Competitiveness of the Rapeseed Industry in the European Union

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ABSTRACT

This article is aimed at discussing the competitiveness of the rapeseed industry in the European Union (EU) in terms of production, trade and consumption in both the edible and non-edible sectors, especially for biofuels. For the purpose of analysing the information gathered, a SWOT analysis was used to evaluate the strengths, weaknesses, opportunities and threats of EU's rapeseed industry. In fact, the information in this article was collected primarily from various secondary sources. Nevertheless, not all of the information in this article was the latest because of the difficulty in sourcing for the most up-to-date data. The competitiveness of EU's rapeseed industry depends on its usage (as rapeseed oil) in the biodiesel sector and on EU's policy implementation with regard to crop-based biofuel post-2020. It is hoped that this article will assist Malaysian oil palm industry players to have a better understanding of the developments pertaining to the EU rapeseed industry as well as gauge the challenges, if any, posed by EU.

Keyword: EU, rapeseed, biofuel, competitiveness.

INTRODUCTION

The European Union (EU) is the largest producer of rapeseed in the world. According to *Oil World* (2016a), a total of 22.3 million tonnes of rapeseed were produced from 6.5 million hectares of land in the 2015/2016 season. Rapeseed is the dominant oilseed in EU, other oilseed crops being sunflower, soyabean and cotton. The production of rapeseed in EU is still conventional as it does not contain GMO varieties. About 90% of the rapeseed supply is consumed domestically, while the trade volume in rapeseed is small. In terms of rapeseed oil, EU is the largest producer in the world, followed by China PR and Canada. However, compared to Canada,

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which is the leading player in the international rapeseed oil market, EU is insignificant because most of its rapeseed oil is consumed domestically. According to the European Commission (2016a,b), in 2015/2016, the total supply of rapeseed oil was recorded at 10.6 million tonnes, and of this amount, about 90% was for domestic use and the rest was exported to countries outside EU. In terms of consumption, in 2015, out of the 9.7 million tonnes of rapeseed oil consumed, about 80% was used for food and the remaining 20% was for the biodiesel industry. Export volume of rapeseed oil was small at 345 000 t in 2015/2016, or only about 3% of total production.

EU will continue to produce rapeseed to cater for domestic demand (from both edible and non-edible sectors). According to Biofuels International (2017), the European rapeseed oil industry was valued at USD 23.76 billion (€ 21.83 billion) in 2014, and is expected to reach USD 35.39 billion by 2021 at a compound annual growth rate of 6.9%. This growth will be driven by the various health benefits of rapeseed oil and its advantageous properties, such as for use in biodiesel production, as a vegetable oil in food, and other applications. The increasing demand for biodiesel in particular is expected to promote growth in the global rapeseed oil industry. Frequent changes in food consumption habits of people worldwide have led to its growing use as a vegetable oil. Rapeseed oil is consumed on a large scale in the region for the production of biodiesel due to growing concerns related to fossil fuels and in food applications.

