The Palm Oil usages

MFCCI (17/02/2023)

Our shareholder

Creating sustainable value
in the oils and proteins sectors,
thus contributing to
better food for humans
and preservation of the planet



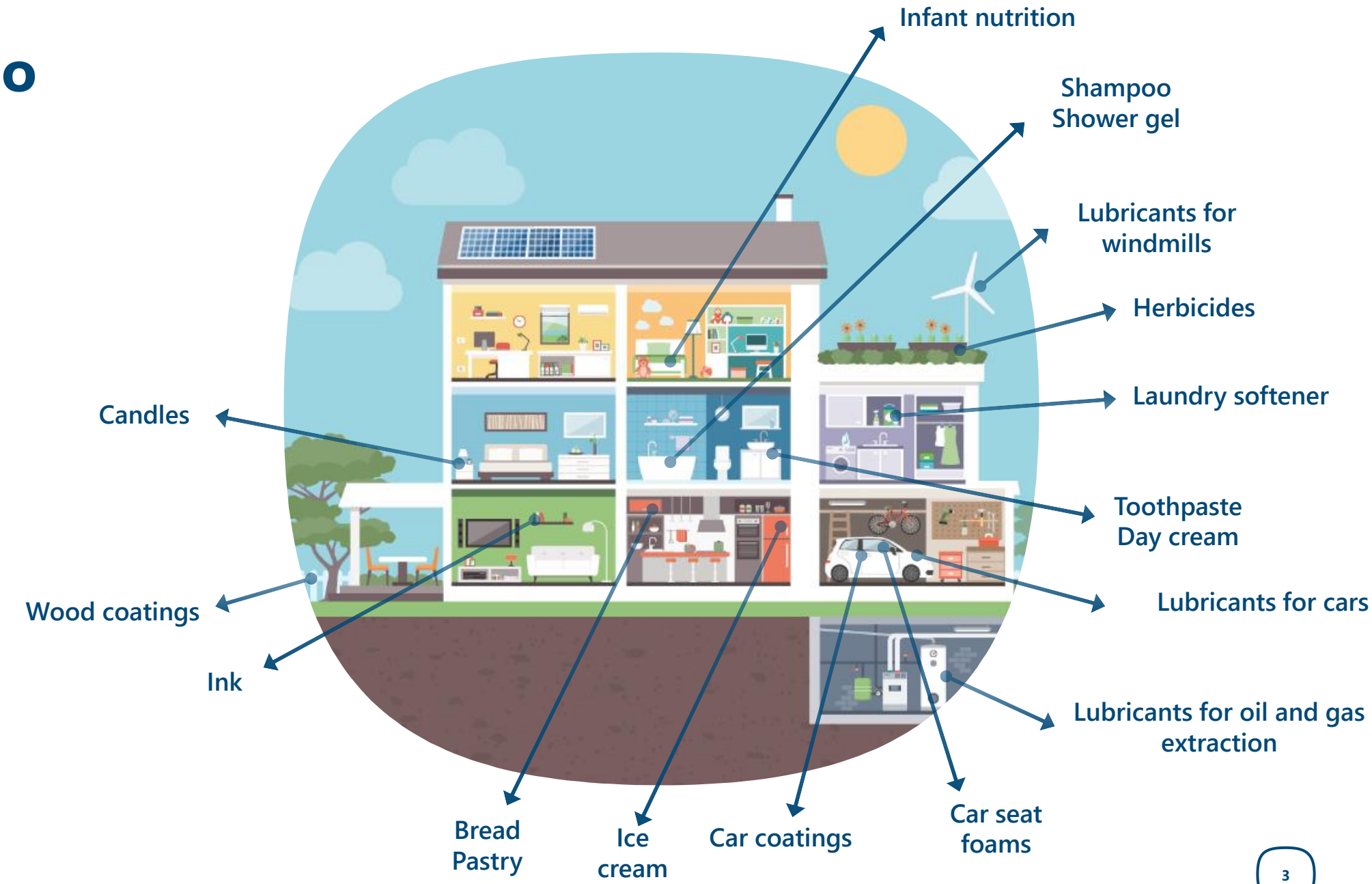





What we do

Oleon's natural chemistry is everywhere

The raw materials and ingredients that we produce can be found in **everyday objects.**



Our key figures

1000 employees

2022 turnover **€ 1200** mio

6 production plants

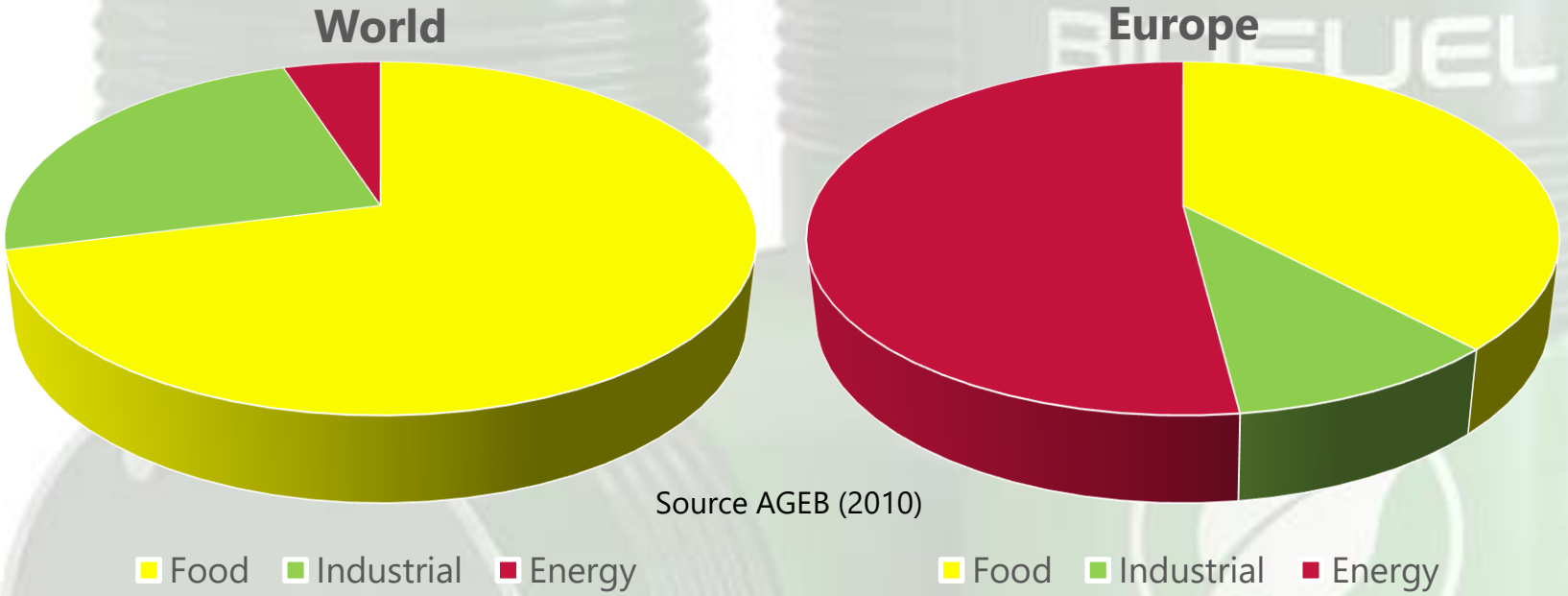
oleon
a natural chemistry

market share of **25%** in Europe

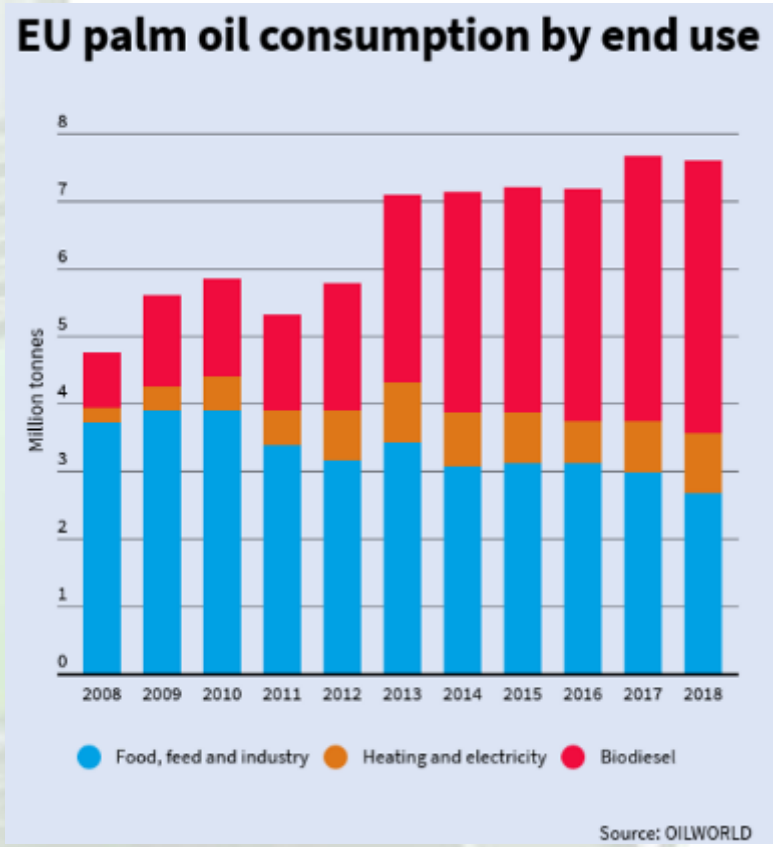
+450.000 tons/year

11 offices in Europe, USA and Asia

Main uses of palm oil



Source AGEB (2010)



- **Foods**
  margarine, pizzas, breads and cooking oils…
- **Industrial applications**
  soaps, cosmetics ingredients and cleaning agents…
- **Energy**
  biodiesel, electricity or heat

- In Europe,
  - palm oil is used less and less in food and feed
  - but more and more burned as an energy source

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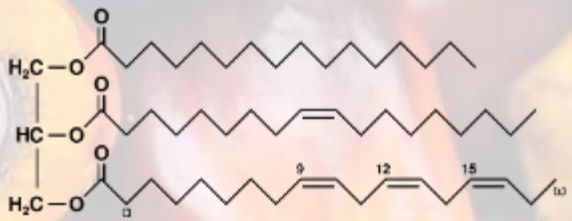
Chemical composition of oils and main uses



% fatty acids	Rapeseed	Sunflower	Soybean	Tallow	Palm	Palm Kernel	Coconut
C6:0	0	0	0	0	0	0	0
C8:0	0	0	0	0	0	4	7
C10:0	1	0	0	0	0	4	7
C12:0	0	0	0	0	0	**49**	**48**
C14:0	0	0	0	3	1	**16**	**18**
C16:0	4	6	**11**	**24**	**42**	8	9
C16:1	0	0	0	3	0	0	0
C18:0	2	4	4	**18**	4	2	3
C18:1	**57**	**21**	**23**	**41**	**40**	**15**	6
C18:2	**21**	**63**	**51**	4	9	3	2
C18:3	8	1	6	1	0	0	0
C20:0	0	0	0	0	0	0	0
C20:1	2	0	0	1	0	0	0
C22:0	0	1	0	0	0	0	0
C22:1	0	0	0	0	0	0	0

Food and Soaps and Candles Lubricants Personal care Home care Personal care Food

How can we use palm oil in a sustainable way?

4.80 million ha

Oil palm production area certified by RSPO

168,129

Individual smallholders with RSPO membership

15.1 million tonnes

Volume of RSPO-certified sustainable palm oil

Example of RSPO certification

19%

Proportion of global palm oil certified by RSPO

497,928 ha

RSPO-certified, smallholders-managed area

5,399

RSPO members from around the world

100 countries

RSPO members come from every corner of the world

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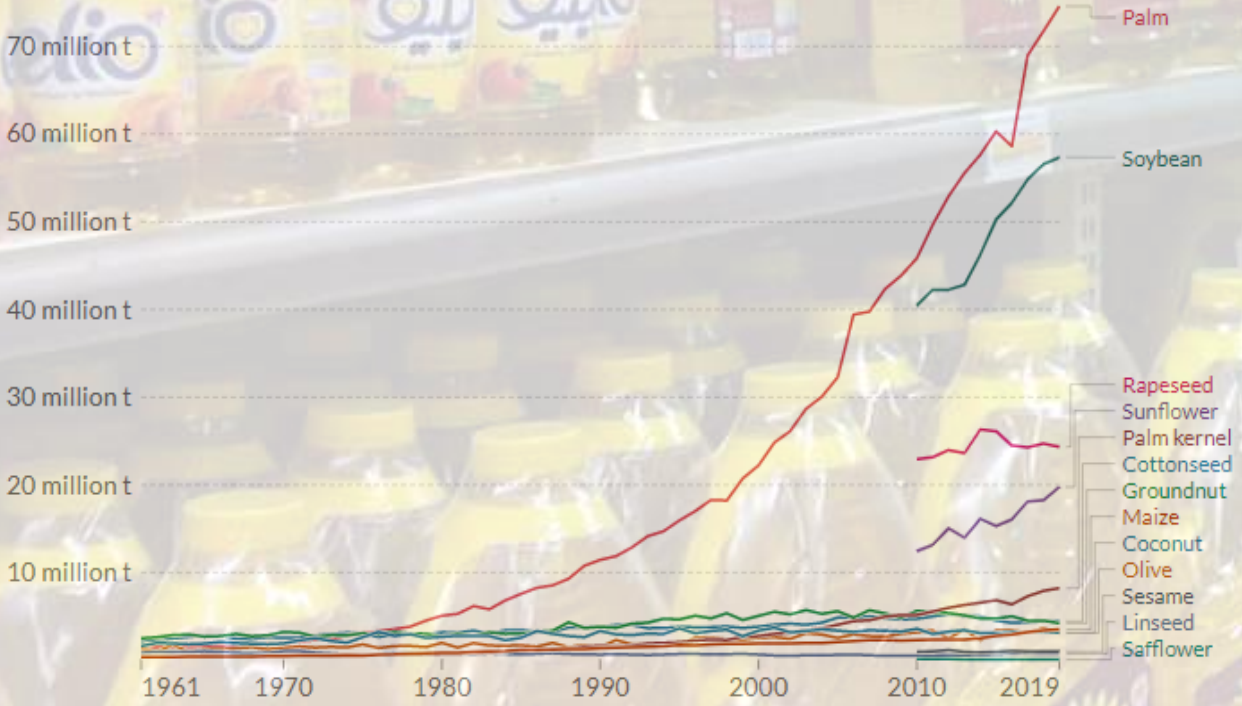
Take away

- Palm oil has been the favored crop to meet growing demand for vegetable oils, because:
  - the increasing demand for food
  - it's versatile composition suitable for food, lubricants, personal care and home care
  - substitutes for palm oil do not always exist
  - incredibly high yields (and lowest production costs)
- Palm oil has been an important driver of deforestation, but it is not the case anymore
- Avoid boycotts, since substitutions with other vegetable oils can lead to even further environmental and social harm.
- European countries may better use less palm oil for biofuels, as local substitutes are available
- Support sustainable palm oil (for example RSPO, ISCC, SPI, NPDE, CDP certifications…)

