POTS ROMANIA 2012

OPPORTUNITIES TO INCREASE TRADE THROUGH MALAYSIAN PALM OIL

BY
TAN SRI DATUK DR YUSOF BASIRON
CEO
MALAYSIAN PALM OIL COUNCIL
Introduction to Malaysian Oil Palm Industry
Oil Palm Tree With Fruit Bunches
Basic Facts

• Fruits per bunch: 1000 to 3000
• Bunch Weight: 15-25kg
• Fruit size: 5 cm
• Fruit shape: Oval
• Fruit Color: Yellowish Red
• Fruitlet weight: 10 gm
Mesocarp: Palm Oil (PO)

Kernel: Palm Kernel Oil (PKO)

Shell

**Basic Facts**
- Kernel per fruit: 5-8%
- Mesocarp per Fruit: 85-92%
- Oil per mesocarp: 20-50%
- Oil per bunch: 23-25%
Malaysian Oil Palm Biomass Development

10% oil
90% biomass

Oil palm plantation area
4.85 million hectares

Estimated biomass
78.72 million tonnes (dry)

Crude Palm Oil (CPO)
16.99 million tonnes

Palm Oil Mill Effluent (POME)
58.6 million tonnes

Estimated oil palm fronds
46.37 million tonnes (dry)

Estimated empty fruit bunch (EFB)
6.73 million tonnes (dry)

Estimated oil palm trunks
14.45 million tonnes (dry)

Estimated oil palm fibre and shells
11.17 million tonnes (dry)
Abundance of Oil Palm Biomass

- Fresh Fruit Bunch
- Empty Fruit Bunch, 22%
- POME
- Oil Palm Fronds
- Palm Kernel Cake, 5.5%
- Shell, 5.5%
- Fibre, 13.5%
- Lumber

10% oil
90% biomass

Crude Palm Kernel Oil
Crude Palm Oil
POME
Overview of Malaysian Palm Oil Industry

The planted oil palm area of 4.69 mil ha accounts for more than 60% of the overall agricultural land use or 15.2% of the total land area.
Refining of Crude Palm Oil

CRUDE PALM OIL

Physical Refining → Degumming & pre-bleaching

Chemical Refining → Alkali Neutralization

Deacidification and deodorization

Earth Bleaching → Deodorization

Soap Stock → Acid oil

RBD Palm Oil

NBD Palm Oil

Fatty Acid Distillate
Malaysian Palm Oil Products

Palm Fruit
Milling, Extraction, Pressing

Crude Palm Oil
RBD Palm Oil
Refined, Bleached, Deodorized

Fractionation Process

RBD Palm Olein
RBD Palm Stearin

Fractionation Process

RBD Palm Kernel Olein
RBD Palm Kernel Stearin
Net Importing & Exporting Countries for Oils & Fats (2011)

- Net Exporters
- Net Importers

Countries:
- Indonesia
- Malaysia
- India
- North Africa
- Pakistan
- Iran
- B'desh
- Mexico
- Egypt
- Japan
- Turkey
- South Africa
- South Korea
- Nigeria
- Russia
- Brazil
- Ukraine
- Canada
- Philippines
- China
- EU-27
- Others

Quantities:
- 30,000
- 25,000
- 20,000
- 15,000
- 10,000
- 5,000
- 0
- -5,000
- -10,000
- -15,000
# Global Oils & Fats Supply and Demand Scenario 1

<table>
<thead>
<tr>
<th>('000 T)</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening Stock</td>
<td>17,799</td>
<td>18,404</td>
<td>19,526</td>
<td>20,589</td>
<td>21,327</td>
<td>22,158</td>
</tr>
<tr>
<td>Production</td>
<td>153,735</td>
<td>159,876</td>
<td>164,586</td>
<td>172,011</td>
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<td>180,222</td>
</tr>
<tr>
<td>Import</td>
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<td>63,029</td>
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<td>66,599</td>
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<td>69,248</td>
</tr>
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<td>12.52%</td>
<td>11.58%</td>
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</tbody>
</table>

