DHF TEAM

GLOBAL VEGETABLE OIL MARKETS

GCIRC 2017

MAY 9TH, MALMO SWEDEN

Outline

I. Main uses of different Vegoils
- Biodiesel vs food.
- Domestic vs Exports

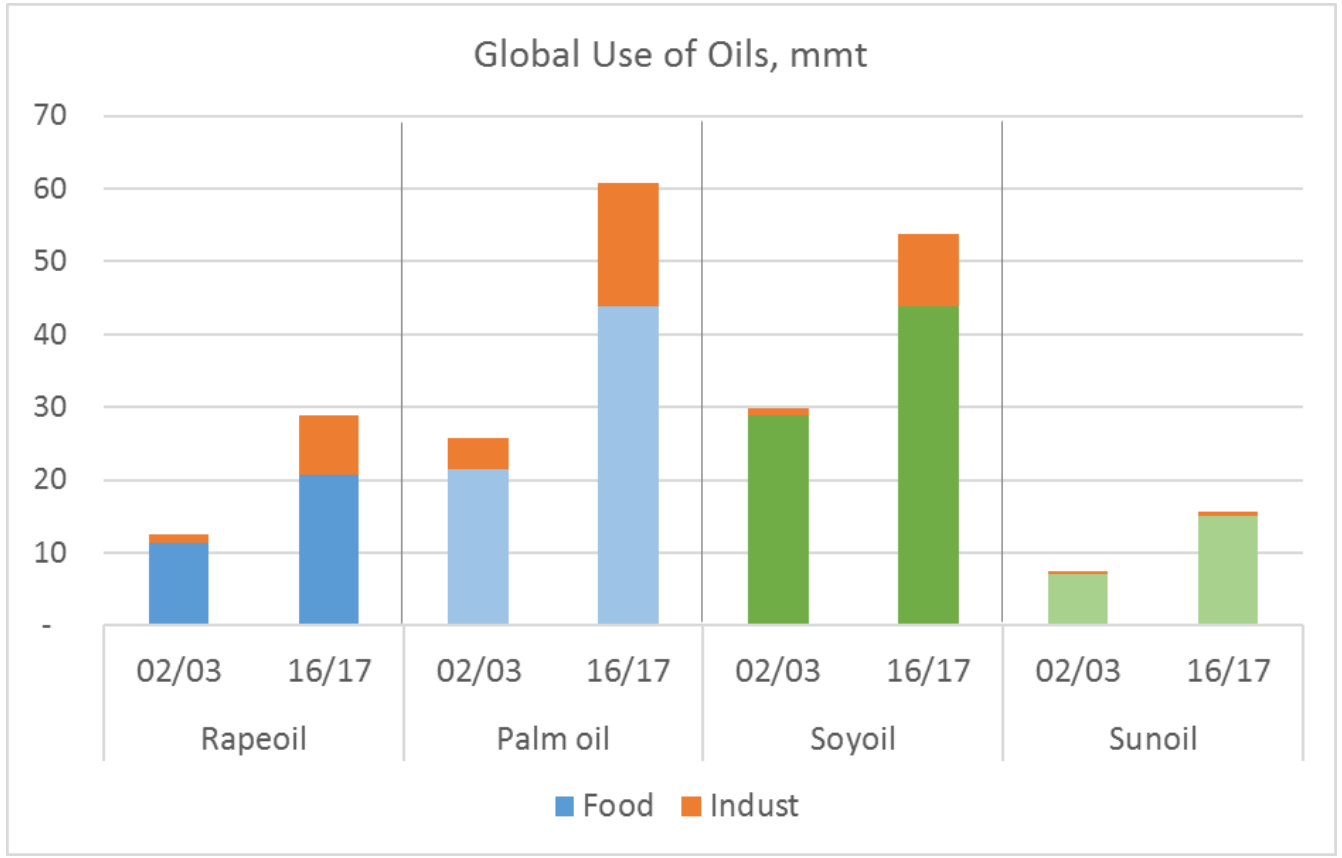
II. Main differences that impact their demand & price spreads between oils.
- Consumer preferences as cooking oils
- Suitability for use in biofuels sector

III. Consumer preferences & share of oil supply that is traded globally – how do preferences impact trade? Domestic oil supply tends to drive by-country preferences
- Cost of production drives global trade: Cheapest oil…
- Global price spreads in export market

IV. How does oil vs meal content affect prices & spreads between oils.
- Typical oilshare range for seed oils, vs oil content & protein level of meal.
- How global oil supply responds to oil price changes.
- How global meal demand inpacts long-term demand for different types of oil.