Back up slides for the Q&A

Evolution of the vegetable oil demand worldwide

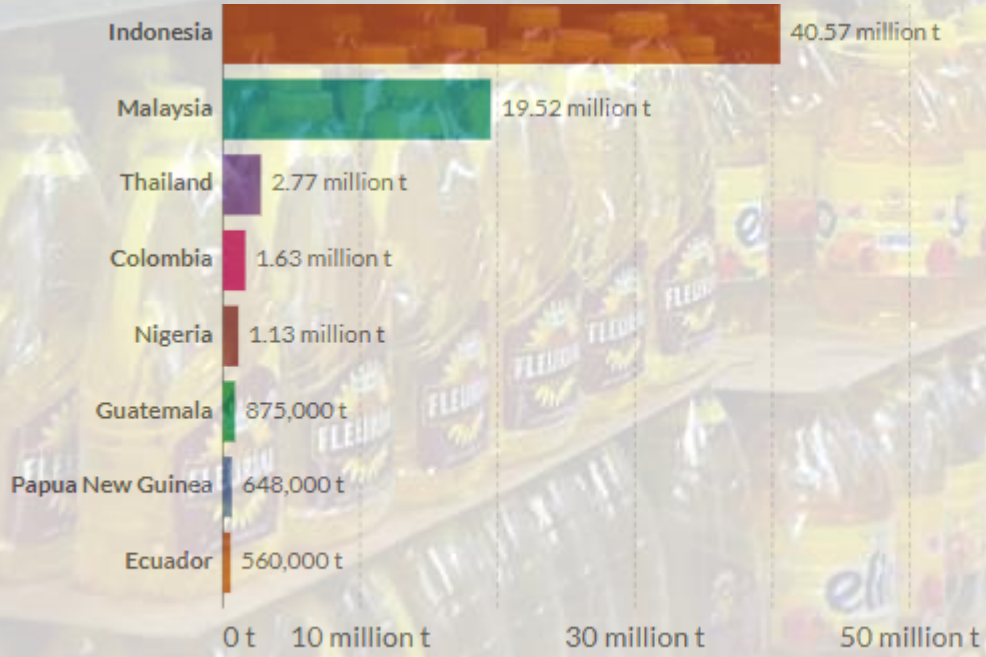
Palm oil is the highest consumed oil in the world



Source: UN Food and Agriculture Organization (FAO)

Increasing income, urbanization, changing food habits and deeper penetration of processed foods are the key drivers

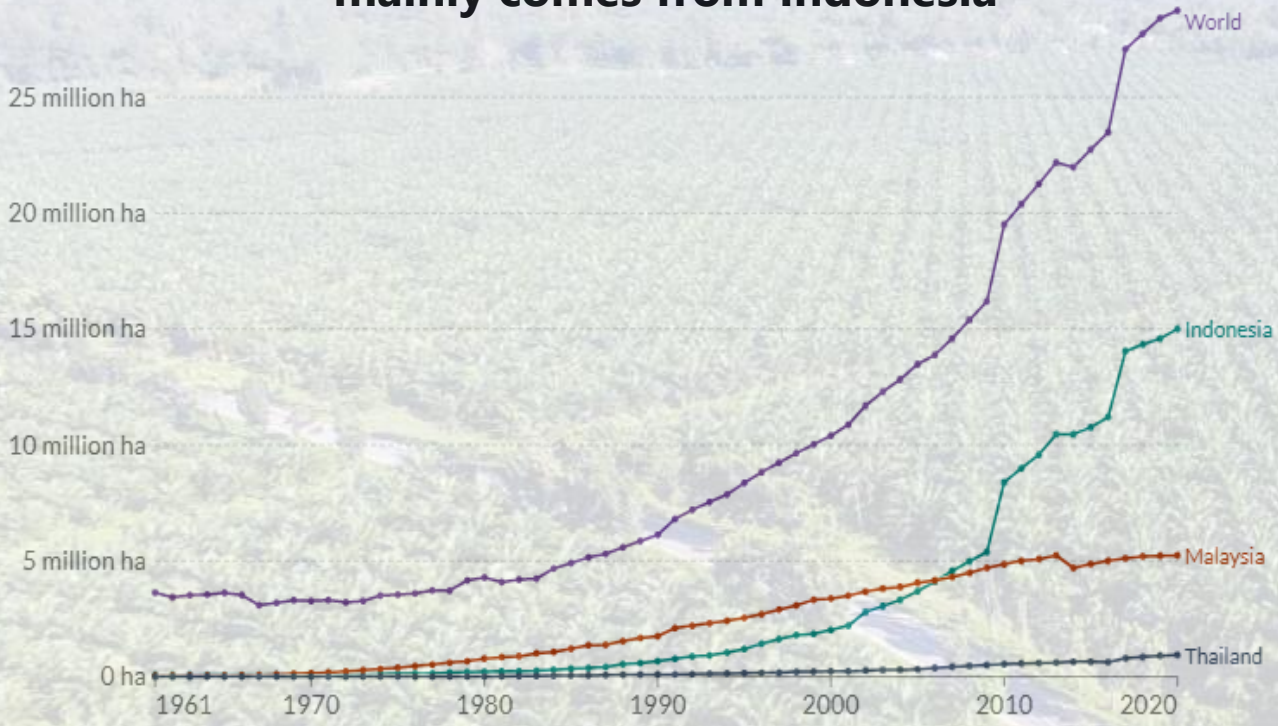
Indonesia and Malaysia represent 84% of WW production



Source: UN Food and Agriculture Organization (FAO)

Land use for palm oil production and drivers for deforestation

Growth of palm oil production mainly comes from Indonesia

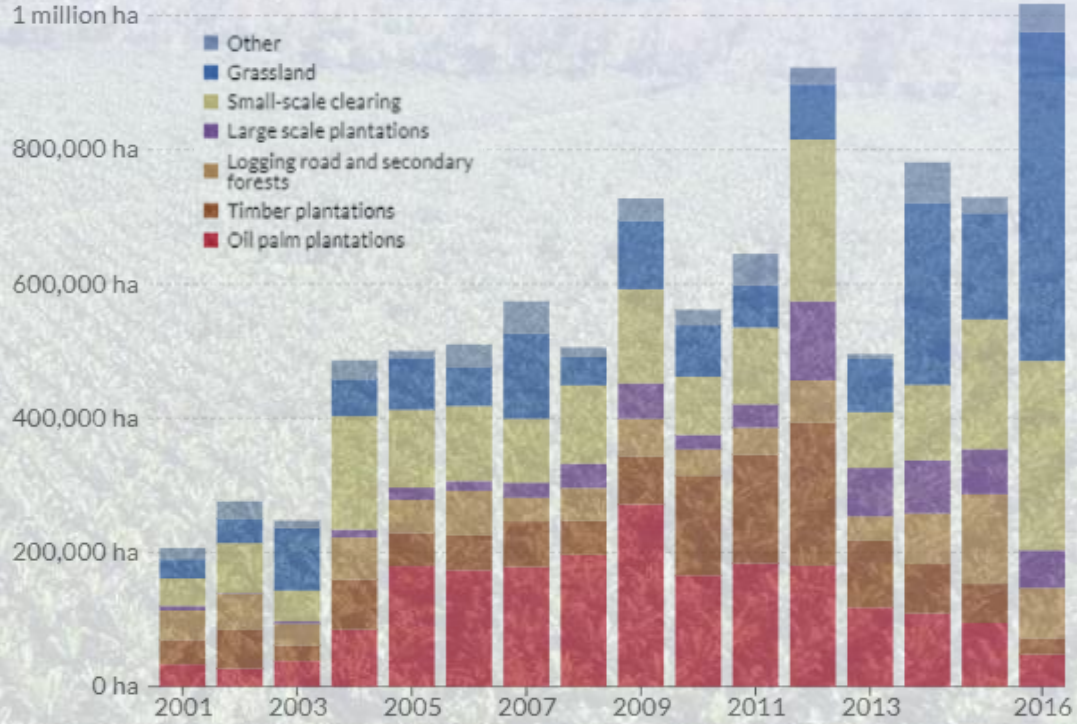


Source: UN Food and Agriculture Organization (FAO)

Malaysia does not deforest unnecessarily and will continue to use land judiciously

(Malaysia is committed to the Rio Summit pledge to maintain at least 50% of its total land area under forest)

Deforestation and peat land cultivation have happened in large scale in the past



Source: Austin, K. G., Schwantes, A., Gu, Y., & Kasibhatla, P. S. (2019). What causes deforestation in Indonesia?

Since 2009, deforestation in Indonesia is less and less due to palm oil plantations

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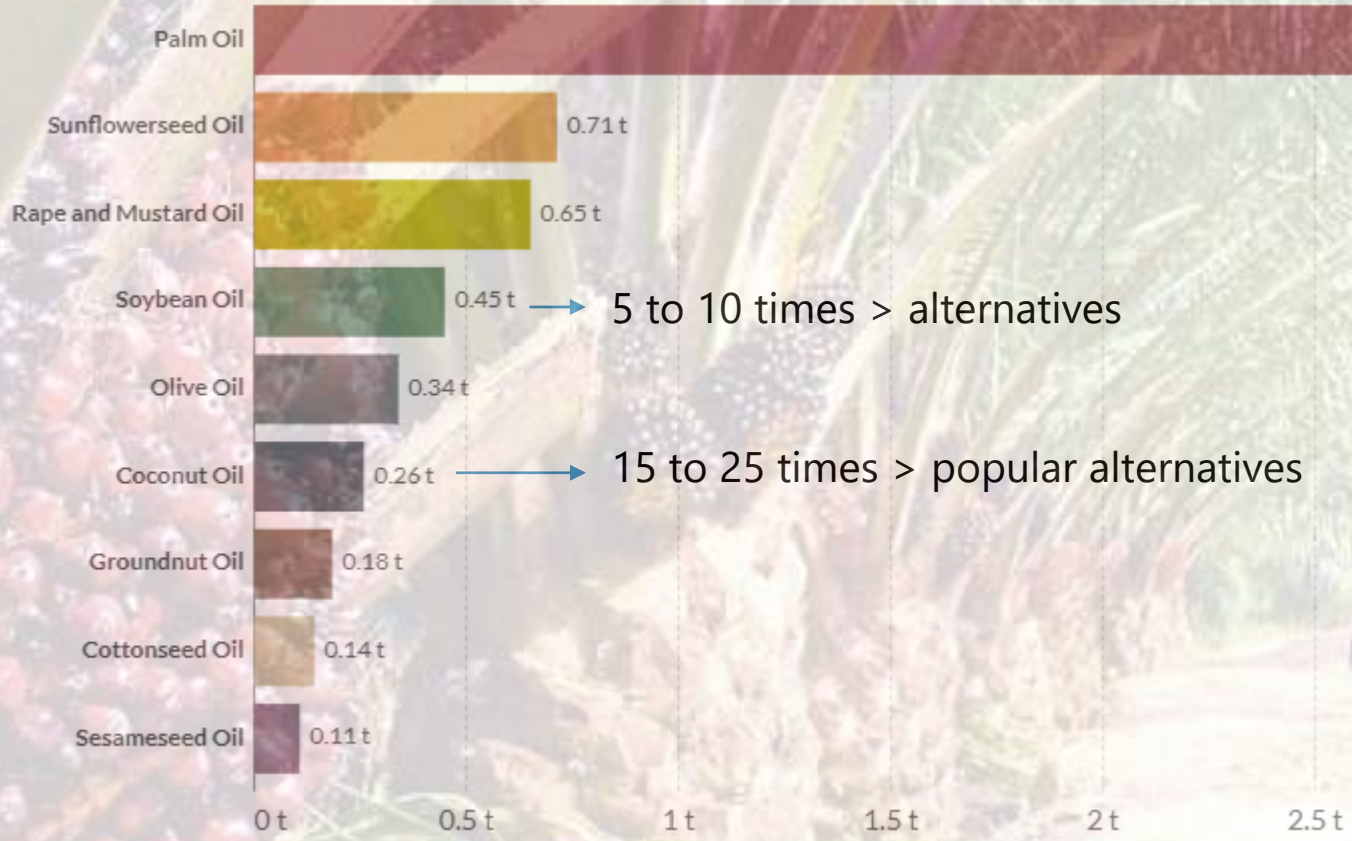
Oil yield by crop type (in t/ha/yr)

Palm oil production is by far the most productive oil per ha and per year

…but does not bring any substantial source of protein for animal feed like rapeseed or soybean



4,28 t/ha/yr in Malaysia
(Source: MPOB)

5 to 10 times > alternatives

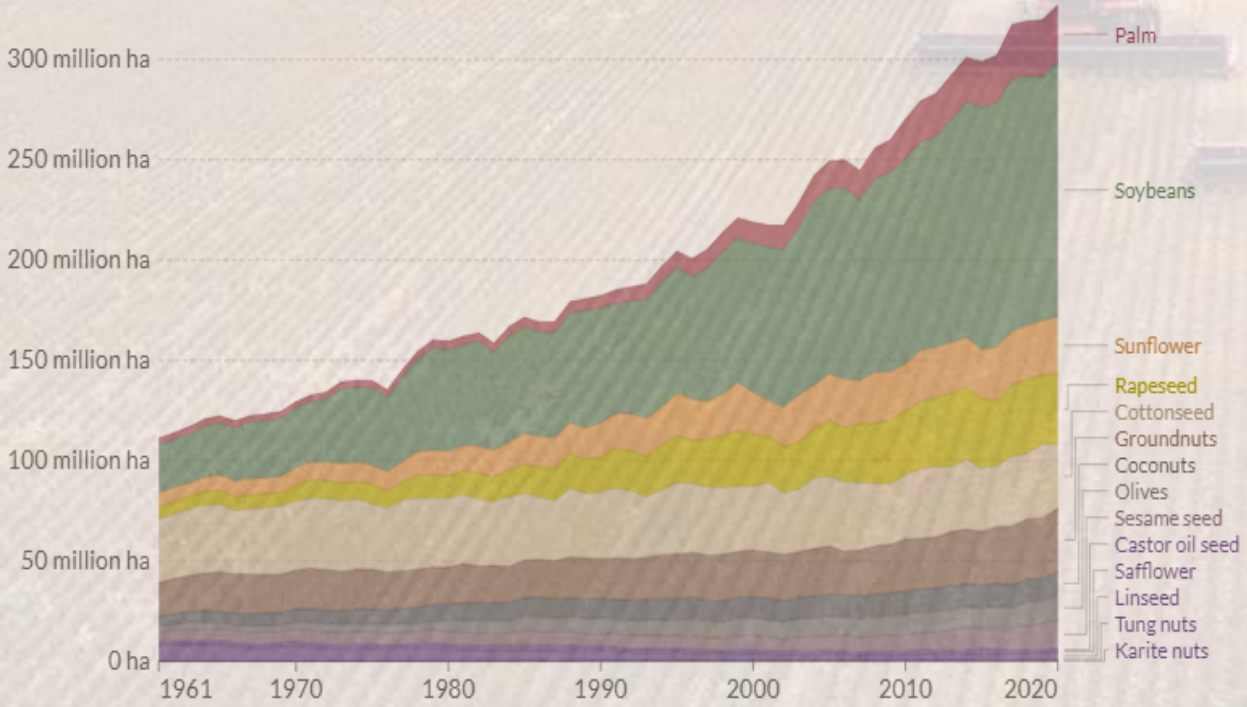
15 to 25 times > popular alternatives

Yield growth and development for higher yielding varieties has not happened at the same rate as in other crops

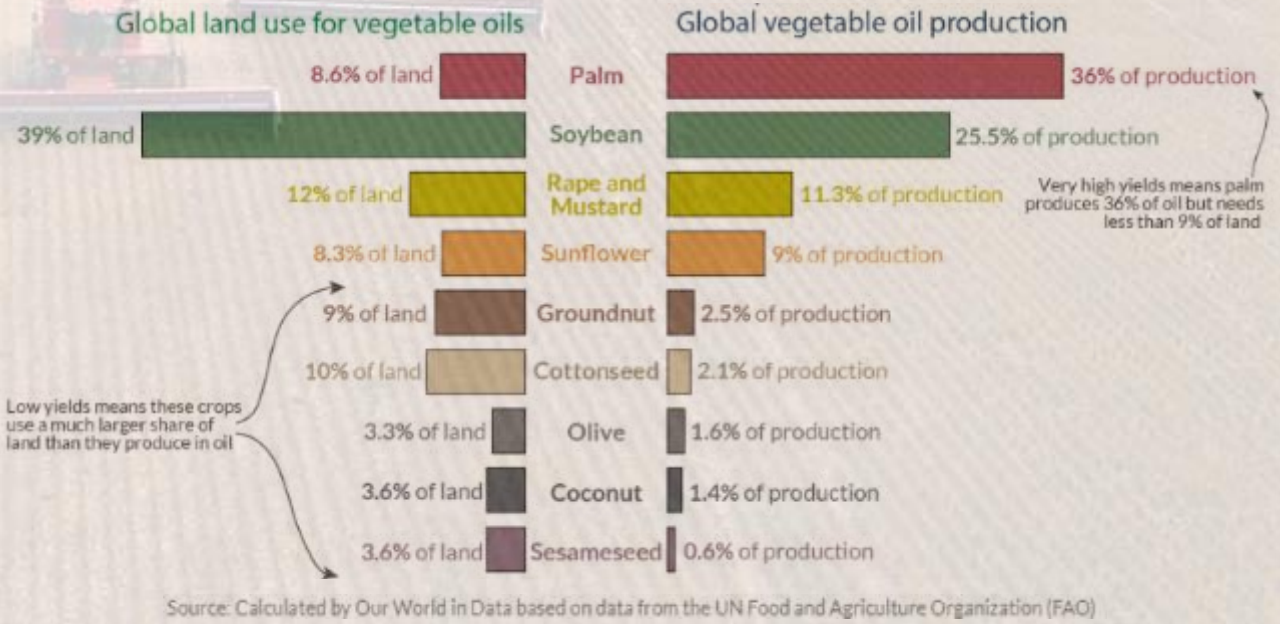
Source: Calculated by Our World in Data based on data from the UN Food and Agriculture Organization (FAO)

Land use for vegetable oil crops worldwide

Palm oil has been a 'land sparing' crop.



