

BV AMPLIFY

GLOBAL VEGETABLE OIL
SERVICES & PRODUCTS
PORTFOLIO

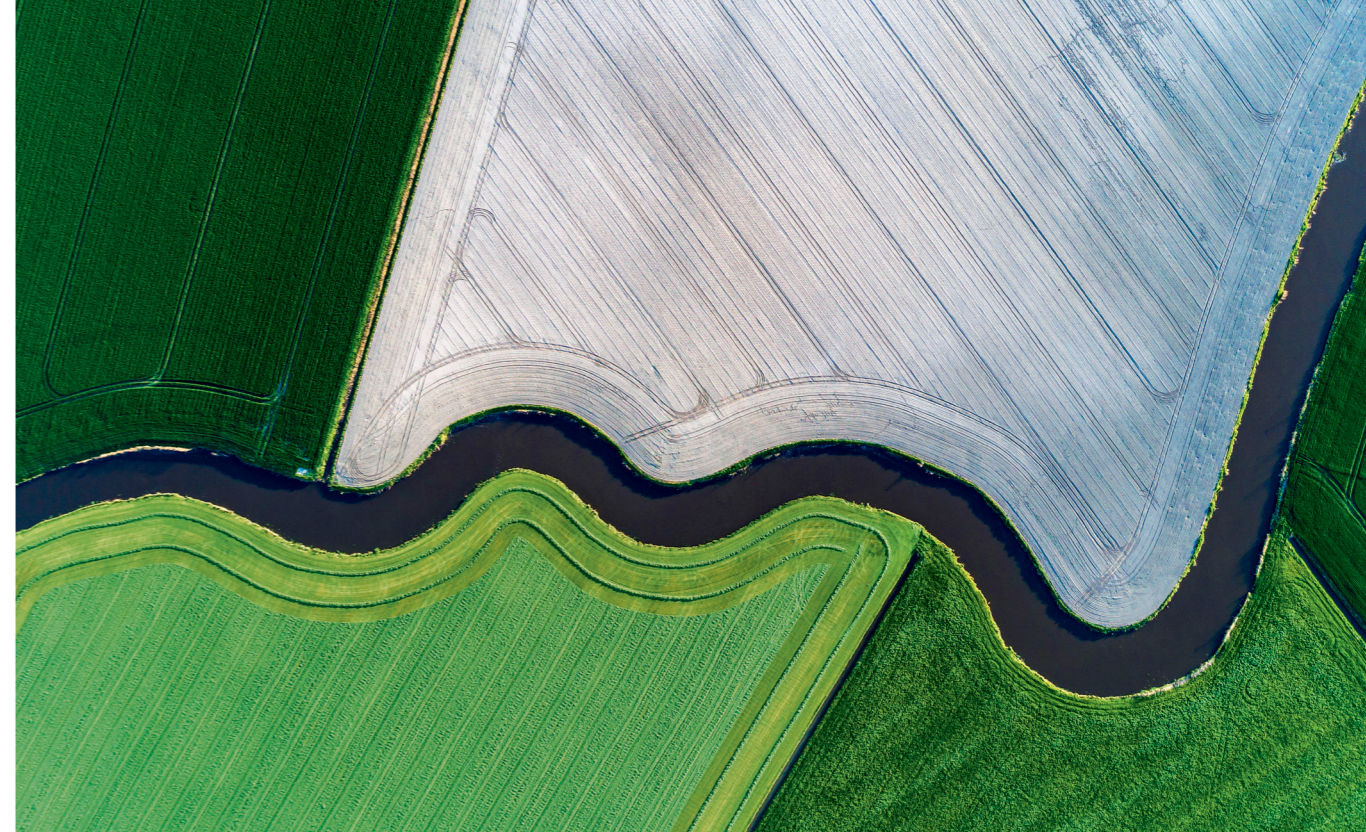


**BUREAU
VERITAS**



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BUREAU VERITAS INTRODUCTION

BUREAU VERITAS IS A BUSINESS TO BUSINESS TO SOCIETY SERVICE COMPANY THAT CONTRIBUTES TO POSITIVELY TRANSFORMING THE WORLD WE LIVE IN.



Thilo FIEDLER
Vice- President, Agri Services



Hee-Lin SOONG
Business Development Manager, Agri Services

Since its inception in 1828, Bureau Veritas Group has consistently built an unquestionable reputation and recognized technical experience by helping its clients comply with standards and regulations related to Quality, Environment, Safety & Health and Social Responsibility.

Today, BV's 80,000 employees continue serving our growing 400,000 client-base through a global network of 1,400 offices and laboratories in 140 countries.

Expanding food and non-food applications of VegOils, from food production, biofuels to cosmetics and other industrial uses are driven by

rising disposable incomes, increasing population and higher living standards in emerging economies. Consumers environmental awareness urged a shift in demand from petrochemicals-based products to bio-based.

Food industry and Biofuels constitute to more than 80% of the market share.

COVID demand shock put pressure on market growth, however recovery is expected and CAGR of more than 3% is projected in the next 5 years taking the market size to above 255 million MT by 2026¹.

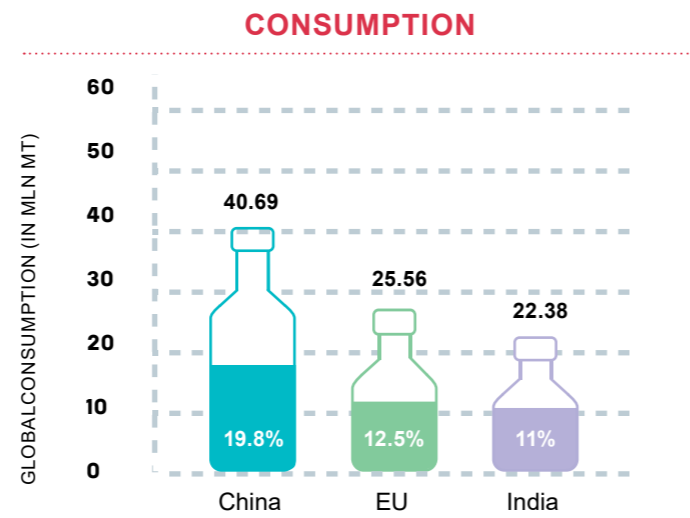
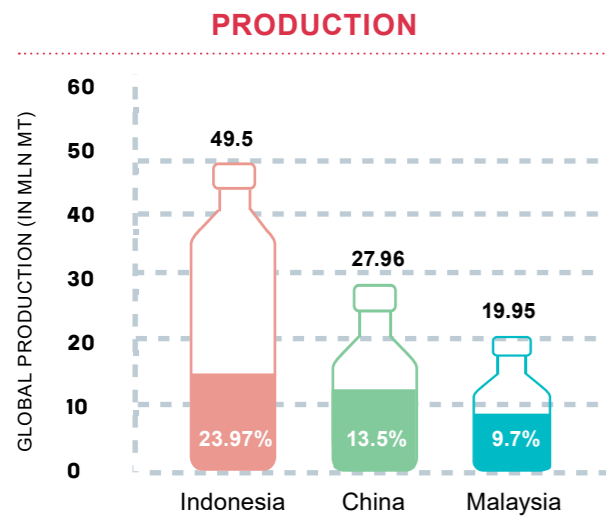