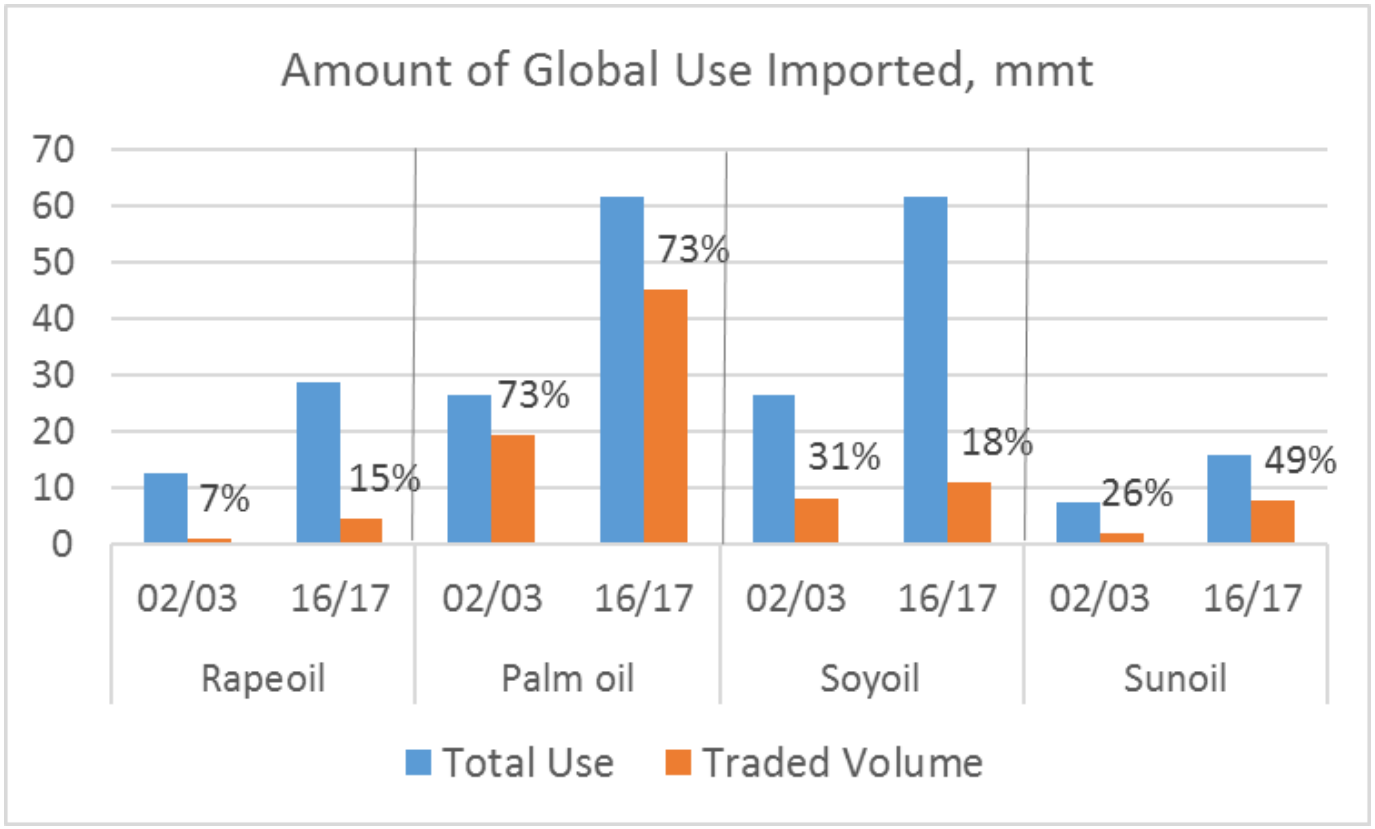
Demand Drivers

Biodiesel vs Food Use: policy driven



- Biodiesel makes up significant share of growth over past 15 years.
- Palm oil now largest BD feedstock, as well as largest food oil globally.
- Soyoil food use nearly equal to palm, led by SB crush growth in China.
- Rapeseed oil food demand driven mainly by countries with large domestic production base, driving long-term consumer preference.
- Sunoil not well suited for biodiesel, growth driven nearly all by food demand and production expansion in Black Sea & Argentina.

Global trade volumes driven by cheapest prices



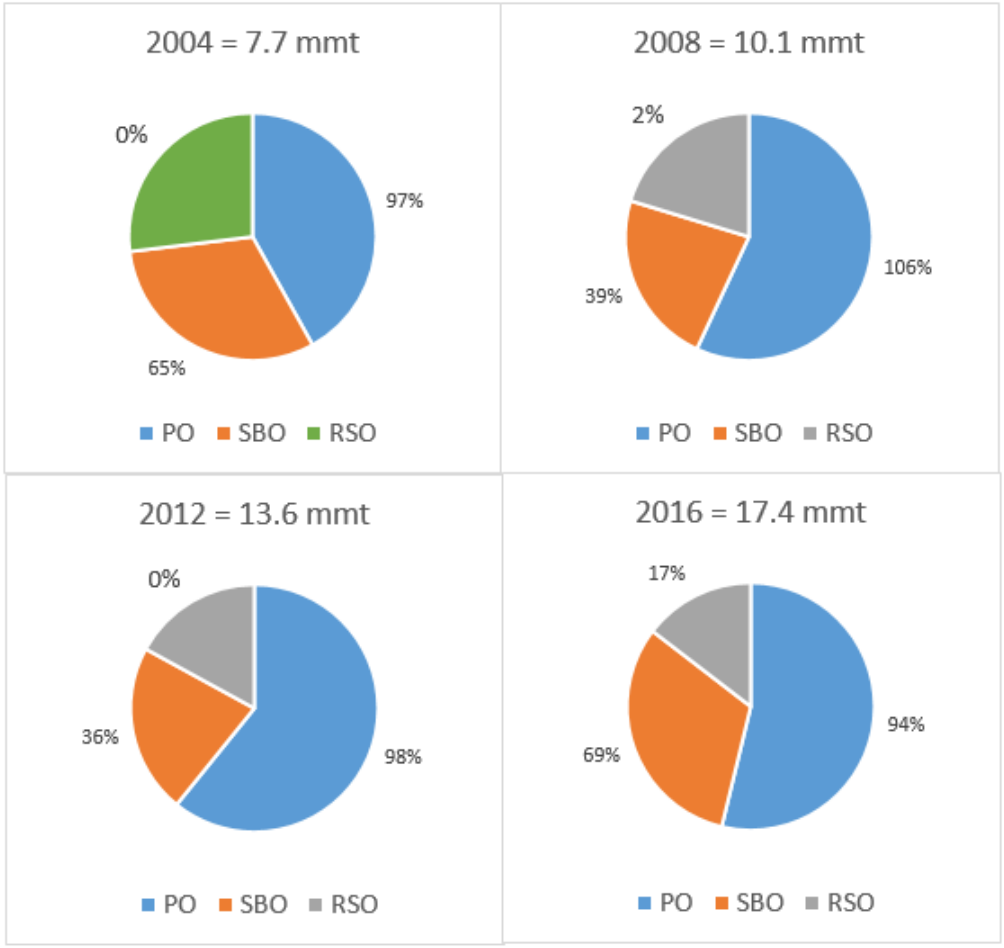
Main importers are driven by:

1). Population
2). Biofuels sector

Major Vegoil Importers, mmt	
	2016/17
India	13.4
EU-28	7.7
China	7.2
US	3.5
Pakistan	3.4
Bangladesh	2.1
Egypt	1.8