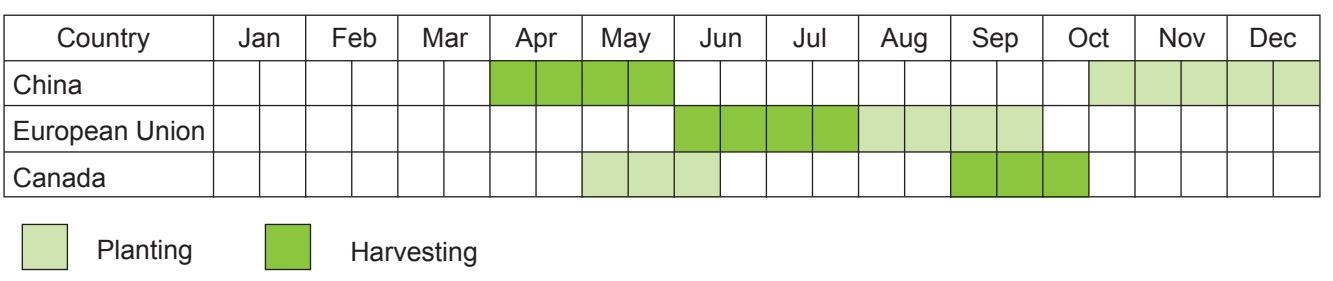
SITUATION OF RAPESEED

Planted Area and Yield

EU is the world's largest producer of rapeseed and the crop remains its most important oilseed crop. As the major oilseed planted in EU, rapeseed accounts for about 56.0% of the EU oilseeds planted area. Other oilseeds are sunflower and soyabean which are planted in much smaller amounts. Major rapeseed producing countries are France (having a 23.8% share in 2016), followed by Germany (22.0%), Poland (13.9%) and the United Kingdom (11.4%) because they all have suitable climate conditions. Some of the countries of southern Europe (namely, Portugal, Greece, Cyprus and Malta) do not have these suitable conditions for the cultivation of rapeseed. Other southern countries, *i.e.* Spain, Italy and Bulgaria, have less than 10% of the total rapeseed production in EU (Zentkova and Cvengrosova, 2013).

Rapeseed is planted either in the autumn (for winter varieties) or in spring (summer varieties). The winter varieties have a longer vegetative period and give a better yield, but can only be grown in areas with a mild winter climate. In Europe, winter rapeseed are the dominant varieties, whereas in Canada only summer rapeseed is grown. The harvest period in the Northern Hemisphere starts in late July for the winter varieties, and in late August or early September for the summer varieties. In EU, rapeseed is sown before winter, at the end of August, so that the harvest will begin in Jun/July. Harvesting is normally completed by August or September. In contrast, other producing countries like Canada start harvesting in September, especially for summer varieties (*Figure 1* and *Table 1*).

Rapeseed is grown primarily for seed which is further processed into oil and meal. In 2015/2016, there were 6.55 million hectares of rapeseed, and the major producing countries were France, German and Poland, accounting for 56.7% of the total area. The rapeseed area depends on the farmers' planting decision at the beginning of the crop year. Several factors affect the farmers' planting decision such as crop rotation between rapeseed and cereal grain, yield, price and profit generated from the previous planting season. In terms of yield, in 2015/2016, the national yield for rapeseed was 3.41 t/ha, showing a decrease by 5.5% from the yield of 3.61 t/ha recorded in 2014/2015. Nevertheless, EU's rapeseed yield



Source: Zerno Export (2016).

Figure 1. Crop calendar for rapeseed in major producing countries.

TABLE 1. RAPESEED PLANTED AREA, PRODUCTION AND YIELD PERFORMANCE IN EUROPEAN UNION

Item	2011/12	2012/13	2013/14	2014/15[e]	2015/16[f]	2016/17[f]
Total harvested area (x 1000 ha)	**6 754**	**6 241**	**6 760**	**6 737**	**6 550**	**6 454**
Germany	1 329	1 306	1 466	1 394	1 288	1 335
France	1 556	1 607	1 438	1 503	1 499	1 516
United Kingdom	705	756	715	675	652	570
Poland	827	720	930	940	932	830
Yield (t/ha)	2.86	3.16	3.14	3.61	3.41	3.12
Germany	2.91	3.72	3.95	4.35	3.82	3.45
France	3.45	3.40	3.04	3.67	3.54	3.07
United Kingdom	3.91	3.38	3.01	3.6	3.90	3.30
Poland	2.25	2.93	2.99	3.49	3.33	2.59
Production (million tonnes)	19 301	19 727	21 258	24 311	22 323	20 139
Germany	3 870	4 860	5 784	6 070	4 920	4 600
France	5 369	5 463	4 369	5 523	5 307	4 657
United Kingdom	2 758	2 557	2 153	2 460	2 542	1 880
Poland	1 864	2 110	2 780	3 276	3 100	2 150

Note: [e] - Estimate; [f] - forecast.
Source: *Oil World* (2016).

was higher than those of Canada and China which were at 2.21 and 1.55 t/ha, respectively.