Sources

1. <https://www.expertmarketresearch.com/reports/vegetable-oil-market-report>

MAJOR VEGOILS

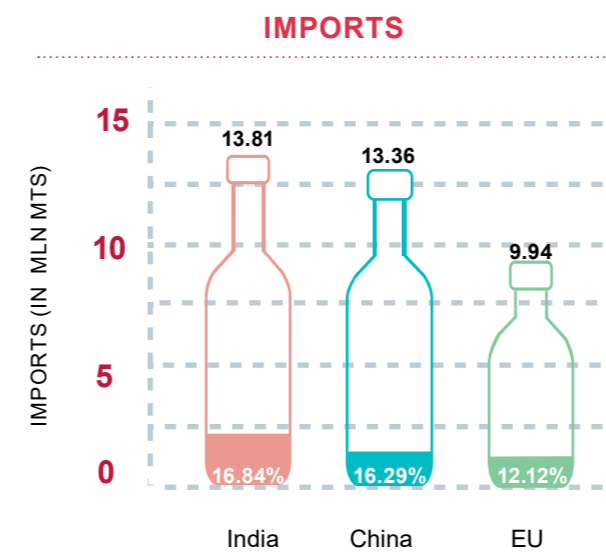
SOYBEAN, PALM OIL, SUNFLOWER SEED, RAPESEED OIL



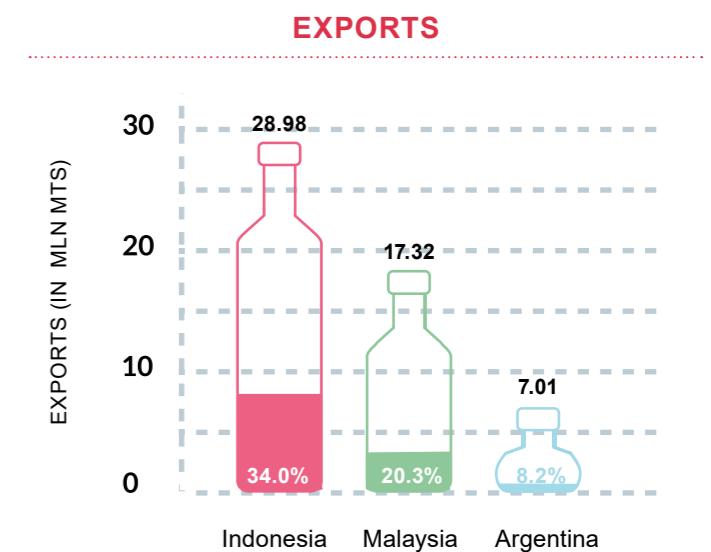
In 2020/2021 total production was 206.46 million MT and expected to reach 214.55 million MT this year. Indonesia is the world's largest producer with 49.5 mln MT (23.97% of global production), followed by China at 27.96 mln MT (13.5%) and Malaysia who produce 19.5 mln MT (9.7%).

Global consumption was 205.03 million MT. China consumes 19.8% of the world's share, followed by EU and India 12.5% and 11% respectively.

Sources
1. USDA March 2022



India is the world's largest importer, 13.81 mln MT (16.84%) followed by China and EU (16.29% and 12.12% respectively).



Indonesia and Malaysia exports combined constitute 56.05% of world exports, Argentina comes third 7.73% or 7 mln MT.

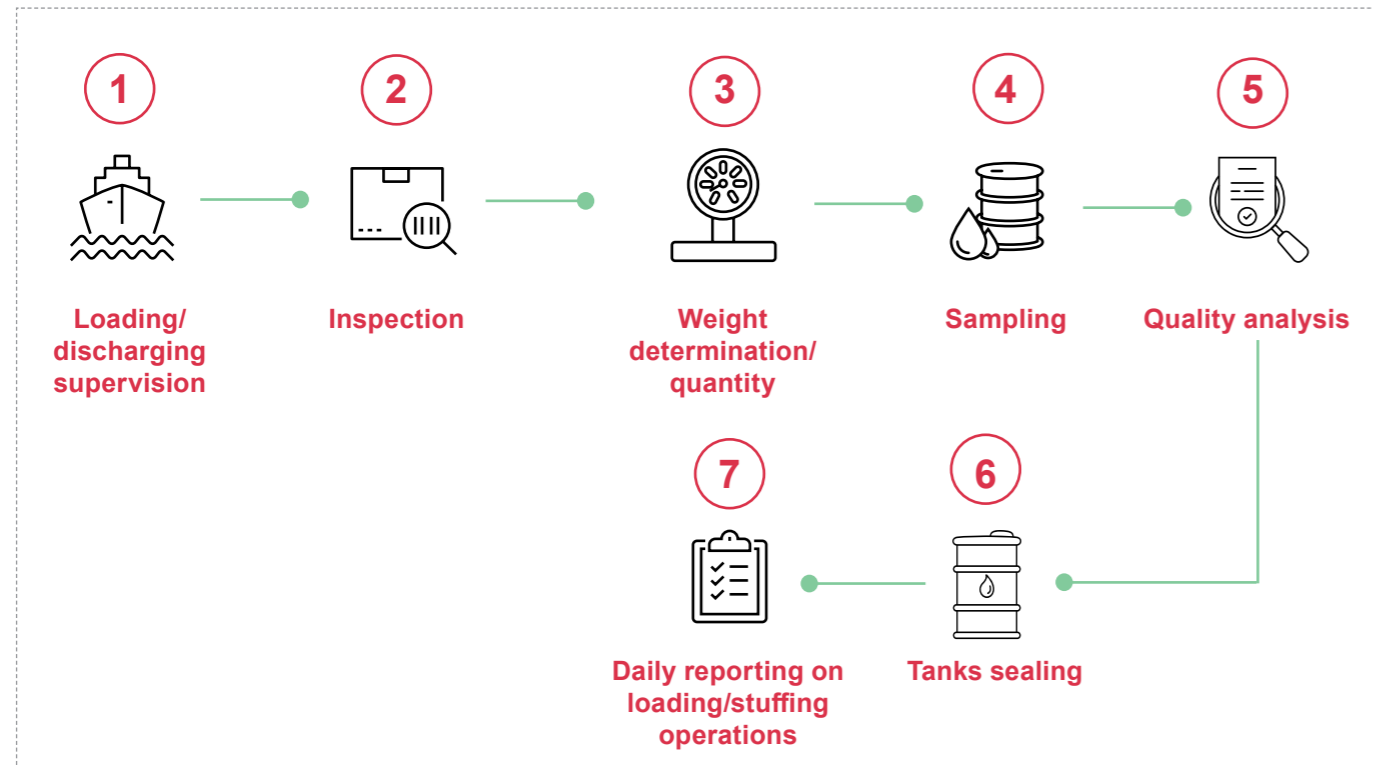
INTRODUCTION OF BV AGRI, SERVICES, CERTIFICATIONS AND ACCREDITATIONS

Our expertise and scope go beyond these commodities to cover Olive Oil, Cottonseed Oil, Used Cooking Oil and many other liquid commodities. At Bureau Veritas, we are registered superintendent members of The Federation of Oils, Seeds and Fats Associations LTD FOSFA, holding TIC Council accreditation and our laboratories are accredited to ISO17025, assuring consistent and high-quality services to our clients globally.



