



WRO

WORLD RENDERERS ORGANIZATION

The Truth About Food Vs. Fuel

What the historical data shows

International Rendering Symposium
Atlanta, 2024

Lucas Cypriano
WRO Technical Director



WRO

About WRO

Founded in 1999, due to the BSE crisis in Europe

Represents the international rendering community at international forums with one voice – WOAHA, FAO, LEAP, IFIF, GAPFA

WRO members are the national renderers associations or local renderers

The strategies of WRO are decided at the Annual Assembly, and the Officers are responsible to make the strategies operational

RENDERED FATS

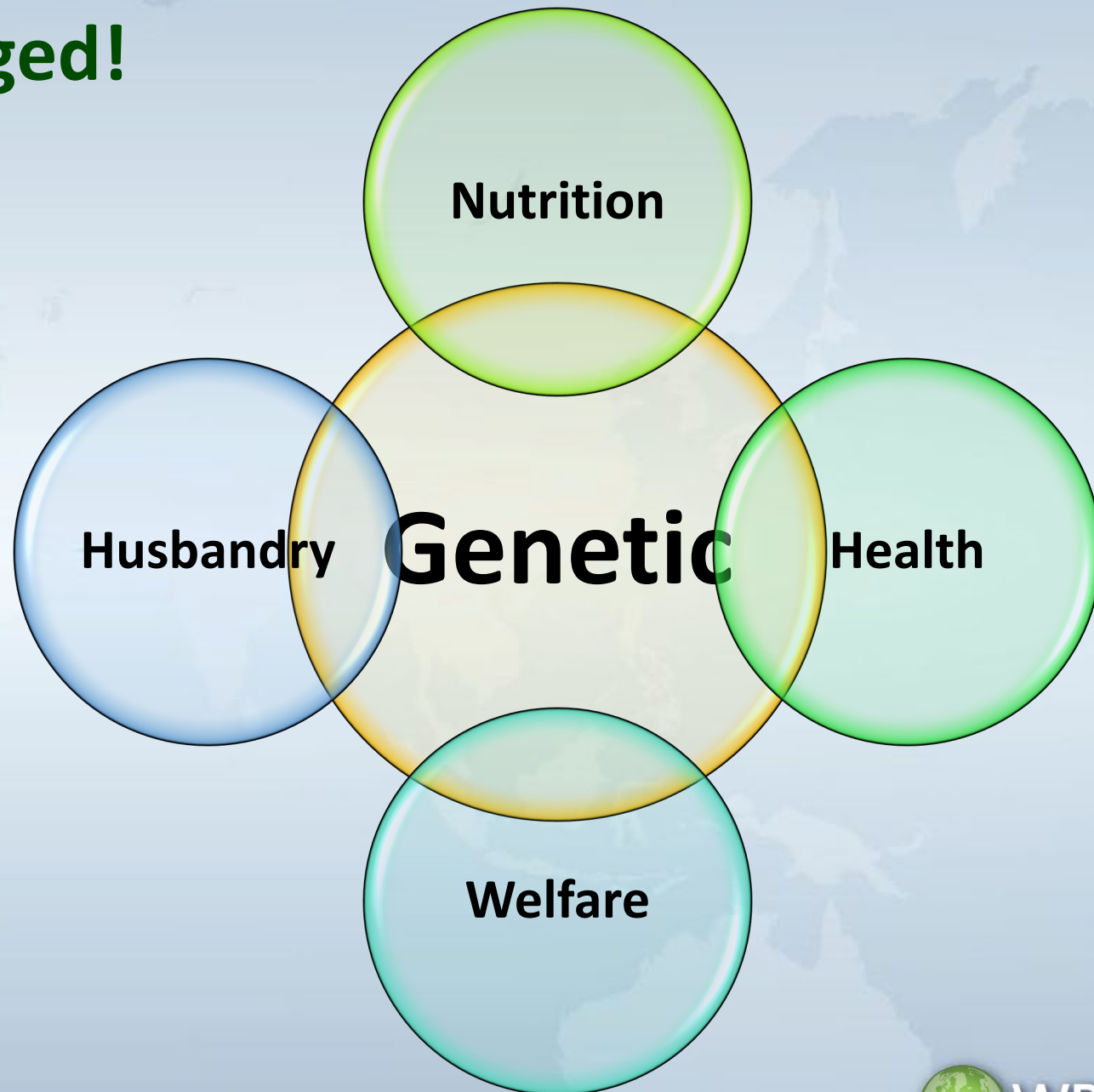
Production and demand

Livestock production changed!

The objectives of meat livestock production are:

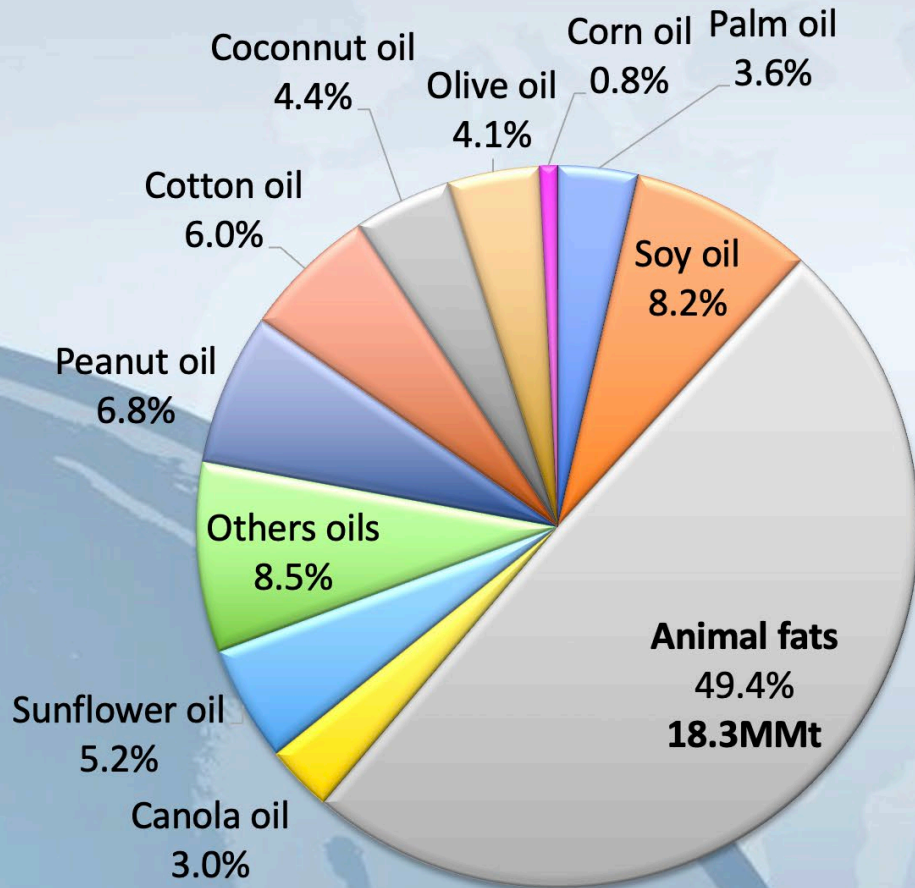
- Muscle (meat)
- Good feed conversion
- High carcass yield, lower production of by-products
- Low fat and protein content in by-products

Livestock production changed!

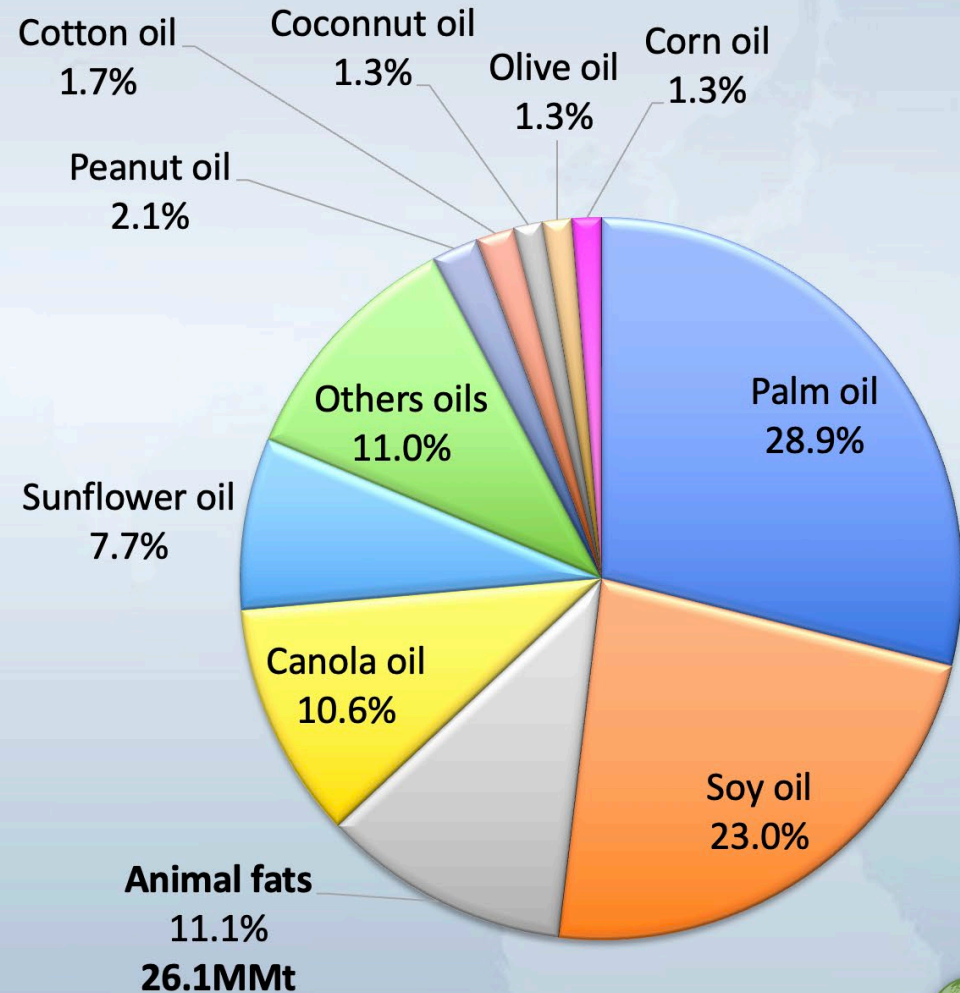


Production share of vegetable oil / animal fat

1961 – 37 MM ton



2019 – 235 MM ton



FATS

Prices & Perspectives

Animal fats markets

1960

1980

2000

2020

Beauty, hygiene, cleaning, others

Food

**Surplus of
tallow!**

Feed and Pet food

Sust. Fuels

Beef tallow price – Brazil



Source: Adaptation ABRA from Aboissa (Year PTAX)

UN SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



7. Affordable and Clean Energy

- Historically, tallow has been the cheapest source of fat.
- Biofuel industries (biodiesel, renewable diesel, and SAF) use rendered animal fats.
 - No competition with human food.
 - Reduces the demand for arable land for the production of oilseed crops.
 - **Able to use low-grade fats** (high free fatty acids, peroxidised, low iodine index).
- Low CO₂ footprint.
- Electricity production (use of animal fats directly as fuel).

7. Affordable and Clean Energy

In Collaboration with
McKinsey & Company

Clean Skies for Tomorrow Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation

INSIGHT REPORT
NOVEMBER 2020

California Environmental Protection Agency
Air Resources Board

California Environmental Protection Agency Air Resources Board Low Carbon Fuel Standard

User Guide Version 1.0

LCFS Reporting Tool (LRT)
Credit Bank and Transfer System

Release Date: April 26, 2018
Last Updated: March 26, 2018

Disclaimer: The California Air Resources Board (CARB) makes every reasonable effort to provide up-to-date information in this User Guide, but makes no warranties or representations as to the accuracy, completeness, or timeliness of the information and assumes no liability or responsibility for any error or omission. CARB reserves the right to make changes to this User Guide and/or to the products described in this User Guide, at any time without notice. We welcome and appreciate your feedback. Please send in your comments and suggestions, particularly if information in this guidance appears incorrect, misleading, or incomplete.

https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/reportingtool/userguide_lrt_cbts_v1.2_032618.pdf

European Commission

Energy

Home > Topics > Renewable energy

Biofuels

The EU is working on the transition to advanced biofuels made from sustainable feedstock.