Source: UN Food and Agriculture Organization (FAO)



Looking forward

- Food production must grow in order to feed:
  - 2.3 billion people more and
  - 1 billion people without access to food.
- 70% more food production is required by 2050 to feed the growing population

Source FAO (2011)

Population	Today	2050
Global population	7 billion	9.3 billion
Earning <1.25 USD per day	1.4 billion	
Without access to food	1 billion	

A global boycott on palm oil would not fix environmental issues but shift them elsewhere at a greater scale, as the world would need more land to meet oil demand

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Liberté
Égalité
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esearch
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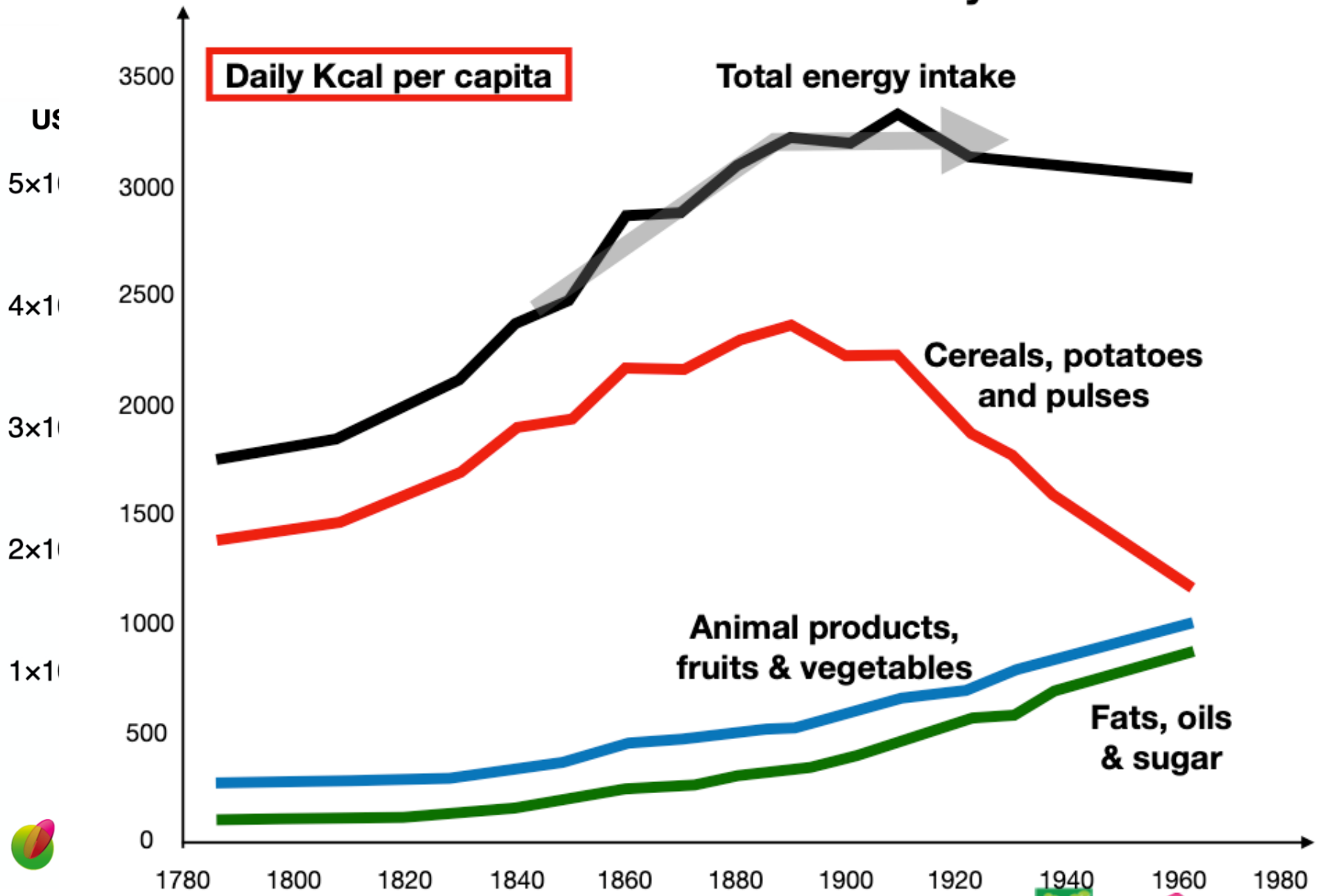
Trend 1/6
The world demand
for palm oil keeps increasing

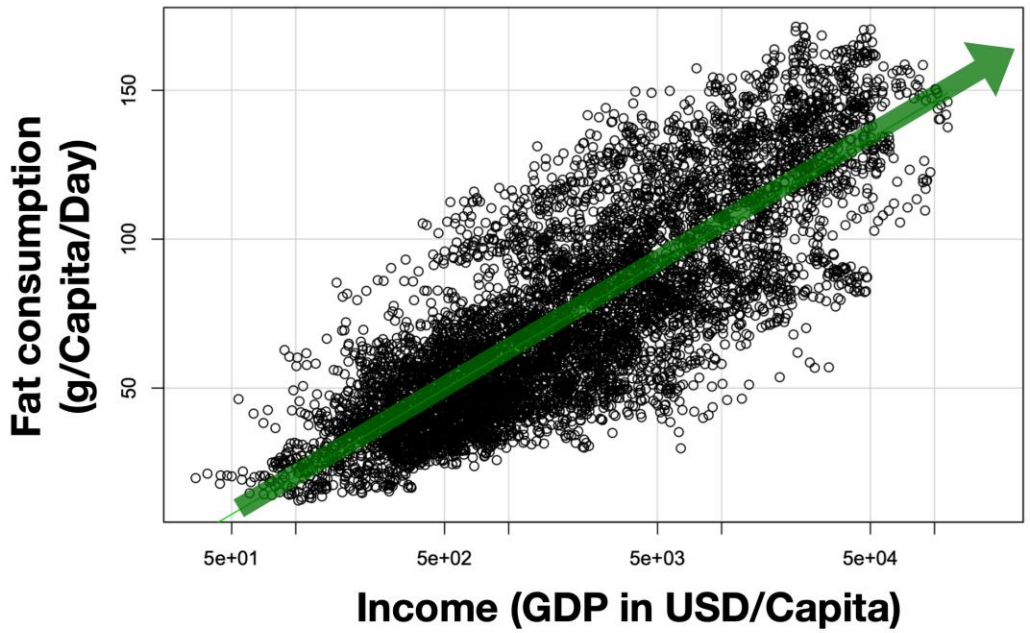
Secular trends in France in the daily calorie intake

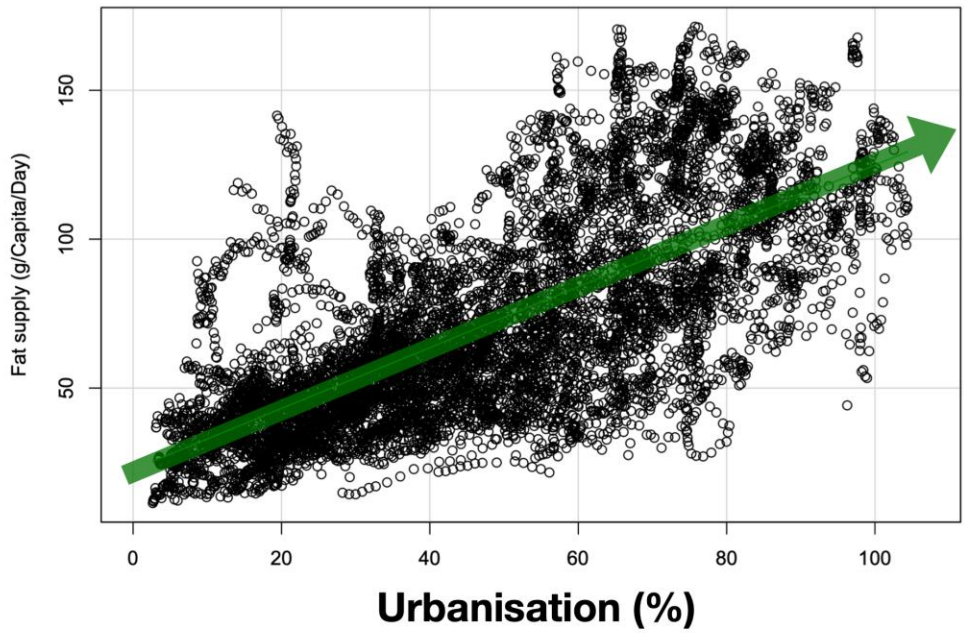


Source: CIRAD/INRA, in Guyonard et al. (2012) from Combris (2012)

Fat demand increases when Income or/and Urbanisation increases

(1950 to present - all countries)





Sources: FAO / CIRAD / RODA JM

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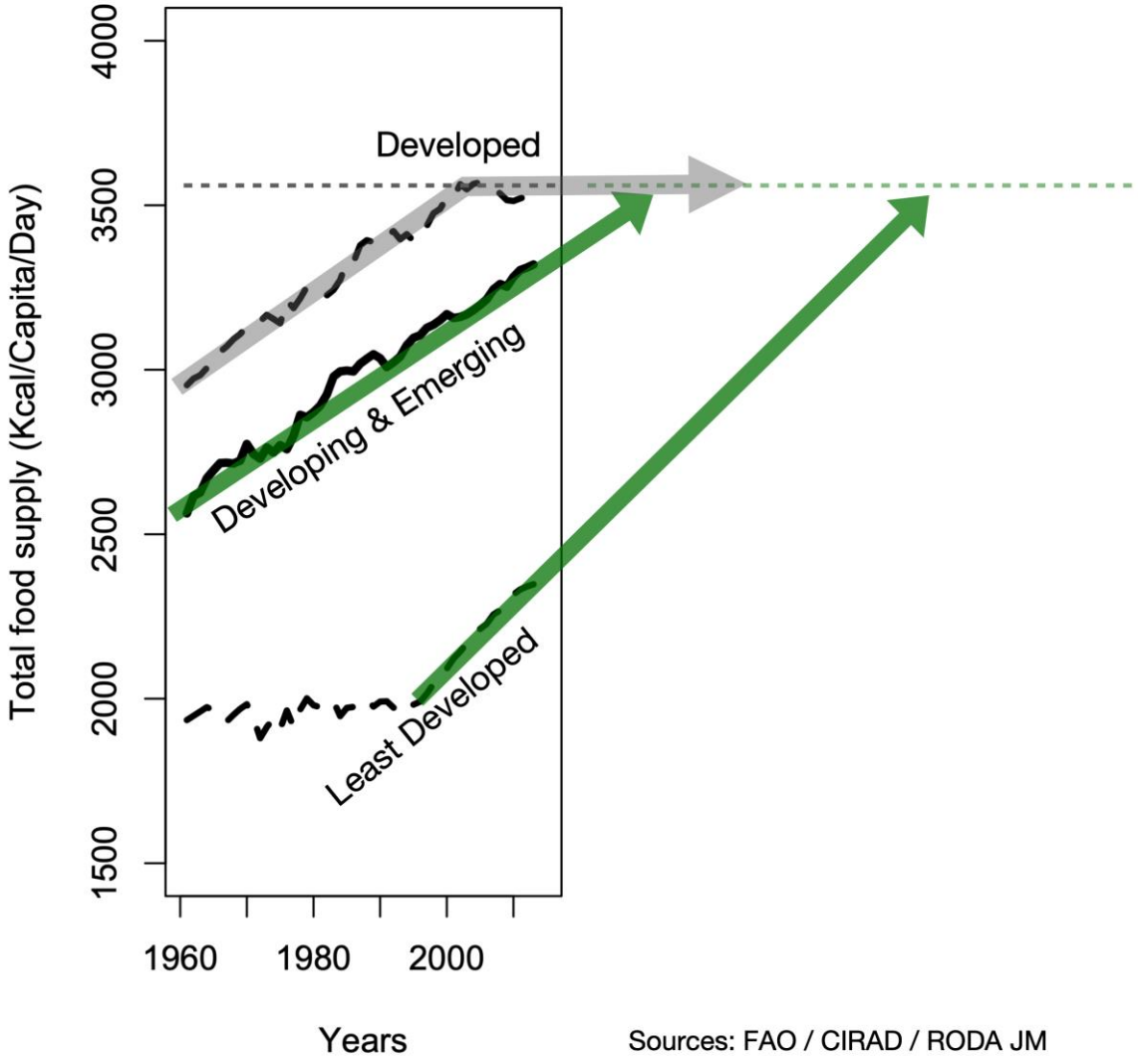
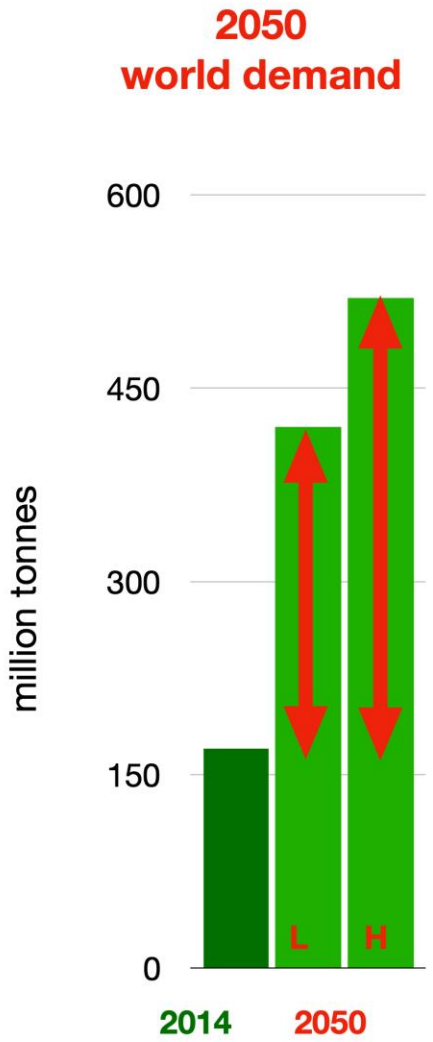
Food security is propagating to the world