India biggest global importer

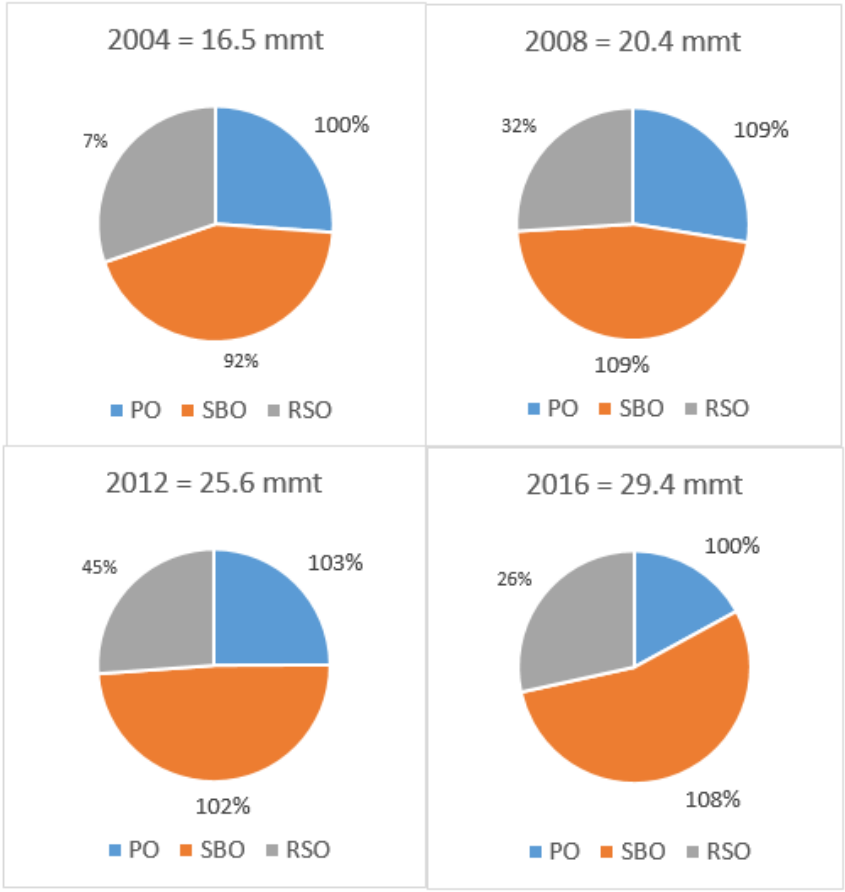
Total Vegoil Domestic Use w/ % Imported



- India is largest global importer of vegetable oils, making up 20% of all trade this yr, doubling market share since 2006.
- Palm Oil imports have tripled in last 10 yrs, from 3 to 9mmt, but share of total Indian imports has declined from nearly 90% ten yrs ago, to 70% today as SBO and RSO have gained share.
- SBO Imports grew more than 3x: from 1.2 to 3.8 mmt.
- RSO was previously all supplied by domestic seed production, now imports ~400K m.tons / year *(16% of total consumption).*
- Domestic farmers and vegoil industry heavily protected by import tariffs.
- At lower absolute price levels, they can afford to import more premium oils (SBO, RSO) less Palm.

China biggest vegoil consumer, #2 importing

Total Vegoil Domestic Use w/ % Imported
(including seed imports in oil equivalent)



- Largest global consumer of vegetable oils, 2nd vegoil importer behind India when only looking at oil imports.
- Large livestock industry needing protein meals, imports more seeds than oils, providing both meal and oil. ***Converting seed imports to oil equivalent, total imports are much larger than India.***
- SB Imports are ~60% of global trade in SB, will import SB until domestic protein meal needs are met, then will import additional oil to fill domestic vegoil needs. ***90 mmt SB imports 2017 = 16mmt SB Oil imports***
- Preference for RSO, which is their largest domestically produced oil seed crop, but palm and sbo are quickly substituted when competitive.
- Will import Rapeseed when margins for crushing and processing oil are competitive vs importing rapeseed oil (mostly sourced from Canada).
- ***Very flexible importer of seeds & oils makes China biggest driver of relative prices globally.***

Global BioD growing for soy, palm, & UCO

GLOBAL FEEDSTOCK	13/14	14/15	15/16	16/17
SoyOil	7,371	7,548	8,111	9,139
Rape oil	6,760	7,018	7,010	6,992
Palm Oil	5,867	4,280	5,942	6,502
Sunoil	300	237	235	215
UCO	3,828	4,529	5,264	5,750
Other	727	586	770	917
TOTAL FEEDSTOCKS	**24,853**	**24,197**	**27,333**	**29,514**
Soy+Rape+Palm+Sun	**20,298**	**19,083**	**21,299**	**22,848**
US/EU/Bzl/Arg/Indo/Malay	**24,164**	**23,451**	**26,266**	**28,252**

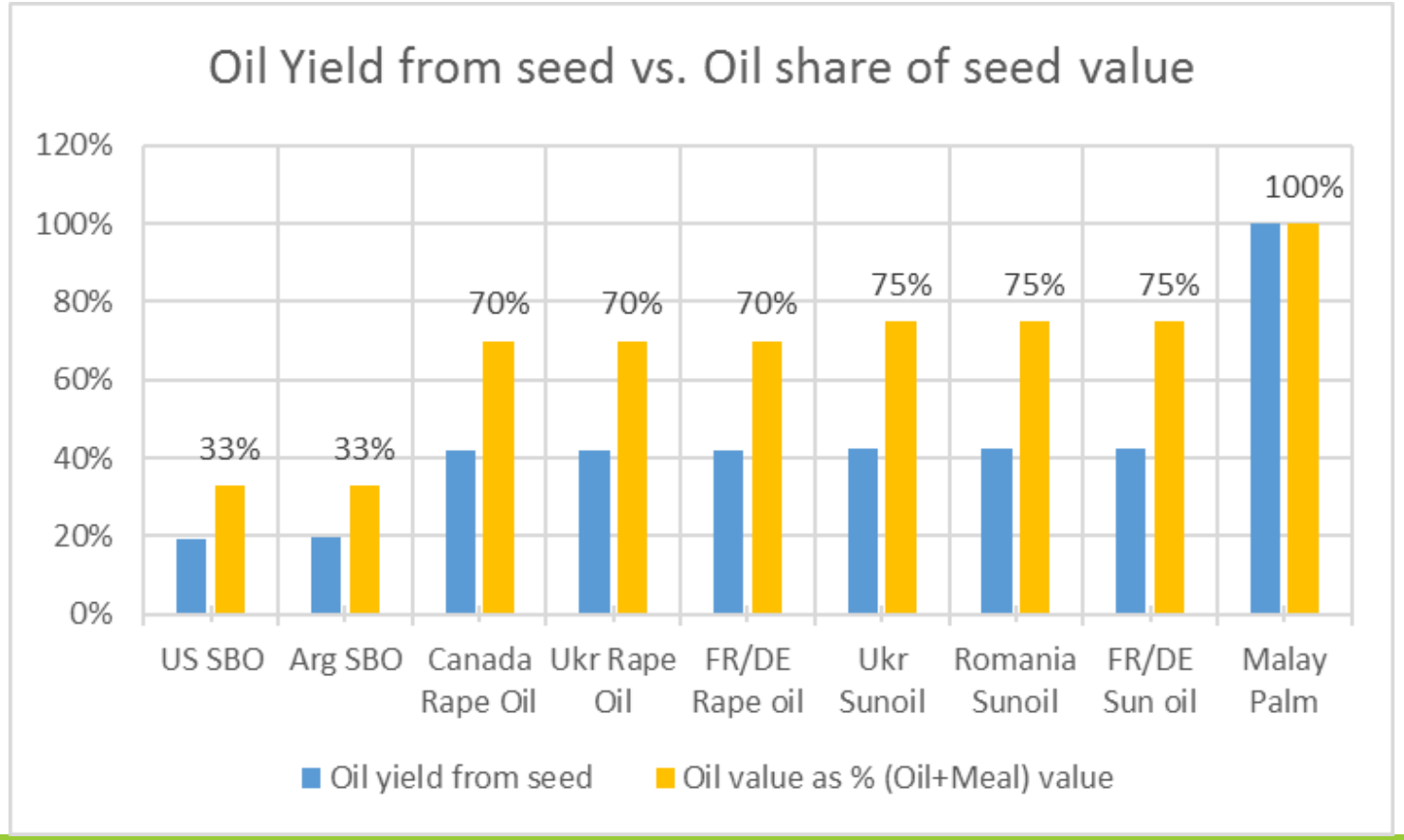
- Main policy push to expand BD production today is in SE Asian Palm & S.AM Soy producing countries.