Biofuels are liquid or gaseous transport fuels and bioethanol, made from biomass. They are a renewable alternative to fossil fuels in the transport sector, helping to reduce greenhouse gas emissions and improve the EU's security of supply.

By 2030, the EU aims to increase the share of renewable energy in transport to at least 14%, including 3.5% of advanced biofuels. EU countries are required to set out an obligation on fuel suppliers that ensures the achievement of this target.

Sustainability criteria

https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biofuels_en

gov.br Ministério de Minas e Energia

Agência Nacional do Petróleo, Gás Natural e Biocombustíveis

Assuntos > RenovaBio

RenovaBio

Publicado em 13/07/2020 13h02 | Atualizado em 03/04/2023 15h37

RenovaBio é a Política Nacional de Biocombustíveis, instituída pela Lei nº 13.576/2017, com os seguintes objetivos:

- Fornecer uma importante contribuição para o cumprimento dos compromissos determinados pelo Brasil no âmbito do Acordo de Paris;
- Promover a adequada expansão dos biocombustíveis na matriz energética, com ênfase na regularidade do abastecimento de combustíveis;
- Assegurar previsibilidade para o mercado de combustíveis, induzindo ganhos de eficiência energética e de redução de emissões de gases causadores do efeito estufa na produção, comercialização e uso de biocombustíveis

Funcionamento

O principal instrumento do RenovaBio é o estabelecimento de metas nacionais anuais de descarbonização para o setor de combustíveis, de forma a incentivar o aumento da produção e da participação de biocombustíveis na matriz energética de transportes do país.

<https://www.gov.br/anp/pt-br/assuntos/renovabio>

Biofuels

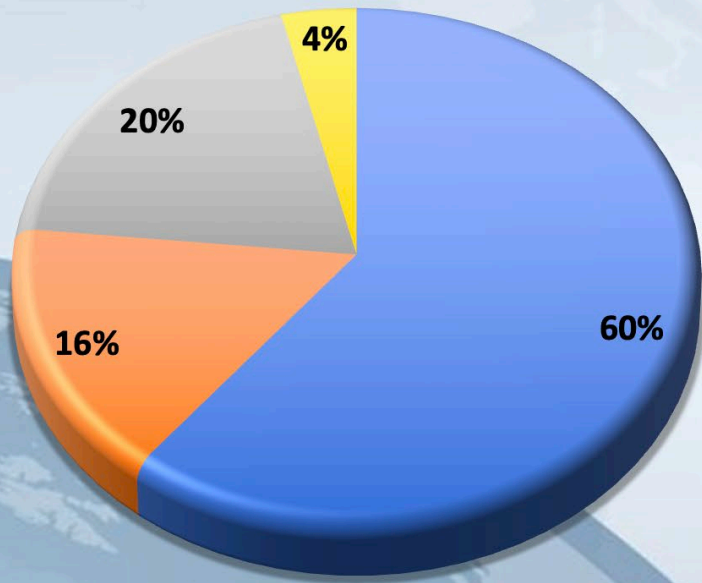
Biodiesel, Renewable diesel, Sustainable Aviation Fuel
(BD/RD/SAF)

Global production of (BD/RD/SAF)



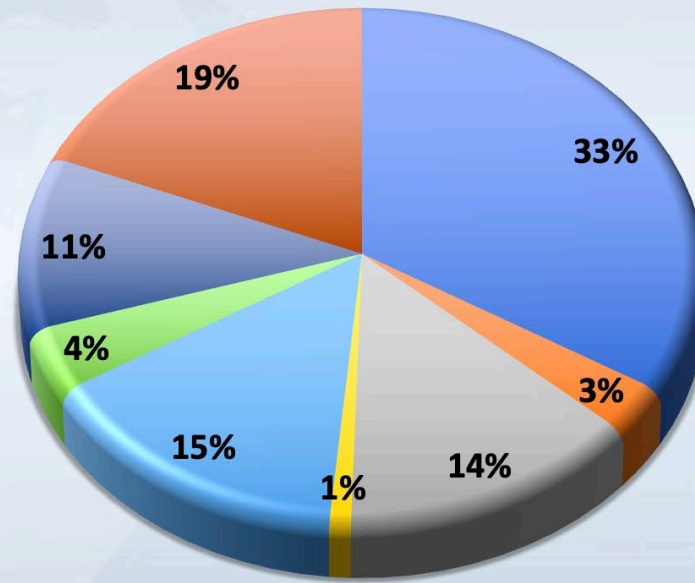
Animal fat production: Brazil, USA, and EU

USA (4.7MM ton)



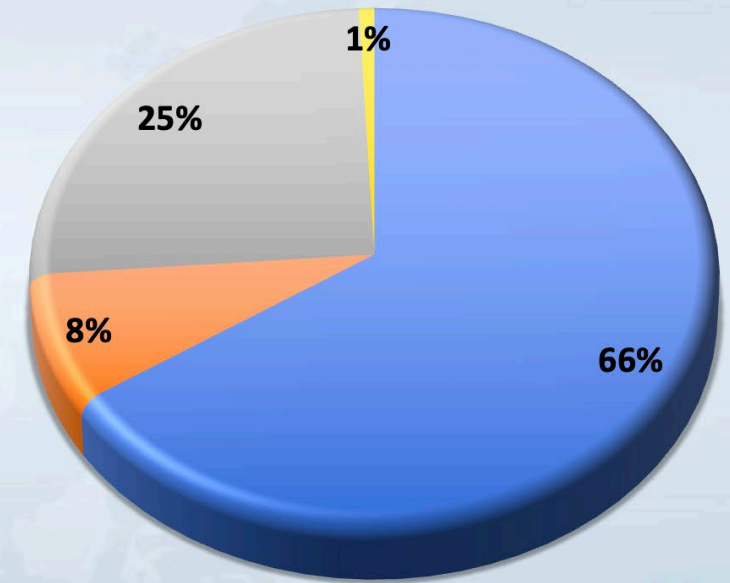
■ Tallow
 ■ White Grease
 ■ Poultry fat
 ■ Other

EU (2.9MM ton)



■ Multi Species
 ■ Bone fats
 ■ Poultry fats
 ■ Pig skin fats
 ■ Pig fats
 ■ Tallow
 ■ Lard
 ■ Cat 1&2

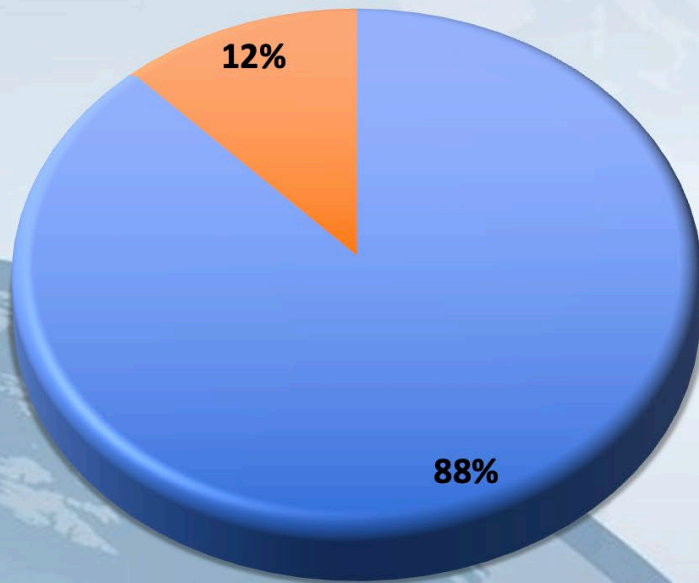
Brazil (2.0MM ton)



■ Tallow
 ■ White grease
 ■ Poultry fat
 ■ Fish oil

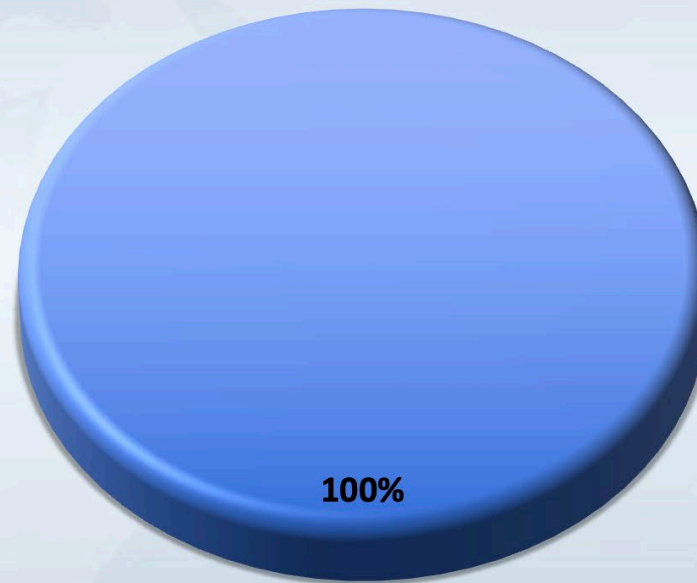
Animal fat production: Australia, Argentina, and Mexico

Australia (625 T ton)



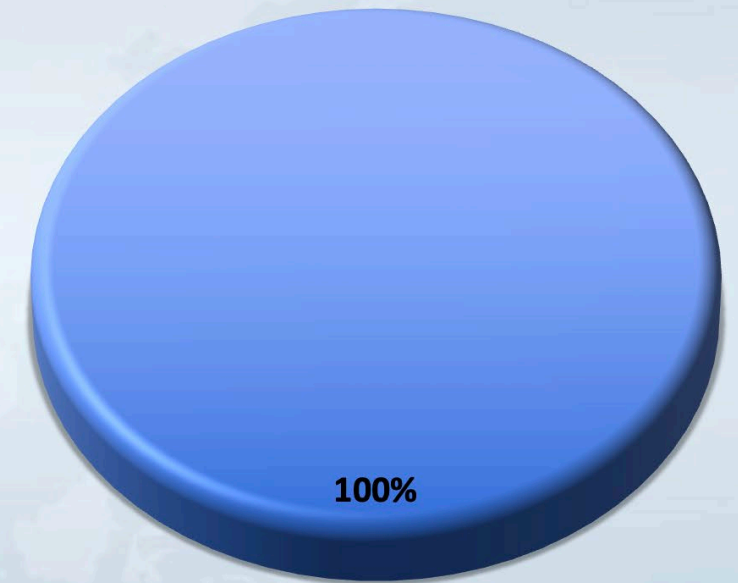
■ Tallow ■ Poultry Oil

Argentina* (305 T ton)



■ Animal fats

Mexico * (237 T ton)