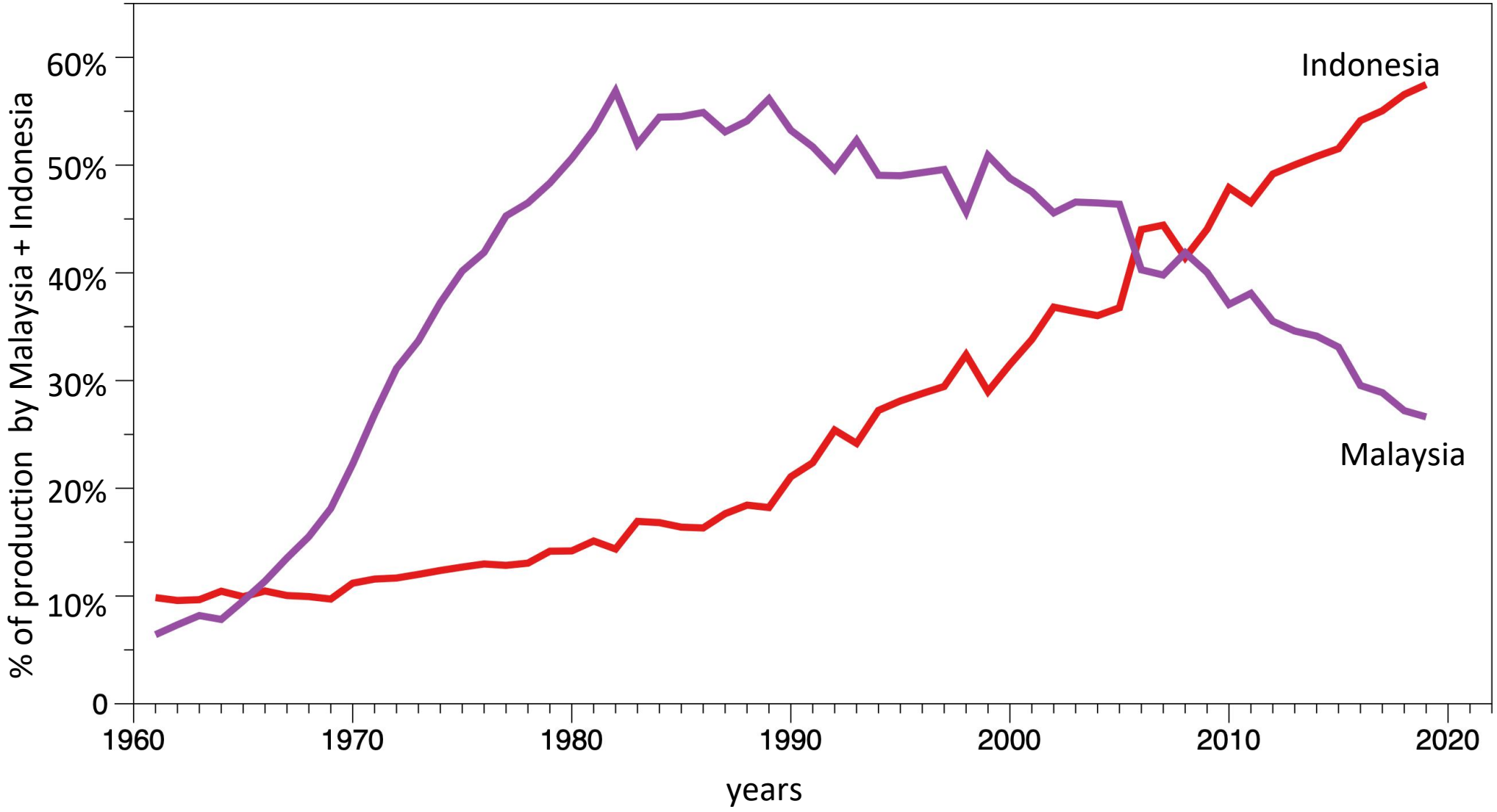


Sources: FAO / CIRAD / RODA JM

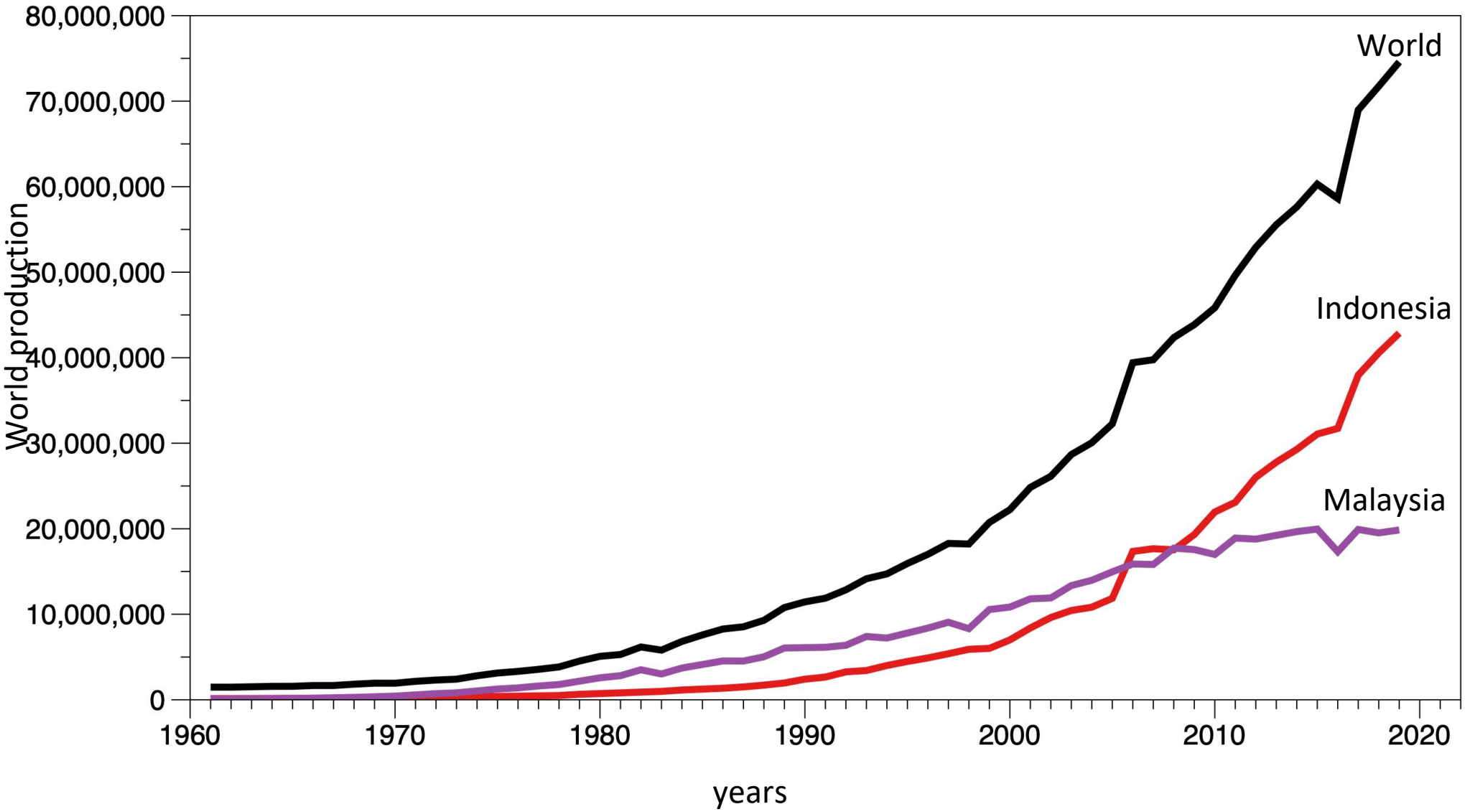


Mutation 2/6
Competition and
Land grabbing

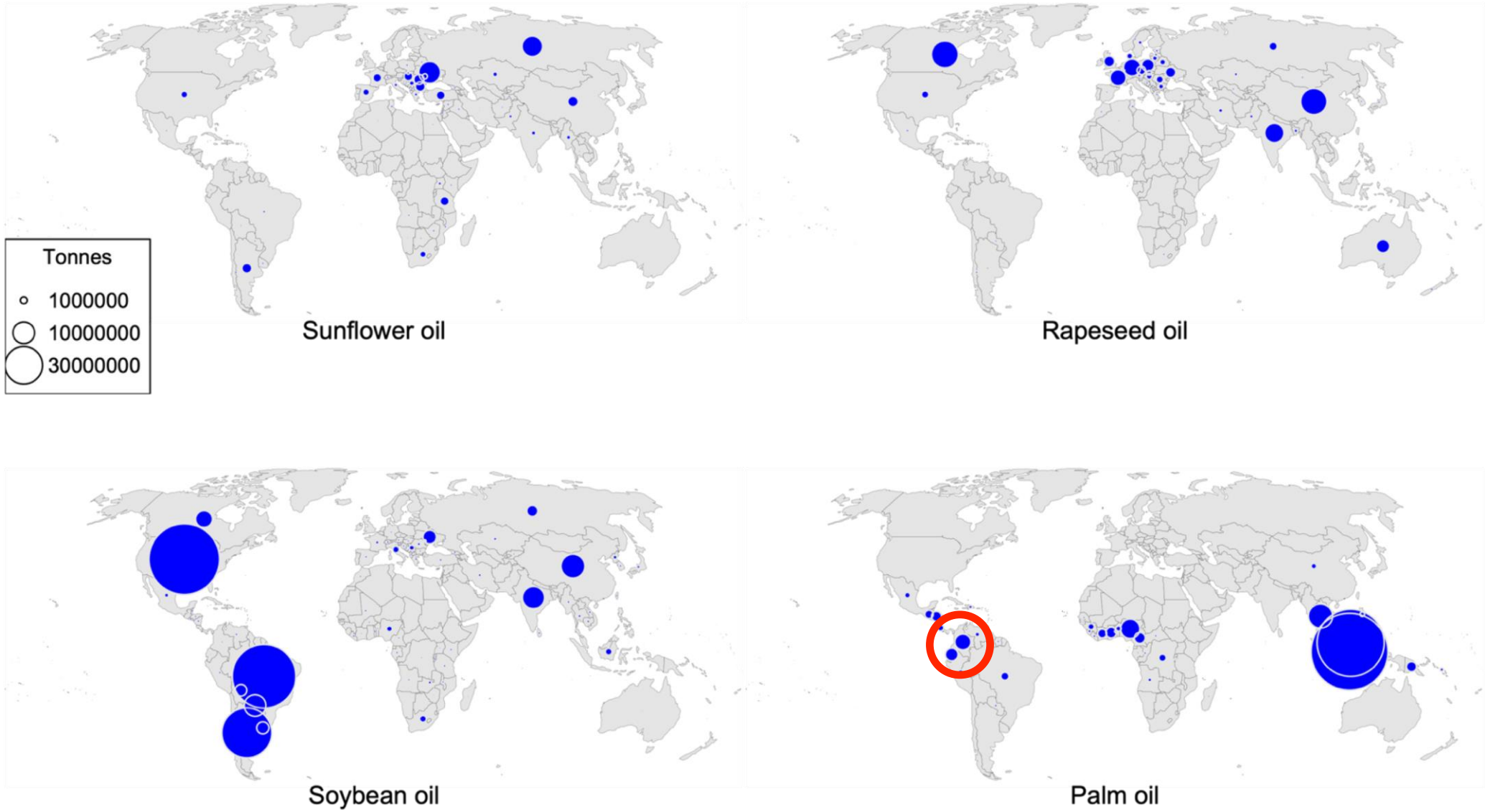
Proportion of palm oil production between Indonesia and Malaysia



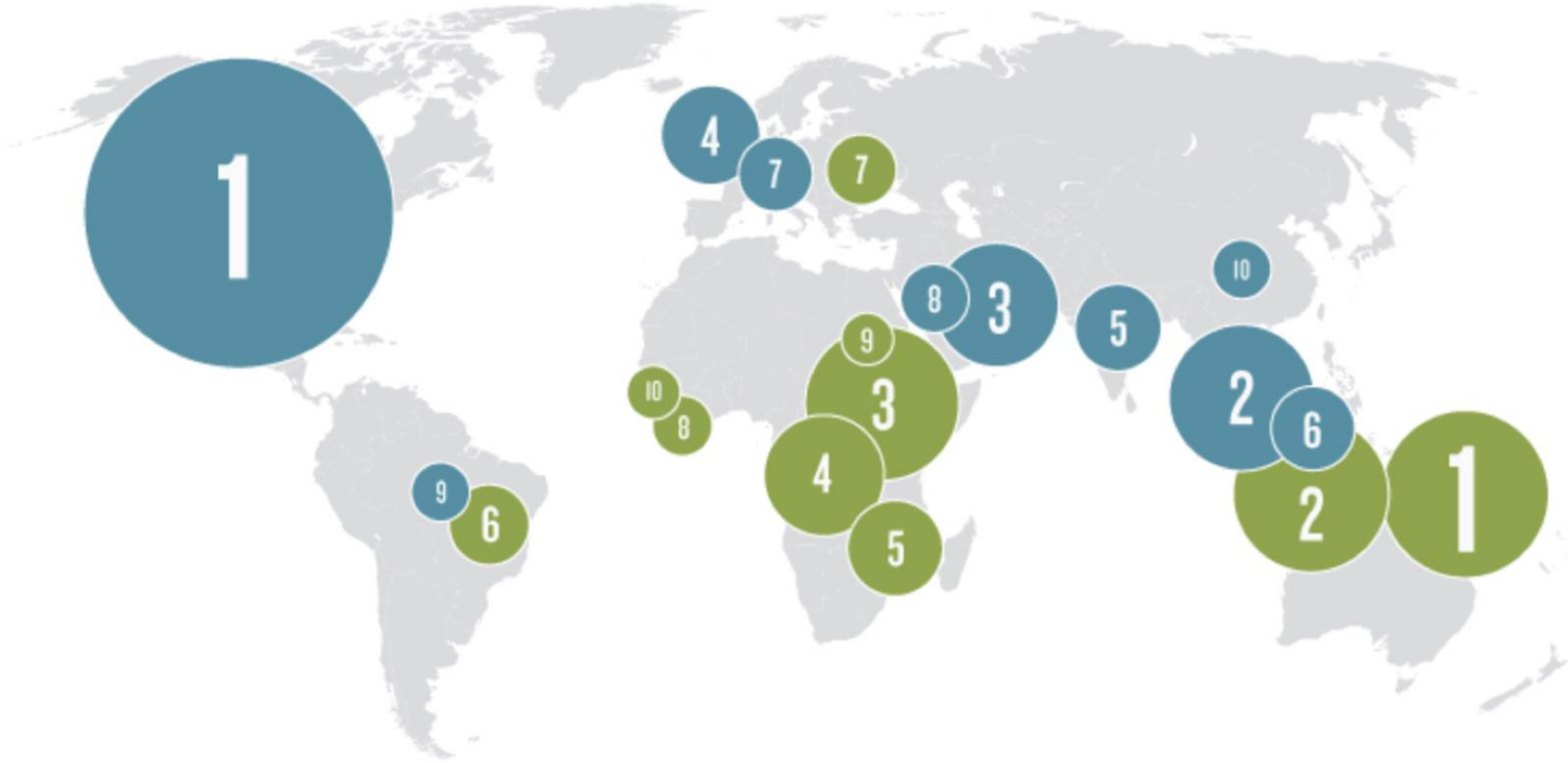
Global increase of oil palm production



Beware of Latin America



Land grabbing: who are the investors and where they invest?