- Rapeoil feedstock demand is mainly limited to EU, where policy support is waning for further expansion of food oils as fuel, and UCO's replacing soft oils.

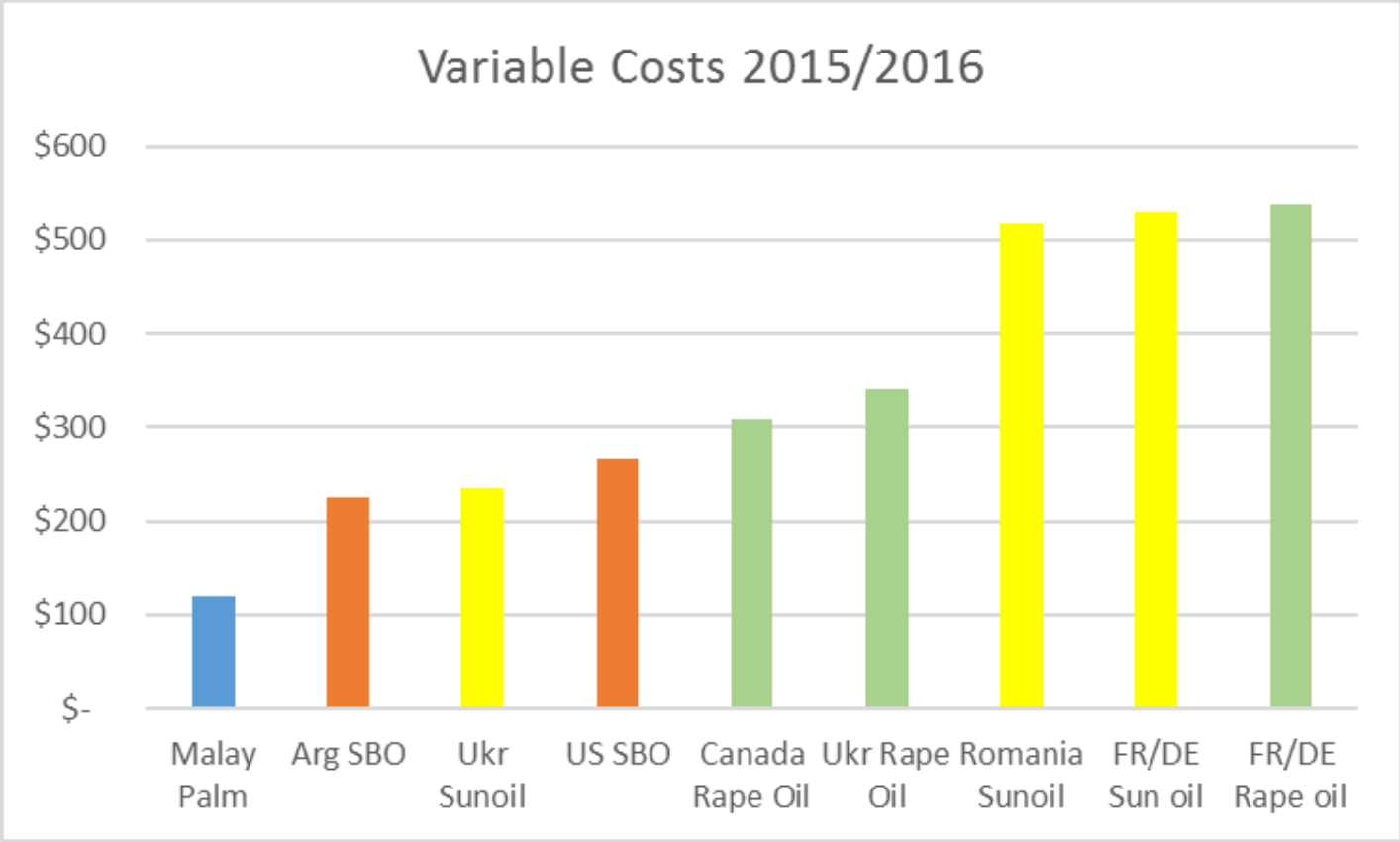
Oil Cost of Production

Meal value of seed drives oil cost of production

- Higher protein meal value from seed offsets oil cost of production on per-ton seed basis.



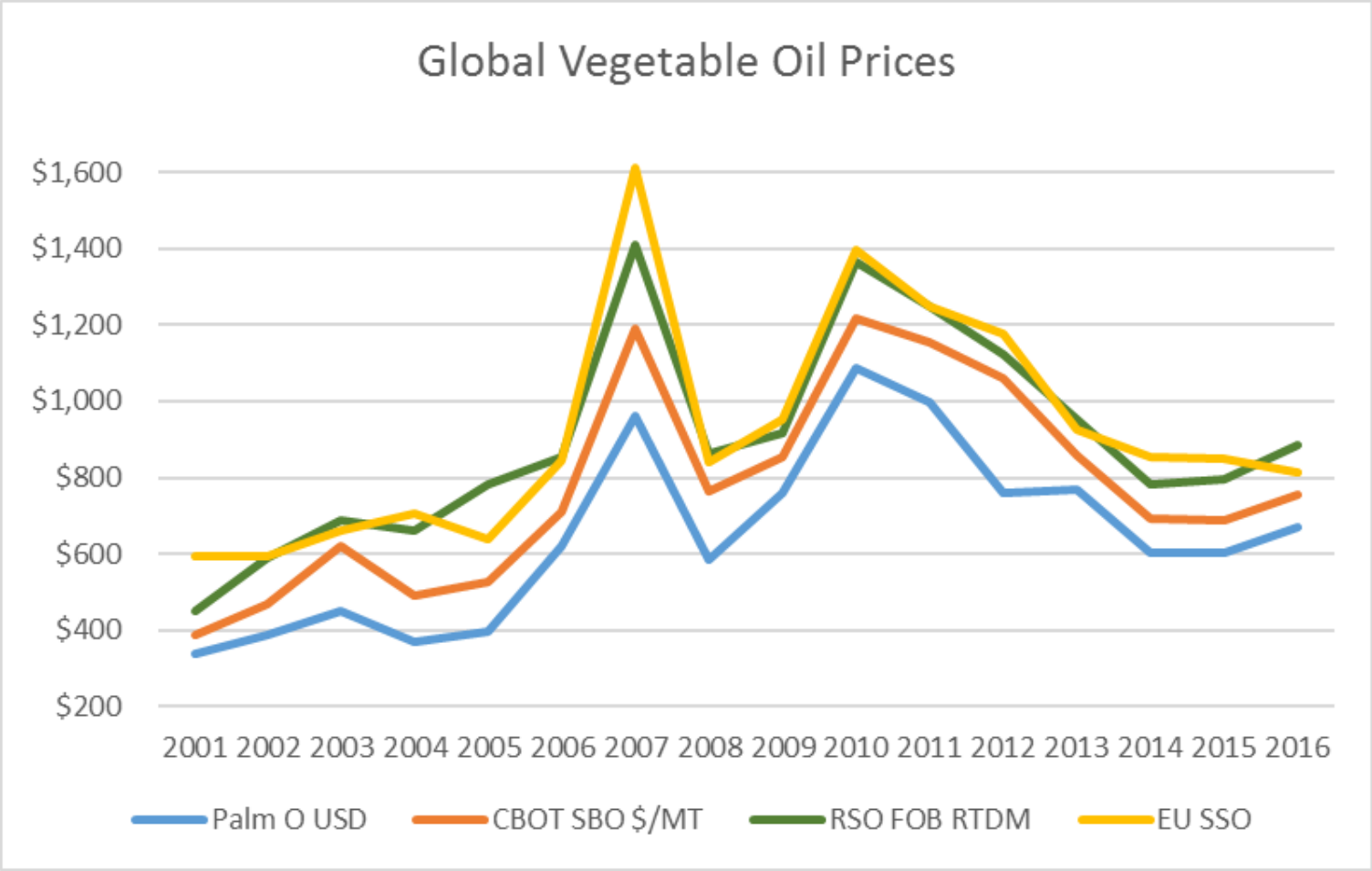
Oil cost of production drives competitiveness