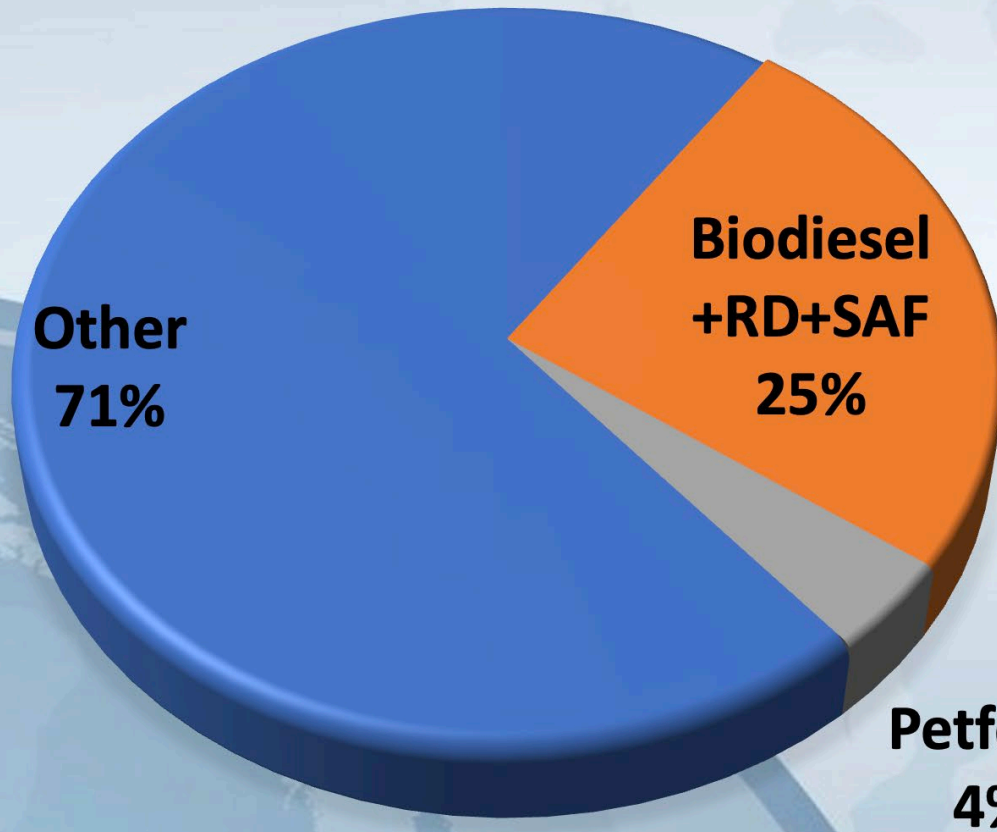
■ Animal fats

*: all land animal fats included

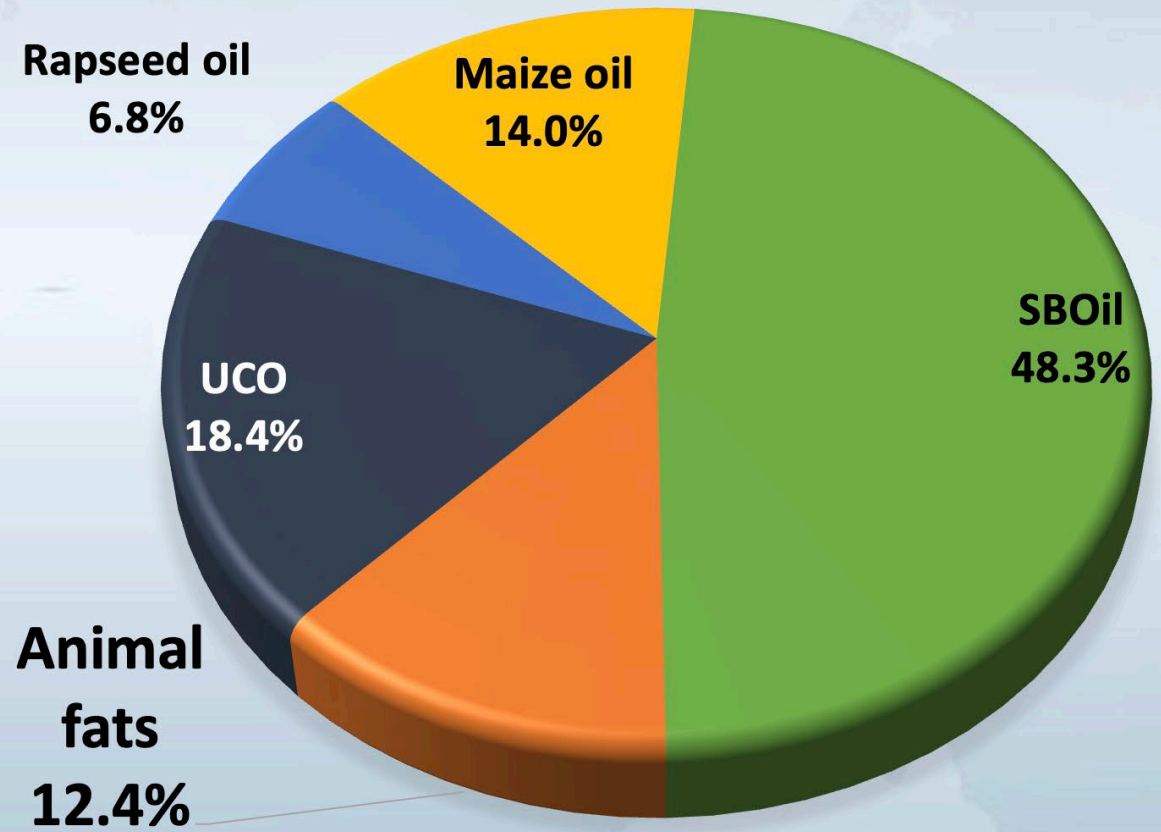
Sources: Australia – ARA, personal communication; Argentina, CSGA estimate ; Mexico, ANR estimate

USA

Animal fats (2022)¹
(4.7MM ton)



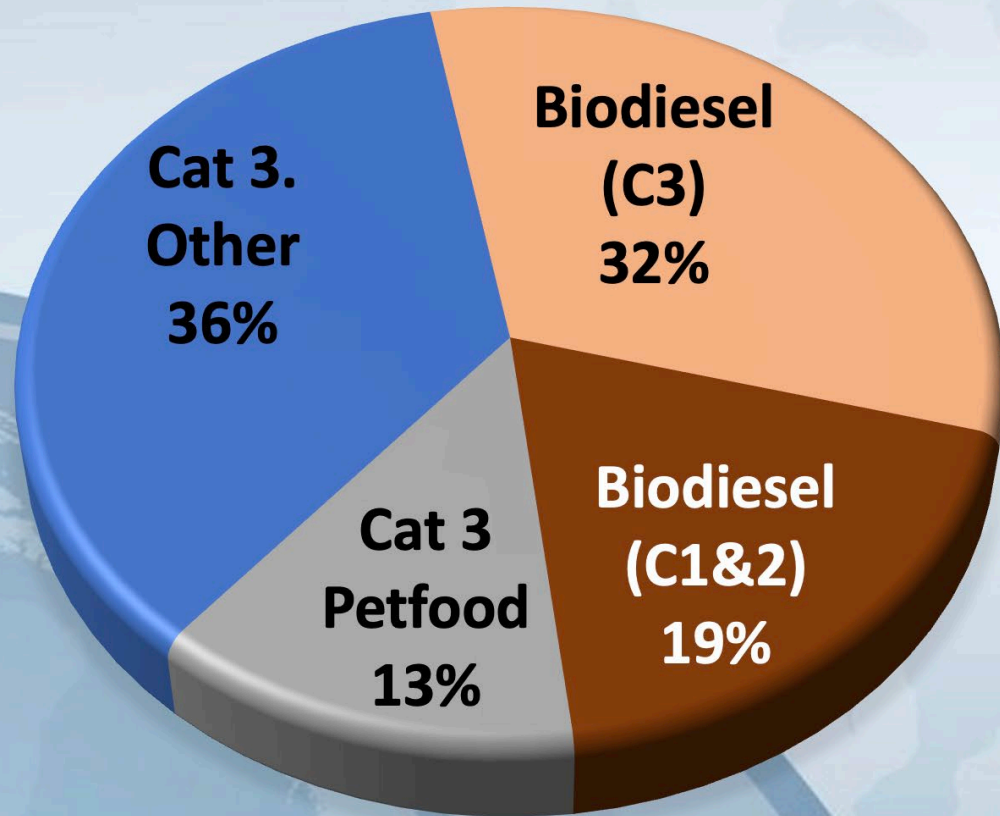
Biodiesel + GD + SAF (2022)²
(11.8 BB litres)



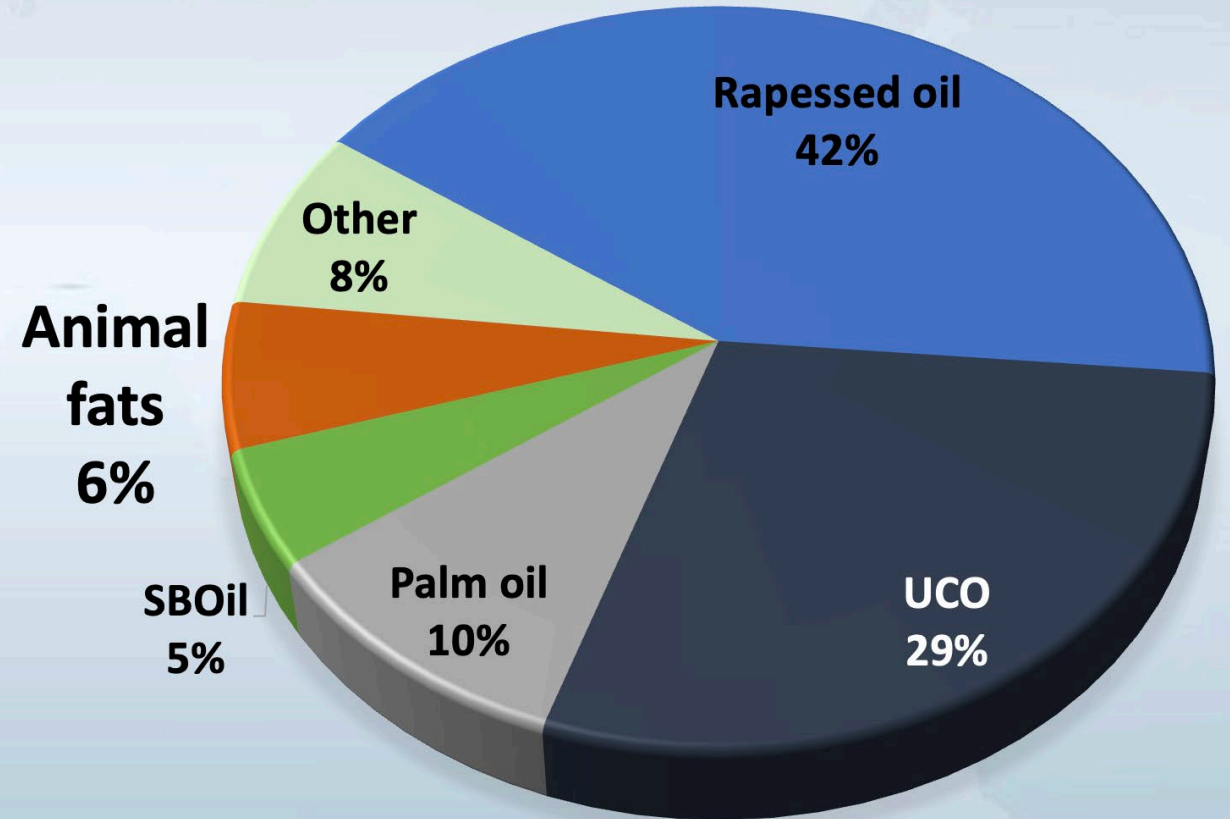
¹: Dana J. Downing, Render Magazine, 2023 & ²: US EIA, Monthly Energy Review, 2023 and Clean Fuel Alliance America, Annual Report, 2022

EU

Animal fats (2022)¹
(2.9MM ton)