TOP 10 INVESTOR COUNTRIES

1) USA	7,095,352*
2) Malaysia	3,349,571
3) U.A.E.	2,819,223
4) UK	2,296,669
5) India	1,990,223
6) Singapore	1,880,755
7) Netherlands	1,684,896
8) Saudi Arabia	1,573,218
9) Brazil	1,368,857
10) China/Hong Kong	1,342,034

TOP 10 TARGET COUNTRIES

1) Papua New Guinea	3,799,169
2) Indonesia	3,549,462
3) South Sudan	3,491,313
4) D.R. of the Congo	2,717,358
5) Mozambique	2,167,882
6) Brazil	1,811,236
7) Ukraine	1,600,179
8) Liberia	1,361,213
9) Sudan	1,191,013
10) Sierra Leone	1,181,105

* hectares

Mutation 3/6
Mechanisation


Rapeseed

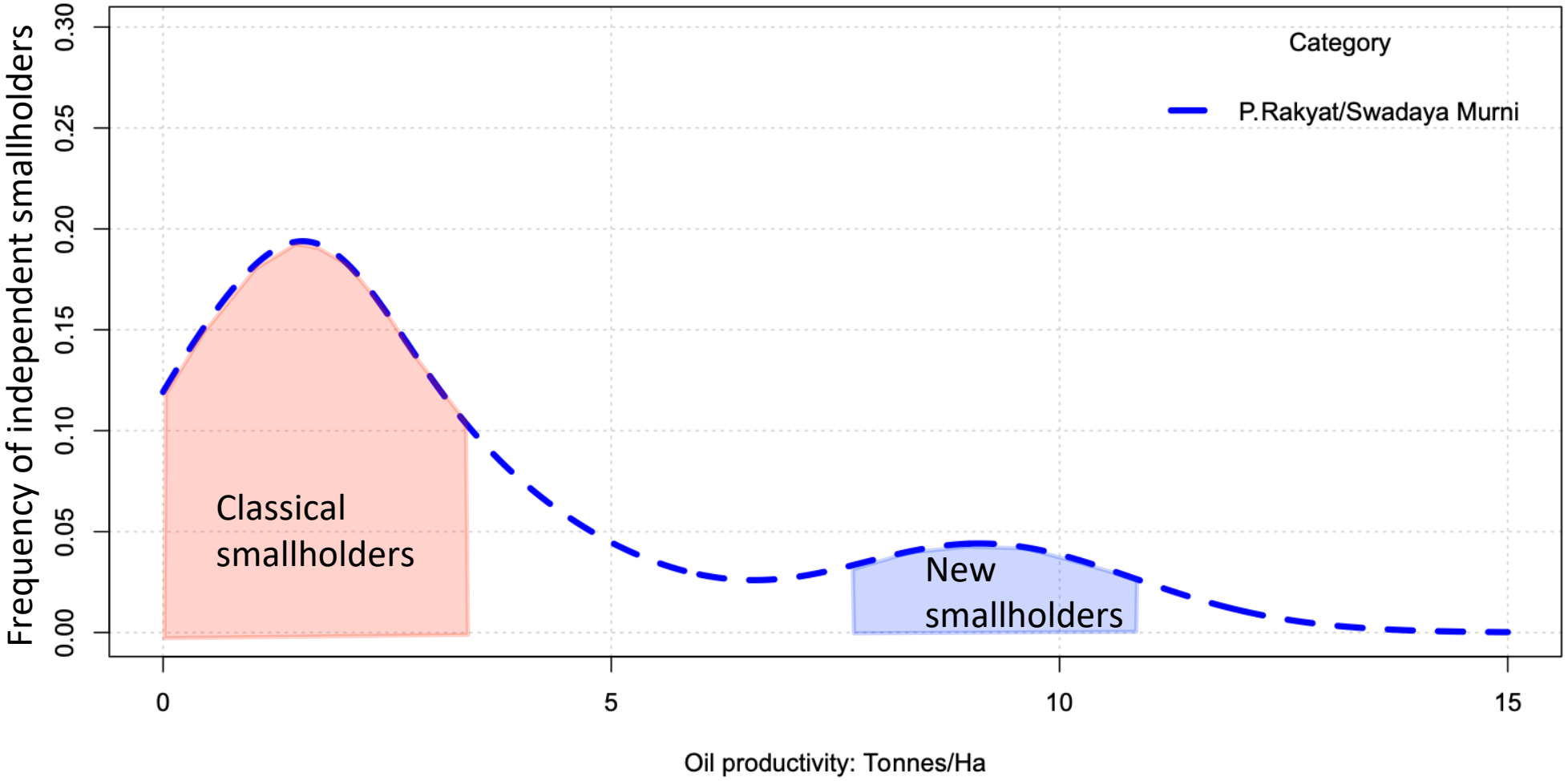

Soybean


Sunflower


Arboriculture

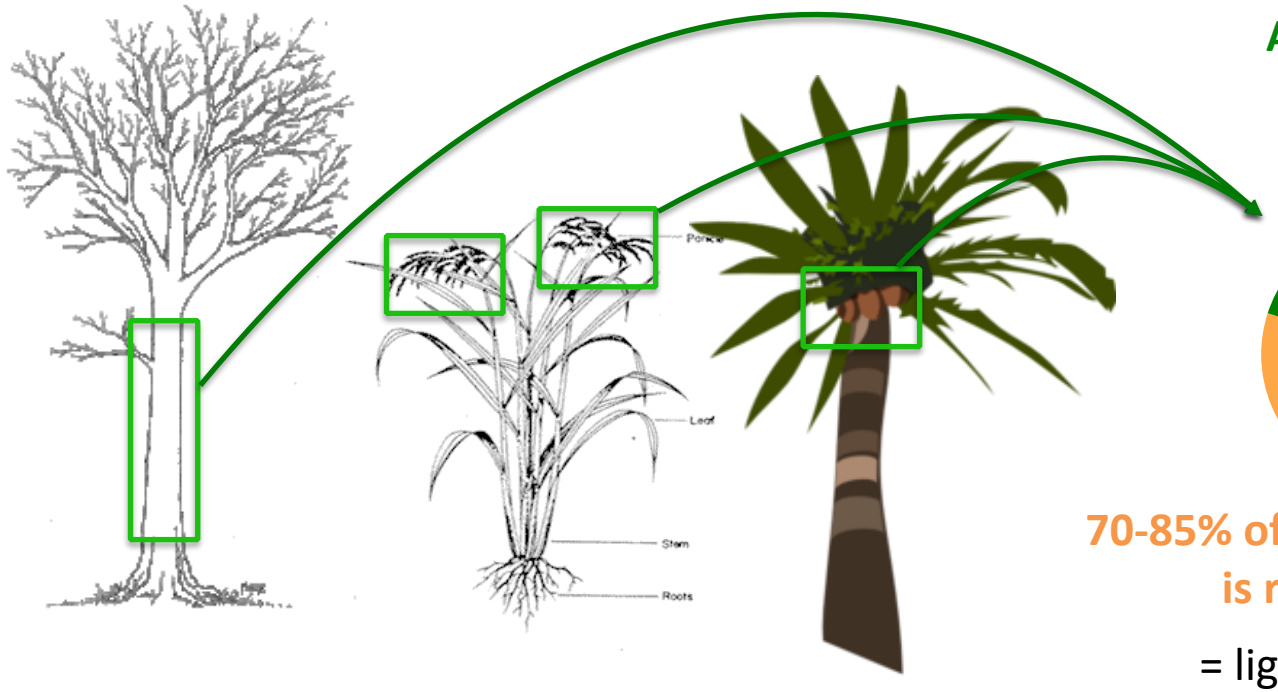
Mutation 4/6
Independent smallholders are changing