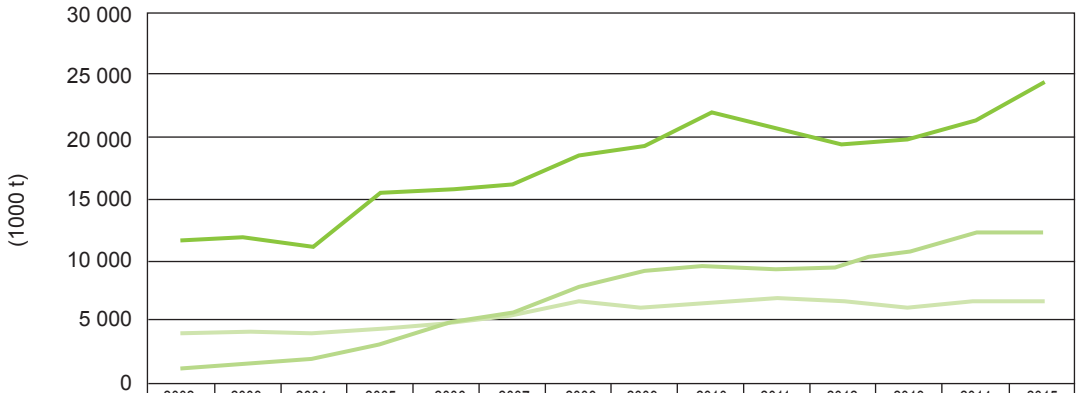
Production

According to *Oil World* (2016a), since 2000, rapeseed production has increased substantially by more than two-fold from 11.2 million tonnes in 2000/2001 to 22.3 million tonnes in 2015/2016 in tandem with the increase in rapeseed harvested area. Production of biofuels, especially biodiesel, is the major driver of the increase in production of rapeseed and rapeseed oil as this crop is the most important feedstock. Increasing the processing of rapeseed is supported by EU policy, which regulates the blending of rapeseed oil-based methyl ester in diesel. *Figure 2* shows that rapeseed production and area had increased by two-fold and 61.8%, respectively, over the period 2002 - 2015, and according to the International Council on Ocean Transportation (ICCT, 2015), this fits with the accelerating production of biodiesel during the same period and suggests that both planted area and production had indeed responded to the biodiesel demand. According to FEDIOL (2016a), since the EU biofuels mandates were set in place, investments into agriculture and rural infrastructure, that had lagged behind in the year before, have increased considerably.

EU started to develop its own biofuel policy in 2001, and published the Biofuels Directive (2003/30/EC) as an indicative goal in 2003 based on fuel security, agricultural support and greenhouse gas (GHG) reductions. However, in view of increasing global demand for biofuel, questions arose over the environmental impact from GHG emission as well as sustainability issues in biofuel production. Therefore, on 6 April 2009, EU adopted the Energy and Climate Change Package (CCP), whereby the Renewable Energy Directive (RED) also forms part of this package. The Renewable Energy Directive (2009/28/EC), which is mandatory in nature, entered into force on 25 June 2009. These Directives have further spurred the use of biodiesel within EU. The EU Energy and Climate Change Package includes the '20/20/20' goals for 2020 as listed below:

- a 20% reduction in GHG emissions compared to 1990;
- a 20% improvement in energy efficiency compared to forecasts for 2020; and
- a 20% share for renewable energy in the EU total energy mix.

The goal of 20% renewable energy use in the total energy mix is an overall EU target. RED sets a different target for each member country depending on the member country's capacity. In contrast to the 20% overall EU total energy mix target, the 10% target for renewable energy in the transport sector is obligatory for all member countries (*i.e.* member



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rapeseed production	11 467	11 869	11 130	15 452	15 663	16 120	18 441	19 057	21 808	20 665	19 287	19 795	21 237	24 313
Biodiesel production	1 065	1 434	1 933	3 184	4 890	5 713	7 755	9 046	9 570	9 340	9 740	10 650	12 200	12 370
Rapeseed area	4 163	4 264	4 157	4 497	4 866	5 406	6 568	6 210	6 542	6 942	6 762	6 251	6 713	6 737

Source: *Oil World* (2016a).

Figure 2. European Union's rapeseed area and production vs. *biodiesel production.*

countries are required to have at least 10% of their transport fuels coming from renewable sources by 2020). In 2015, Directive 2015/2013, covering Indirect Land Use Change (ILUC), entered into force and amended both RED and Fuel Quality Directive (FQD). The key elements of the Directive are a 7% cap (energy basis) on the contribution of food crop-based biofuels, double counting of the energy contribution of advanced biofuels towards the 10% blending target for 2020, and the requirement that fuel suppliers include ILUC emissions in their reports, among others.

