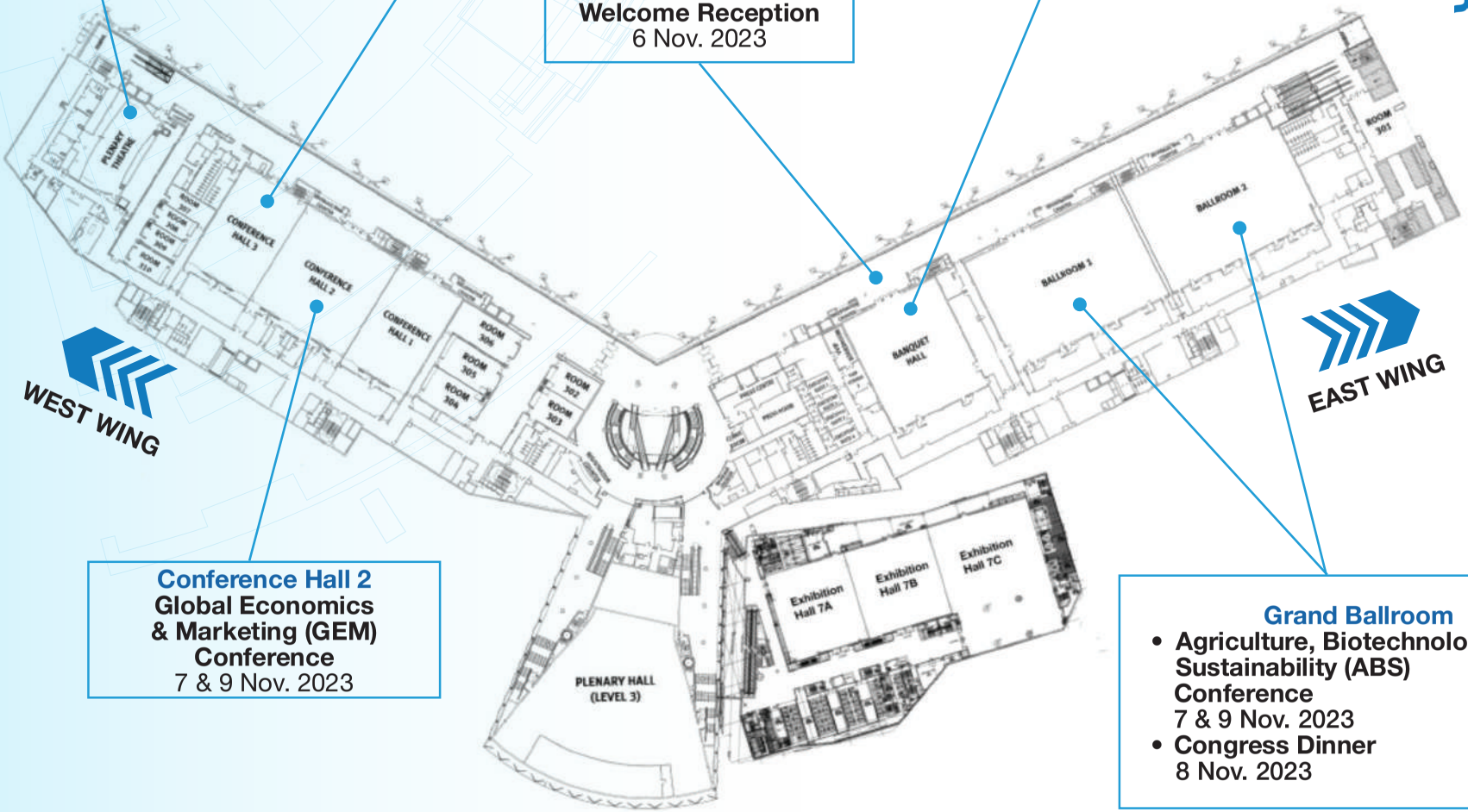
Banquet Hall
Registration
5-9 Nov. 2023

Banquet Hall Foyer
Welcome Reception
6 Nov. 2023



Conference Hall 2
Global Economics & Marketing (GEM) Conference
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Grand Ballroom
- **Agriculture, Biotechnology & Sustainability (ABS) Conference**
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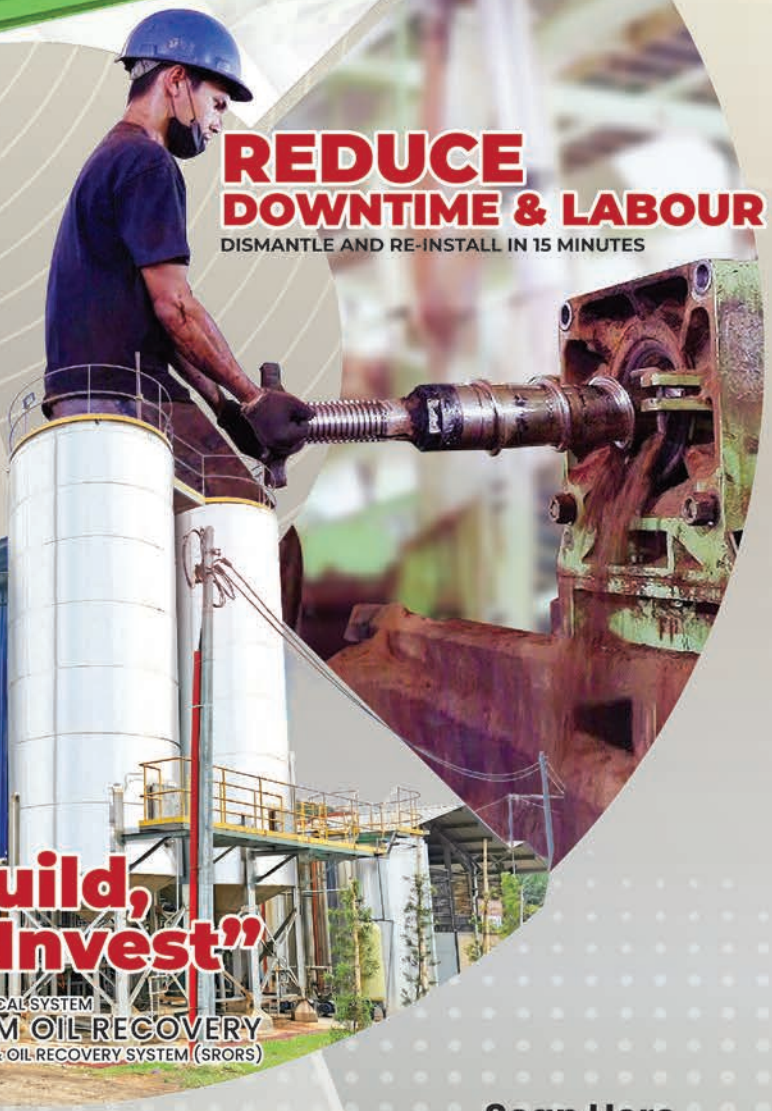

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