

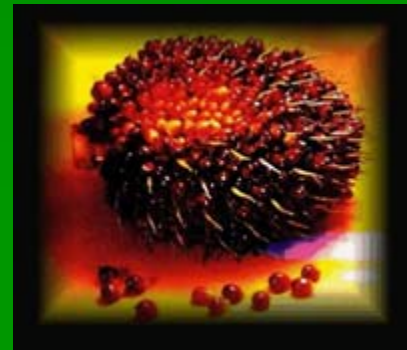
# Palm Oil Industry Introduction

**Extra Dose of Vitamin A & E**  
**From Palm Oil**  
**\$\$\$\$\$\$\$\$\$\$\$**



# Introduction of Oil Palm History

- The palm Oil (*Elaeis Guineensis*) is native to West Africa.
- Oil palms was introduced to Java by the Dutch in 1848 and to Malaysia (then the British Colony of Malaya) in 1910 by Scotsman William Sime and English banker Henry Darby.



# Introduction of Oil Palm History

- The early oil palm plantations were established and operated by British plantation owners, such as Sime Darby & Boustead in Malaysia.
- Commercial exploitation of the oil palm began in the early 1900's in Asia; Beginning in 1910 in Sumatra and in the 1920s in what is now the country of Malaysia.



# Introduction of Oil Palm History

■ In the 1950's Malaysia began to clear rainforests in an effort to weed out communist guerillas and “settle landless people.”(Palm Oil, Kurt Berger, pg 2, pp3, [www.britaniafood.com](http://www.britaniafood.com))



■ FELDA( Federal Land Development Agency) was formed in July 1, 1956. Malaya began to create oil palm plantation settlements for the poor in the rural area.

# Introduction of Oil Palm History

- The large plantation companies remained listed in London until the Malaysian government engineered their “Malaysianization” throughout the 1960s & 1970s.
- 1979, the government set up the Palm Oil Research Institute of Malaysia (PORIM) to support development of oil palm plantation industry.
- Government also set up the Palm Oil Registration and Licensing Authority (PORLA) to in charge quality and licensing.





# Introduction of Oil Palm History

■ **PORIM and PORLA were merged and renamed as Malaysia Palm Oil Board (MPOB) in 2000, became Malaysia's top R&D entity with the highest technology while regulating oil palm industry in Malaysia.**



# Fact and figures of Oil Palm Industry

■ Today, Malaysia and Indonesia palm oil players dominate the global Palm Oil industry with combined contribution of 85% of world palm oil production



41.5%



43.5%

■ **Now...** Crude Palm Oil (CPO) price reached >RM 3300/MT and the CPO price is projected will reach RM 4000/MT from the coming 3 or 4 years time.



# Malaysian Palm Oil Association (MPOA)



- To ensure the long term profitability and grow of the Malaysian palm oil industry.
- Act as the single united voice of the Malaysian palm oil industry.
- A platform for discussion on palm oil plantation issues and support its R & D.



# Oil Palm Plantation Development: Seed & Seedling



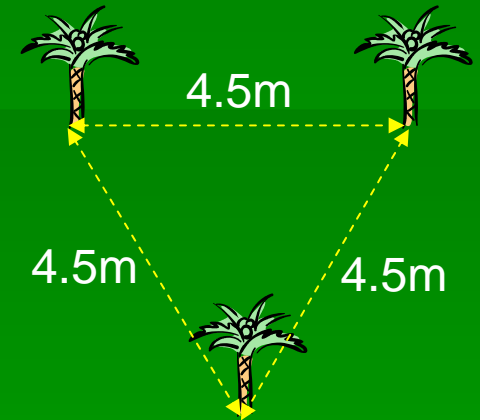
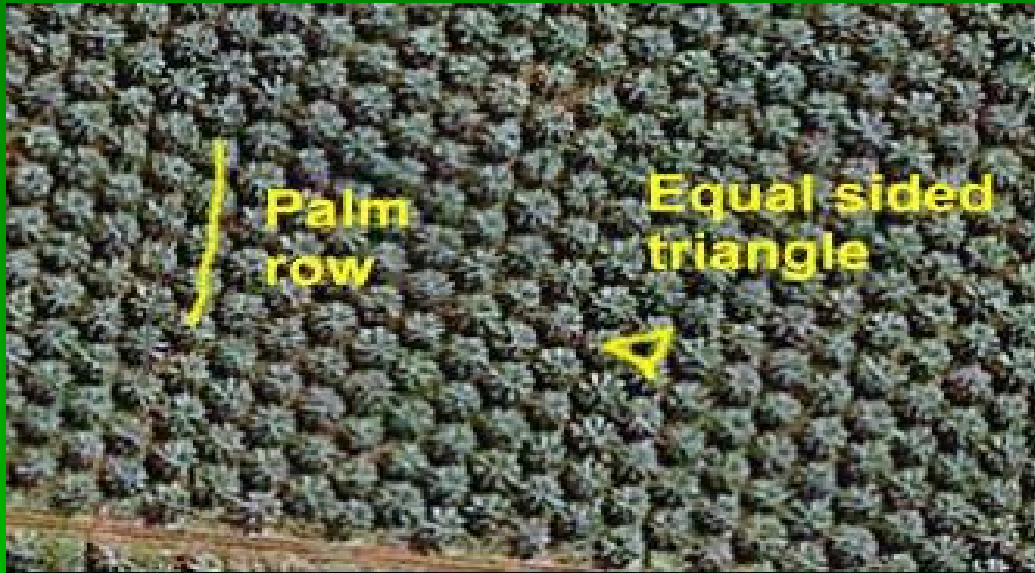
Germinated seeds are planted into their nursery for one year before transplant to the field.