From 2020 onwards, RED will be replaced by the 2030 Framework on Climate Change and Energy Prices that was agreed upon by EC in October 2014. On 30 November 2016, the EC published a formal proposal to the EU Council and the European Parliament to recast the Renewable Energy Directive (RED) 2009/28/EC which will expire at the end of 2020. The proposed new Directive, called RED II, will succeed the existing regulation and enter into effect on 1 January 2021. RED II proposes a set of policy measures to achieve a 27% renewable energy share from energy consumed by the electricity, heating and cooling, and transportation sectors by 2030. With regard to transportation, RED II will mandate that 6.8% of transportation fuels must be derived from renewable sources, specifically advanced alternative fuels. According to the proposal, food crop-based biofuels cannot be counted toward the mandate, and their role in helping to achieve the 27% renewable energy target should decline over time (ICCT, 2017).

Table 2 shows the supply and disappearance of EU rapeseed; it is clear that about 95% of total rapeseed supply is used domestically, especially for crushing purposes to obtain rapeseed oil and meal. Since the 2014/2015 season, production of rapeseed had reduced significantly for two consecutive years due to lower yield, reduced area and adverse weather conditions. The ban on crop protection chemicals containing neonicotinoids also contributed to the lower production. In 2016, rapeseed area remained almost unchanged at 6.48 million hectares because of lower prices at the time of planting decisions in 2015 and concern over the impact from the ban on neonicotinoids. EU had restricted the use of neonicotinoids to protect the bees. The EU rapeseed crop in 2016/2017 is forecast to be lower at 20.0 million tonnes, thus keeping the EU import demand high for rapeseed.

As a result of lower production, rapeseed imports had increased by 48.3% to 3.49 million tonnes in 2015/2016 from 2.36 million tonnes in 2014/2015. The decline in supply availability also caused the domestic use of rapeseed to decline by 4% to 24.91 million tonnes in 2015/2016. Import volume of rapeseed has been on the high side since 2014/2015 to cover the shortfall in rapeseed production. In terms of export, the volume is small at less than 1 million t, and since the 2014/2015 season, export had declined further. However, exports are forecast to increase by 20.3% to 420 000 t in 2016/2017. According to Zenthova and Cvengrosova (2013), the share of EU's domestic production of rapeseed to EU's total supply during the period from 2000 to 2004 averaged at about 95%. However,

TABLE 2. EUROPEAN UNION'S RAPESEED SUPPLY AND DISAPPEARANCE (x 1000 t)

Item	2011/12	2012/13	2013/14	2014/15[e]	2015/16[f]	2016/17[f]
Opening stocks	1 450	1 500	900	950	1 050	1 100
Production	19 199	19 268	20 979	24 266	21 811	20 013
- Area ('000 ha)	6 727	6 218	6 714	6 465	6 493	6 493
- Yield (t/ha)	2.9	3.1	3.1	3.8	3.4	3.1
Import (3rd countries)	3 752	3 378	3 495	2 356	3 494	3 800
Total supply	24 401	24 146	25 375	27 572	26 355	24 913
Domestic use	22 752	23 152	24 135	25 934	24 906	23 459
- Of which, crushed	21 709	22 258	23 424	25 081	24 011	22 690
- Export (3rd countries)	149	94	290	588	349	420
Total use	22 901	23 246	24 425	26 523	25 255	23 879
Ending stocks	1 500	900	950	1 050	1 100	1 033
Share of production on total supply (%)	78.6	79.8	82.7	88.0	82.8	80.3
Share of import on total supply (%)	15.4	14.0	13.8	8.6	13.3	15.3
Self-sufficiency ratio	0.84	0.83	0.87	0.94	0.88	0.85

Note: [e] - estimate , [f] – forecast.
Source: European Commission (2017a, b).

between 2005 and 2011, the share of domestic production to total supply of rapeseed had gradually decreased to an average of 85% as a result of the increase in imports of rapeseed due to higher demand from the processing and biodiesel sectors.