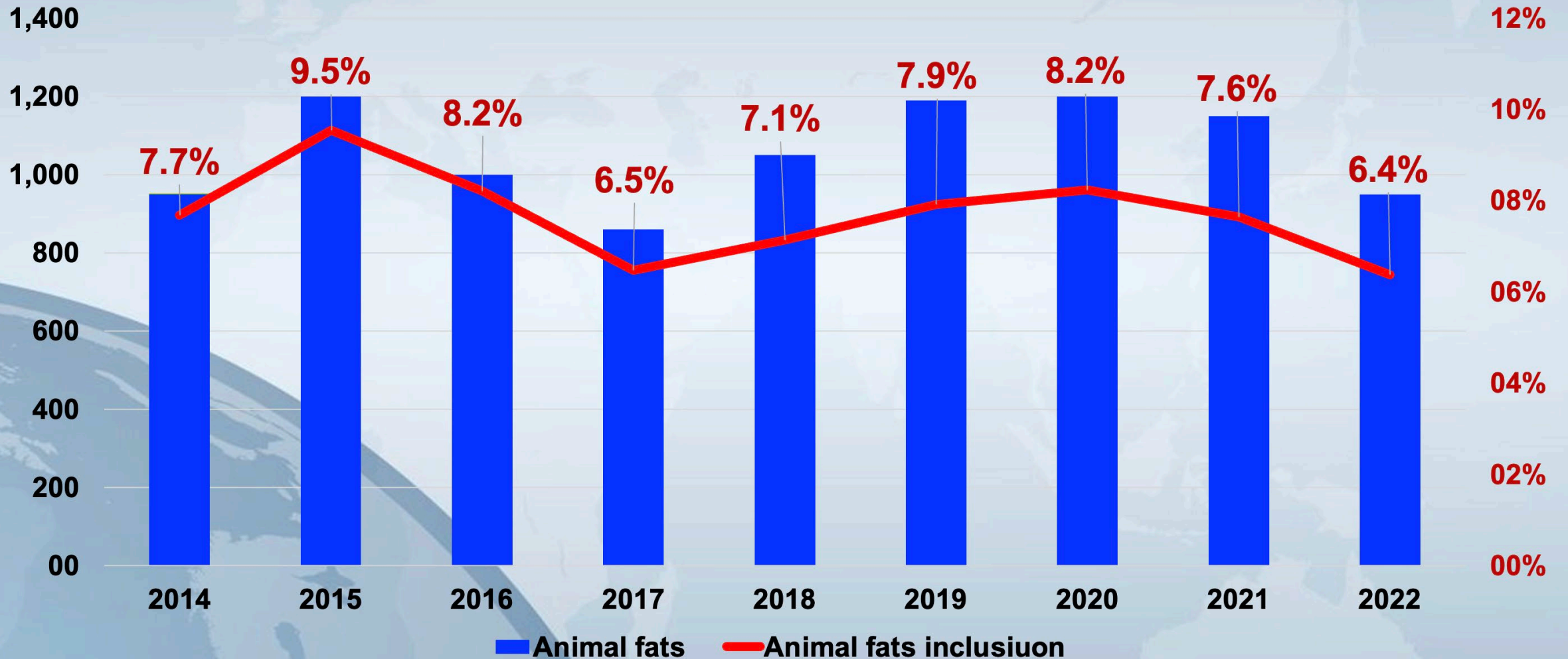
Biodiesel + RD + SAF (2022)²
(16.1 BB litres)



1: Dirk Dobeelare, EFPR Congress 2023 & **2:** USDA, Biofuels Annual, European Union, 2023

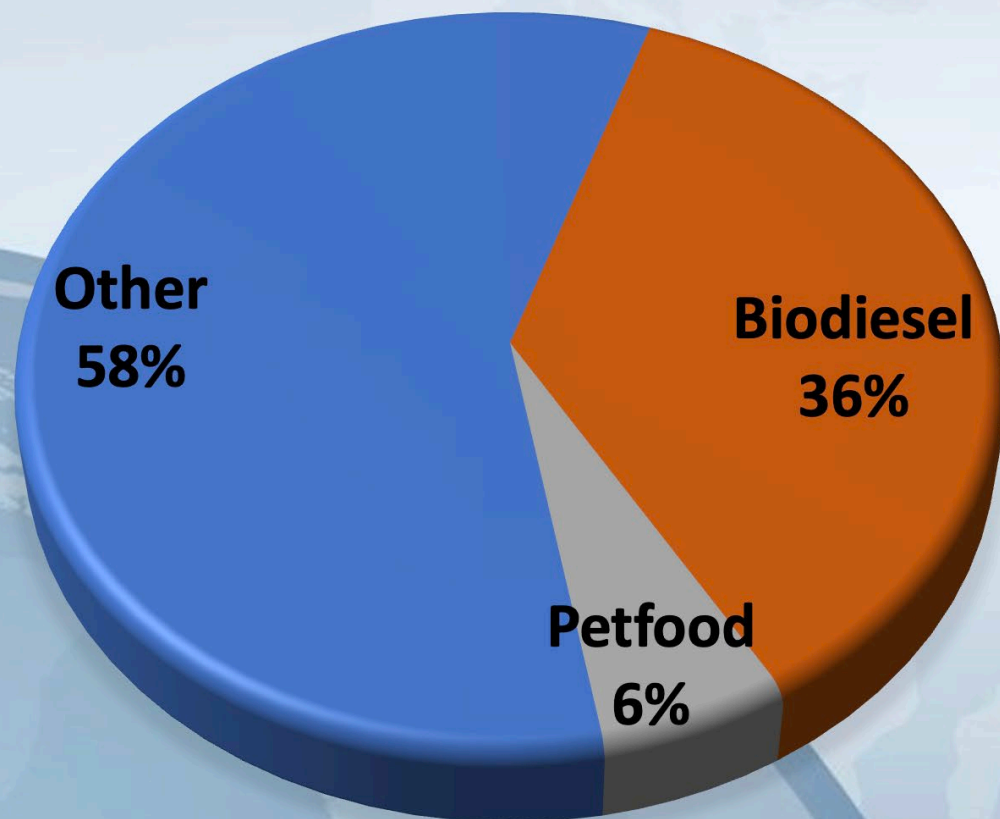
EU

C3 Animal Fats (MM liters & participation)

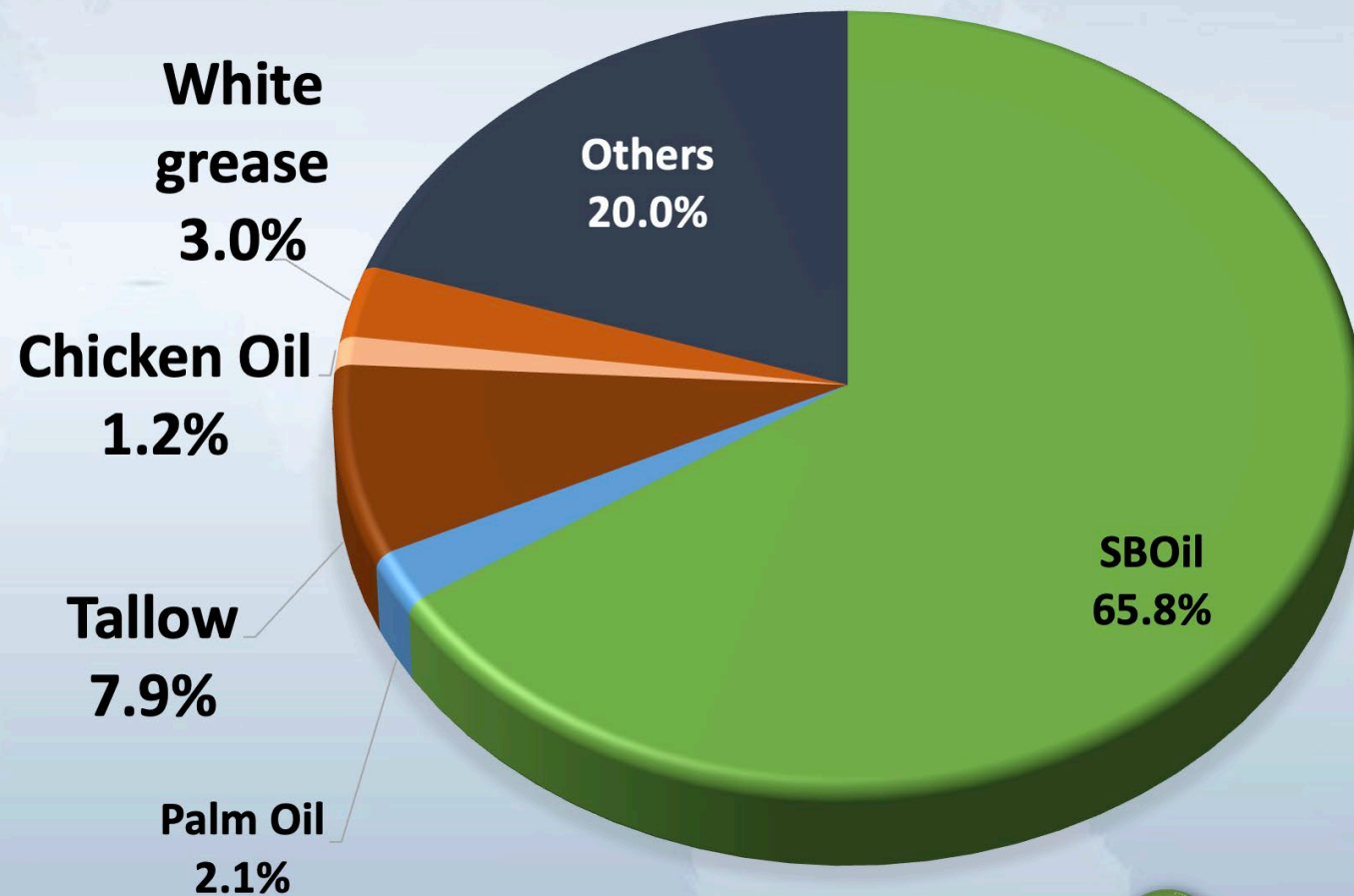


Brazil

Animal Fats (2022)¹
(2.1MM ton)



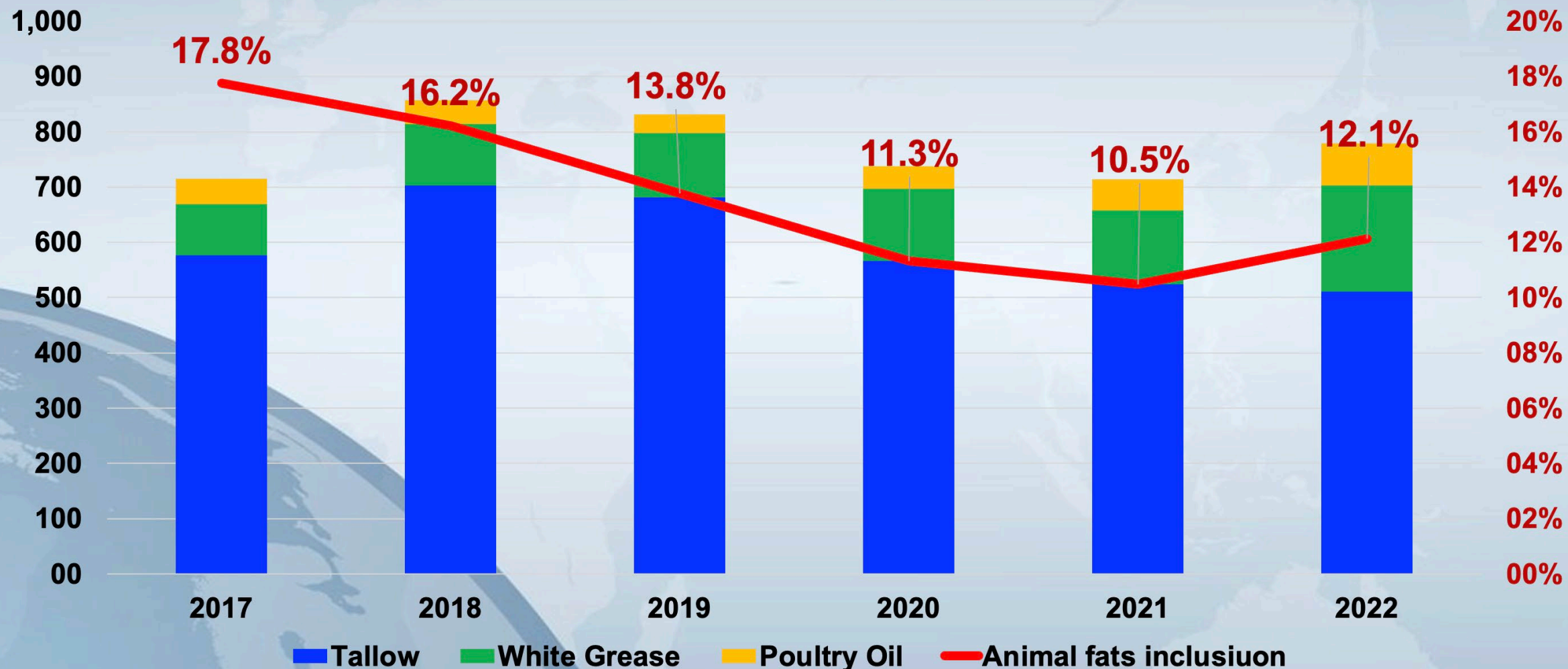
Biodiesel (2022)²
(6.4 BB litres)