OUR SERVICES

Our services include but are not limited to both on ship and isotanks / flexitanks operations covering:



IN ADDITION TO THAT WE OFFER:



OUR CERTIFICATIONS

Participants in the initiative recognize that small, incremental changes will not result in the shifts required to avoid the material changes that a 3-4° Celsius increase in global temperature would bring. Rather, companies around the globe should actively focus on aggressive actions such as decarbonizing as well reviewing the impacts of climate-related issues in their risk management strategies.

This means considering net zero strategies that push for highly energy efficient buildings that are fully powered by renewable energy sources and built with low-carbon materials. Other organizations such as the Better Buildings Partnership and ULI Greenprint have also made climate change commitments with the goal of reaching net zero carbon emissions by 2050.



ACCREDITATIONS

- MPOB License (PPO)
- MPIC License (Bio)
- PORAM
- AISIM
- ISO9001 Mgt System
- ISO17020 Gafta
- ISO17025 Lab
- ISO14001 Mgt System
- FOSFA
- NIOP
- GAFTA



EXPERTISE IN SE ASIA

LOADING SUPERVISION & LABORATORY TESTING SERVICES

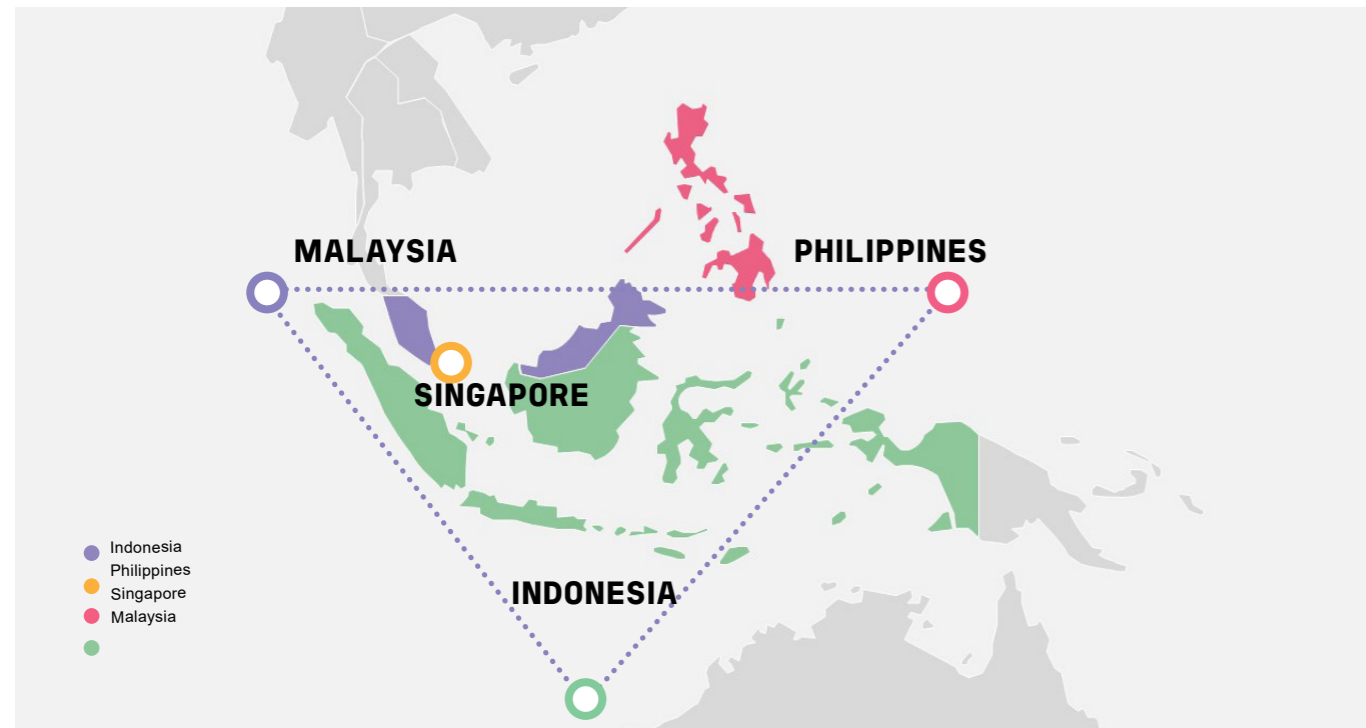
Bureau Veritas has been increasing our extensive network of laboratory testing in SE ASIA to cater for our large base of clients for the import/export of various Oil and Petrochemical and Biodiesel products.

We help our clients obtain a rapid turnaround of test results, monitoring loading/discharges and provides assurance on their cargo in both quality and quantitative analysis.

Today, we perform laboratory testing(s) in :

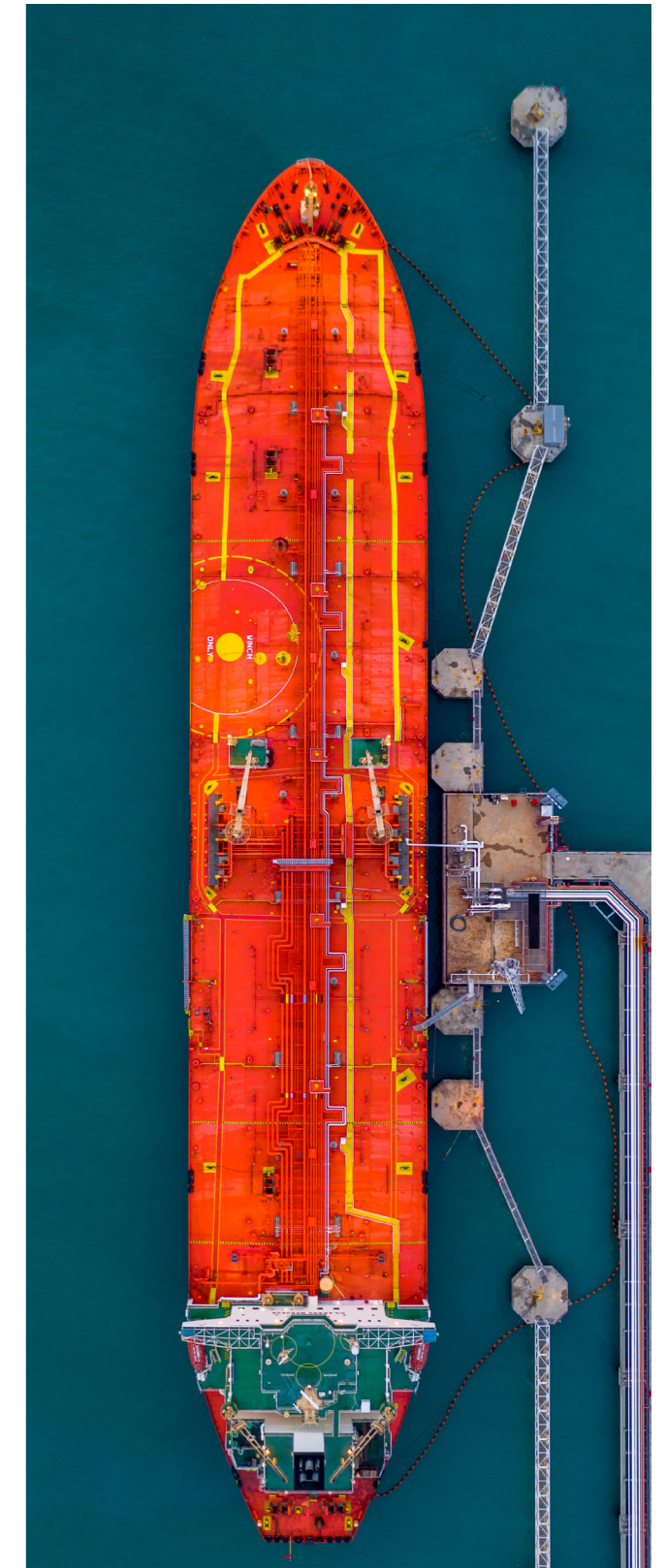
- **Bureau Veritas Singapore Laboratory** : ISO 17025 Quality Management System and performs testing to ISO, ASTM, IP and other industry standard methodologies.
- **Bureau Veritas Malaysia Laboratory** : ISO 17025 Quality Management System and performs testing to ISO, Full PORAM Partial EN / ASTM, IP and other industry standard methodologies.
- **Bureau Veritas- IOL Indonesia (Medan) Office** : We will have 2 new testing labs for Palm Oil / Agri / O&P in Medan, North Sumatra and Samarinda, East Kalimantan in Indonesia in 2022.