During the period from 2012 to 2016, the share hovered at around 80% to 88% while the share of rapeseed imports to total supply increased to around 13% – 15%. Significant increases in rapeseed imports have been noted since 2008, in tandem with the biodiesel output (*Figure 3*). Prior to 2008, the share of rapeseed imports to the total supply had increased significantly from less than 5% during 2000-2007 to more than 10% for the period 2008-2016. A similar study by Zentkova and Cvengrosova (2013) also indicated that for the period 2000-2004, the self-sufficiency ratio (SSR) of EU's domestic rapeseed was around 1, and any surplus was exported. However, from 2005 onwards, SSR had been decreasing (to less than 1) as a consequence of increasing demand for rapeseed to produce biofuels. For the period 2012-2015, SSR was between 0.83 and 0.94. Thus, EU needs to cover the deficit through imports from non-EU countries.

Trade

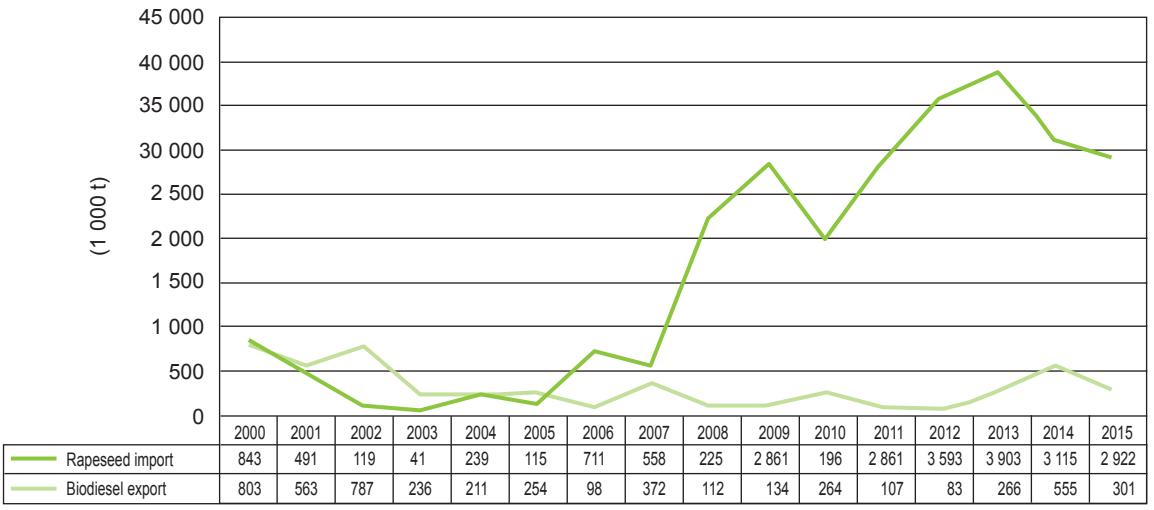
As mentioned earlier, export volumes of oilseeds, especially rapeseed, are small as most of the rapeseed produced is consumed domestically, used for further processing. According to *Oil World* (2016), in 2015, a total of 941 000 t of oilseeds were exported – 357 000 t (37.9% was contributed by sunflower seed, followed by rapeseed at 301 000 t (31.9%) and soyabean at 197 000 t (20.9%). The balance was made up by cottonseed, linseed and groundnut, which were all small in volume. France and United Kingdom were the major rapeseed exporters (*Table 3*). The major market for EU's rapeseed in 2015 was Turkey at a volume amounting to 266 000 t.

EU is highly dependent on imports of oilseeds and oilseed products (*i.e.* meals and vegetable oils) to meet the demand for food, feed and industrial uses, including biofuel production. In 2015, EU imported 19.2 million tonnes of oilseeds, mainly soyabean at 14.3 million tonnes (making up 74.7% of the total oilseed imports) and rapeseed at 2.9 million t (15.2%). Imports of rapeseed had increased significantly by 3.5-fold from 843 000 t in 2000 to 2.9 million tonnes in 2015 as a result of an increasing production of biodiesel. As shown in *Figure 3*, EU imported rapeseed in big amounts, starting in 2008 with 2.2 million tonnes, in response to the demand for biodiesel production. Prior to 2008, imports were small at less than 1.0 million tonnes. Rapeseed was mainly imported from Ukraine and Australia.