1: Anuário ABRA 2022 & **2:** ANP, Painel Dinâmico de Produtores de Biodiesel, 2023

Brazil

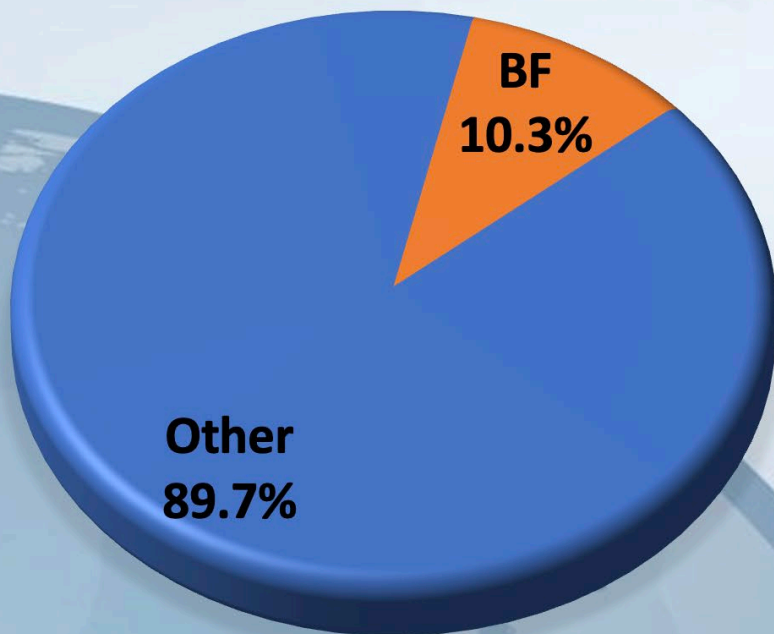
Animal Fats (MM liters & participation)