SE Asia Map showcasing BV's Vegetable / Edible / Palm Oil "Golden triangle" (with Singapore as the Hub)



INSPECTION AND TESTING BY PRODUCTS

- **Palm Palmitic Base:** CPO / CPL / CPS / RBD PO / RBD PL / RBD PS
- **Palm Lauric Base:** CPKO / CPKL / CPKS / CCNO / RBD PKO / RBD PKSL / RBD PKS / RBD CNO
- **Residue:** PFAD / PAO / PKFAD / PKAO
- **Waste Biomaterial:** PKE / PKS / PKC / EFB / Fibers / POME
- **Oleochemicals:** Palmitic Acid / Lauric Acid / Stearic Acid / Capric Caprylic Acid
- **Bio Diesels:** FAME / PFAME / PKFAME / POME
- **Used Cooking Oils:** UCO
- **Specialty Fats:** Margarines, Cocoa
- **Butter Equivalents-Replacers-Substitutes (CBEs-CBRs-CBSs), Shortenings, Milk & Confectionary Fats**
- **Specialty Oils:** Palm Mid Fraction (PMF), Double Fractionated Palm Olein (DFPO)
- **Consumer Products:** Pharmaceutical, Candles, Soap, Cosmetics

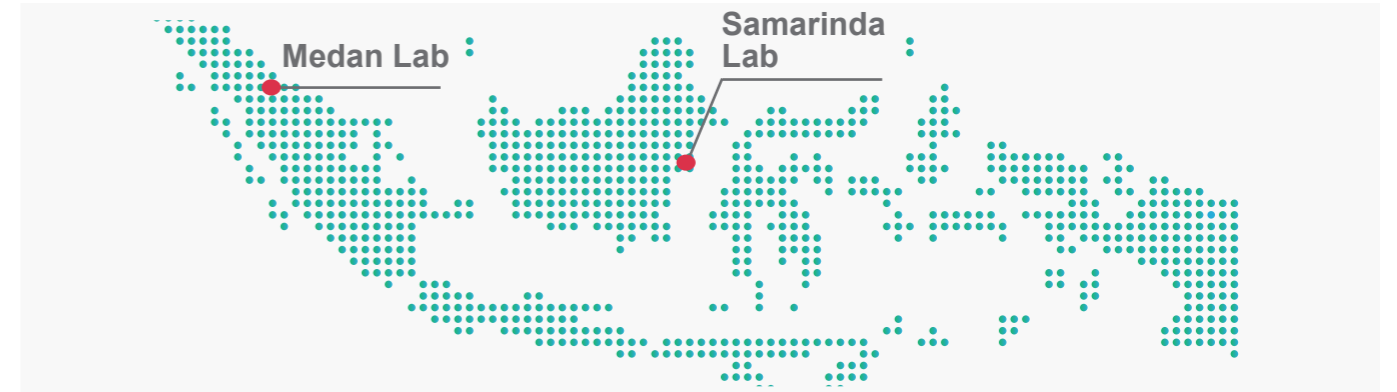


TESTING EXPERTISE IN INDONESIA



“**BV Indonesia is pleased to announce the setting up of Two new Testing Facilities in Indonesia this year, specializing in Palm Oil & Derivatives, AGRI and Bio-fuel analysis. The laboratories located at Medan, North Sumatra and Samarinda, East Kalimantan are expected to be ready for full operations in 2022**”

Christopher Murray
Country Chief Executive, Indonesia
Bureau Veritas



MEDAN LABORATORY

The cutting-edge testing facility is strategically located in heart of the city in Medan, North Sumatra, Indonesia. The Medan city is also well connected with all port facilities in Sumatra region by road, railway and international airport services. Sumatra Island is Indonesia's largest producer of palm oil products; the various derivatives are exported to worldwide locations either in bulk or in flexi tanks using containers.

Our Agri laboratory based in Medan, which is more than 3000 sq ft, is fully committed to providing 24x7 testing services with industry leading turnaround times complemented by a team of expert chemists with more than 15 years experience in palm oil analysis.

SAMARINDA LABORATORY

Our laboratory in Samarinda provides inspection and testing services for both coal and palm oil products - Indonesia's largest exports; the testing facility is strategically located near to the port of Balikpapan which is now only a short drive from the laboratory thanks to a new toll road development.

The fully accredited laboratory which has a footprint of approximately 4000 sq ft, is run and managed by a team of expert chemists who continually strive to deliver fast turnaround times. We are able to cater for all testing requirements covering the entire Kalimantan island including Sulawesi, Papua Island and Jawa.

LABORATORY ACCREDITATIONS



The Agri lab is in the process of becoming accredited with the ISO / IEC 17025 Quality Management System standard alongside FOSFA and GAFTA accreditations.