Together, Ukraine and Australia account for about 90% of EU's rapeseed imports (*Table 4*). However, supply in the global rapeseed market has become

TABLE 3. EXPORTS OF RAPESEED BY EUROPEAN UNION (x 1000 t)						
	2010	2011	2012	2013	2014	2015
Germany	4.1	7.7	6.1	5.0	10.6	3.5
France	11.4	13.9	4.1	79.1	23.1	33.6
Poland	0.1	0.1	0.1	57.8	0.1	0.1
United Kingdom	2.2	0.0	0.1	2.0	38.1	24.5
Belgium	0.0	0.0	0.3	0.1	0.0	0.1
Others	246.7	85.5	72.5	121.6	483.1	239.3
Total	264.5	107.2	83.2	265.6	555.0	301.0

Source: *Oil World* (2016a).



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rapeseed import	843	491	119	41	239	115	711	558	225	2 861	196	2 861	3 593	3 903	3 115	2 922
Biodiesel export	803	563	787	236	211	254	98	372	112	134	264	107	83	266	555	301

Note: Intra-EU trade is excluded.
Source: *Oil World* (2016a).

Figure 3. Imports and exports of rapeseed by European Union (EU).

tight, and the export potential of Australia and Ukraine is expected to be limited. Thus, crushers started to look for other sources, and there had been a rebound of imports from Canada. However, according to USDA (2016a), in recent years, imports from Canada became limited due to the fact that the country produces genetically modified organism (GMO) rapeseed. Now, Canada's rapeseed industry has become established, and Canada has started using the International Sustainability and Carbon Certification (ISCC) system that meets EU's criteria in the Renewable Energy Directive. This has resulted in a steep increase in Canadian rapeseed imports because crushers in Europe are using GMO rapeseed to a certain extent. In terms of import duty, EU's import duties are laid down in Council Regulation (EEC) No. 2658/87 on the tariff and statistical nomenclature, and on the Common Customs Tariff. There are no import duties on oilseeds and oilseed meals, whereas duties on vegetable oils (except olive oil) range from 0% to 12.8%. Vegetable oils classified for technical use can be imported duty-free.

TABLE 4. EUROPEAN UNION (EU)'S IMPORTS OF RAPESEED BY COUNTRY OF ORIGIN (3rd countries) (x 1000 t)					
Country	2011/12	2012/13	2013/14	2014/15	2015/16[f]
Ukraine	1 135	1 101	1 774	1 257	1 130
Australia	1 896	2 070	1 463	1 077	1 580
Canada	310	43	66	129	440
Kazakhstan	69	37	117	9	30
Others	480	167	227	99	150
Total	3 646	3 424	3 660	2 571	3 300

Note: Intra-EU trade is excluded, Marketing years: July/June; [f] - forecast.
Source: *Oil World* (2016a).

Crushing Industry

According to *Oil World* (2016a), in 2015, a total of 47.9 million tonnes of oilseeds were crushed, up by 15.4% from 41.5 million tonnes recorded in 2011. In 2015, the main oilseed crushed was rapeseed at 24.8 million tonnes (51.8% of the total volume of oilseeds crushed), followed by soyabean at 14.4 million tonnes (30.9%) and sunflower seed at 7.6 million tonnes (15.8%) (*Table 5*). The leading companies processing rapeseed in EU are FEDIOL members. The members of FEDIOL are the national associations of seed crushers and oil processors established in the different EU countries. They lobby for their industry at the level of the national governments and parliaments or local organisations. They are themselves made up of members representing specific companies located in their territory. In EU, there are about 150 oilseed-crushing facilities, and the industry is dominated by Germany, Poland and United Kingdom. Major multinational companies involved in EU's crushing industry include Archer Daniels Midland (ADM), Cargill, Bunge and Louis Dreyfus. *Table 6* shows the crushing of major oilseeds, namely, rapeseed, sunflower and soyabean in EU as reported by FEDIOL (2016a, b). EU's total crushing capacity had increased by 17.0% to 42.7 million tonnes in 2015 from 36.5 million tonnes in 2011. This is in line with the increase in total oilseed crushing volume, which had increased by 21.6% to 37.0 million tonnes in 2015 from 30.5 million tonnes in 2011. Crushing activities are higher during July to September when there are ample supplies of rapeseed from the newly harvested crops, and there is a gradual decline from October onwards.