Mesocarp (CPO)

Palm Kernel (PKO)

# Palm Oil Plantation Outlook



Palms transplanted to the field will start flowering and bear fruit after 3 years.



Palms reach the maximum yield after 6<sup>th</sup> years

# Identify Healthy Palm Oil Tree



This palm cannot survive and grow into a productive palm. First slash the grass.



This yellow palm on grassland is due to severe nutrient deficiency.

# Identify Healthy Palm Oil Tree



This seedling will not bear fruit for many years.



This seedling will bear fruit two years after planting if properly taken cared of.

# Identify Healthy Palm Oil Tree



Immature palm with weeds around the palm due to lack of weeding.



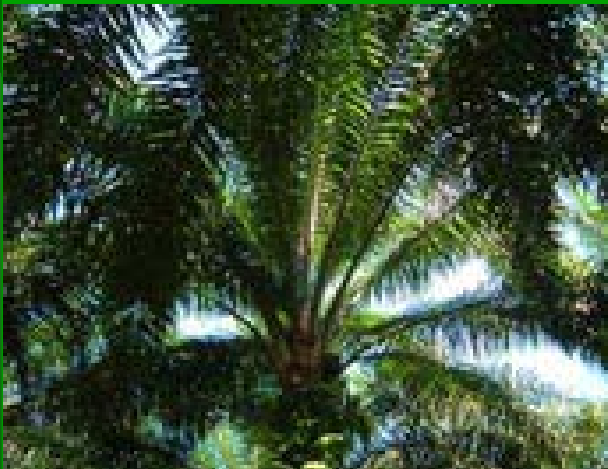
Immature palm with a clean weeded circle.



# Identify Healthy Palm Oil Tree



A nitrogen deficient palm has an open canopy, short light green fronds and low yield.



A nitrogen sufficient palm has dense canopy, long dark green fronds and high yield.

# Identify Healthy Palm Oil Tree



Ganoderma infected palms have hanging fronds.



Ganoderma infected trunk must be chipped to promote rapid decay of infected material.

# Good Palm Oil Plantation Design



Bad harvest path.



If you have a clean weeded circle, the fertilizer you apply is used by the palms NOT by weeds. It will also make it easier to harvest and pick up loose fruit.



Good harvest path.



# High Yield Palm Oil Bunches



**Under-pruned young palm with too many fronds below the bunches.**



**Over-pruned young palm with no fronds below the ripest bunches.**



**Correctly pruned young palm with two fronds below the ripest bunch.**



# High Yield Palm Oil Fresh Fruit Bunches (FFB)

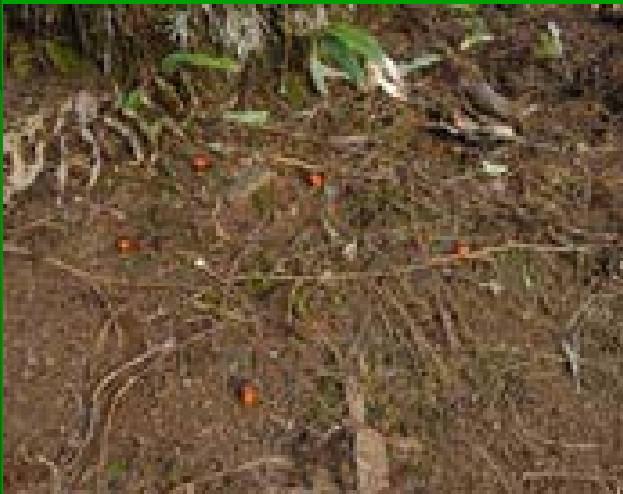




# Good Harvest Palm Oil Sign



More than 100 loose fruit indicates that Harvesting round is late and the bunch should have been harvested during the previous harvest.



Four to five loose fruit in the circle indicates that the bunch is ready for harvesting.