Brazil - 2022

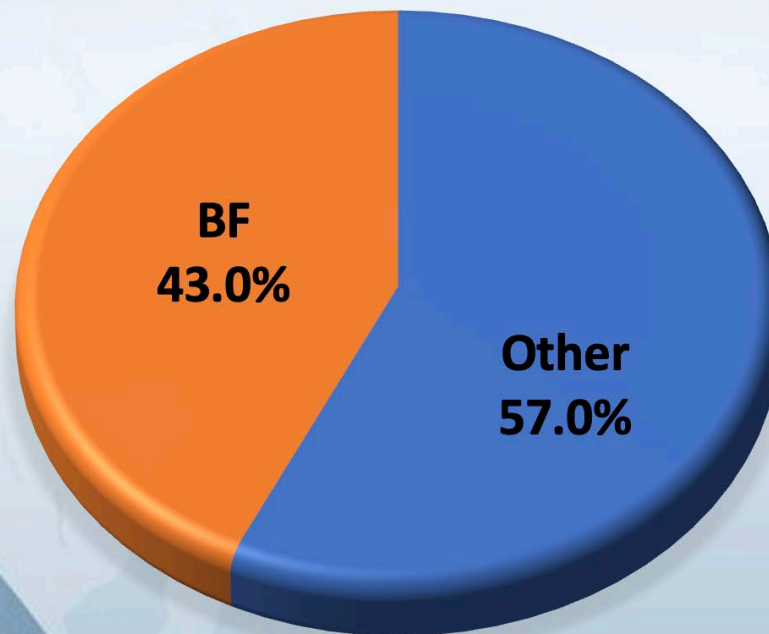
Poultry Oil

486 thousand ton



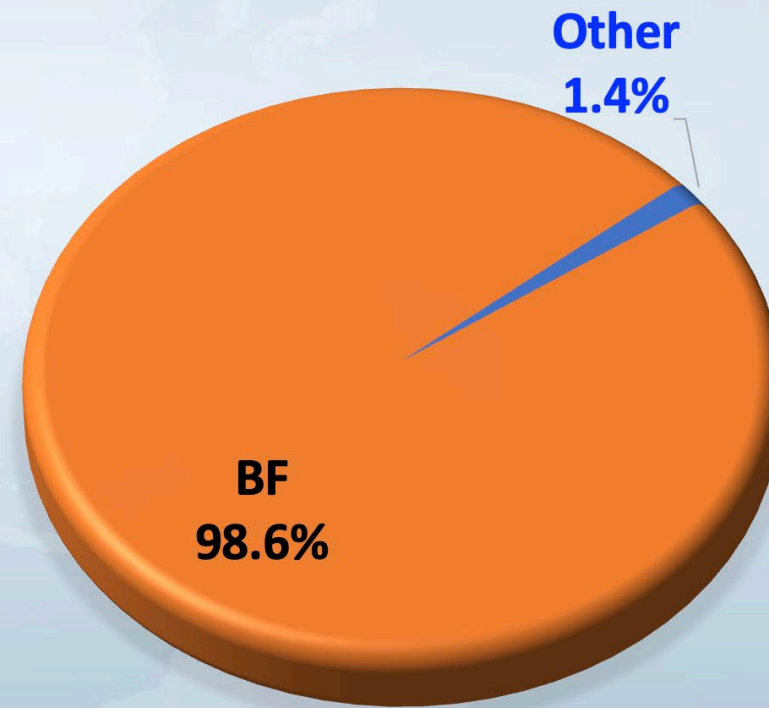
Beef Tallow

1,390 thousand ton



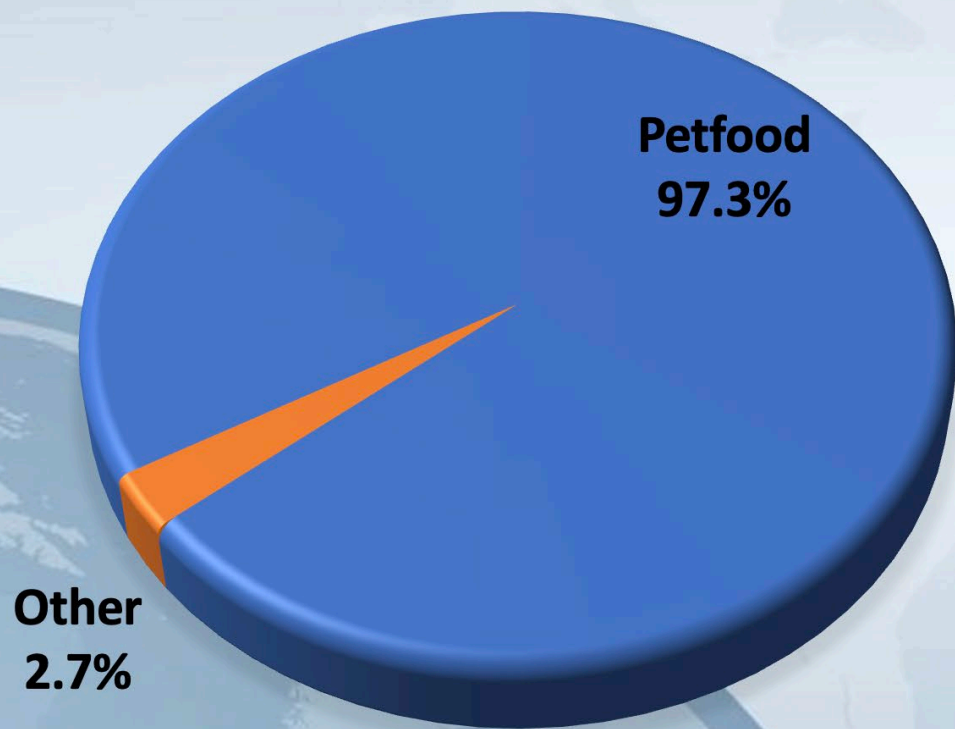
Swine Choice Grease

139 thousand ton



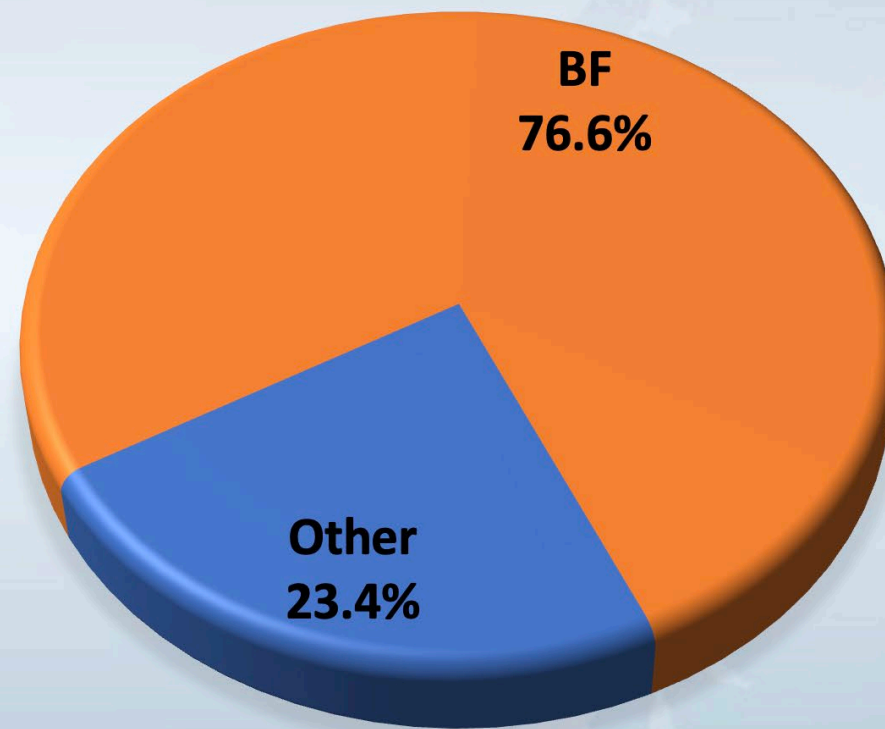
Australia - 2022

Poultry Oil – 75 thousand ton



*vast majority to petfood

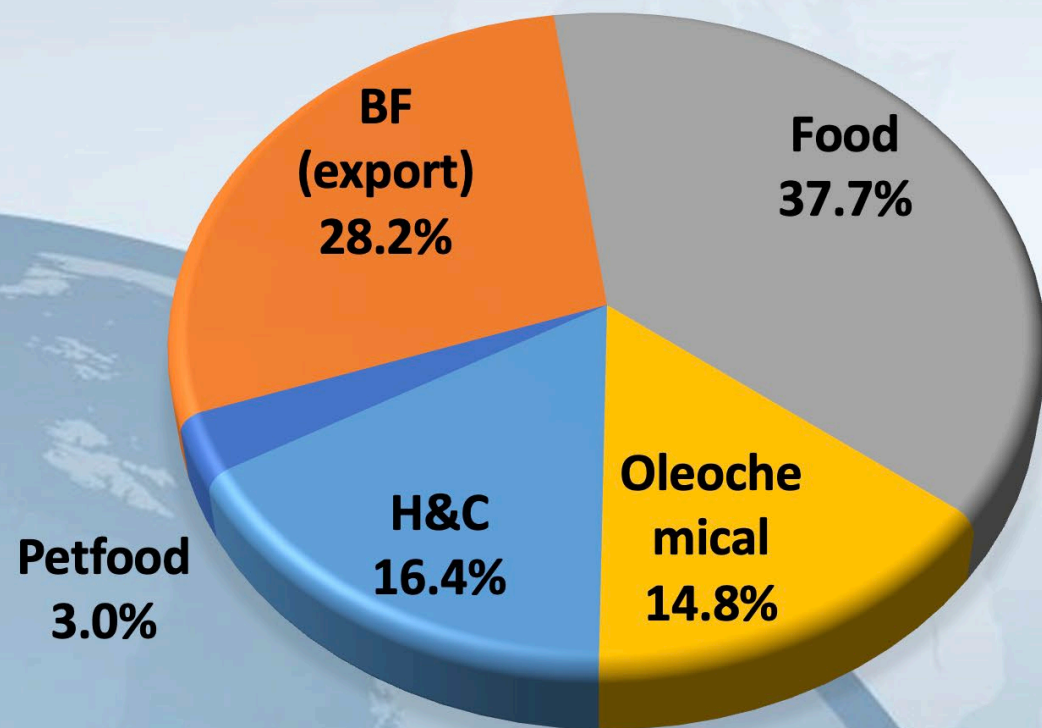
Beef Tallow – 550 thousand ton



Argentina & Mexico - 2022

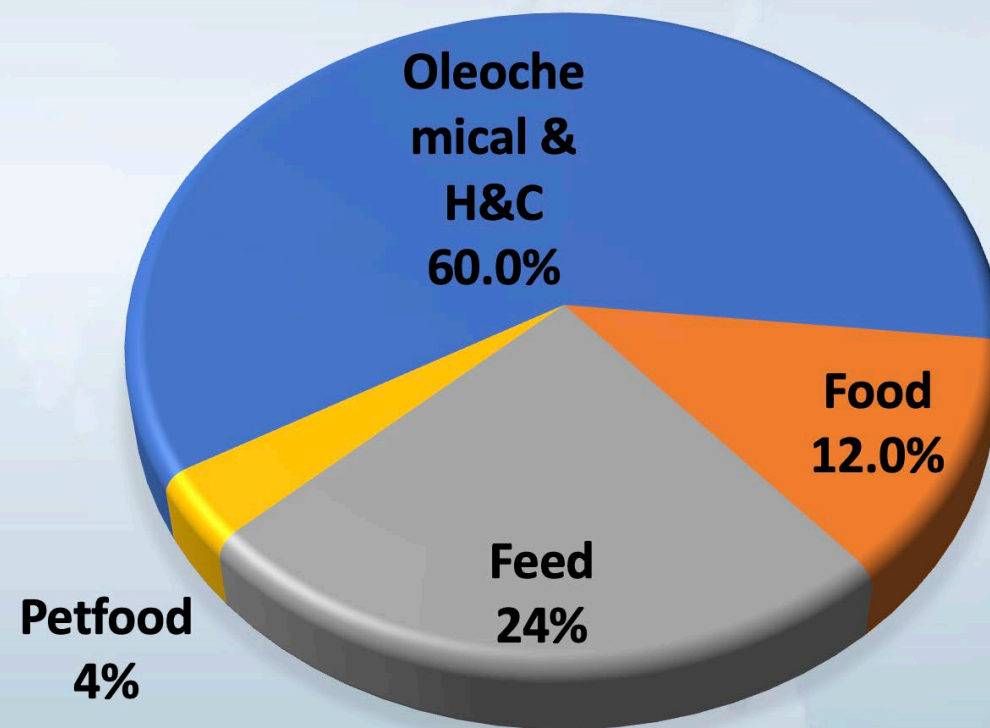
Argentina

Animal fats – 305 thousand ton



Mexico

Animal fats – 237 thousand ton

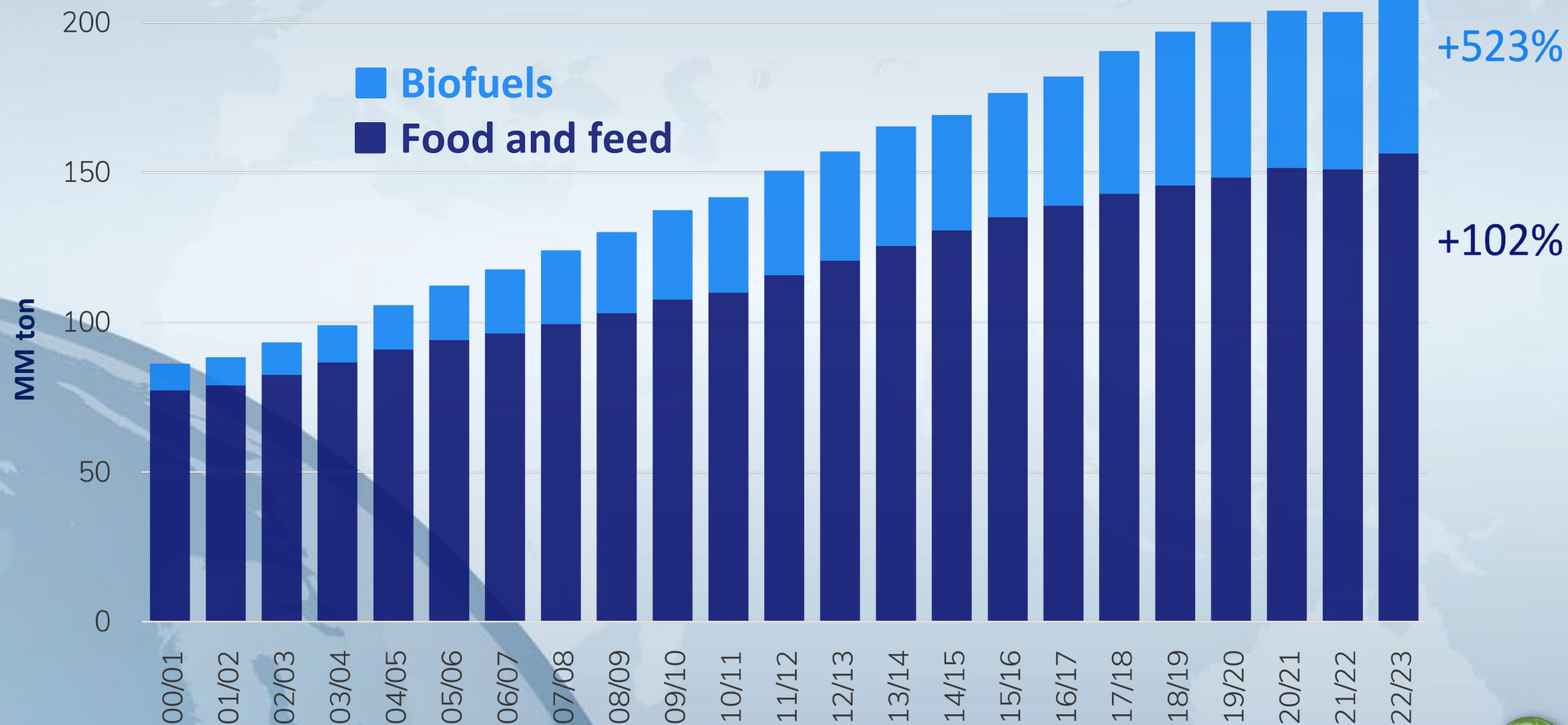


*“Animal fats are a ‘rigid’ resource (...) largely independent of demand.”**

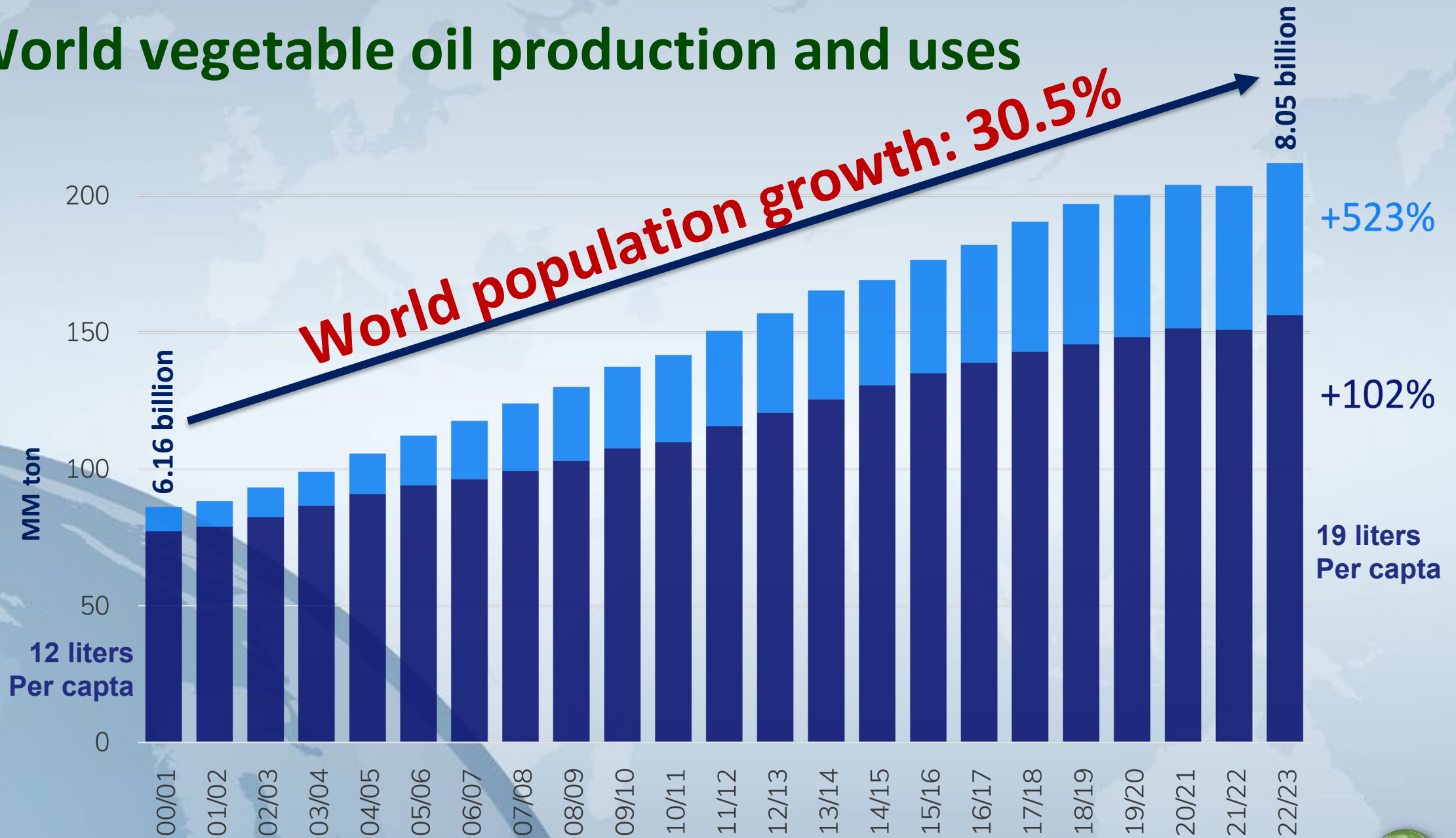
Animal fat, a low footprint commodity, has limited supply

Who can supply the biofuel industry?