- Oil Palm tree life of production allows for very low costs, although high establishment costs and long pay back window.
- SBO, at 80% meal share, has higher meal value and therefore lower relative oil costs.
- Soybeans have seen tech advances helping lower seed prodn costs (RR, Yield jump).
- Sunseed meal with hulls has lowest protein % and meal value per ton seed, therefore high oil share of costs.

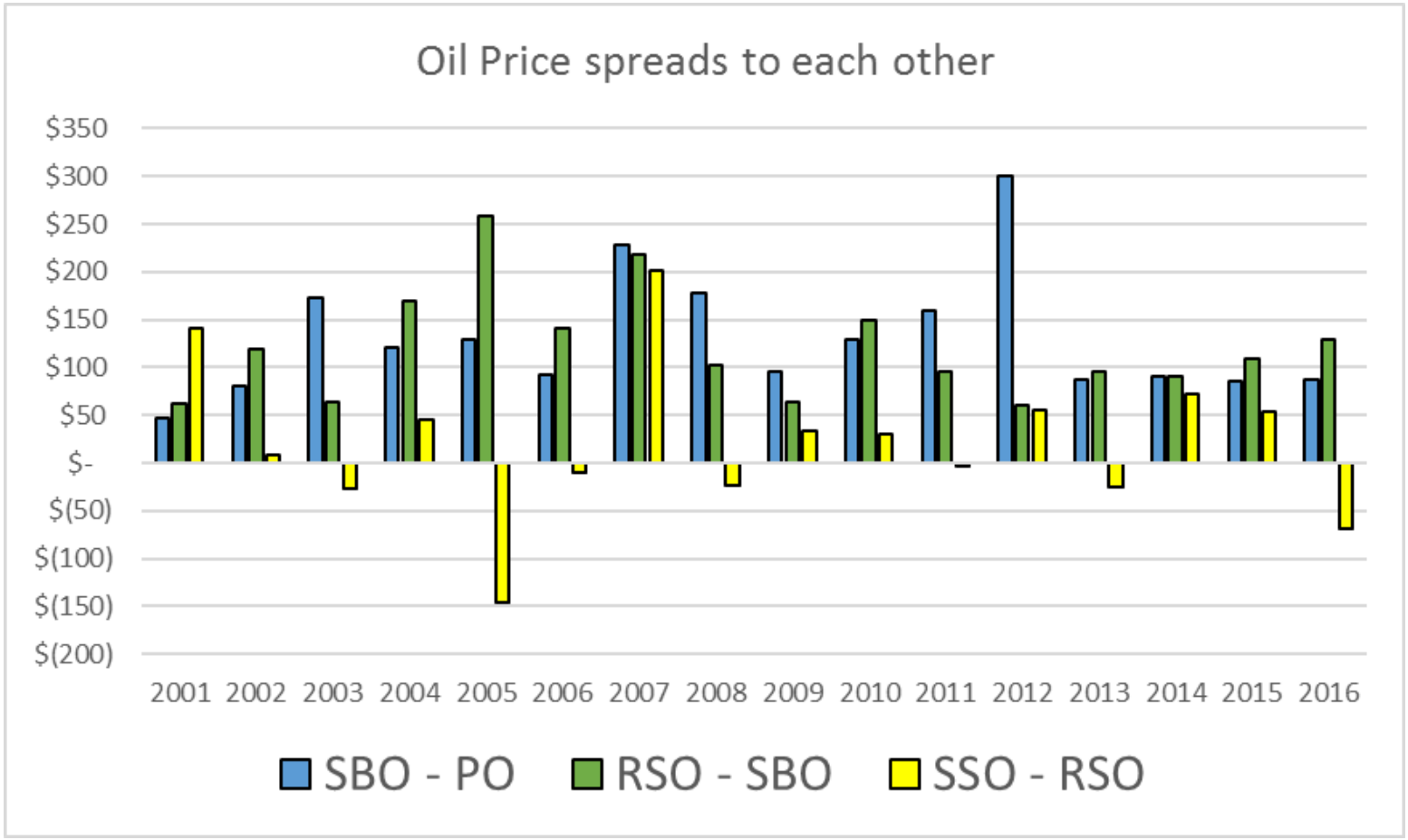
Oil Price Relationships

Because oils are easily substitutable in main importing countries, prices stay in close range