Source: Oil World & MPOC Estimates
Tracking CPO Prices Against Stock Usage Ratio – Scenario 1

The diagram above illustrates the tracking of CPO prices against stock usage ratio for a given scenario. The x-axis represents the years 2006 to 2012, while the y-axis shows the price range from 11.00% to 12.80%. The bars indicate the stock usage ratio, with each year containing a set of bars representing different scenarios. The line graph shows the trend of CPO prices over the years, with specific markers indicating CPO average, lower, and upper bounds.
## Global Oils & Fats Supply and Demand Scenario 2

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<td>12.54%</td>
<td>12.52%</td>
<td>11.89%</td>
</tr>
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</table>

Source: Oil World & MPOC Estimates
Tracking CPO Prices Against Stock Usage Ratio – Scenario 2
Price Movement – Crude Oil, Soybean Oil and Palm Oil June 2007 – June 2012
The world population is projected to grow from 7 billion in 2011 to 9 billion by 2043, an increase of 29 percent. Food production must meet this rate of increase.

Future of palm oil is driven by growth in demand for food, oleochemicals and biofuel due to population and economic growth.
## More Demand from Biodiesel Industry

<table>
<thead>
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<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012F</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-27*</td>
<td>7.57</td>
<td>8.87</td>
<td>9.58</td>
<td>9.13</td>
<td>9.00</td>
</tr>
<tr>
<td>USA</td>
<td>2.69</td>
<td>1.87</td>
<td>1.08</td>
<td>2.95</td>
<td>2.87</td>
</tr>
<tr>
<td>Argentina</td>
<td>0.71</td>
<td>1.18</td>
<td>1.82</td>
<td>2.43</td>
<td>2.78</td>
</tr>
<tr>
<td>Brazil</td>
<td>1.03</td>
<td>1.41</td>
<td>2.10</td>
<td>2.35</td>
<td>2.65</td>
</tr>
<tr>
<td>Colombia</td>
<td>0.50</td>
<td>0.44</td>
<td>0.34</td>
<td>0.44</td>
<td>0.50</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.32</td>
<td>0.40</td>
<td>0.65</td>
<td>1.10</td>
<td>1.40</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.40</td>
<td>0.57</td>
<td>0.65</td>
<td>0.73</td>
<td>0.80</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.06</td>
<td>0.05</td>
<td>0.12</td>
<td>0.48</td>
<td>0.64</td>
</tr>
<tr>
<td>Others</td>
<td>0.75</td>
<td>0.95</td>
<td>1.14</td>
<td>1.27</td>
<td>1.47</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>14.31</strong></td>
<td><strong>16.33</strong></td>
<td><strong>18.31</strong></td>
<td><strong>21.70</strong></td>
<td><strong>23.06</strong></td>
</tr>
<tr>
<td><strong>% Change</strong></td>
<td>+4.54%</td>
<td>+2.02%</td>
<td>+1.98%</td>
<td>+3.39%</td>
<td>+1.36%</td>
</tr>
</tbody>
</table>

*Requirement of biodiesel in EU will increase to 20 million MT when 10% mandatory inclusion of biofuel by 2020 being implemented*
### Need to Use Land Wisely

<table>
<thead>
<tr>
<th>Year</th>
<th>World’s population (bil)</th>
<th>Arable land per capita (x10−3km²)</th>
<th>Arable land per capita (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922</td>
<td>2.0</td>
<td>7.50</td>
<td>0.75</td>
</tr>
<tr>
<td>1975</td>
<td>4.0</td>
<td>3.75</td>
<td>0.38</td>
</tr>
<tr>
<td>2005</td>
<td>6.6</td>
<td>2.27</td>
<td>0.23</td>
</tr>
<tr>
<td>2030</td>
<td>8.0</td>
<td>1.88</td>
<td>0.19</td>
</tr>
<tr>
<td>2042</td>
<td>9.0</td>
<td>1.67</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Source: Freeworld Academy & University of Michigan