An emerging class of new smallholders

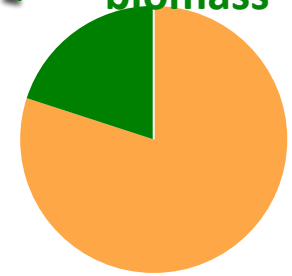


Trend 5/6
Biofuels

Do not forget the lignocellulosic routes to ethanol, butanol



Actual products constitute only 15-30% of the biomass

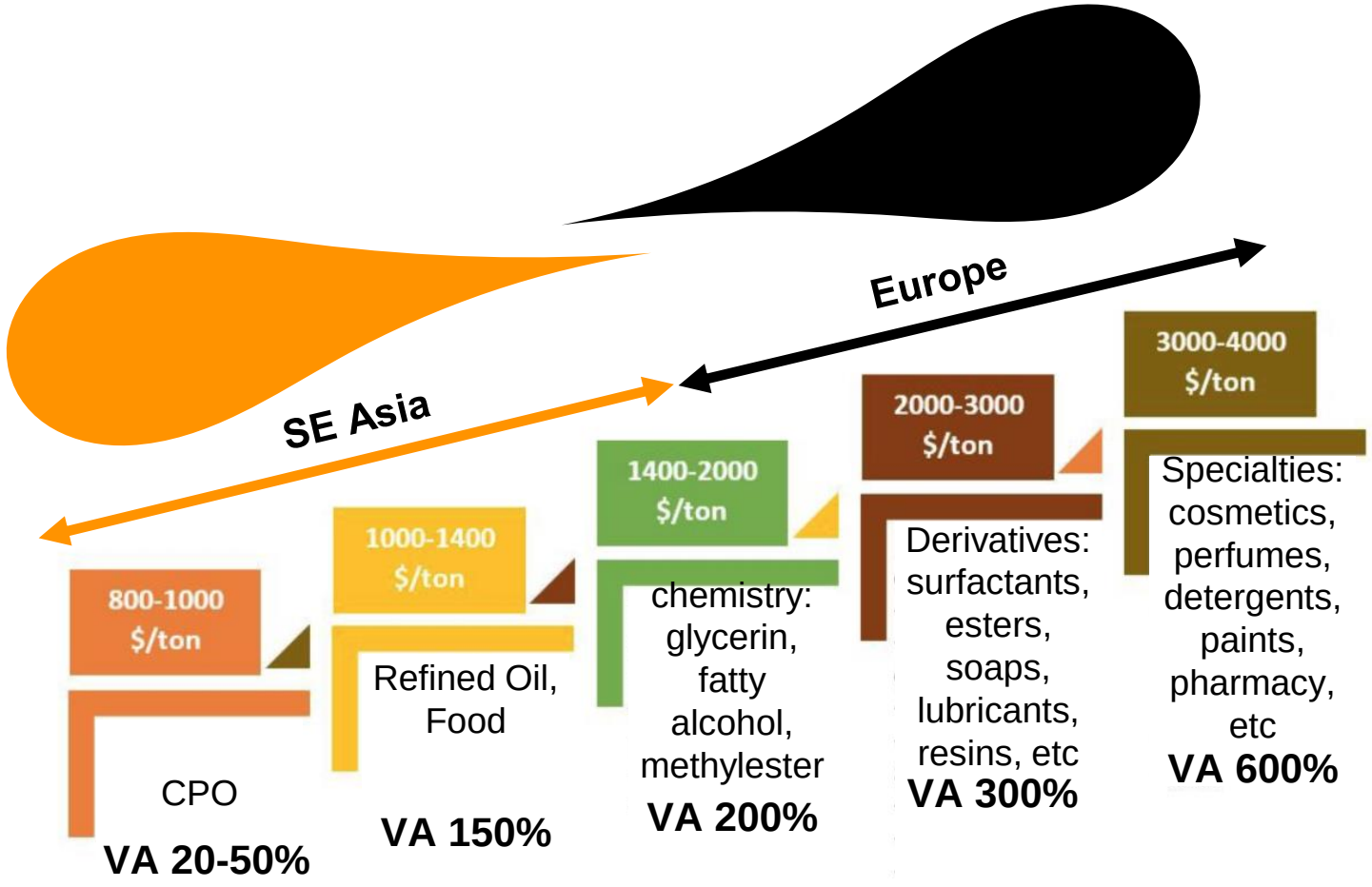


70-85% of the biomass is residue

= lignocellulosic residues
= ethanol, butanol routes

Trend 6/6
Added value

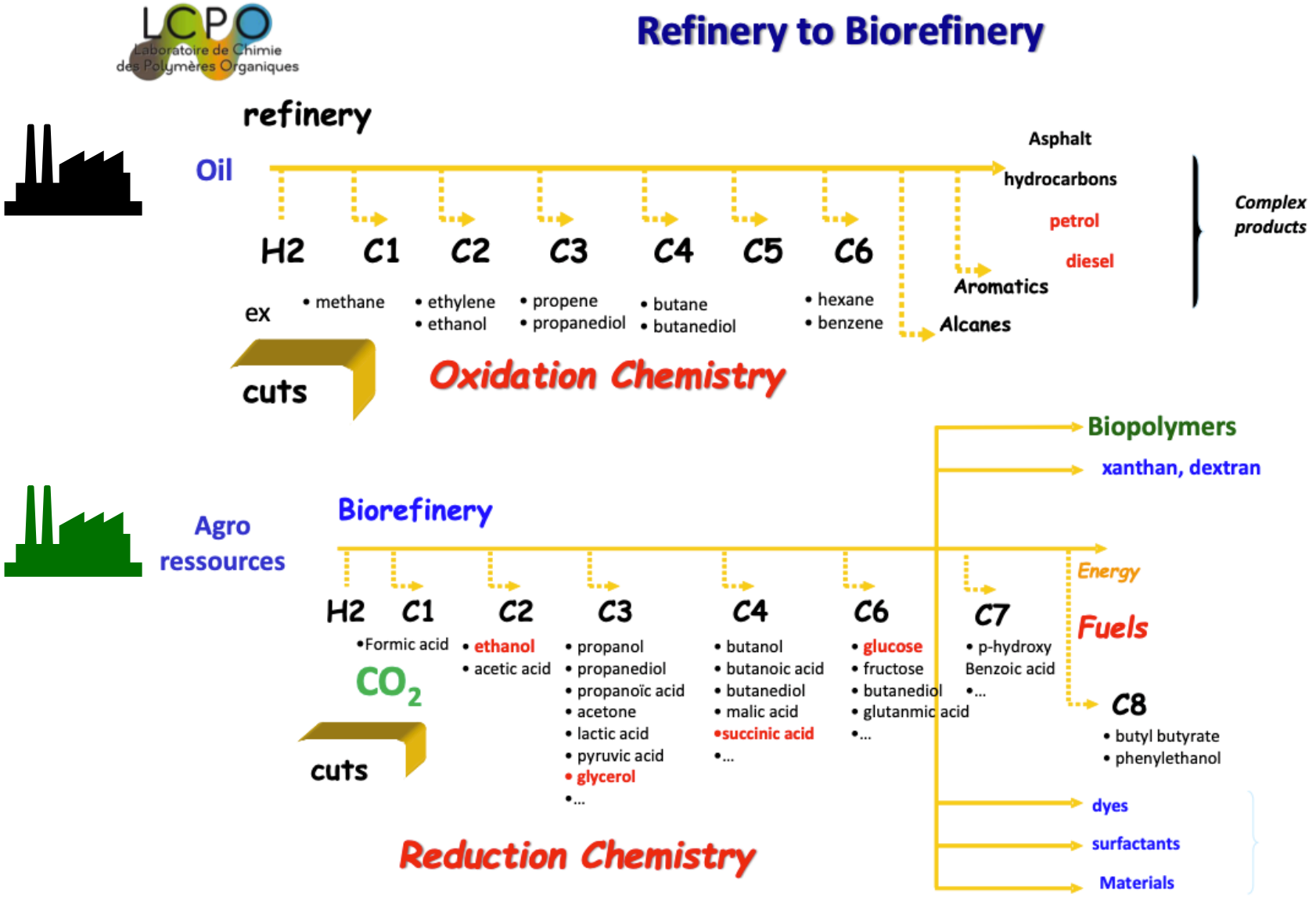
Where the added value is



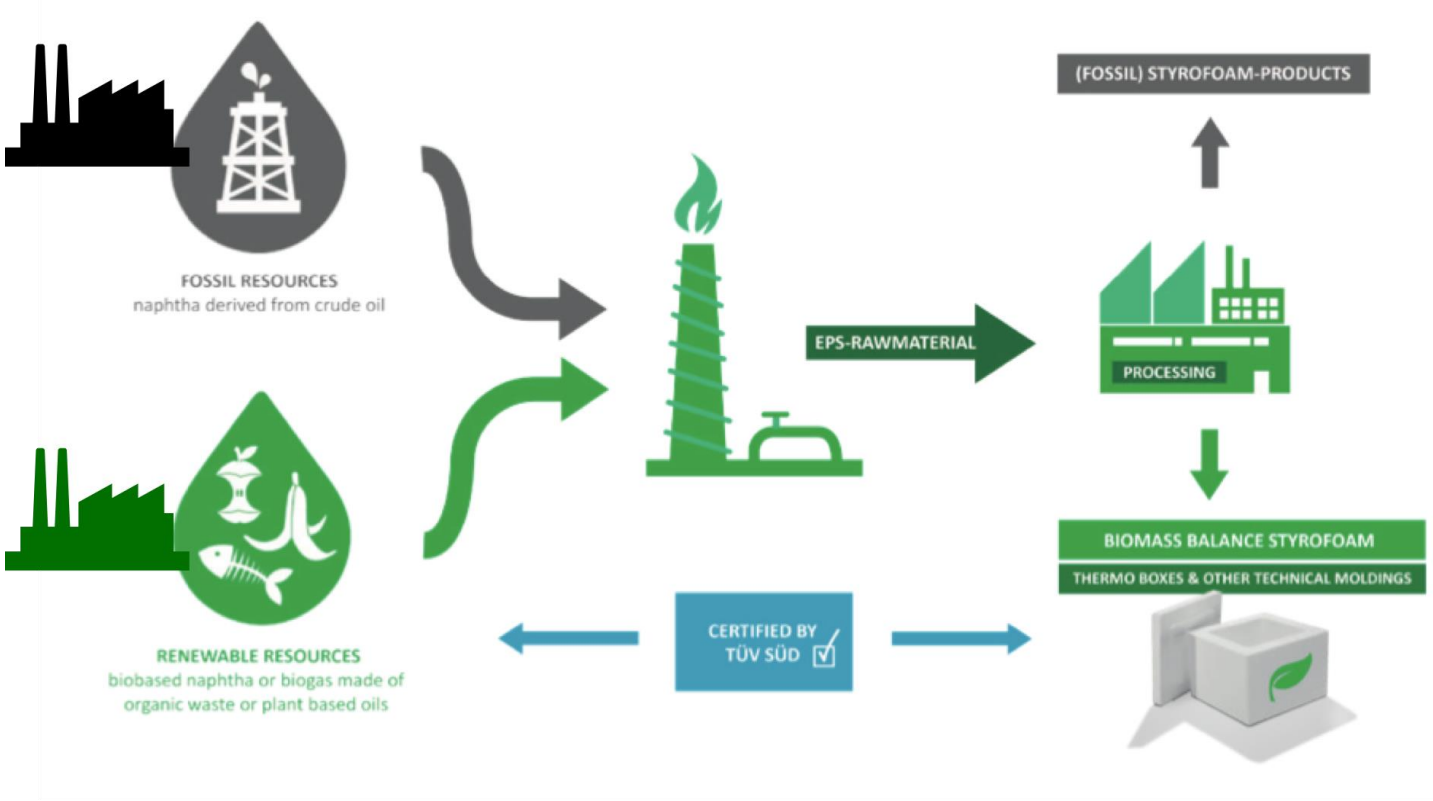
Gambar 8. Skema peningkatan nilai produk oleokimia

Larangan Uni Eropa Jadi Peluang Hilirisasi Industri Sawit

Biorefineries can produce materials and molecules



Here, example of styrofoam equivalent

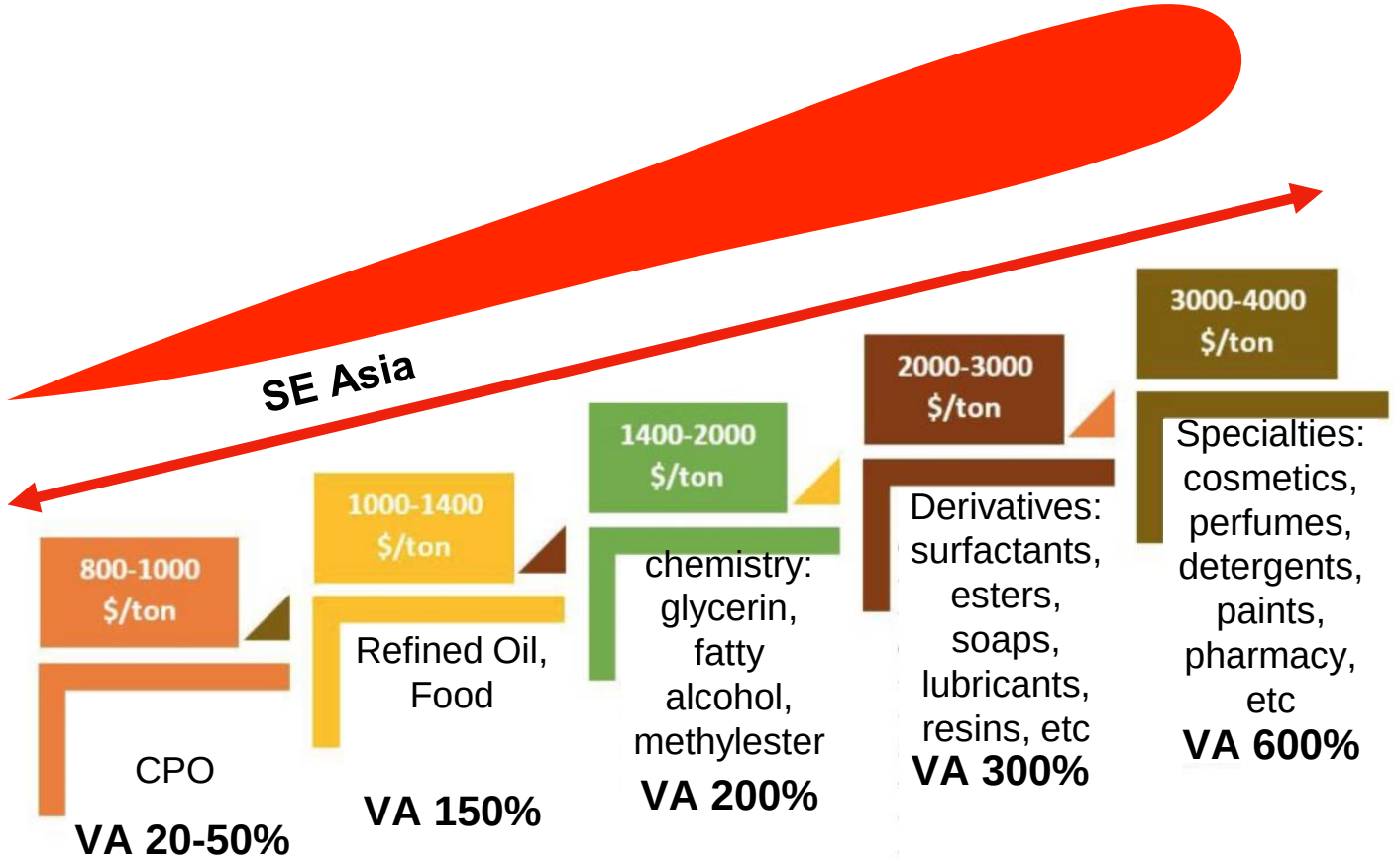


GERMANY'S

BEST VANILLA ICE

IceGuerilla ships ice cream all over Germany with boxes from Schaumaplast. Up to 48 hours the award-winning ice cream is optimally tempered on the way. In 2012, the vanilla ice cream was even voted Germany's best ice cream by the Intergastra jury.

Where the added value could be



Gambar 8. Skema peningkatan nilai produk oleokimia

Larangan Uni Eropa Jadi Peluang Hilirisasi Industri Sawit

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LES CONSEILLERS DU COMMERCE EXTÉRIEUR DE LA FRANCE

PALMELIT
OIL PALM SEEDS - CIRAD INSIDE

Géopolitique de l'huile de palme et mutation en cours de la filière

Vers une fin de l'hégémonie du modèle asiatique ?

Séminaire de réflexion 2023, 16 & 17 février 2023

Palmelit S.A.S.

- PME semencière française dédiée au palmier à huile. Filiale du Cirad (66%) et de Sofiprotéol - AVRIL (34%). Top 3 semencier mondial
- 80 ans de recherche, 70 million de semences germées distribuées dans 25 pays

CIRAD

Prédire l’avenir, quoi dans 25 ans ?

- nouveau site de production opérationnel: **8 ans**
- Faire un cycle de sélection: **15 ans**,
- Un cycle de culture commerciale: **25-30 ans**.

Un sélectionneur palmier prédire le futur

Emergence de nouveaux pôles de production majeurs.

lancement de nouveaux modèles de développement inclusifs.

Démographie

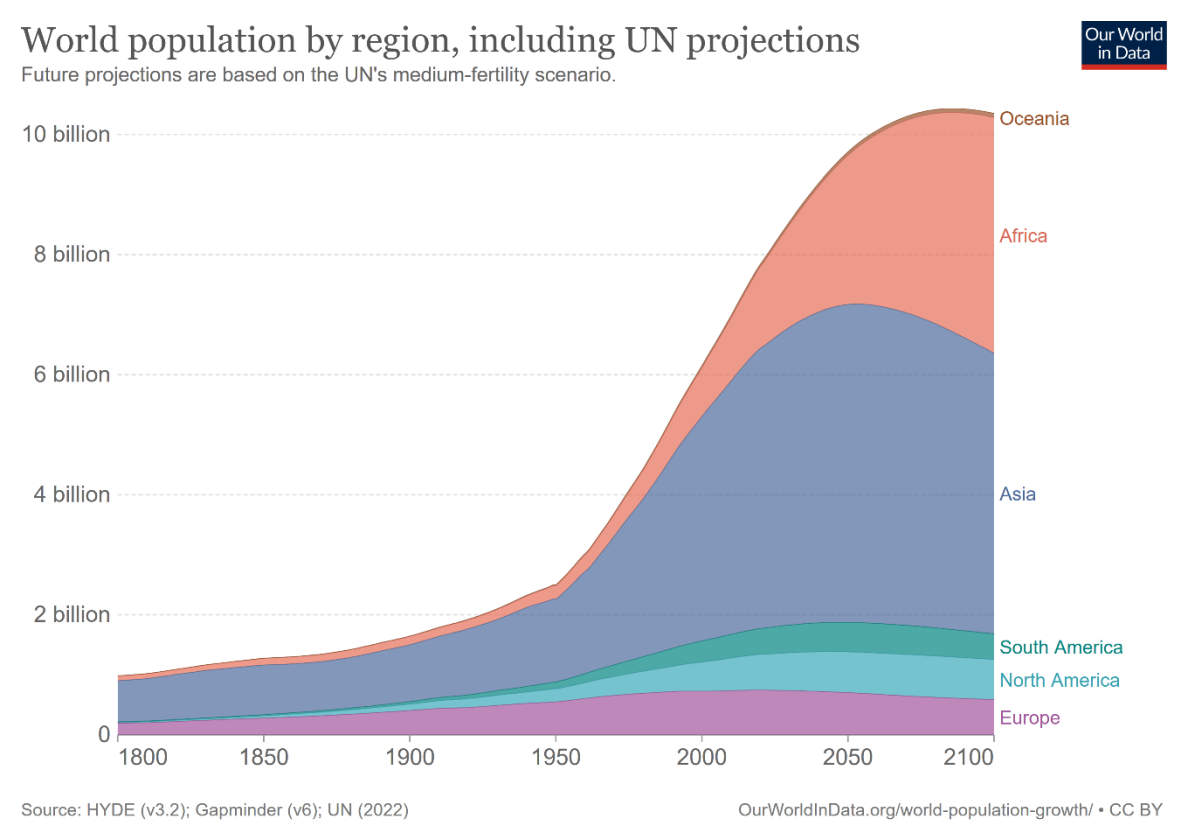
Balances commerciales

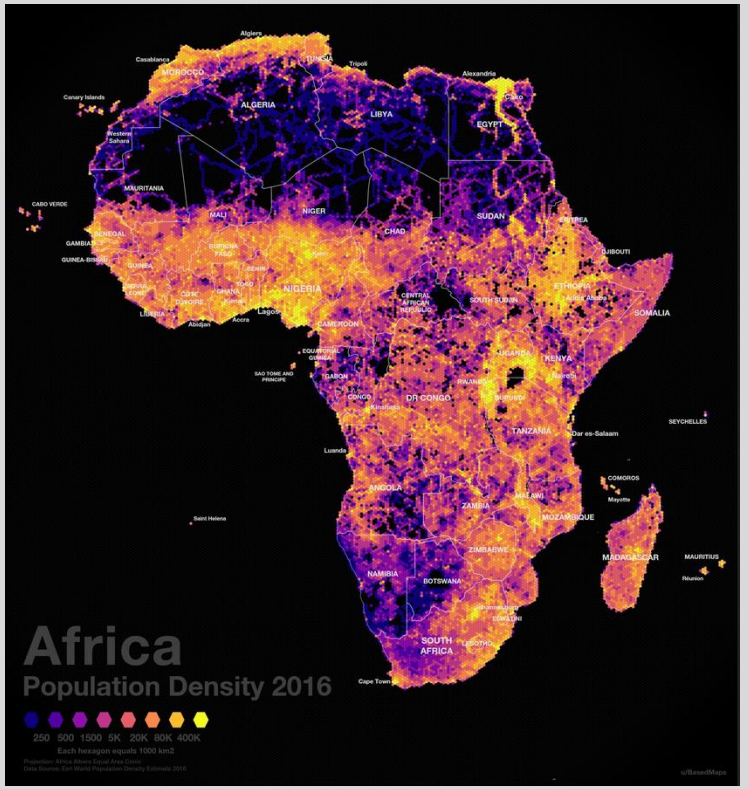
Relocalisation

Compétitivité MY/ID

Démographie

9,7 Milliard d'humains en 2050 dont 40% en Afrique + Inde
>50% de population rurale en Afrique ou Inde