PRODUCTS

Testing & inspection capabilities in Indonesia covers a wide portfolio of products including the following:

	PALM OILS/ KERNELS		FERTILIZERS
	OLEO CHEMICALS		SOYBEAN CORN
	BIOFUELS		CONSUMER FOODS
	ANIMAL FEEDS		COTTON
	COCONUT OILS		SUGARS



SERVICES

- | | |
|--|---|
| 1 Pre-shipment Inspection and Sampling | 7 ISO Tank, Container, Road Tanker Loading & Unloading Supervision |
| 2 Supervision of Loading and Discharging (Quantity & Quality) | 8 Physical Stock Verification |
| 3 Ascertainment of Weight | 9 Ullage / Sounding Survey, Draft Survey and Bunker Survey |
| 4 Sampling and Sealing of Cargo for Shore and Vessel's Tanks | 10 Ship to Ship Operation (STS) including Barge. |
| 5 Sealing of Shore Tanks, Containers, ISO Tanks and Rail Wagons | 11 Cargo Damage Survey |
| 6 Stuffing and de-stuffing of Containerized Cargo | 12 Loss Control Investigation Survey |



TESTING EXPERTISE IN MALAYSIA

PENGERANG LABORATORY

Located inside Pengerang Independent Terminal, our highly-equipped laboratory is strategically placed inside the Deepwater Port area. Its proximity to the shore tanks and jetty enables Bureau Veritas to provide efficient assistance in monitoring loading/discharges for quality analysis and fast turnaround on results.

Bureau Veritas' Pengerang laboratory operations are based on ISO 17025 Quality Management System and performs testing to ISO, ASTM, IP and other industry standard methodologies.



TESTING EXPERTISE IN SINGAPORE

SINGAPORE LABORATORY

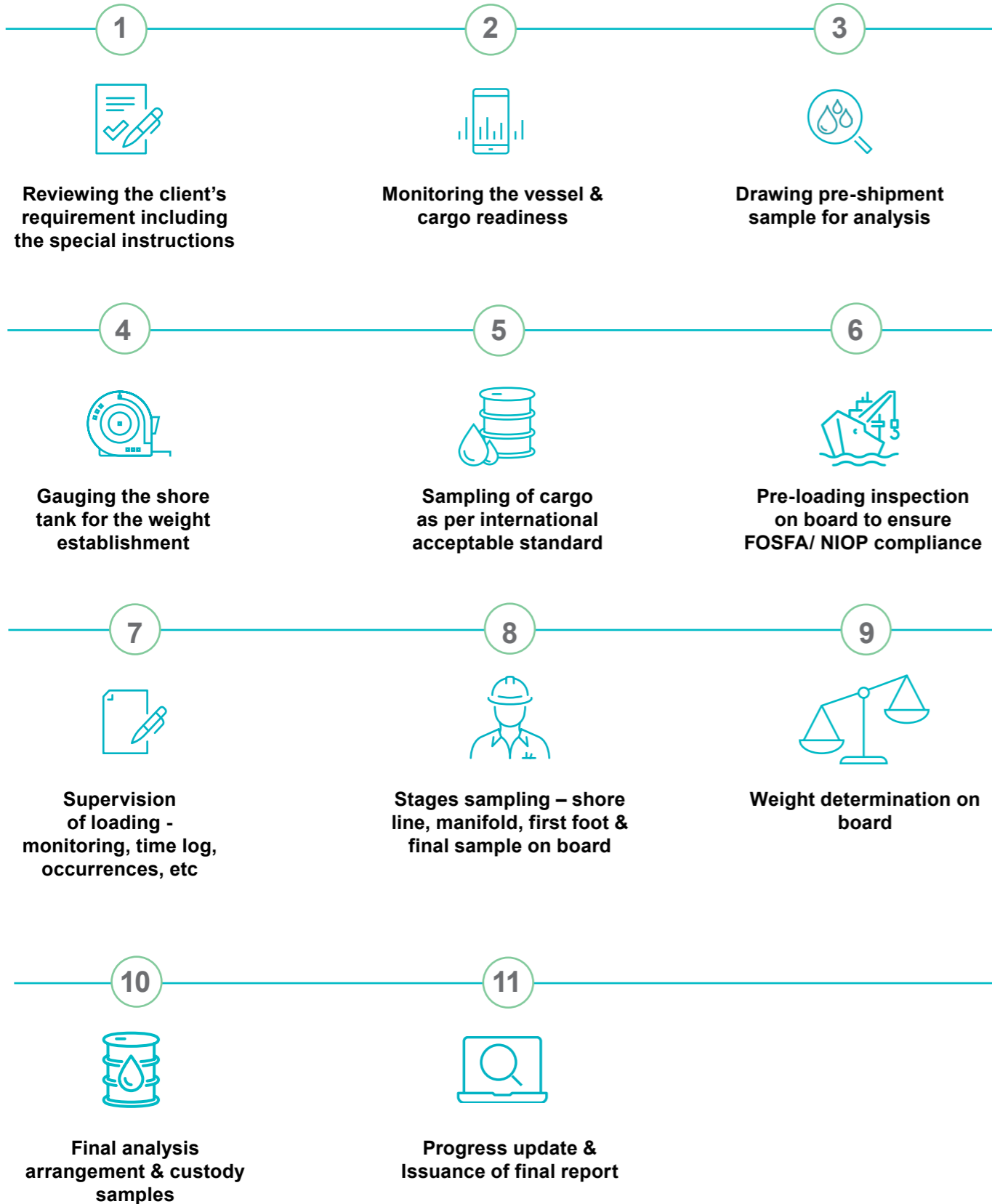
With fast sample collection services, Bureau Veritas provides clients with quick and accurate analysis results plus valuable insights on the monitoring of loading and discharge operations. Our Singapore laboratory adheres to the ISO 17025 Quality Management System and performs testing to ISO, ASTM, IP and other industry leading standards.

Our Singapore laboratory offers extensive full scope testing with rapid turnaround times to cater for a large portfolio of clients. High quality and quantitative testing provides both assurance and helps to mitigate commercial risk to vegetable oil products when in transit.





SCOPE OF WORK AND REPORTING



GLOBAL VEGETABLE OIL PRODUCTS PORTFOLIO

Palm Oil is the most produced, traded and consumed VegOil. 35.67% of all VegOil production and over 57% of global trade.

Soybean and Rapeseed Oil are the second/third largest produced Oils, around 89 mln MT. In terms of trade, Sunflower and Soybean Oils follow Palm Oil as second and third with over 23 mln MT on each import/export side.