TABLE 5. CRUSHING OF MAJOR OILSEEDS AND CRUSHING CAPACITY (x 1000 t)

Oilseed	2011	2012	2013	2014	2015
Rapeseed	15.72	17.10	17.57	18.89	18.86
Sunflower	4.20	4.31	4.45	5.23	4.96
Soyabean	10.54	10.57	11.44	11.94	13.22
Total*	30.46	31.98	33.46	36.06	37.04
Crushing capacity**	36.46	39.98	40.80	42.66	42.66

Note: * The total crushing volume reported by the participating countries of FEDIOL represents slightly over 75% of the total European Union (FEDIOL and non-FEDIOL) combined crushed volumes.
** The capacity mentioned only reflects the reported capacity of the participating companies of FEDIOL at that point in time.
Source: FEDIOL (2016a, b).

SITUATION OF RAPESEED OIL

Production

Compared to Canada, which is the leading player in the international rapeseed oil market, EU is insignificant because most of its rapeseed oil is consumed domestically. According to *Oil World* (2016a), EU produced 24.3 million tonnes of oils and fats in 2015. In 2015, rapeseed oil was the major vegetable oil produced at 10.6 million tonnes (43.5% of the total oils and fats production), followed by sunflower oil at 3.1 million tonnes (13.1%), soyabean oil at 2.7 million tonnes (11.0%) and lard at 2.0 million tonnes (8.6%). The self-sufficiency ratio of EU's oils and fats is about 75%. Therefore, EU depends on imports of oils and fats to cater for the deficit. According to data from *Oil World* (2016a), EU's rapeseed oil production doubled from 2000 (recorded at 4.4 million tonnes only) to 2015 (at 10.6 million tonnes), showing an increase of 6 million tonnes. The upsurge was due to the increased production of biodiesel, which had grown by more than 10-fold to 12.4 million

TABLE 6. EUROPEAN UNION'S RAPESEED CRUSHING (x 1000 t)

	2010	2011	2012	2013	2014	2015
Germany	8 329	7 697	8 479	8 985	9 401	9 570
France	4 430	4 180	4 656	4 506	4 460	4 749
Poland	2 340	1 990	2 080	2 340	2 370	2 540
United Kingdom	1 858	1 843	1 722	1 762	1 956	1 874
Belgium	1 257	1 319	1 392	1 363	1 443	1 521
Others	4 955	4 587	4 330	4 517	4 931	4 586
Total	23 169	21 886	22 659	23 473	24 561	24 840

Source: *Oil World* (2016a).

TABLE 7. EUROPEAN UNION'S RAPESEED OIL SUPPLY AND DISAPPEARANCE (x 1000 t)

Year	2012/13	2013/14	2014/15[e]	2015/16[f]	2016/17[f]
Opening stocks	400	400	625	600	575
Production	9 126	9 604	10 283	9 844	9 303
Imports (3rd countries)	210	296	261	198	211
Total supply	9 736	10 300	11 169	10 642	10 089
Domestic uses	8 875	9 369	10 213	9 722	9 173
Exports (3rd countries)	461	306	356	345	316
Total use	9 336	9 675	10 569	10 067	9 489
Ending stocks	400	625	600	575	600

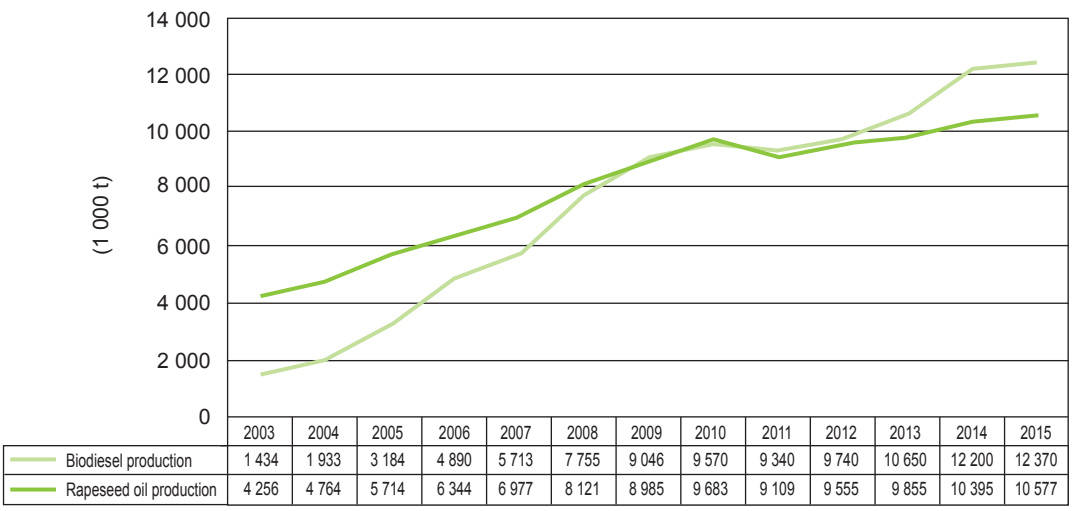
Note: [e] - estimate, [f] – forecast.
Source: European Commission (2017a, b).