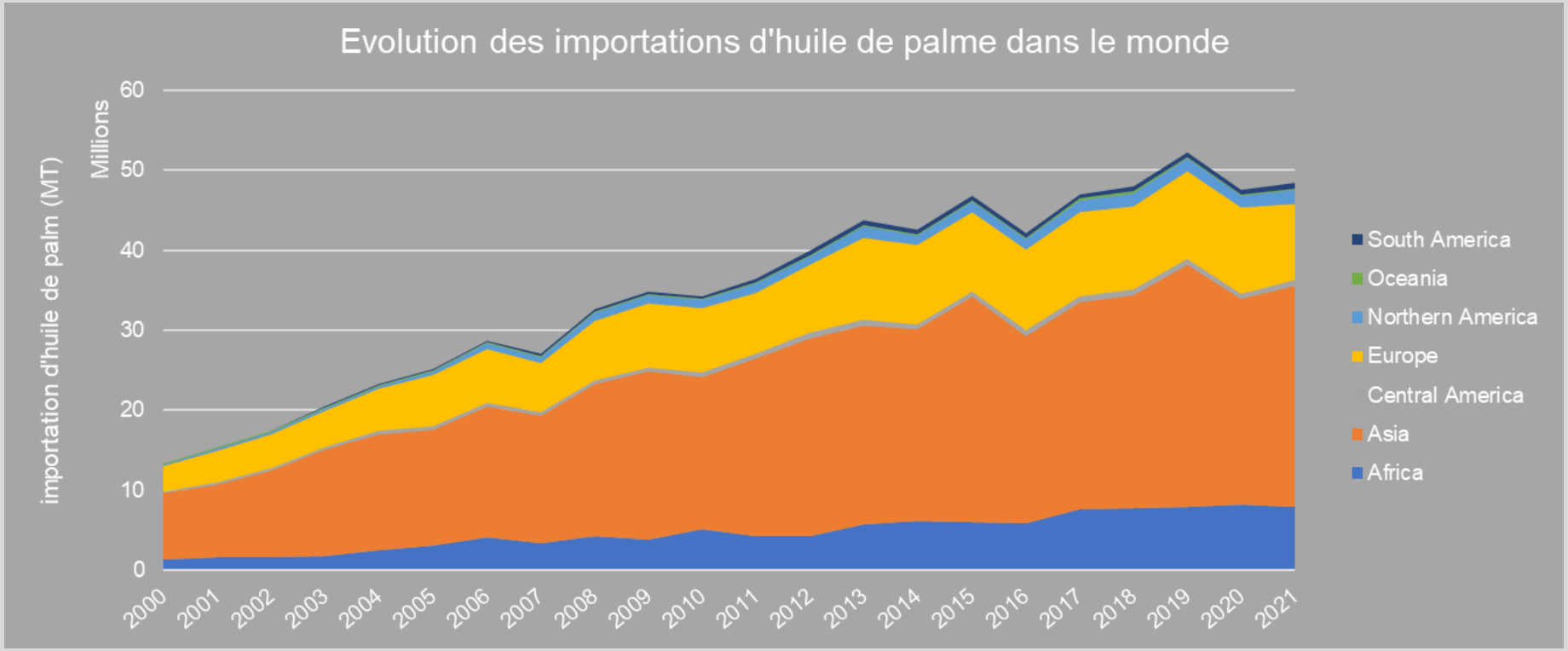




Balances commerciales

Volonté des états de limiter les importations et les sorties de devises

+30% demande en huile végétales en 2030 (OCDE 2021)



Source: FAO, 2023, Oil World, 2021

Relocalisation

-Enjeux de souveraineté alimentaire (et énergétique)

-Covid19

-Ukraine war

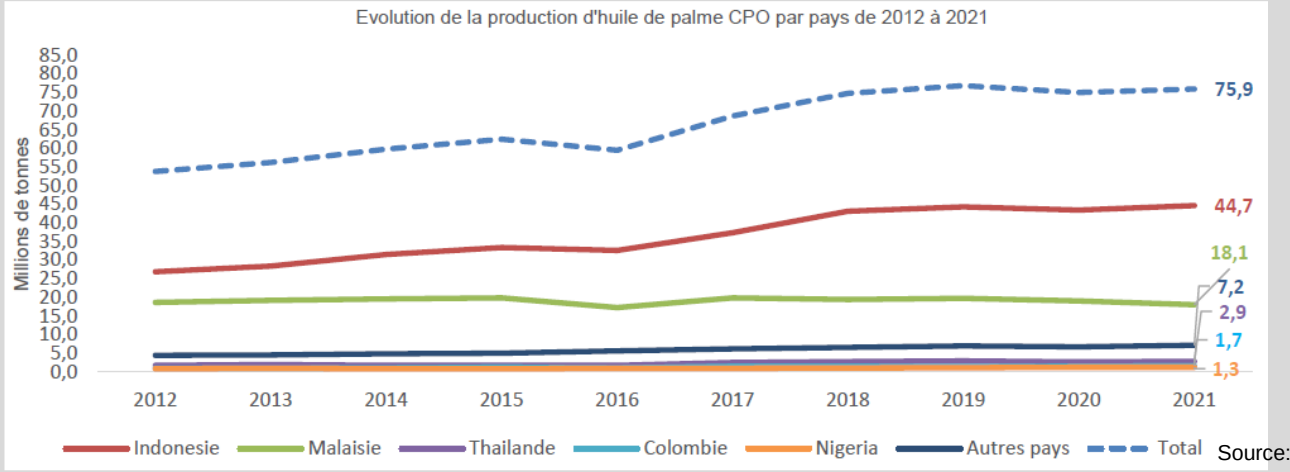
-Besoin de raccourcir les flux

-prix stables et assez haut sur moyen terme

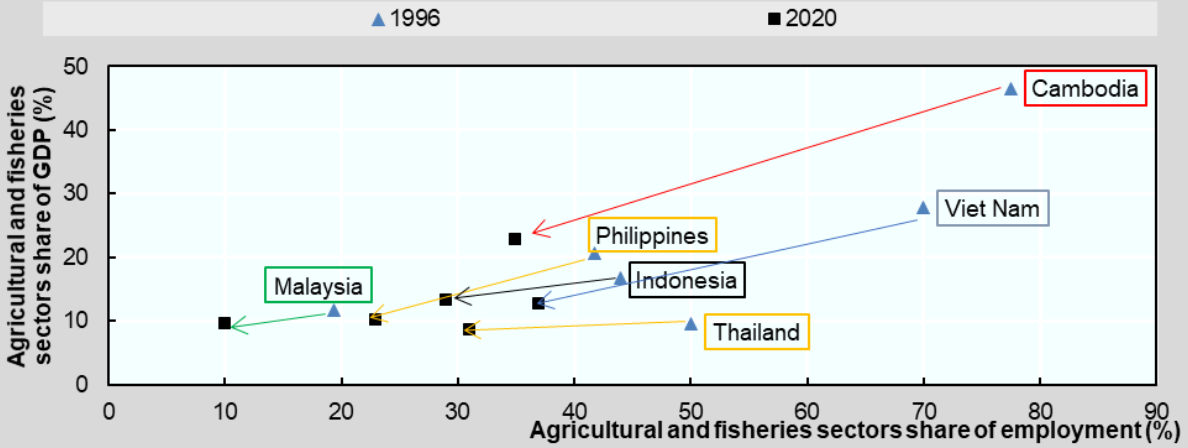
Compétitivité des géants

Baisse de la compétitivité MY/ID

-Stagnation de la productivité
-Manque de main d'œuvre
-Augmentation des coûts



Source: Oil world, 2021



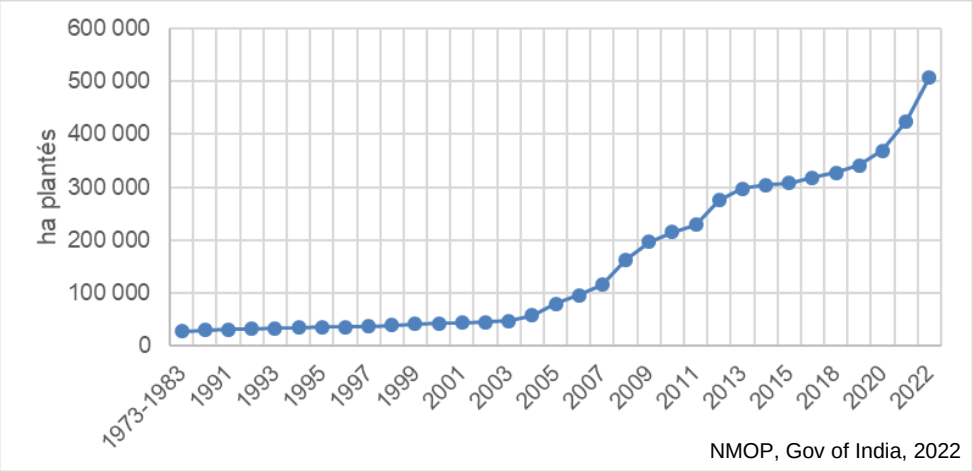
Source: World Bank, 2023

Nouvelles dynamiques palmier

INDE
1,6 milliard en 2050, 50% des actifs sont agriculteurs
1er importateur mondial d'huile de palme → 9M de tonne/an

Nouveau plan palmier lancé en 2019 avec 1,5 milliard de USD.
Potentiel de 6M de tonnes d'huile produit/an

La production est gérée à 100% par des petits planteurs <1,5ha.
La loi assure 75% des revenus de l'huile aux planteurs.

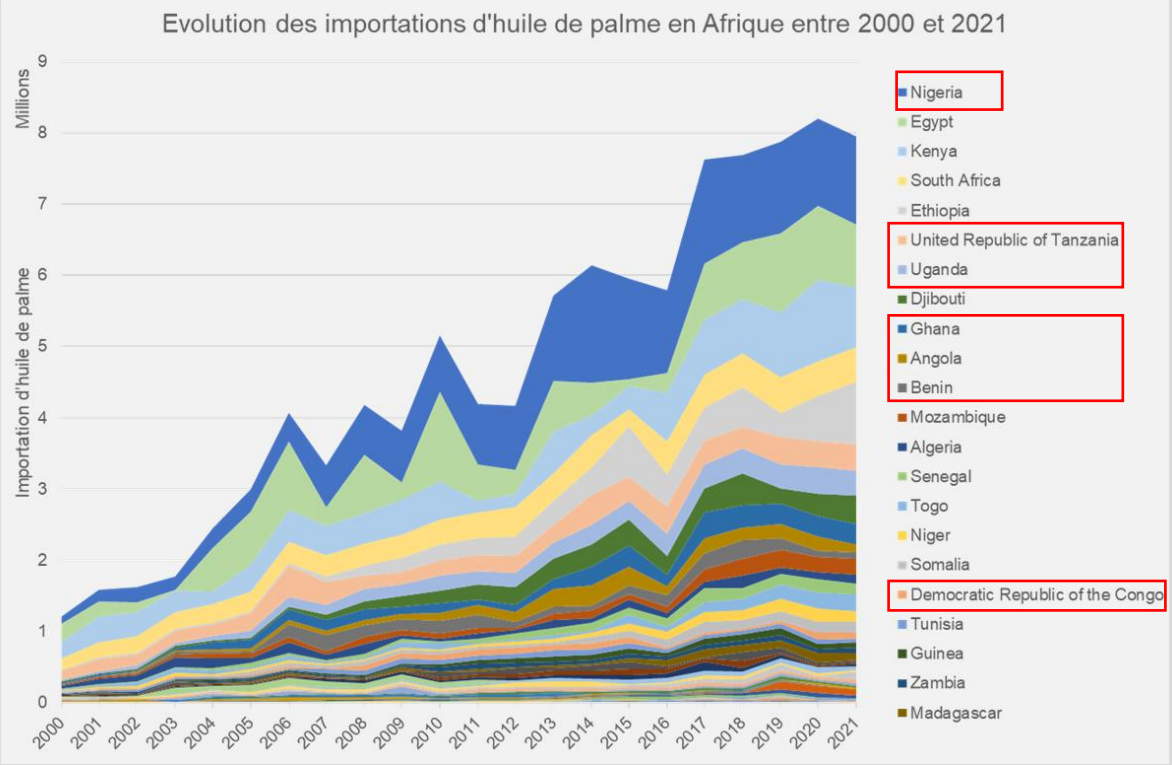


NMOP, Gov of India, 2022

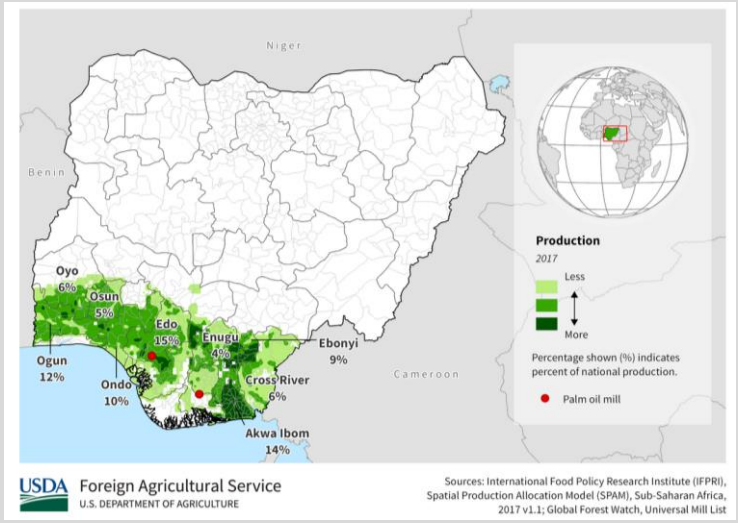
DOA, Gov of India, 2022

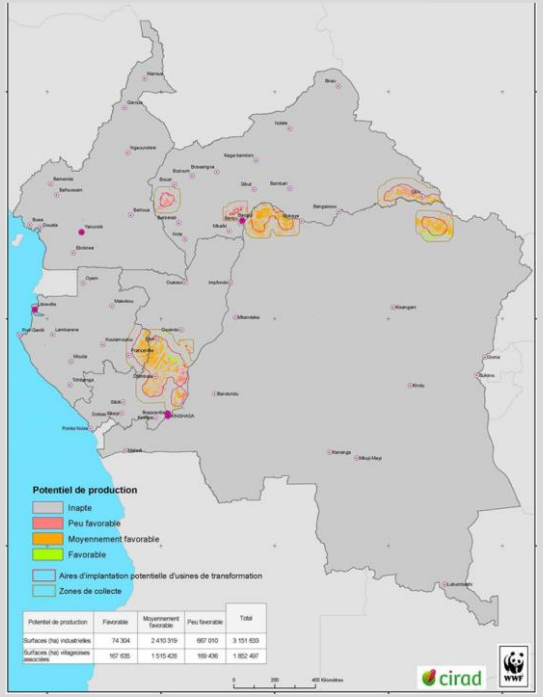
Nouvelles dynamiques palmier

AFRIQUE sub saharienne
2,5 milliard en 2050, 60% de la population est rurale



+10% par an d'ici 2030 prévu au Nigeria (OCDE-FAO 2021)
5 à 12 million d'ha potentiels identifiés en RDC (Cirad)





Source: FAO, 2023

Quels impacts pour la filière

Court terme (1-2 ans)

- Pénurie de semences de palmier à huile en 2022-2023 en Malaisie
- Arrêt de l'exportation de technologies depuis l'Indonésie en 2023 *(Policy Brief kajian kebijakan pengeluaran benih tanaman kelapa sawit, GRI 2022)*