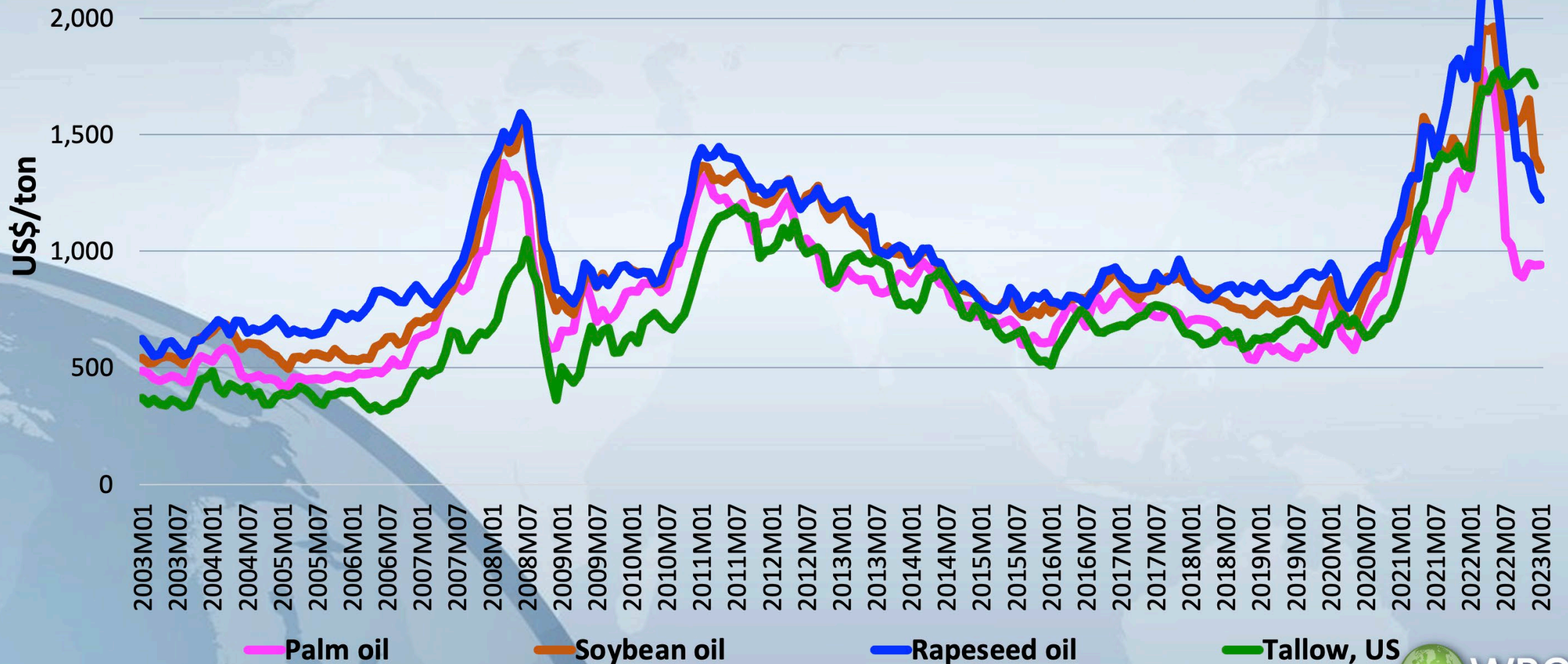
World vegetable oil production and uses



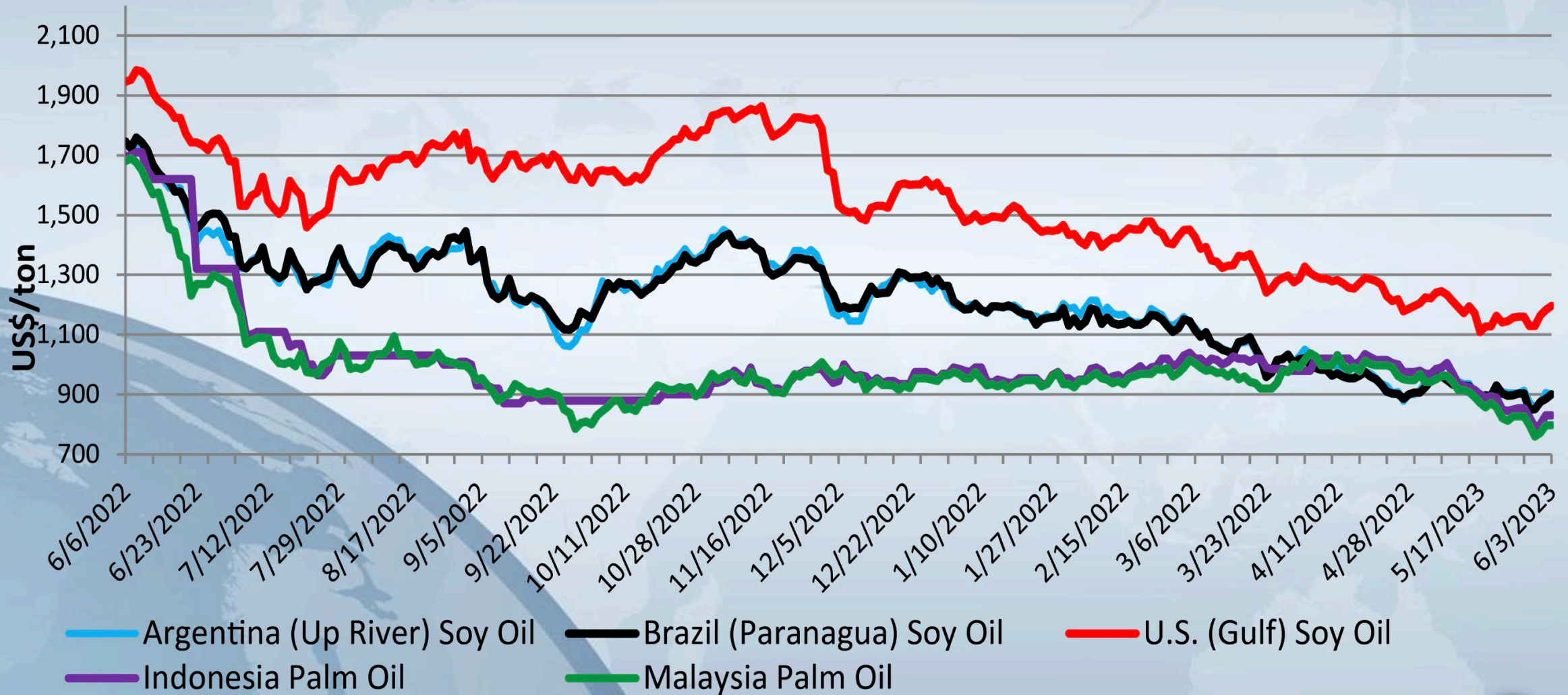
World vegetable oil production and uses



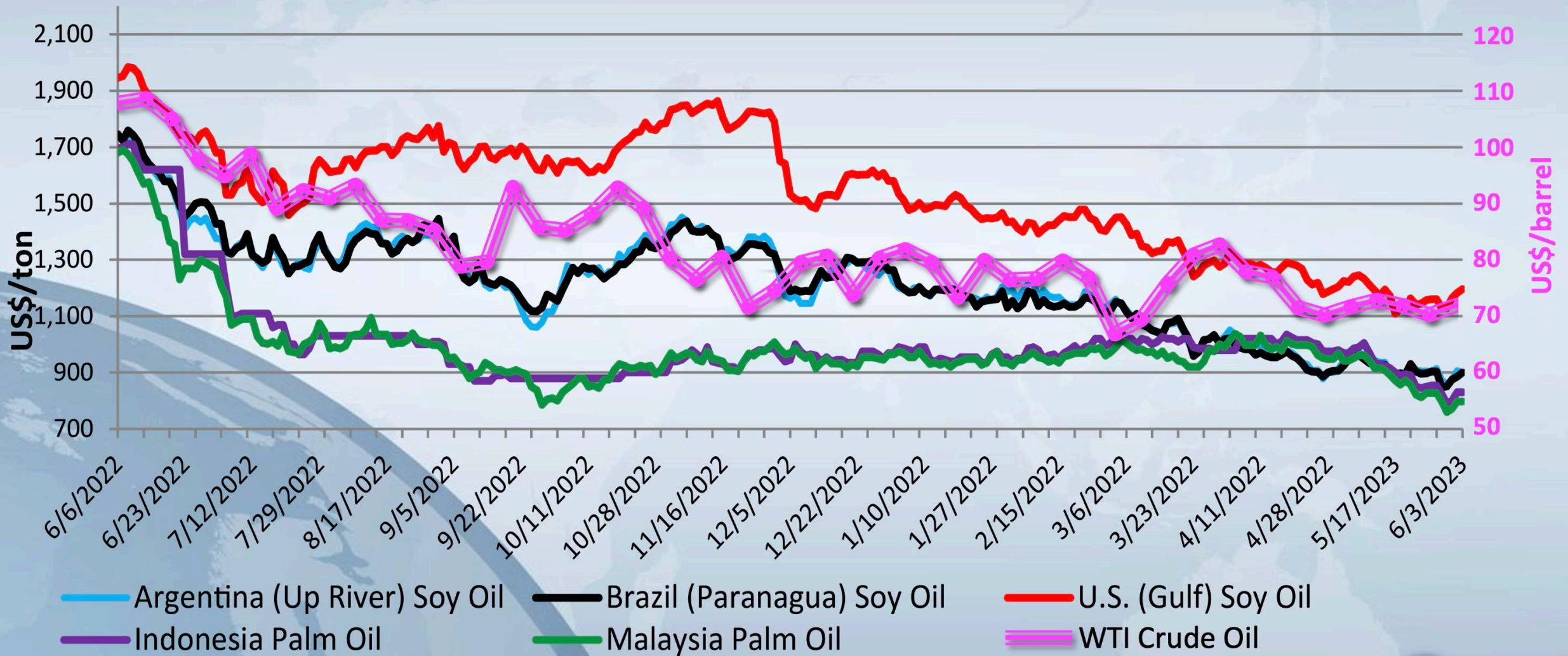
US – Tallow + Veg. oil



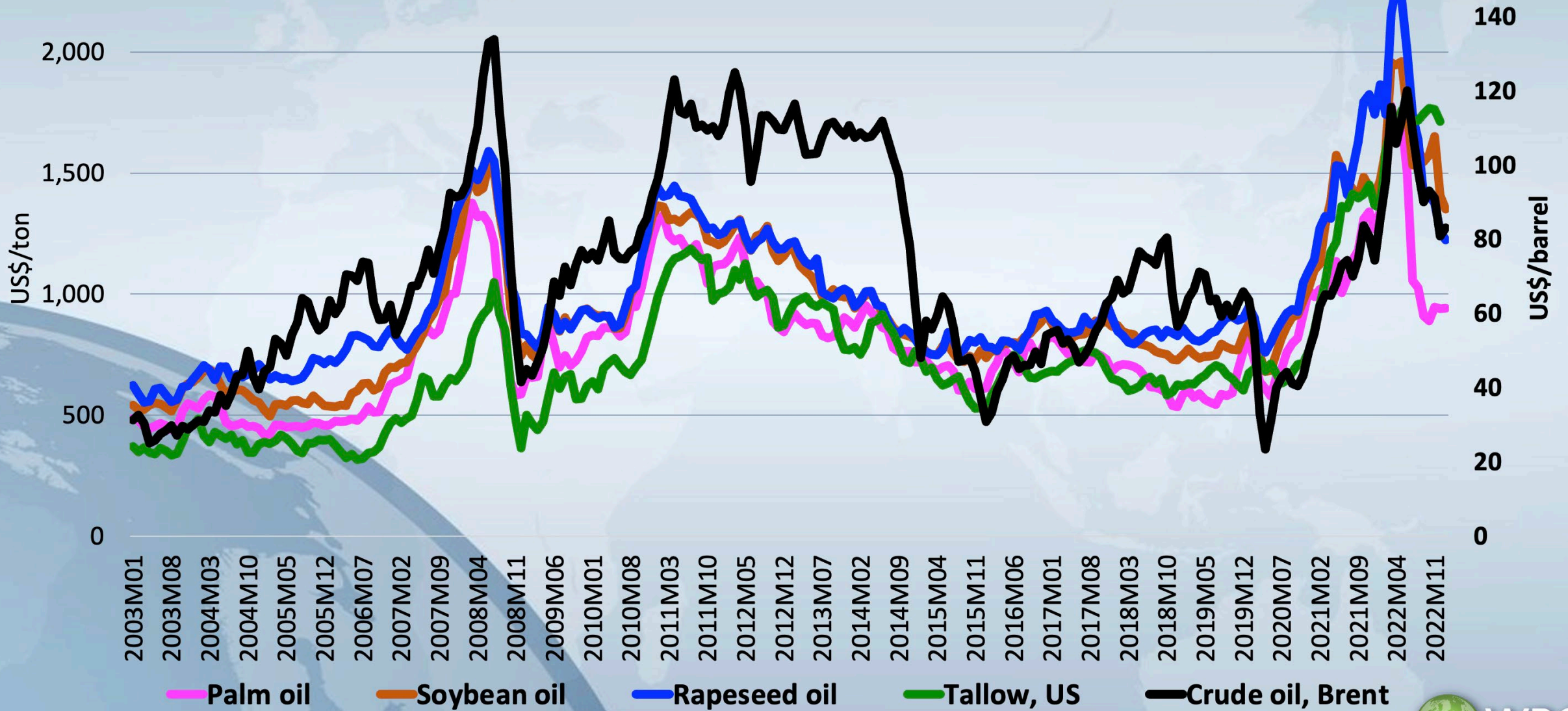
Veg. oil prices



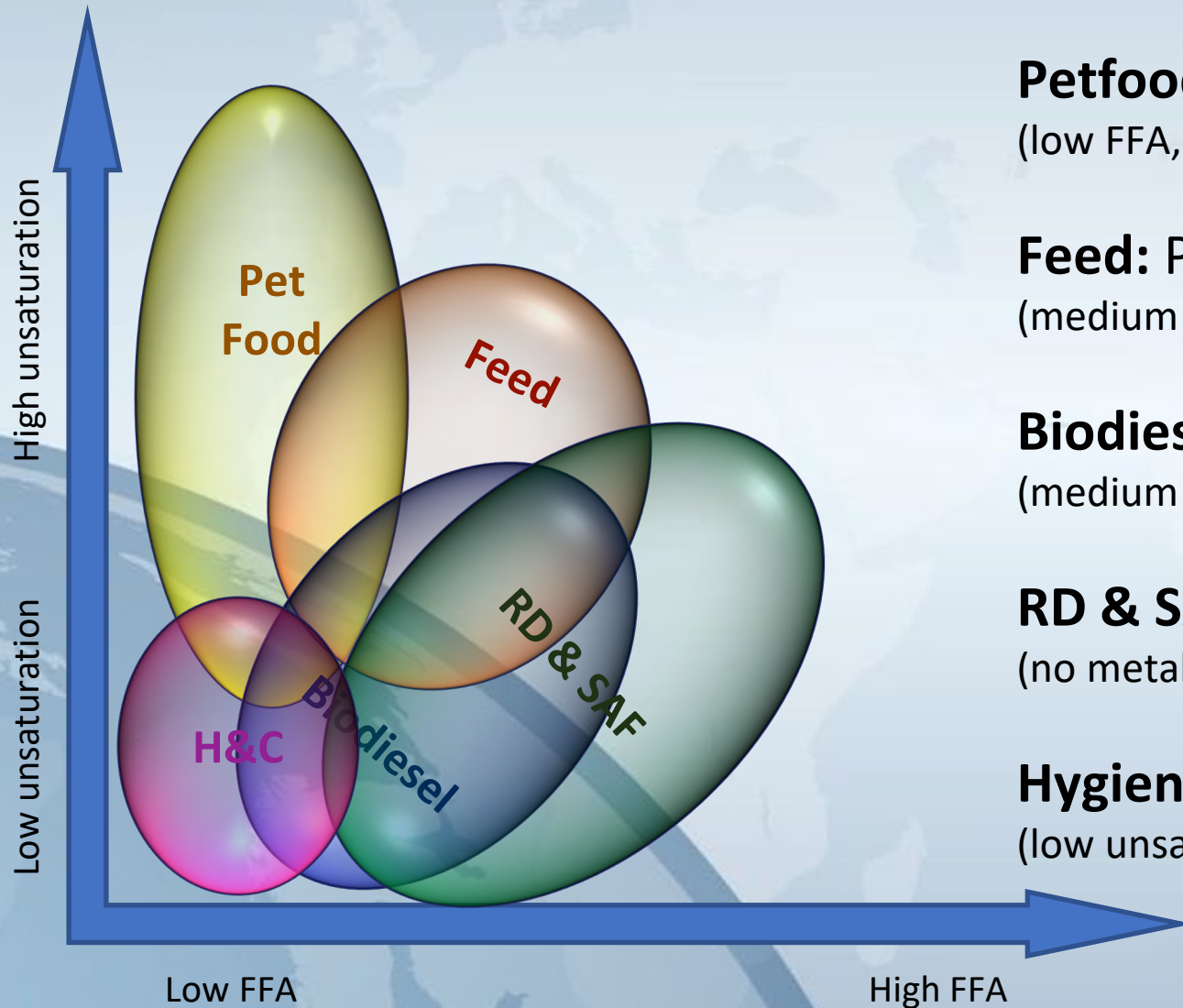
Veg. oil prices + Crude Oil



US – Tallow + Veg oil + Crude Oil



Each market has its own specs



Petfood: Fish oil, poultry oil, lard
(low FFA, no peroxide, no off flavour)

Feed: Poultry oil, choice white grease
(medium FFA, no peroxide)

Biodiesel: tallow, choice white grease
(medium to high FFA, no protein, low to medium unsaturation)

RD & SAF: tallow, porcine fat
(no metal)

Hygiene and Cleaning: Bleachable tallow / tallow
(low unsaturation saturation, bright, no polyethylene)

CONCLUSIONS

Rendering by-product is:

*“sell what they make rather than make what they sell.”**

Rendered protein meals and fats are the circular link of the meat, egg and fishery chain

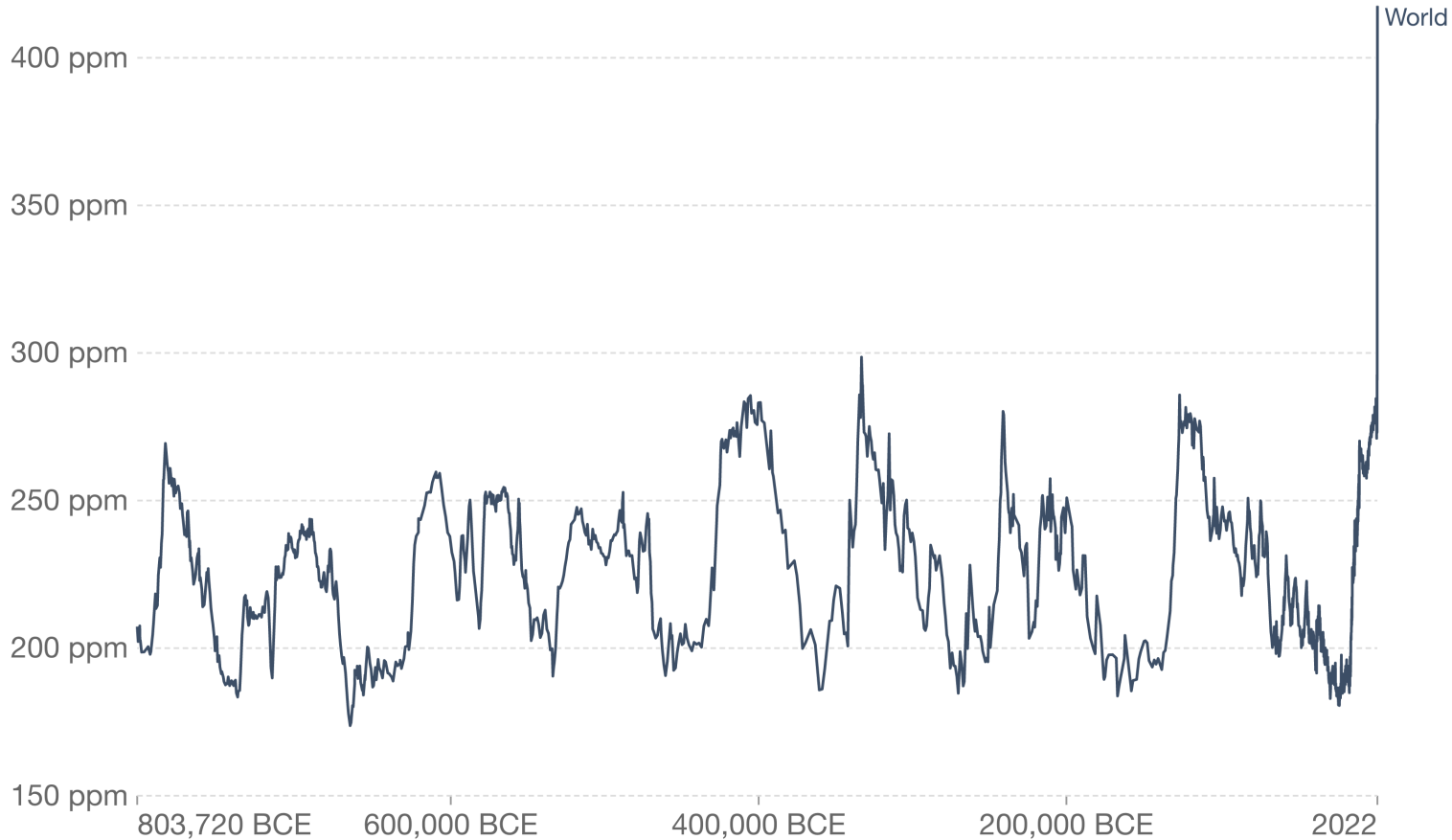
Sustainable, natural and **affordable** resource for petfood, biodiesel, RD, SAF, oleochemicals, cosmetics...

CO₂ levels are rising as never observed!

Global atmospheric CO₂ concentration

Atmospheric carbon dioxide (CO₂) concentration is measured in parts per million (ppm). Long-term trends in CO₂ concentrations can be measured at high-resolution using preserved air samples from ice cores.

Our World
in Data



Source: National Oceanic and Atmospheric Administration (NOAA)

CC BY

In 2023, 421ppm of CO₂ is 40% above the highest level ever “estimated” by the least 800,000 years

Decarbonization is mandatory!

**Feedstuff with a low carbon footprint
will have a robust market demand and
will be a valuable commodity.**

Tallow, lard, poultry oil, recovered greases, UCO...

Meat and bone meal, feather meal, blood meal, poultry meal,
cookie meal, brewers grains...

The main mission of WRO is to ensure fair rules for trade

WOAH, FAO, LEAP, IFIF, GAPFA

Natural & Sustainable

The essence of
all rendered
products!



Thanks!

Lucas Cypriano

td@worldrenderers.net

+55 41 99661 8690