- World’s population increasing
- Limited land resource decreasing
High Land Productivity of Oil Palm Yield

Palm Oil vs. Other Oilseeds

Productivity of oil palm is:
- 11x more than soyabean
- 10x more than sunflower
- 7x more than rapeseed

Soybean Oil: 0.36
Sunflower Oil: 0.42
Rapeseed Oil: 0.59
Palm Oil: 3.68

Source: * FAO ** Oil World *** MPOB
# Malaysian Palm Oil Production

## Efficient Use of Land

<table>
<thead>
<tr>
<th>Year</th>
<th>Land Area ('000 Ha)</th>
<th>Production ('000 MT)</th>
<th>Efficiency Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>1,480</td>
<td>4,133</td>
<td>1:2.79</td>
</tr>
<tr>
<td>1990</td>
<td>2,030</td>
<td>6,095</td>
<td>1:3.00</td>
</tr>
<tr>
<td>2000</td>
<td>3,370</td>
<td>10,840</td>
<td>1:3.22</td>
</tr>
<tr>
<td>2005</td>
<td>4,050</td>
<td>14,961</td>
<td>1:3.69</td>
</tr>
<tr>
<td>2011</td>
<td>4,980</td>
<td>18,912</td>
<td>1:3.80</td>
</tr>
</tbody>
</table>
Wide Discount - Palm Oil over Other Competing Vegetable Oils
Palm oil prices have been at discount against soybean oil, sunflower oil and rapeseed oil, indicating the efficiency of production per unit area among these crops.

Discounted by approximately US$100 since 2009 though smaller than the record US$400, palm oil remains attractive to lowering cost and making the users more competitive in the market.

Semi-solid in nature further reduces the cost of producing solid or specialty fat, which at the same time contains no trans fats.

Versatility of palm oil in various food and non-food applications offers vast options in marketing / utilizing this vegetable oil.
Environmental Challenges

• Threats, especially from the EU questioning sustainability of palm oil production for food and biodiesel applications.

• Continuous allegations of destruction of orang utans, forests and loss of biodiversity by Western NGOs.

• Claims that palm oil biodiesel contributes to more GHG emission under the EU RED.

• These allegations are baseless as Malaysia has ample permanent forest reserve for biodiversity and conservation purposes.

• Oil palm are cultivated on legal agriculture land, outside the permanent forest reserve. Oil palm is our major agriculture crop.
Claims of negative health effect of palm oil was initiated by soybean producers in the mid-80 with the interest to protect the local industry and market share in the US.

Public was misled by allegation that saturated fat raises blood cholesterol level in the body, leading to heart diseases.

Semi solid appearance was also being claimed by soft oil producers as not healthy for human consumption.

Such claim subsided after researches found that trans fatty acid formed during hydrogenation process have more adverse effect on health than saturated fats.
Why Buy Malaysian Palm Oil
1. Good Business Ethics

• Long history of cultivation (about 100 years) with good agricultural and production practices. Therefore, quality is assured.

• Malaysia has proven to honour contracts through good & bad times (danger of being over-dependent on a few key suppliers).

• Long history in palm oil export assures experience and capability in meeting the specifications on the products required by buyers.
2. Most Sustainably Produced

- Anti palm oil lobby using issues of deforestation and killing wild-life (orang utan).
- Malaysian oil palm plantations are not affected by these issues but have been placed in the same basket (feedback from NGOs).
- Malaysian plantations are established totally on legitimate agriculture land.
- New plantings on land legally gazetted as agricultural land, 100% sustainable, all are licensed and registered legally.
- Increase number of companies producing Certified Sustainable Palm Oil but there are still more than 99.9% of other oils and fats produced globally which are yet to be sustainably certified.
### RSPO Certified Mills and Certified Sustainable Palm Oil Production in Malaysia