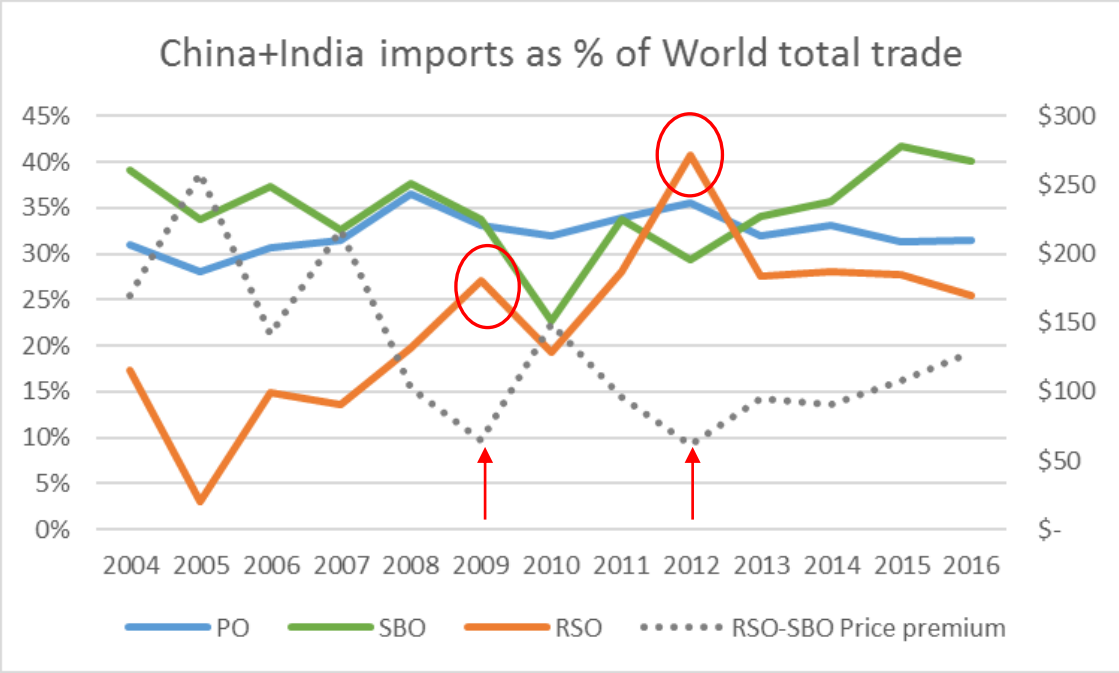
- Price relationships have tightened since start of biofuel mandates (2004-2006). Biofuels do not have “taste” preferences…
- Biofuels have also tied vegetable oil prices to petrol prices.

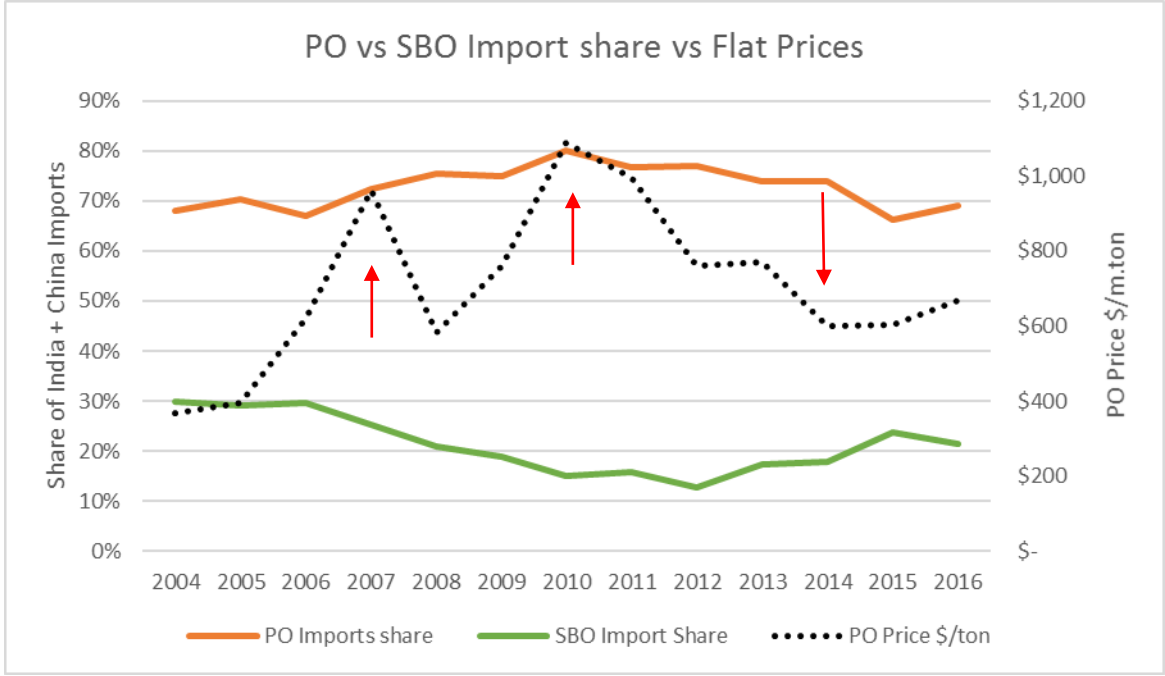
Relative value of oils to each other



- Spreads between oil prices tend to increase at higher absolute price levels.
  - **PO** almost always cheapest
  - **SBO** 2nd cheapest – high meal yield offsets seed costs
  - **RSO & SSO** are premium oils, preferred for food use over Soyoil in many countries, although sometimes SSO will trade at discount to RSO when sun crops are large.
  - **SSO** often more of a specialty oil, excess production has to price in to elastic demand base of Palm/Soy/Rape.

Main importers very Price sensitive





- The biggest importers, China & India, are very elastic with their imports, switching easily when price spreads change very much.
- When edible oil prices have been expensive, palm – the cheapest oil, gains market share over soy, rape, and sun oils.

What drives Rapeoil prices?

CORRELATION OF OIL PRICES					
	SBO	CPO	SFO	RSO	SBO Share
SBO Px		97%	95%	98%	42%
Palm Px	97%		93%	95%	41%
SSO Px	95%	93%		96%	50%
RSO Px	98%	95%	96%		53%
Own Seed Price	93%			96%	