## **Loose Fruits = Loss \$\$\$**



**Many loose rotten fruit left in the circle means a loss of income for the grower.**



**Worker is collecting fruit and receiving a separate income.**

# Aerial View of a Palm Oil Mill



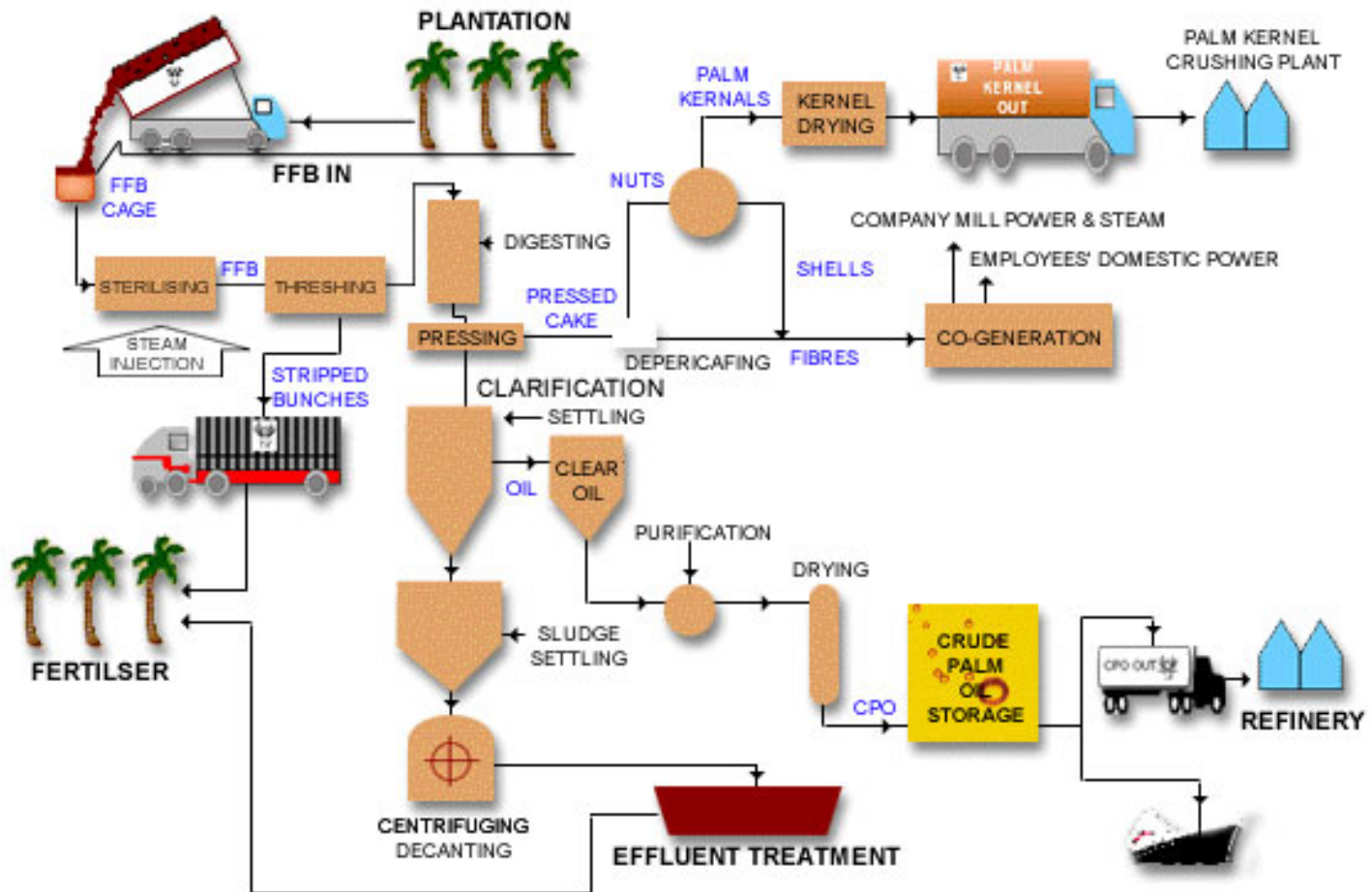
# Modern Palm Oil Mill





# Crude Palm Oil Milling Process

## Crude Palm Oil Milling Process





# Palm Oil Grade Classification

1. **Crude Palm Oil (CPO)** –Oil produced from mesocarp (flesh) of a palm oil fruit.
2. **Refined, Bleached & Deodorized (RBD) Palm Oil** – Is CPO that has had been decolorized, deodorized and Free Fatty Acid removed (PFAD for Palm Fatty Acid Distillate).
3. **Olein** – Is the liquid portion fractionated from refined palm oil through a chilling process to a particular temperature. This is the primary source used as cooking oil.
4. **Stearin** – is the semi solid portion of refined palm oil after the fractionated process. This is mainly used for manufacturing margarine and confectionary shortenings.



Mesocarp (CPO)

Palm Kernel (PKO)

# Palm Oil Nutrition Facts

## Fats & Fatty Acids

Amounts Per Selected Serving		%DV
Total Fat	218 g	335%
Saturated Fat	178 g	888%
Monounsaturated Fat	24.9 g	
Polyunsaturated Fat	3.5 g	
Total trans fatty acids	~	
Total trans-monoenoic fatty acids	~	
Total trans-polyenoic fatty acids	~	
Total Omega-3 fatty acids	~	
Total Omega-6 fatty acids	3488 mg	