<table>
<thead>
<tr>
<th>Company</th>
<th>Mills</th>
<th>CPO (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Plantations Bhd</td>
<td>6</td>
<td>200,456</td>
</tr>
<tr>
<td>Sime Darby Bhd</td>
<td>5</td>
<td>209,444</td>
</tr>
<tr>
<td>Kulim Bhd</td>
<td>3</td>
<td>88,914</td>
</tr>
<tr>
<td>PPB Oil Palms</td>
<td>3</td>
<td>122,900</td>
</tr>
<tr>
<td>IOI Corp Bhd</td>
<td>3</td>
<td>155,447</td>
</tr>
<tr>
<td>KLK Bhd</td>
<td>2</td>
<td>92,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22</td>
<td><strong>869,161</strong></td>
</tr>
</tbody>
</table>

Source: RSPO
1) National Land Code 1965
2) Land Acquisition Act 1960
3) Protection of Wildlife Act 1972
4) Environmental Land Conservation Act 1960 revised in 1989
5) Quality Act 1974 (Environmental Quality) (Prescribed Premises) (Crude Palm Oil) Regulation 1977
6) Environmental Quality (Clean Air) Regulation 1978
7) Labor Law
8) Workers’ Minimum Standard of Housing & Amenities Act 1990
9) Occupational Safety & Health Act 1977
11) Pesticides (Licensing for sale & storage) Rules 1988
12) Pesticides (Labeling) Regulations 1984
13) Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987
14) Factories & Machinery (Noise Exposure) Regulations 1989
15) MPOB Act: Licensing, Registration and Quality Control of Palm Oil 1988
3. Complies with Conservation Needs

- Malaysian Palm Oil Wildlife Conservation Fund (MPOWCF) that is managed by MPOC.
- Many projects including Jungle Patrol to protect wildlife surrounding oil palm plantations.
- Survey of orang utan population in Sabah.
- Establishment of Orang Utan Island infant care centre.
- Every 1 ha of oil palm planted, Malaysia conserves 4 ha of permanent forest
4. Excellent Oil for Heart Healthy Living

• A research by Harvard University (AJCN, 2010) showed that Saturated Fats are Not Linked to Heart Disease.

• Meta-analysis of 21 studies on 347,747 subjects around the world also showed there is no clear evidence associating intake of saturated fats with Coronary Vascular Disease (CVD), Coronary Heart Disease (CHD) or stroke.

• The study raised doubts over the long held theory associating saturated fats to the risk of CVD and CHD.

Source: American Journal of Clinical Nutrition
In humans, TFA increases total and LDL-cholesterol and reduces beneficial HDL-cholesterol; this increases risk for CHD.

Liquid vegetable oils must be hydrogenated to produce solid fats, leading to the formation of TFA.

Palm Oil is semi solid in nature; no hydrogenation is required and hence, contains no TFA.

Palm oil has been proven a healthy substitute for TFA.

This has led to significant increased demand for palm in solid fat formulations.

The current USA market is the best example of this development.
Imports of Malaysian Palm Oil in USA

Source: Oil World
American Heart Association recommends SAT:MUFA:PUFA in the ratio 1:1:1. This is easily achieved when palm oil contributes 50% of the AHA recommended Step-1 diet.

- Human trials at MPOB and US Brandeis University showed improved cholesterol ratios with palm based AHA formulation.
- US Patents granted with US FDA approved health claim for “Improved Cholesterol Ratio”. Today this is a US250 million p.a. margarine formulation in the USA.
Palm olein reduces cholesterol as effectively as olive, Canola and rapeseed oils


Palm olein or canola oil results in similar beneficial effects on plasma cholesterol. Sundram et al. (1995), J. Nutr. Biochem

Palm olein or rapeseed oil results in similar beneficial effects on plasma cholesterol. Sundram et al. (1997) J. Nutrition
Highly stable as a frying oil and a preferred natural ingredient for production of all solid fats including margarine, shortenings, bakery and frying fats.

Best natural alternative for trans fat free formulations.

Palm kernel stearin and palm mid fractions are excellent cocoa butter substitutes and highly geared for the confectionery industry (high growth potential in Eastern Europe)

Palm and palm products are major raw materials for the oleochemical industry for products such as soaps, detergents, personal health care products, etc.