15 yr correlations

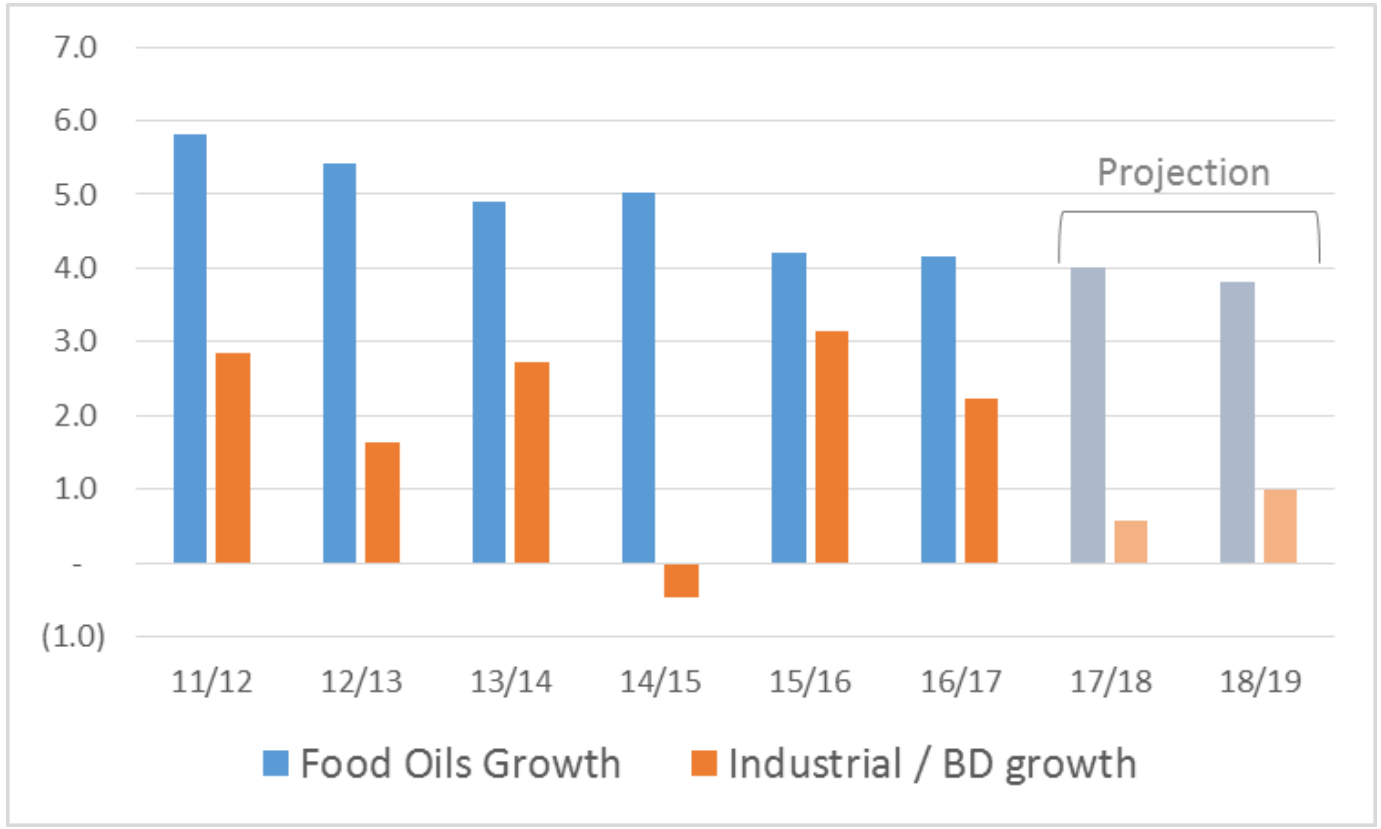
- **Sunseed Oil** is most specialized and has lowest correlation to palm prices (the most generic oil)
- **Soyoil** most tied to palm and rso – particularly driving soy oil share of soybean product value.
- ***Rape Oil price most closely tied to global Soyoil prices. Rape SEED price tightly tied to oil value.***
- **Sunseeds**, being highest cost oil, tend to see acreage fluctuate the most in response to high / low global vegoil prices.

Other price drivers

CORRELATION OF OIL PRICES					
	SBO	CPO	SFO	RSO	SBO Share
Gasoil (Diesel) Px	88%	85%	85%	90%	35%
Chg In Own Seed Prodn	-29%	-6%	-26%	0%	
Global Food Oil Use	42%	47%	31%	37%	
Global BD Prodn	57%	61%	45%	52%	

- Biofuels sector has brought **Petrol prices in as *MAJOR*** influencer of edible oils values, particularly Rapeseed oil.
- Changes in **Rapeseed supply** have **zero correlation with oil value.** Rather oil values are tied to changes in global all oils supply, particularly Palm and Soy oils.
- **Global demand influence**:
  - Growth in **food oil** use has low correlation as a oil price driver. Long-term steady growth rate is anticipated.
  - **BioDiesel** production, a newer demand uncertainty, has been bigger driver of price volatility.

Where will future growth come from?



All major oils combined, mmt

- **BD Growth** expected to continue slowing, although new capacity coming on line in Indonesia will be driver of most growth going forward. – ***Will affect surplus PO supplies.***

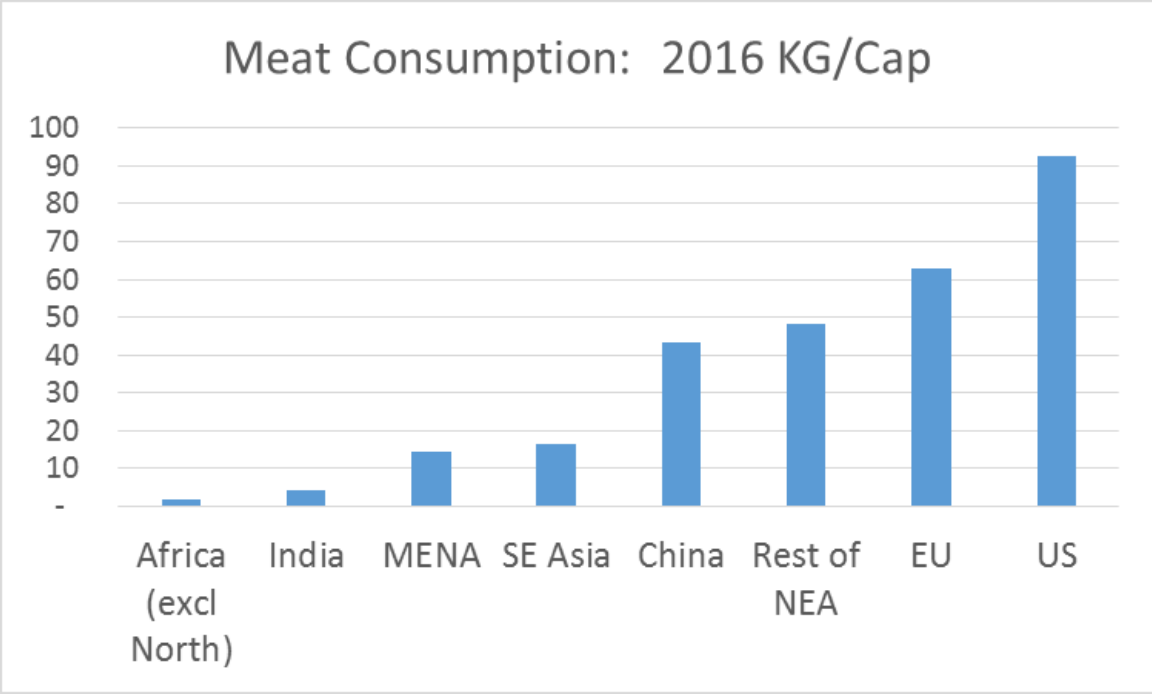
- **S.AM** will continue to expand BD blend rate in domestic diesel fuel markets, but small markets on a relative basis.