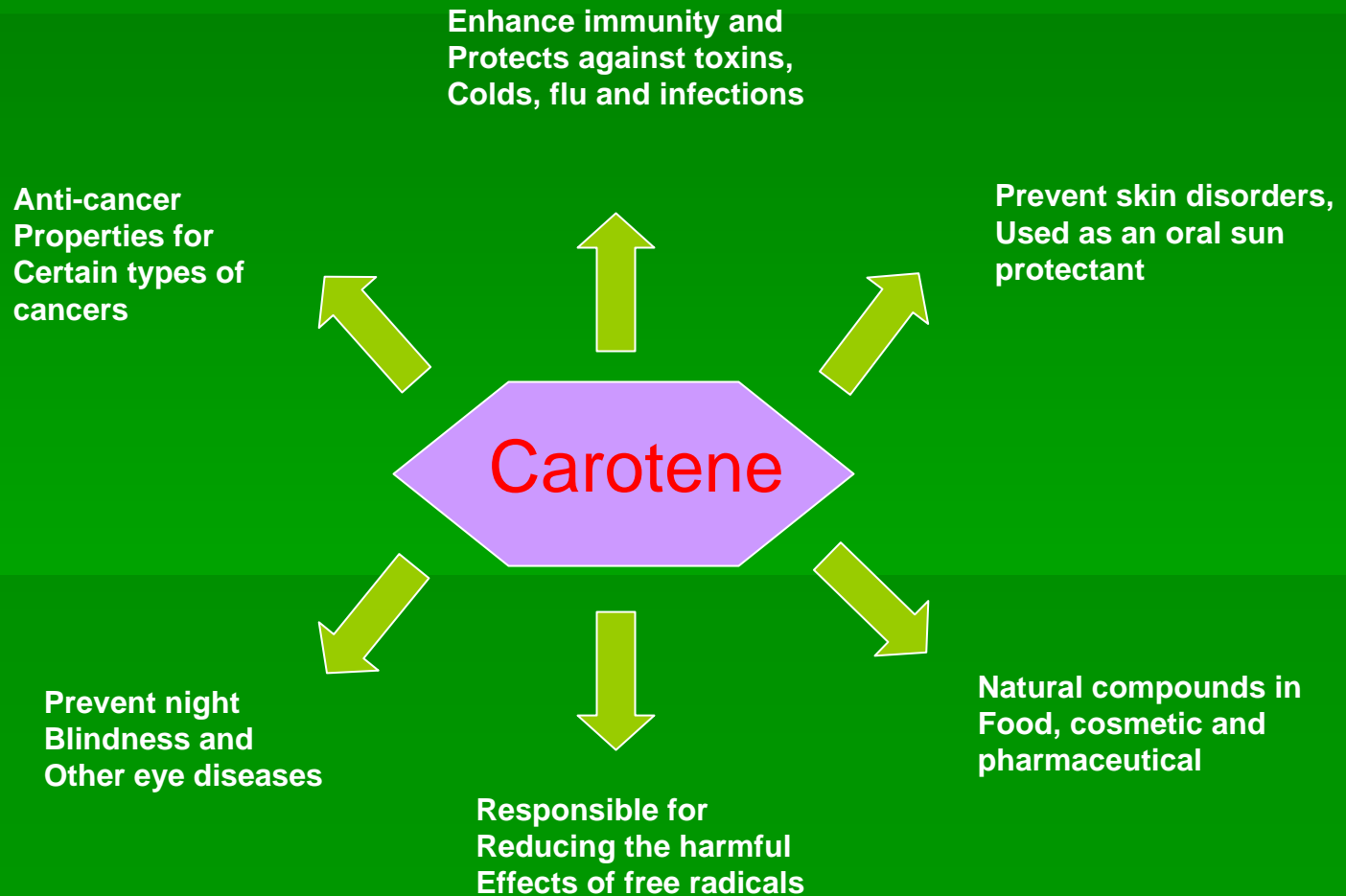
[Learn more about these fatty acids](#)  
and their equivalent names

## Vitamins

Amounts Per Selected Serving		%DV
Vitamin A	0.0 IU	0%
Vitamin C	0.0 mg	0%
Vitamin D	~	~
Vitamin E (Alpha Tocopherol)	8.3 mg	42%
Vitamin K	53.9 mcg	67%
Thiamin	0.0 mg	0%
Riboflavin	0.0 mg	0%
Niacin	0.0 mg	0%
Vitamin B6	0.0 mg	0%
Folate	0.0 mcg	0%
Vitamin B12	0.0 mcg	0%
Pantothenic Acid	0.0 mg	0%
Choline	0.4 mg	
Betaine	~	

**Free of Cholesterol and Trans Unsaturated Fatty Acids** - Palm oil, like other vegetable oils, is cholesterol free. Having a moderate level of saturation, it does not require hydrogenation for use as a fat component in foods and, as such, **does not contain trans fatty acids**.