Being one of the world’s largest exporters of palm and palm products, Malaysia is well-poised to supply the entire needs of the Romanian food, oleochemical and biofuel industries.
Total trade value between Malaysia and Romania in 2011 was recorded at €3.11 billion, an increase of 20.5% from 2010.

Total Malaysian exports to Romania recorded an increase of 25% from €1.73 billion in 2010 to reach €2.16 billion in 2011, while imports from Romania rose 11.3 percent from €0.85 billion in 2010 to €0.94 billion last year.

Palm oil and its products accounted for 6 percent of Malaysia’s total exports to Romania in 2011.

As sunflowerseed oil (SFO) commands a higher price in the global oils and fats markets (SFO = U$1290; CPO = US$980; 17 August 2012), it makes sense to export more Romanian SFO in the international market and increase the import of Malaysian palm oil which is priced significantly lower than SFO.

Palm oil will thus enhance export competitiveness of oils and fats finished goods and further increase export and trade opportunity among Romanian trading partners.
Top Malaysia’s Exports To Romania by Product Sectors (2011)

- Electrical & Electronic Products: 20%
- Crude Rubber: 24%
- Palm Oil: 3%
- Non-metallic Mineral Products: 9%
- Processed Food: 23%
- Other Manufactured Goods: 9%
- Machinery, Appliances & Parts: 6%
- Other Agricultural Goods: 6%

Source: MATRADE
Top Malaysia’s Imports From Romania by Product Sectors (2011)

- **Electrical & Electronic Products**: 44%
- **Iron & Steel Products**: 17%
- **Chemicals & Chemical Products**: 8%
- **Machinery, Appliances & Parts**: 8%
- **Optical & Scientific Equipment**: 7%
- **Other Manufactured Goods**: 12%
- **Agricultural Goods**: 8%
- **Mining Goods**: 2%
- **Others**: 2%

Source: MATRADE
Romanian Oils and Fats
Supply and Demand Gap

Source: Oil World
Significant Sunflower Oil Export in the Last 5 Years

Source: Oil World
Importance of Palm Oil as Second Most Imported Vegetable Oil

Source: Oil World
Conclusions

- Palm oil will continue to be a major source of oils & fats that is required to meet global food security demands in food, oleochemicals and biofuels sectors.

- Only 3 countries in the world, namely Malaysia, Indonesia and Argentina are major net exporters of oils and fats; as the rest of the world are net importers of oils and fats.

- Oil palm cultivation is shown to require less land to produce each unit equivalent of edible oil. When arable land is limited, it makes sense to choose palm cultivation over other oilseeds given the higher yields from oil palm.

- Palm oil’s strategic role will increase in future, due to population growth and reduced land available for agriculture.
Conclusions

• Strong consumption growth of around 6.2 million MT will keep the stocks tight for this year, as shortage of soybean oil and rapeseed oil will raise the dependence on palm oil and sunflower oil.

• Palm oil is reasserting its leading role in the vegetable oil sector with production rising further to a record 51.5 million MT in 2011/12.

• Palm oil is the undisputed leader in the trade sector with its export volume expected to reach a record 40.5 million MT in Oct/Sept 2011/12, implying an average annual growth of 7.9% from 18.9 million MT ten years ago. Palm oil is likely to account for about 57% of the world trade of 17 oils and fats this season, against 47% in 2000/01.

• Malaysia will continue to be the most reliable supplier of sustainable palm oil (through RSPO) in the world markets and supported by its technical and quality benchmarks as well as good agricultural practices.
Conclusions

• Palm oil’s preferential applications in solid fats including TFA-free products, could be used advantageously in the region creating more demand for such palm based products.

• Romanian oils and fats industry is urged to maximize SFO-PO price differentiation by exporting more SFO and committing the savings to higher palm oil usage.

• Net returns from this exercise involving sales of finished products locally and for export will be a significant profit driver for the Romanian oils and fats industry.

• Malaysia is committed to support such activities in the Romanian market through increased technical support to our end users.
Thank You

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