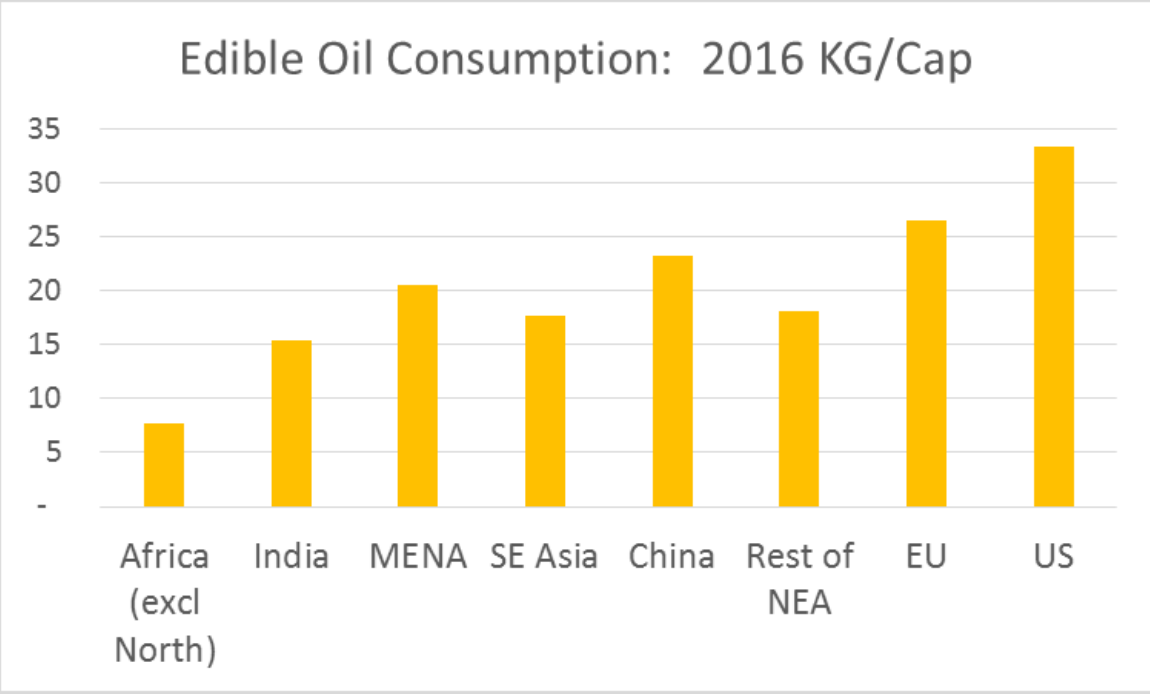
- Food growth is slowing, but will continue to be much bigger driver than BD. ***But BD is still biggest price influence!***

- Since growth in BD will come from SBO and Palm (along with UCO), leaves some growth room for soft oils still in food sector.

Meal Value vs Oils

Developing economies ***per-capita*** oil vs meat:





- Meat demand growth drives protein meal demand growth.
- Developing economies further up the oil consumption scale in edible oils than in meats.
- Potential for growth higher in meat consumption than in vegoils in many countries, *even where cultural differences cause lower total meat demand.*

Oil growth rates still large in India and China, but topping out potentially

	Meat PC			Food Oil PC		
	2016 KG/Cap	5 yr	10 yr	2016 KG/Cap	5 yr	10 yr
Africa (excl North)	2	4%	6%	8	0%	1%
India	4	4%	4%	15	5%	6%
MENA	15	2%	3%	21	2%	3%
SE Asia	16	3%	3%	18	4%	4%
China	44	1%	2%	23	4%	4%
Rest of NEA	48	1%	1%	18	2%	0%
EU	63	0%	0%	26	1%	0%
US	93	-1%	-1%	33	2%	0%

- **Africa** has most room for consumption growth per capita, but meats have been growing faster than oils last 10 yrs.
- **China and MENA** have higher relative oil consumption per capita than meats – higher incomes will likely increase meat demand more than oils going forward. *(ie China & MENA oils > NE Asia, China nearly as high as EU).*
- **India** beginning to rapidly expand fish and chicken consumption, although still very low on per cap basis. Oil also low – still lots of room for growth in both products as incomes rise, *but oils much closer to SE Asia goal than meat*.
- **Developed countries** topped out on both oil and meat, little to no growth outside of population expansion.

Long-Term Global vegoil vs protein meals

Global Total Consumption Growth Rates				
	25 yr	15 yr	10 yr	5 yr
Protein Meal Feed (SBM equiv protein)	4.5%	4.1%	4.1%	3.7%
Total Vegetable Oils Domestic	5.4%	5.4%	4.8%	3.7%
Food Use Vegetable Oils	4.6%	4.3%	4.4%	3.7%
Industrial Use Veg Oil	10.1%	12.3%	6.7%	3.4%

- Globally, Total Vegoil demand has grown faster than protein meals over last 25 years, *mainly due to Biofuels.*
- Industrial (Biofuels) main driver to veg oil demand jump.
- Food use of vegoils long-term growth 4.0-4.5% pace.
- Protein meals have been fairly steady around +4.0-4.5% also.
- ***Higher oil content seeds have advantage when oil growth outpaces protein meals. If Biodiesel demand slows or goes stagnant, oil and meal demand growth will be roughly equal, favoring soybean economics for growth over softseeds. But current BD growth focused on Palm & Soy should keep growth in rape and sunseed sectors in next several years at least.***

Conclusions & Summary

- Biodiesel has been main driver of global demand growth over last 10-25 years. Mature BD markets in US and EU stagnating with **waning policy support**. New BD growth will be driven by SE Asian & S.AM countries where policy intended to support domestic palm and soybean industries. *If BD growth targets in these markets are met, will keep need for rapeseed oil expansion growing as food oil.*

- Value of by-products (protein meal) is main driver of **oil value as share of seed costs**, and oil cost of production per ton. Higher oil content seeds (rape, sun, & palm) have high oil-share value, which **gives advantage during times of strong vegetable oil consumption growth**, particularly during recent BD sector expansion.

- Global trade in food oils led by highest population countries, where **price competitiveness** can outweigh consumer preferences in meeting total domestic food needs.

- Lower absolute price periods can bring **higher demand share** to premium oils, while **high global prices will favor cheapest oil**: almost always giving advantage to palm oil.

- Long-term **food oil growth roughly equal to protein meal growth**, for which soybean production gains relative advantage due to higher meal content and value.

Rape Seed & Oil specific…

- **Rapeseed value** tied very tightly to oil value. Oil value however has no correlation to increases or shortfalls in seed production: Global oil demand & prices drives Rape Oil & Seed value.

- **Gasoil (Diesel),** and therefore Crude Petrol, are biggest outside influence on Rapeoil and seed prices – *completely exogenous!*

- Rapeseed and oil growth above and beyond long-term food demand expansion means **competing with soyoil** for market share and narrower premium to soy and palm oil prices.

- **China & India,** the main drivers of global demand growth, both have domestic preference for rapeoil in cooking, which means RSO can quickly gain import market share by pricing at aggressive (narrower) premium to SBO & PO.

- To be competitive at lower oil price levels will be helped by **lower Rape Seed cost of production**, (ie similar to what Soybeans have seen over last 15 years).

- Competing with Soyoil can be enhanced with **higher value Rapeseed meal**.