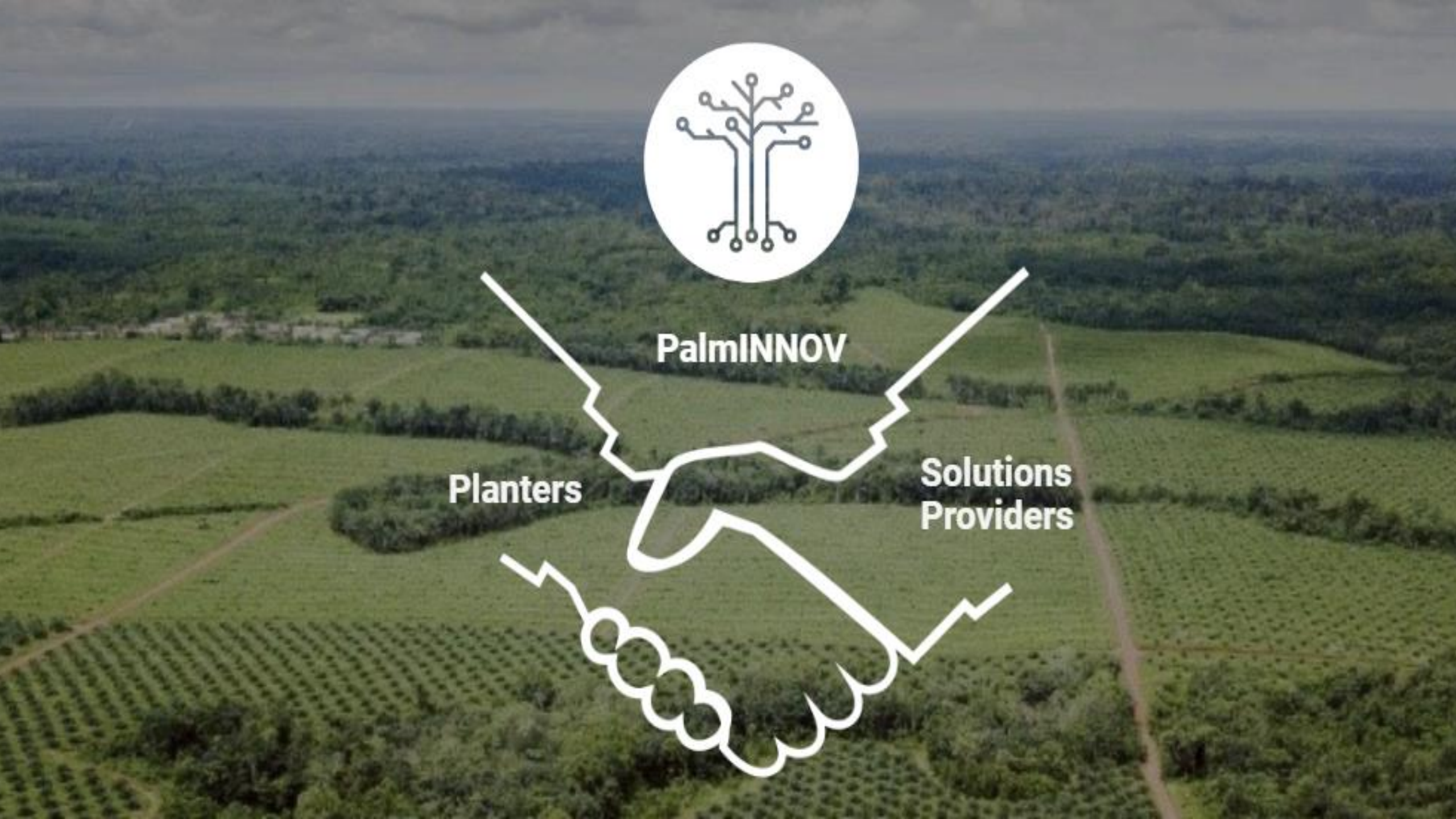
Moyen terme (5-10 ans)

- Baisse de la croissance palmier en Indonésie (1,4%) et Malaisie (0,9%) (OCDE, 2022)
- Début des productions (selon la réussite des plans palmiers)
- Augmentation importante de la part des petits exploitants
- Développement de pôles de compétences concurrent

Long terme (20-30 ans)

- Palmier en Malaisie ?
- Biodiesel à 100% dans les ex-pays exportateurs ?
- 50% des surfaces plantées en dehors de MY/ID ?
- >50% de surface petits exploitants ?

Merci pour votre attention


PalmINNOV
Planters
Solutions
Providers

Oil Palm Industry « Essentials »

- ✓ 20 million hectares dedicated to oil palm cultivation globally
- ✓ This out of 300 million hectares of total oil crop production.
- ✓ **Yet this 6% of land produces 36% of all vegetable oil!**
- ✓ An industry crucial to sustaining **Malaysia & Indonesia**
- ✓ Key to the development more than half a million small-holders

Hence why, during the pandemic, the **PalmINNOV Study Group** went about addressing the issues that follow …

Four integrated projects built around French R&D

Science, IoT, Artificial Intelligence, Hyperspectral, Satellites

Priceless

Biodiversity & Forest Protection monitoring

US500mil

Pollen shortage

US1Billion

Infestation Advanced Warning

US3Billion

Labour shortage

1 Biodiversity monitoring management within oil palm plantations

- Animals use oil palm estates during their movements
- It is essential to document what happens to these animals.

Fragmentation & degradation processes characterise landscapes.

Solving this issue is “priceless” for the industry

2 Automated Pollination

Poor bunch formation contributes directly to severe financial losses

Estimated losses of US$500 million/year

3 Lack of infestations advance warning : Ganoderma

- Ganoderma infects 10+% of all Malaysian palms, less in Indonesia
- Elephants push down infected palms
- Treatment exists if started on time
- CIRAD found the hyperspectral signature of ganoderma 10 years ago and told MPOB...

4 Replacing manual harvesting with what?

Compared with other field crops (soy / rapeseed) easier to mechanize, **oil palm requires about 25 times more workers.**

The industry estimated a **shortage of 100,000+ harvesters**

Unharvested crop revenue losses

US$ 250+ million a month

Main PalmINNOV Bios

Marc Ancrenaz - Biodiversity Advisor

Sabah Based

Marc is the scientific director of the Kinabatangan Orangutan Conservation Program, a community-based initiative established by the Sabah Wildlife Department in 1998 and the French NGO Hutan.

This program is active in wildlife research, management and monitoring, conservation, community development, and public awareness.

The Hutan team is thriving to identify ways for people and wildlife to coexist peacefully within and outside protected areas. Hutan is particularly interested in finding ways for orangutans, elephants, and other species to use and live in multi-use landscapes dominated by oil palm plantations.

Before moving and settling in Sabah in 1998, Marc worked in various conservation projects in Africa. He then became the Head of the Mammal & Veterinary Departments at the "National Wildlife Research Centre" for the National Commission for Wildlife in Saudi Arabia.

Manfred Borer (Traceability - Chain of custody – Supply Chain)

Jakarta Based

Manfred is a Swiss software engineer who graduated as a Business Process Manager from Switzerland North-Western University, majoring in Plant Management.

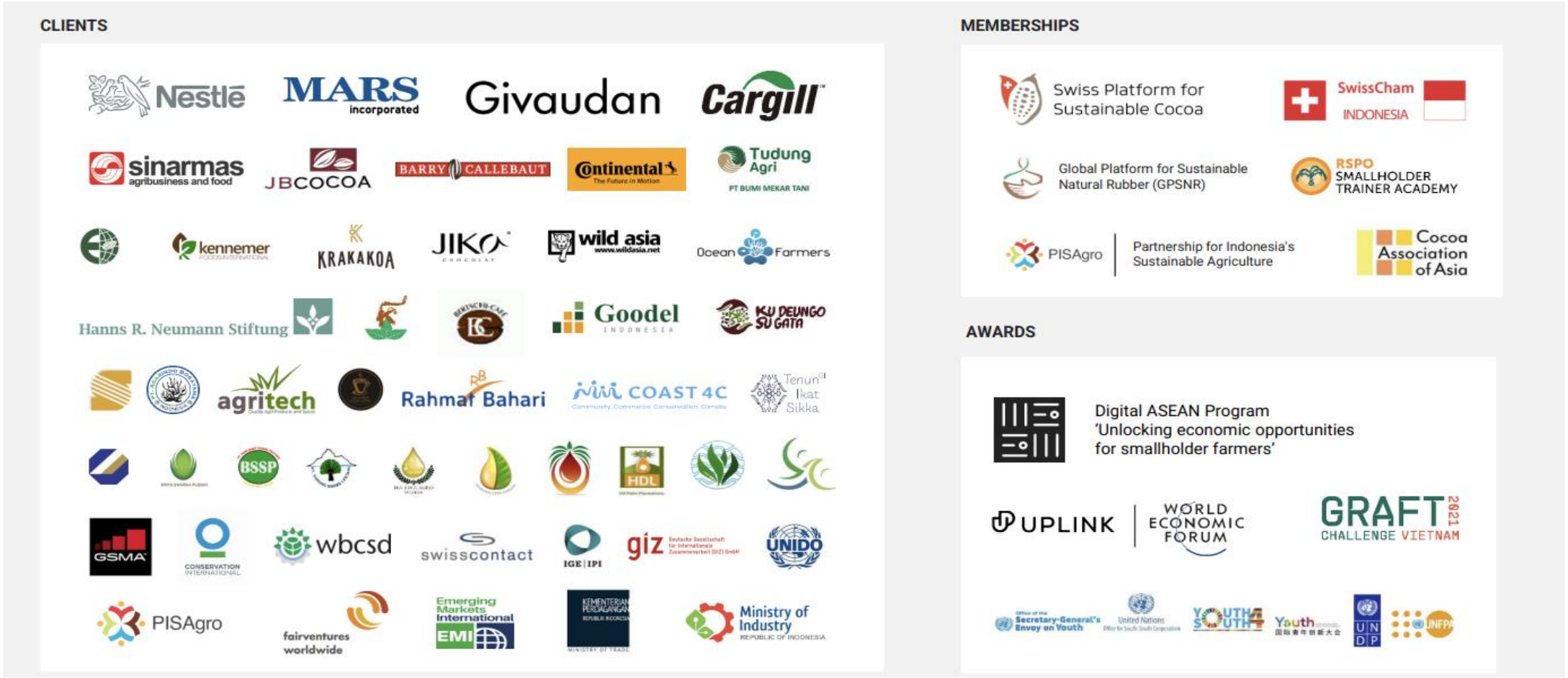
From 2007-2017, he worked as a software developer, project manager & country director for a Swiss-based organisation in Indonesia.

He then founded Koltiva AG, an integrated agriculture technology company that provides tailor-made software solutions & services for end-to-end business processes to planters.

With some of the most significant fast-moving consumer goods international brands as customers, it is now 28 countries worldwide that use Koltiva game-changing solutions. Since 2017, Manfred has been the CEO & Chair of Koltiva AG while running Business Development & Product Development at PT Koltiva in Jakarta.

With 150 software engineers in its Indonesian operations and 300+ “on the ground” technicians assisting smallholders & large planters tracing the chain of custody for palm oil, cacao, and coffee, Manfred brings PalmINNOV a wealth of in-field digital transformation implementation experience.

KOLTIVA CLIENTS



Chris Donough (Agronomy / Breeding / Best practices)

Sandakan Based

Chris is a Malaysian working in oil palm since 1984 on yield intensification via best practices, better agronomy & breeding. With Pamol Plantations (Unilever Group), he helped develop Pamol DxP seed which was shown to have the best oil content among Malaysian DxP.

In 1996, he joined IJM Plantations to build a new R&D centre & developed IJM DxP seed used exclusively in their Malaysian plantations today. In 2004, he joined the leading plantation group IOI as Research Controller.

End of 2005, he decided to become a consultant and was engaged by the International Plant Nutrition Institute (IPNI). From 2006, he managed IPNI's oil palm BMP project in Indonesia, which showed FFB yields could rise 5-26% in large plantations with better BMP implementation.

In 2016, he started to work with Malaysian smallholders in IPNI's yield intensification project funded by Procter & Gamble (P&G). He is currently Oil Palm Advisor for P&G's Centre for Sustainable Small Owners in Malaysia. Since 2019, he is Oil Palm Advisor for the University of Nebraska Lincoln's smallholders' yield gap project.

He maintains links to oil palm breeding as a consultant to seed producers like KL-Kepong Plantations (until today) & IOI (2017-2020).

Michel Gilmour (PalmINNOV Founder /Technology & Talent Scouting / Biz Development)

Sabah Based

Michel has scouted people & technical solutions in Southeast Asia for his whole professional life. In Indonesia, he identified partners for France's leading chemical company before headhunting talent out of Singapore for the next 30 years with three of the world's top ten executive search firms.

In Malaysia, he identified & developed technologies to solve challenges faced by the oil palm industry. First for UNIPOL. Later he navigated various wireless technologies & R&D labs to deliver the long-range, low-power sensor at the core of Tanalys solutions, a company he founded. Planters today know at 5-second intervals where every worker or machine is, hence supporting increased efficiency & safety across their operations.

Along the way, he helped set up PONGO Alliance, a collaborative group engaged in mitigating human/animal conflicts in & around oil palm estates. Lately, he developed with Innovafeed a Southeast Asia strategy for co-locating insect protein plants 'over the fence' from oil palm biomass before initiating negotiations between Innovafeed and the world's top Seven oil palm planters.

Out of Singapore he served both as Secretary General of the Singapore French Business Association for 5 years and Counsellor of External Trade of France for over 20.

Professor Simon Lord (Sustainability)

UK based

"Sustainability is a company's commitment to operate in an economically, socially, environmentally sustainable manner"

Involved in sustainable Palm Oil since 2000, Dr Simon Lord has 35 years management experience in the agricultural & oil palm sector.

He held positions as Biotechnology & Business development manager with Unilever with whom he worked for 10 years. In 1995 he moved to Papua New Guinea to work for New Britain Palm Oil Ltd (NBPOL).

As Head of Research, he ran Dami Oil Palm Research Station in Papua New Guinea (PNG) for 13 years before being seconded to work in Malaysia for Kulim (Malaysia).

In 2015 NBPOL was bought by Sime Darby Berhad & Dr Lord became the Chief Sustainability Officer (CSO) of Sime Darby Berhad. In his role for Sime Darby Plantations, he had direct responsibility for all Sustainability, Operational Excellence & Quality initiatives across 17 countries, 600,000 ha of agriculture and the groups, 78 mills and 12 refineries. In 2020 Simon moved back to the UK to start his own consulting business.

Simon has been Involved with the Roundtable on Sustainable Palm Oil (RSPO) commodity standard initiative since 2002 as an executive board member representing all producer countries outside of Indonesia and Malaysia.

He has served as Vice President (2006-2008), Chair of the Standards and Certification subgroup (2008), Member of the Criteria, Verification, New Planting, Green House Gas & Smallholder working Groups

Simon is a regular presenter at sustainability & responsible sourcing conferences on subjects ranging from sustainable finance to child/worker rights & conservation.

Nicolas Turnbull (Enhanced Automated Pollination)

Selangor Based

Nicolas has been involved in major R&D programs with various universities & research stations, in Europe & Asia.

Based in Southeast Asia since 2012 with PalmElit, a global oil palm seed producer & a subsidiary of CIRAD, France's leading tropical crops research centre, Nicolas was first Scientific & Technical Advisor to PalmElit's Indonesian partner.

This is where he actively participated in the development & improvement of the world's first intermediate resistant variety of Ganoderma spp., a soil-born fungus causing huge economic losses in Southeast Asia.

Concurrently he participated in the development of the first low-oil acidity variety, obtained through marker-assisted selection.

In parallel to his scientific activities, Nicolas supervises PalmElit's seed production operations in Indonesia and Thailand as well as market development in Southeast Asia and South Asia.

In his position as Regional Manager, he also oversees the setting-up of a joint venture in Malaysia while strengthening PalmElit as one of the main seed suppliers in the Indian sub-continent.