# Benefits Of Palm Oil Products

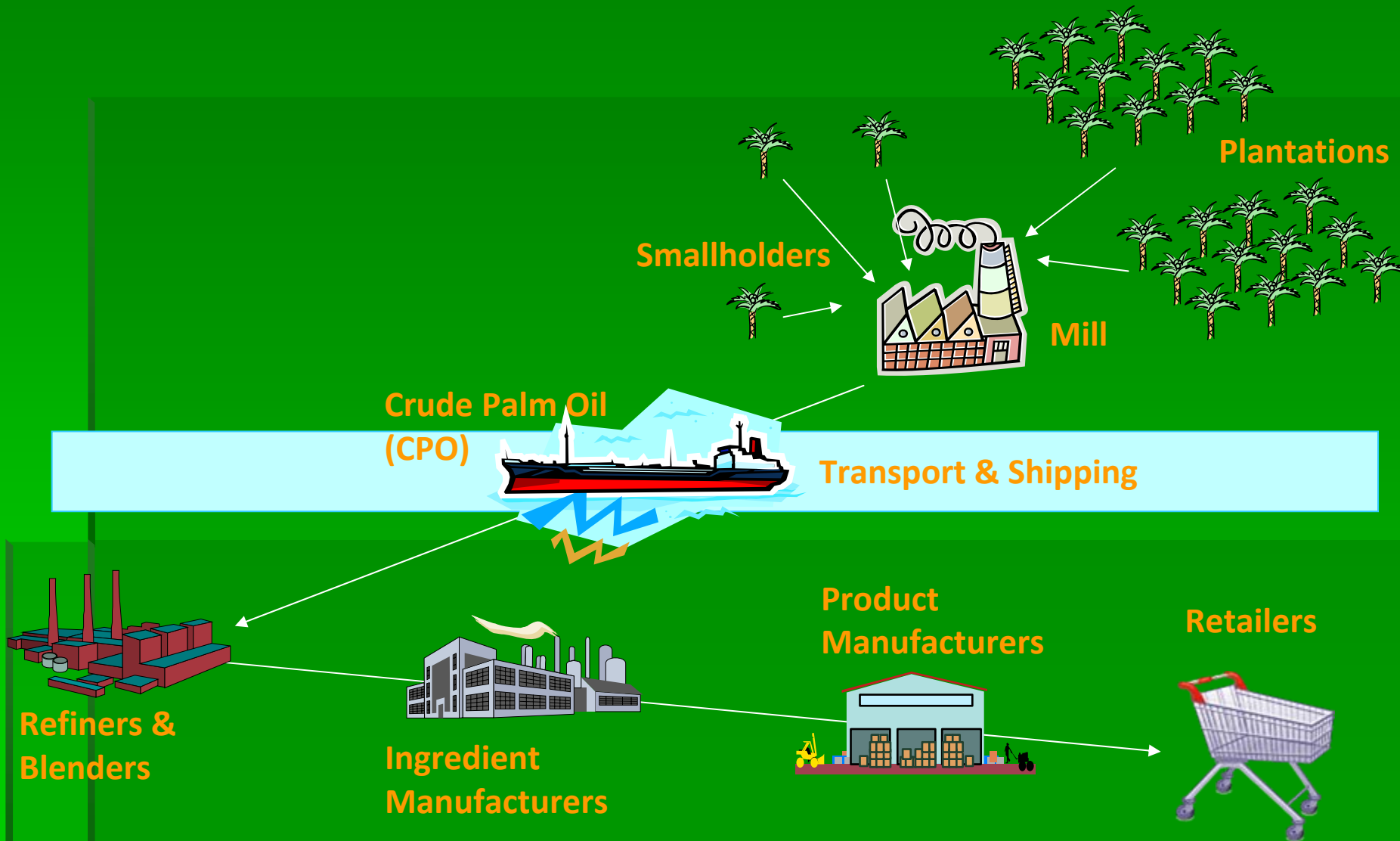


# Other Palm Oil Ingredient Products

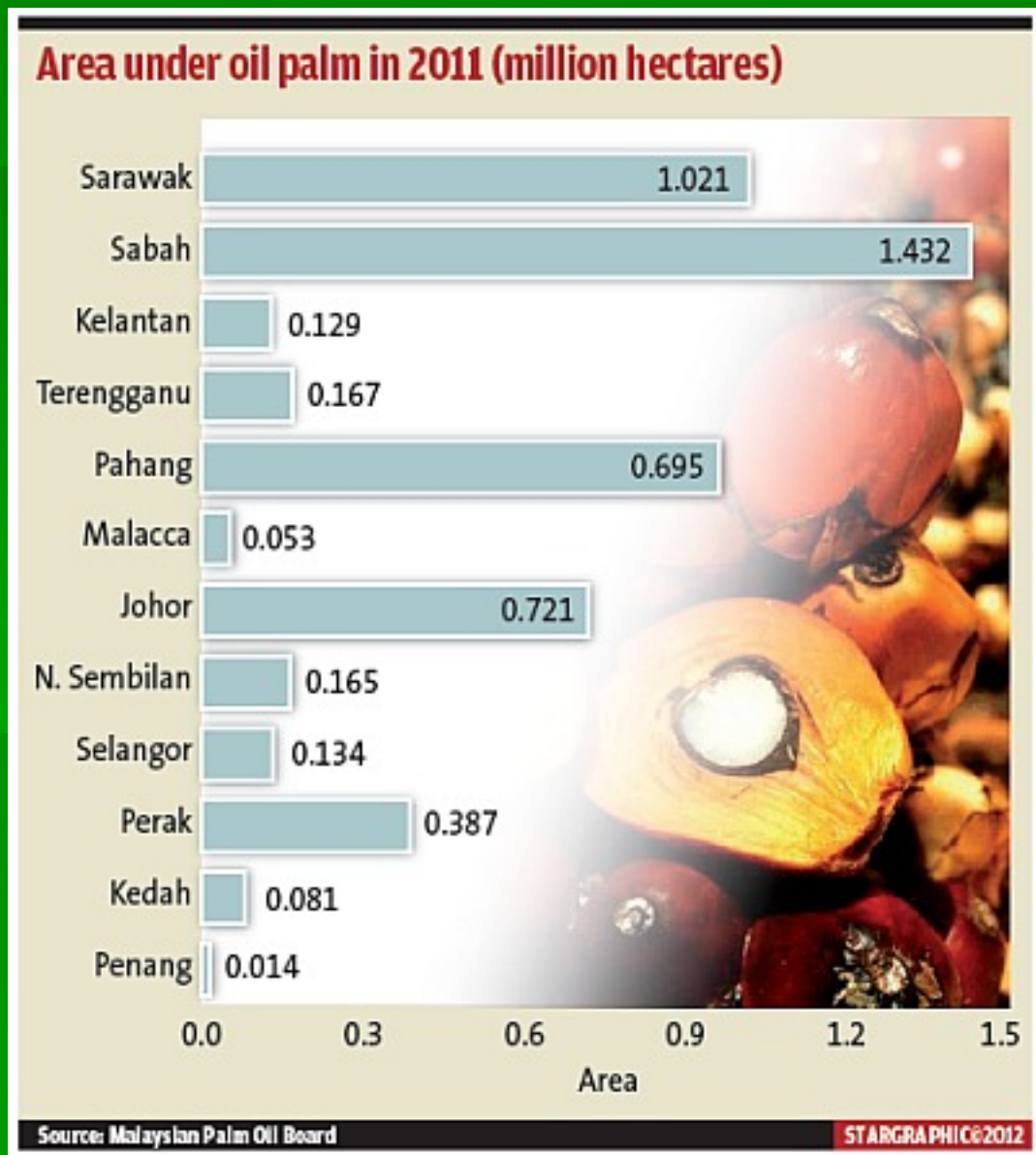




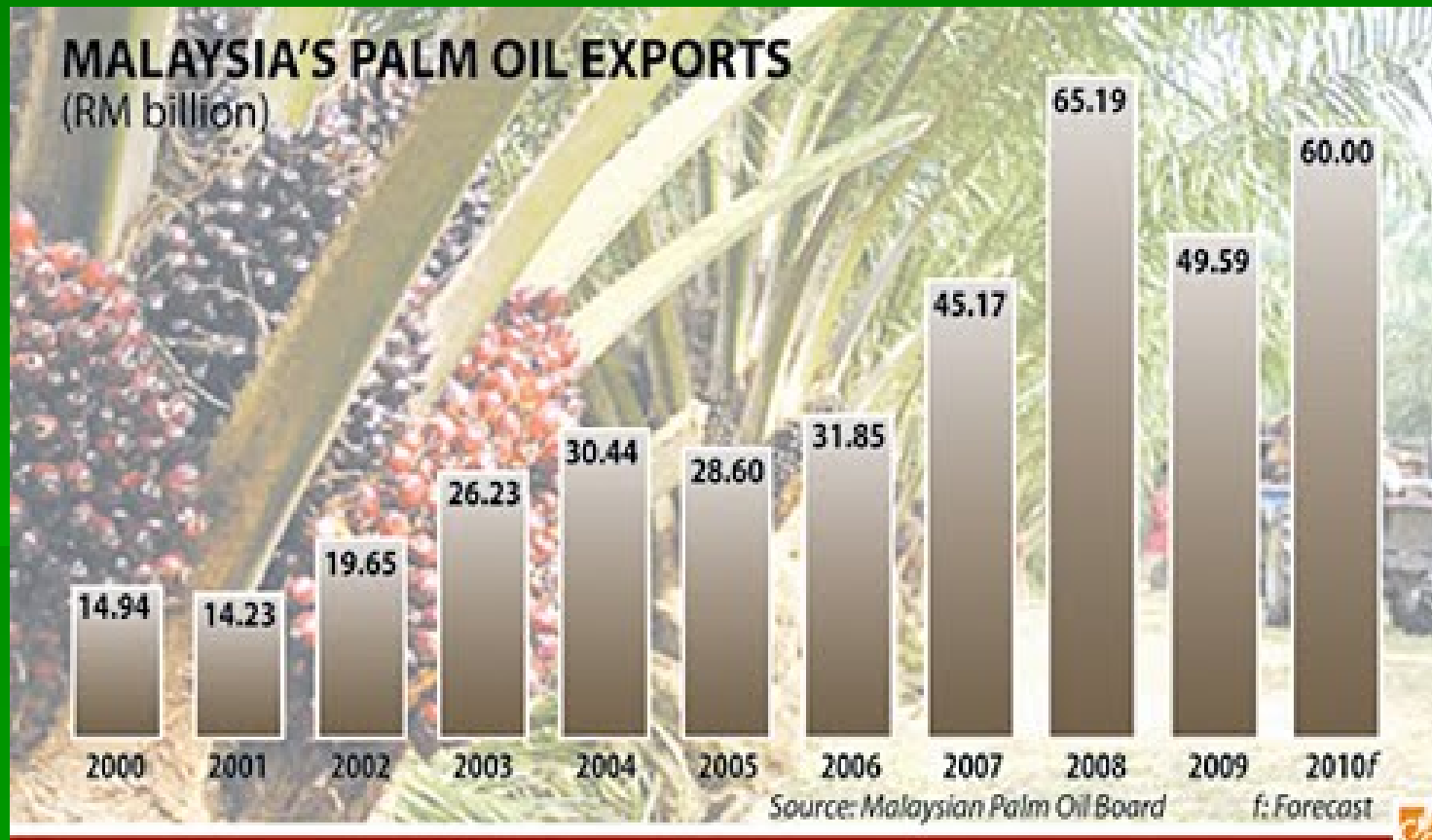