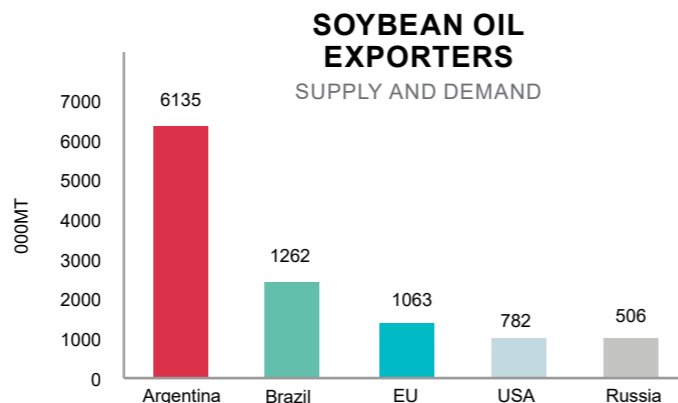
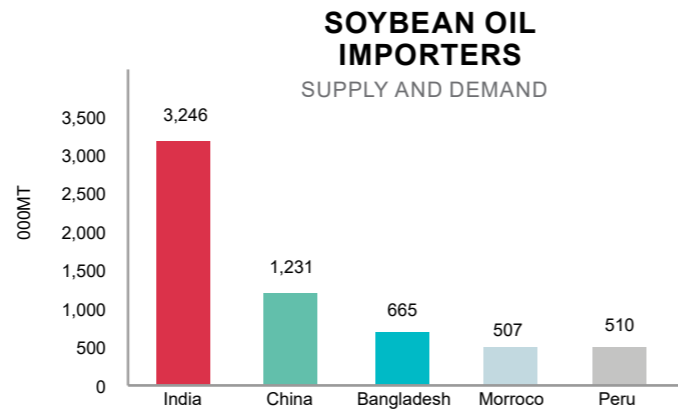
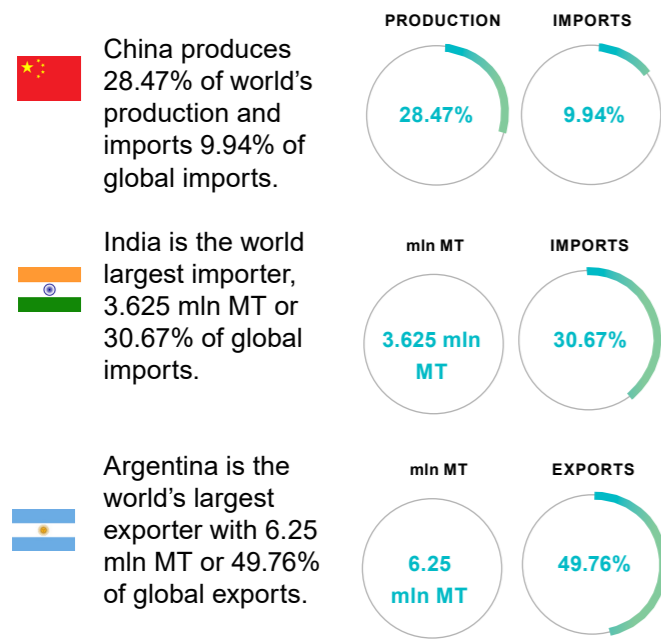


SOYBEAN OIL

History of using SBO stretches back to 2000 BCE, ancient Chinese literature showed that the beans were widely cultivated for the use of SBO. Soybean Oil is traded at Chicago Board of Trade in contracts since 1951.

Extracted from seeds of soybean and mostly used as cooking oil, in drying applications and a source of calories and essential fatty acids for medical uses

In numbers: it is the Second most produced and consumed oil, 3rd imported/exported VegOil.

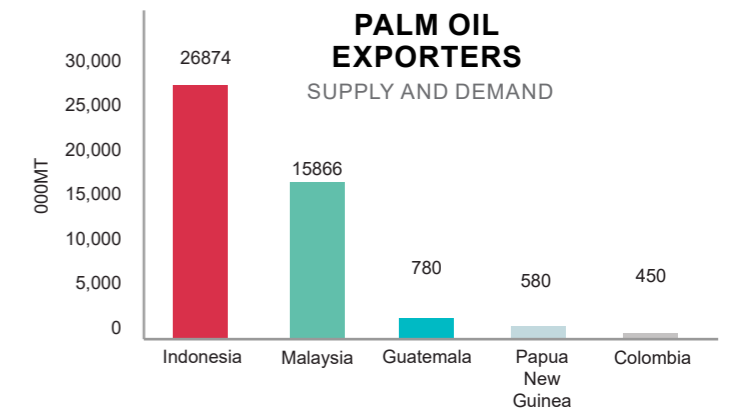
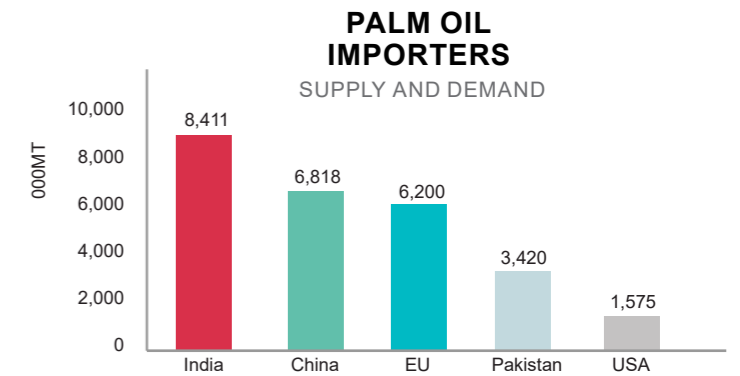
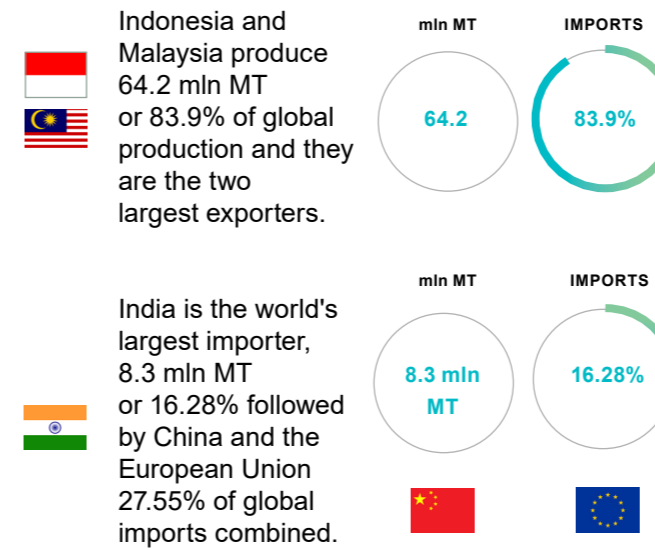


PALM OIL

Humankind used Oil palms since 5,000 years. During the industrial revolution it was highly sought-after as an industrial lubricant for machinery. West and central African countries use it as a primary cooking oil and since late 19th century it has been a major exported commodity. Palm Oil makes basis of soap products. In addition to that it is used as a substitute for butter and in biomass/biofuel production.

Environmentally, it is a controversial product due deforestation and biodiversity loss in several regions around the world, on the other hand only 5% of the worlds farmland is used for Palm plantation and still it constitutes to more than 35% of VegOils production due to high cultivation yields compared to other Oilseeds.

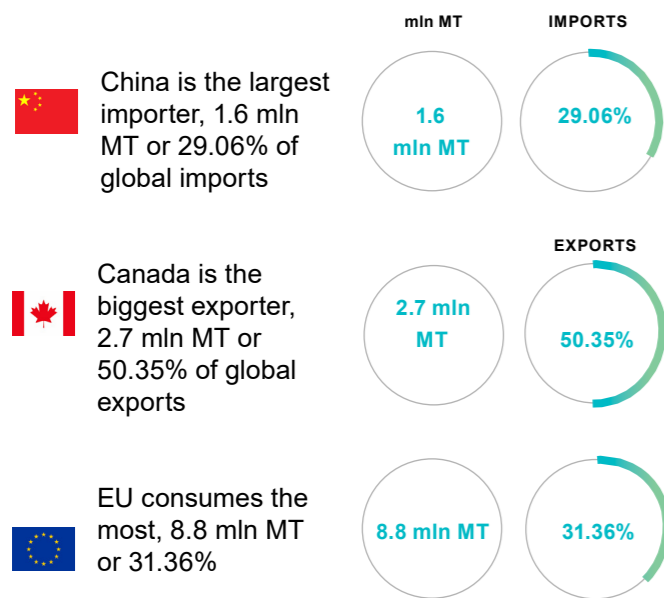
Socially, it is still considered as a sustainable source of food and fuel, in addition to being part of poverty alleviation strategies by the United Nations programs



RAPESEED OIL CANOLA OIL

One of the oldest vegetable oils but has always raised concerns on the erucic acid content it holds, that's why US FDA and EU regulators limited erucic acid to maximum 2% by weight. Biodiesel is another major use of Canola oil and it accounts to 80% of feedstock for biodiesel production in Europe. Bio-lubricants is also another use of the oil such as lubricants for artificial joints.