# The Palm Oil Supply Chain



# Total Palm Oil Plantation In Malaysia



# Total Palm Oil Export From Malaysia



# Global Alternative Natural Energy Supply (Biofuel)

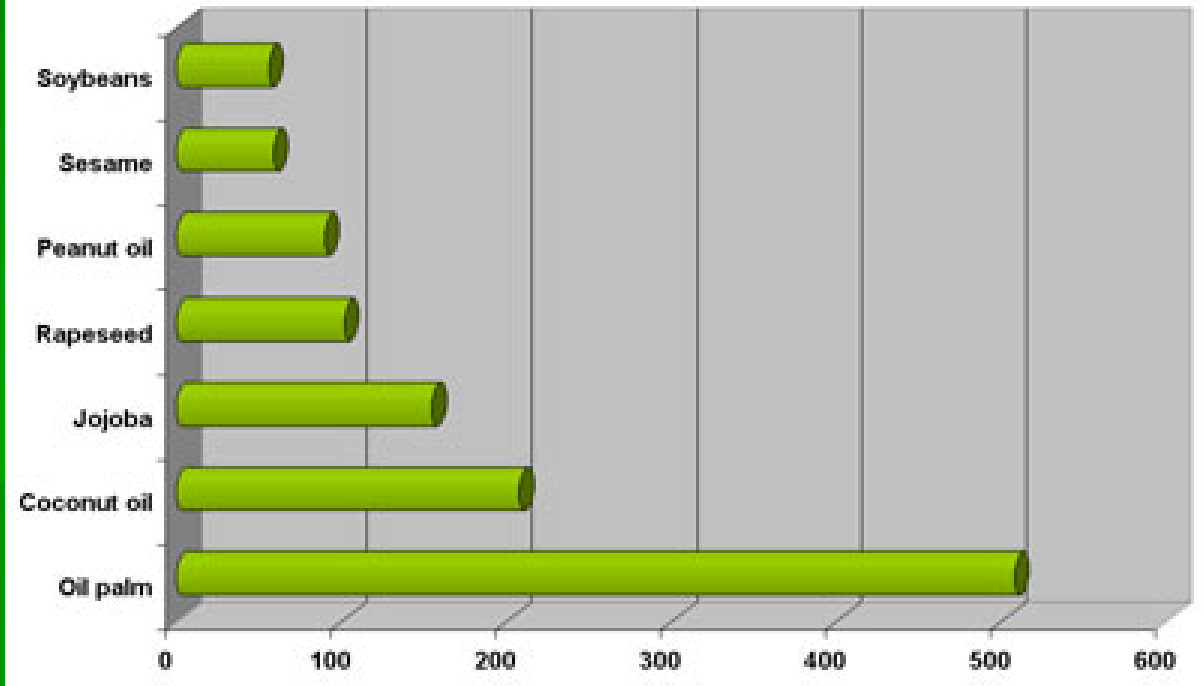
## Global Biofuel Production



1,900 Million Barrel  
by 2020



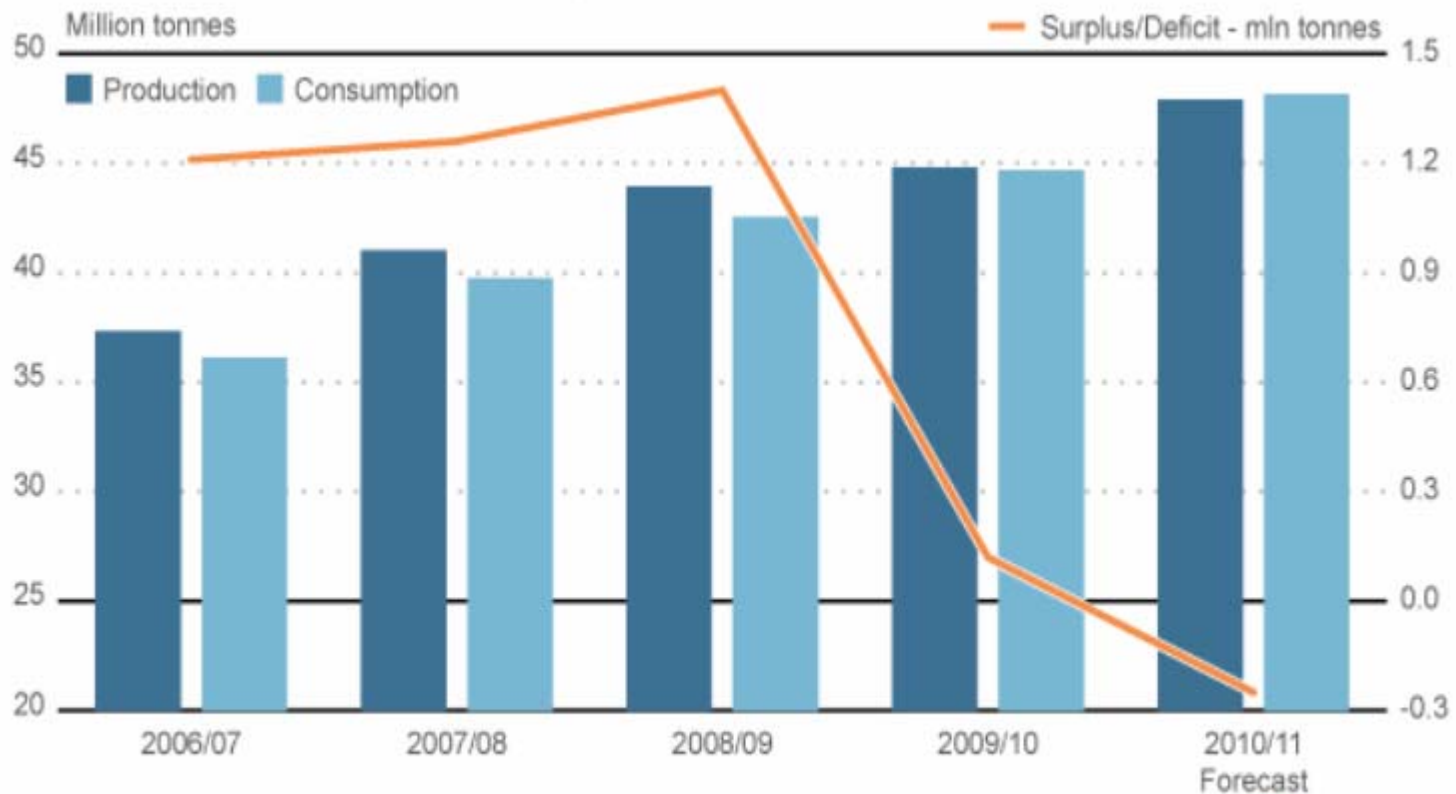
## Biodiesel Yield (Gallons per Acre)