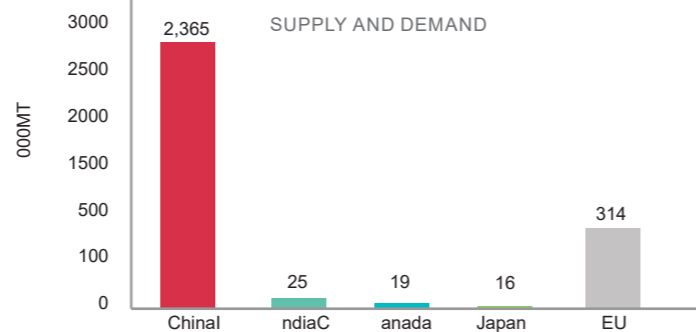
The seed itself is used for meal production as byproduct, high-protein animal feed. In the U.S farmers use it as cover crop during winter to prevent soil erosion, suppress weeds and improve tilth.



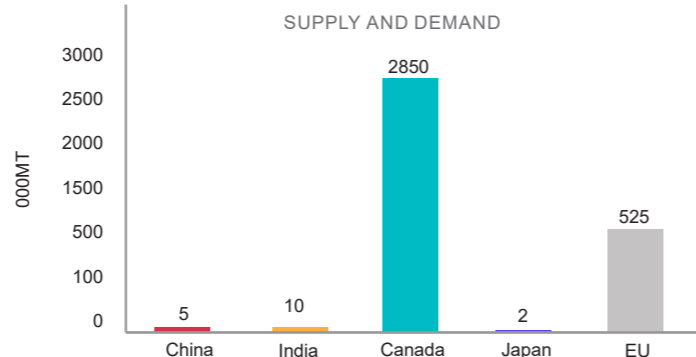
EU, China and Canada are the world's largest producers, around **67% of global production**



RAPESEED OIL CANOLA OIL IMPORTERS



RAPESEED OIL CANOLA OIL EXPORTERS

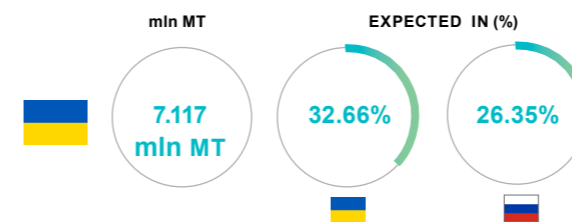


SUNFLOWER OIL

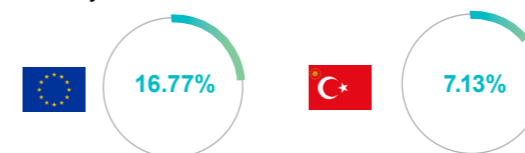
The plant was used as treatment and colorant more than 5,000 years ago, widely accepted as decorative until first commercial production of it's oil started in mid-19th century in Russia, today Ukraine leads with over 32% of global production in 2020/2021.

SFO is primary frying oil, dietary supplement, used to run diesel engines due to its high levels of unsaturated fats and higher viscosity in cold temperatures. Cosmetics formulations also use the oil.

- Ukraine, the world largest producer, 7.117 mln MT expected in 21/22 season, 32.66% of world production, followed by Russia 26.35%.



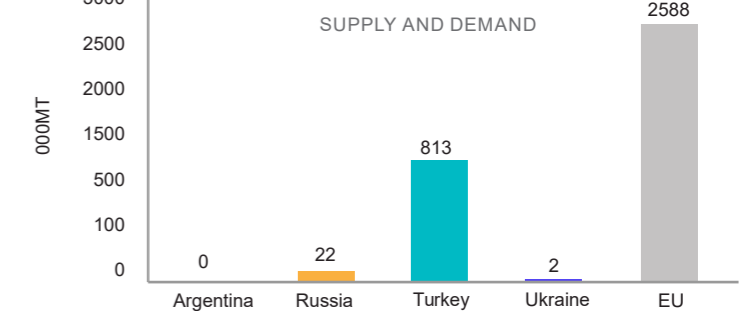
- EU imports 16.77% of global imports, followed by Turkey 7.13%



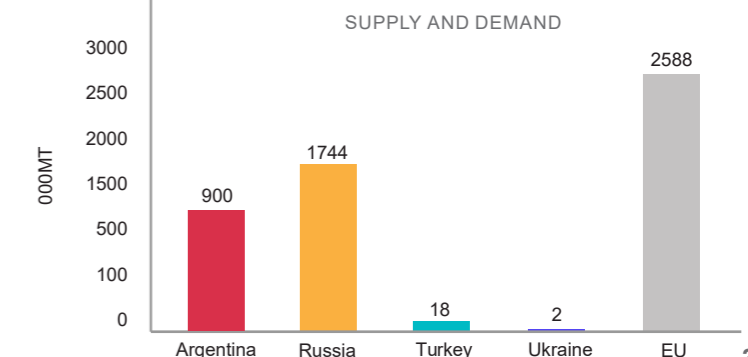
- Ukraine, Russia and Turkey are the biggest exporters, 6.5 mln MT, 3.75 mln MT and 750k MT respectively. Both Ukraine and Russia export 78.04% of global tonnages.



SUNFLOWER OIL IMPORTERS



SUNFLOWER OIL EXPORTERS



OLIVE OIL

Archaeological evidence shows that by 6000 BC olives were being turned into olive oil. For ancient Egyptians Olive was important commodity for commerce and wealth. A major export of Mycenaean Greece. Commercial importance increased during the evolution of roman empire; olive trees were planted throughout the entire Mediterranean basin. Until today Olive oil is a main ingredient in the Mediterranean cuisine and has many other uses that go beyond food applications to cover skin care, as a natural and safe lubricant, for illumination and as a base for soap and detergents.

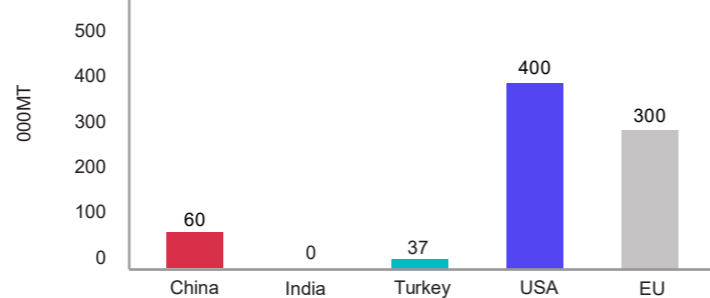
There are **4 main commercial grades:**

- 01** Virgin which means extraction is done by mechanical means and no chemical treatment.
- 02** Lampante extracted by mechanical means but not suitable for human consumption rather industrial purposes.
- 03** Refined, obtained from any grade but refined from color, odor and flavour.
- 04** Crude olive pomace oil obtained by treating the leftover paste after pressing the olives for virgin olive oils.