# Palm Oil Consumption To Outpace Production

Palm oil consumption is forecast to outpace production in 2010/11



Source: U.S. Department of Agriculture

Reuters graphic/Catherine Trevethan



## **General Palm Oil Plantation Information**

- 1 acre is generally planted with 55 palms.
- 1 hectare is generally planted with 135 palms.
- 1 acre of mature palm can generally produce an average 0.8 MT of fruit/month.
- 1 hectare of mature palm can generally produce an average 2 MT of fruit/month.
- 1 Metric Ton (MT) of Fresh Fruit Bunch (FFB) can generally produce 200 kg or 20% of Crude Palm Oil (CPO) and 50kg or 5% of Kernel.

# Palm Oil Revenue Calculation Projection Figure

1) Fresh Fruit Price is around 1/5 of CPO price  
If CPO price = RM3200

Thus → Fresh Fruit Price is around RM640

2) Cost of Fresh Fruit Bunch Production

Items	Cost	Unit
Harvesting	RM 50	MT
Transportation	RM 30	MT
Management/Security	RM 35	MT
Fertilizer	RM 145	acre
Weeding/Pruning	RM 25	acre
Road and Drainage	RM 20	acre
Miscellaneous	RM 10	acre
Total	~RM 315	MT

# Potential Income of Standard Palm Oil Plantation By Different Fresh Fruit Bunch (FFB) Yield

Base on investment cost RM18,800/Acre and CPO Price RM3200, the projected ROI is as below.

CPO Price		Monthly FFB Yield/Acre	Gross Income/acre	FFB Production Cost/Acre	Net Income/acre	Yearly Projected Net Income/acre	ROI
RM	3,200.00	0.2	RM 128.00	RM 223.00	- RM 95.00	-RM 1,140.00	-6.06%
RM	3,200.00	0.4	RM 256.00	RM 246.00	RM 10.00	RM 120.00	0.64%
RM	3,200.00	0.6	RM 384.00	RM 269.00	RM 115.00	RM 1,380.00	7.34%
RM	3,200.00	0.8	RM 512.00	RM 292.00	RM 220.00	RM 2,640.00	14.04%
RM	3,200.00	1	RM 640.00	RM 315.00	RM 325.00	RM 3,900.00	20.74%



# Potential Income of Standard Palm Oil Plantation By Different Crude Palm Oil (CPO) Price

Base on investment cost RM18,800/Acre and 0.8 MT FFB/acre, the projected ROI is as below.

CPO Price	Monthly FFB Yield/Acre	Gross Income/acre	FFB Production Cost/Acre	Net Income/acre	Yearly Projected Net Income/acre	ROI
RM 2,600.00	0.8	RM 416.00	RM 292.00	RM 124.00	RM 1,488.00	7.91%
RM 2,800.00	0.8	RM 448.00	RM 292.00	RM 156.00	RM 1,872.00	9.96%
RM 3,000.00	0.8	RM 480.00	RM 292.00	RM 188.00	RM 2,256.00	12.00%
RM 3,200.00	0.8	RM 512.00	RM 292.00	RM 220.00	RM 2,640.00	14.04%
RM 3,400.00	0.8	RM 544.00	RM 292.00	RM 252.00	RM 3,024.00	16.09%
RM 3,600.00	0.8	RM 576.00	RM 292.00	RM 284.00	RM 3,408.00	18.13%
RM 3,800.00	0.8	RM 608.00	RM 292.00	RM 316.00	RM 3,792.00	20.17%
RM 4,000.00	0.8	RM 640.00	RM 292.00	RM 348.00	RM 4,176.00	22.21%

## Why the demand for Palm Oil Increasing?

- Over 85% palm oil is consumed in development world at present where rising populations and income fuelling demand base on the trend towards higher calorific (“Western style”) diets.
- WHO is concerned about trans-fatty acids in food also a key factor leading to the increment of palm oil demand.
- Demand is affected in the development world by shift towards meeting bio-fuel target 10% in EU 2012 and 20% in USA 2022

# Global Sustainable Commodity Product

## Players in the Sustainable Palm Oil Supply Chain



**Thank For Your Attention**