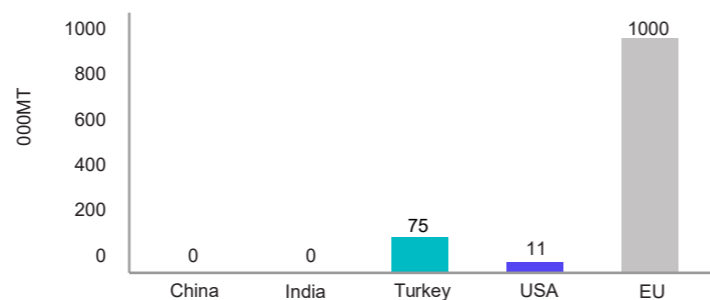
- EU produces 66.68% of global production or 2.189 mln MT. Turkey comes second with 250k MT.
- U.S imports 400k MT or 29.28% of global import, followed by EU and China, 300k and 60k MT.
- EU is the largest exporter, 1 mln MT or 68.17% of global exports, followed by Turkey, 75k MT or 5.11%.



OLIVE OIL IMPORTERS
SUPPLY AND DEMAND



OLIVE OIL EXPORTERS
SUPPLY AND DEMAND



USED COOKING OIL

Waste oils and fats produced by the food processing industry, restaurants and households have been gaining popularity over the years as a renewable feedstock for biofuels in North American, European and Asian markets.

Quality of the UCO and collection process are the main challenges for process of producing renewable fuels for diesel engines, also known as transesterification as impurities must be controlled carefully to avoid complications during the production.

The process of collection from households remain a challenge, but it is obvious that down the road more initiatives will be promoted to urge individuals participate and contribute to the decarbonization of the transport sector.

Key origins are China, Indonesia, Malaysia, Russia, U.S and Saudi Arabia.

In the EU total supply in 2015 was 712k MT and studies suggested that total potential supply could reach 1.660 million MT if better collection practices were implemented by households.

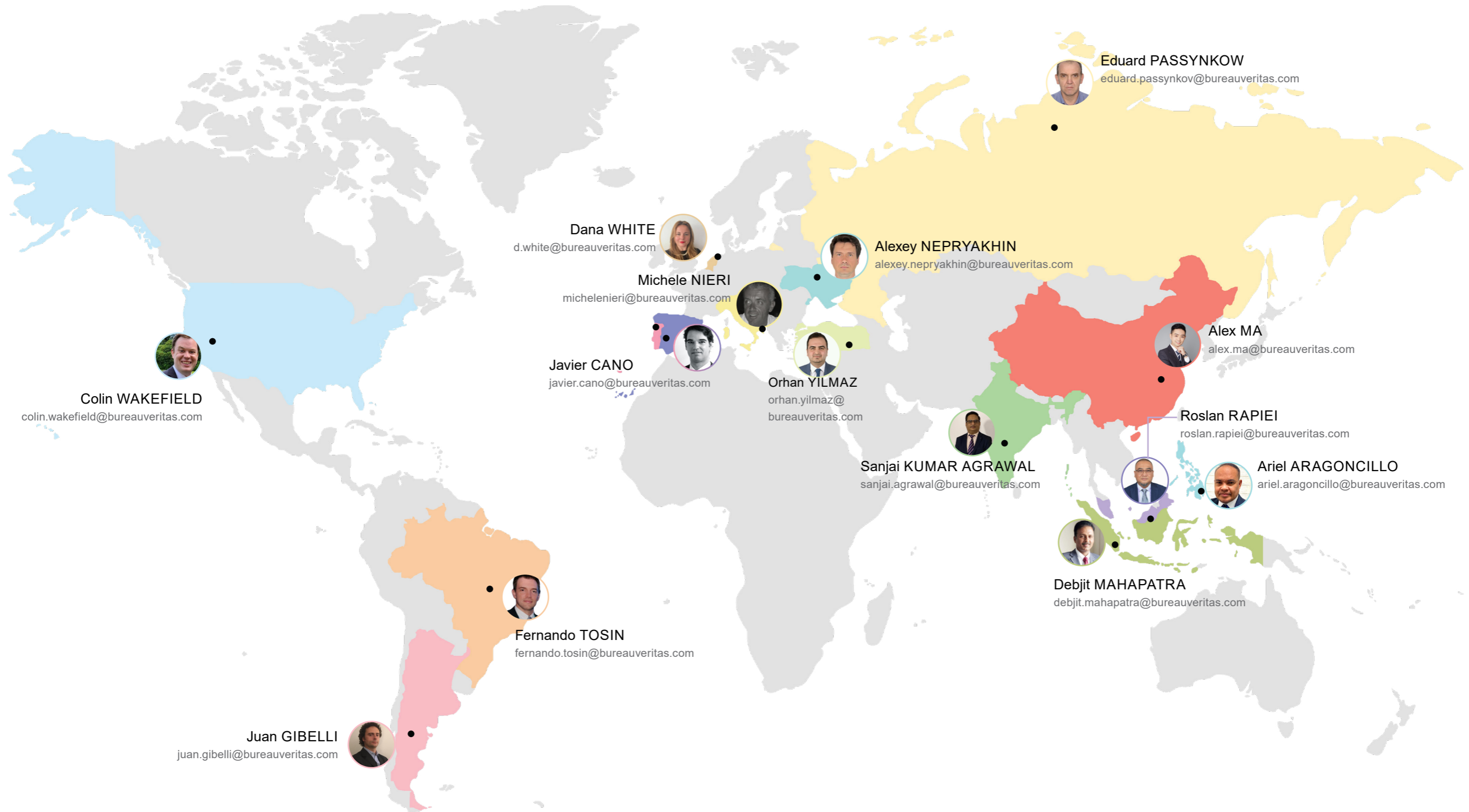
In 2019 Global demand was 5.12 million MT. EU+UK alone 2.8 million when supply stands at 2.1-2.6 million MT only. In 2030 EU+UK demand is expected to grow to 6.1-6.4 million MT and supply only reach 3.1-3.3 million MT.



Cooking Oil	Country	Years	mln MT
	EU+UK	2019	<ul style="list-style-type: none"> • 2.8 million MT • 2.1- 2.6 million MT
		(Expected) 2030	<ul style="list-style-type: none"> • 6.1- 6.4 million MT • 3.1- 3.3 million MT

BUREAU VERITAS EXPERTS

PROVIDING INSIGHTS INTO GLOBAL VEGETABLE OIL MARKETS





SHAPING A WORLD OF TRUST

Bureau Veritas is a Business to Business to Society company, contributing to transforming the world we live in. A world leader in testing, inspection and certification, we help clients across all industries address challenges in quality, health & safety, environmental protection and social responsibility.

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