tonnes in 2015 from a mere 1.0 million tonnes in 2002 (*Figure 4*).

Table 7 shows rapeseed oil supply and disappearance for the past few years. Since the 2015/2016 season, rapeseed oil output has declined due to the low supply availability of rapeseed for crushing. In 2015/2016, production of rapeseed oil declined by 4.3% to 9.84 million tonnes from 10.28 million tonnes in 2014/2015, and a further decline is expected in 2016/2017 to only 9.30 million tonnes. About 90% of the rapeseed oil supply is consumed domestically. In line with the decline in crushing and production of rapeseed oil, domestic consumption decreased by 4.8% to 9.72 million tonnes in 2015/2016 from 10.21 million tonnes in 2014/2015, while a further decline to 9.17 million tonnes in 2016/2017 is expected. According to FEDIOL (2013a, b), rapeseed oil consumed as food has remained stable at about 2.8 million tonnes for the past 10 years. Therefore, in 2015, out of the 9.7 million tonnes of rapeseed oil consumed, it was estimated that about 6.8 million tonnes (70%) was used for industrial uses (including by the biodiesel sector), and the remaining 20% was for food applications. *Figures 5* and *6* show the breakdown of rapeseed oil use in EU. Data extracted from USDA show that rapeseed oil usage in the biodiesel sector had increased by 6.0% to 7.1 million tonnes in 2015/2016 from 6.7 million tonnes in 2012/2013 (USDA, 2016a, b).

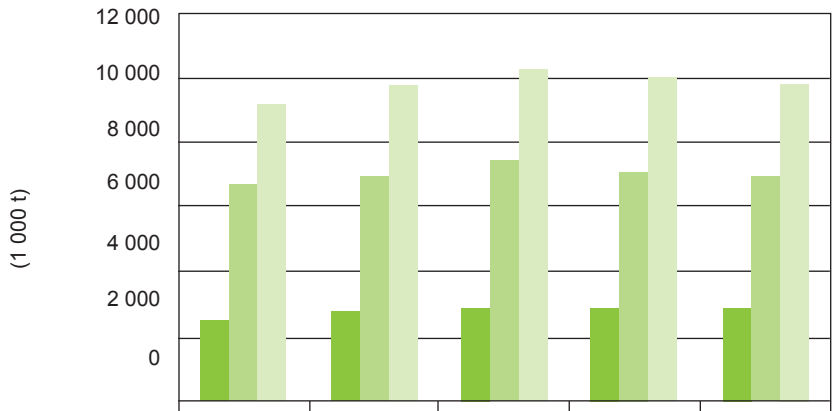
Trade

Import. In EU, imports of oils and fats are more significant compared with exports to cover the shortfall in the oils and fats production. Despite its own large domestic output of oils and fats, EU nevertheless remains the world's largest importer of oils and fats. However, a portion of the imports is also re-exported in the form of crude and processed oils, and finished products. According to *Oil World* (2016a), in 2015, EU imported 11.1 million tonnes of oils and fats compared with exports amounting to only 2.8 million tonnes. The major oils imported were palm oil at 7.4 million tonnes



Source: *Oil World* (2016a), European Biodiesel Board (2016).

Figure 4. Rapeseed oil production vs. *biodiesel production.*



	20012/13	2013/14	2015/15f	2015/15f	2016/17f
Food use	2 500	2 800	2 900	2 900	2 900
Industrial use	6 700	6 950	7 400	7 100	6 950
Total use	9 200	9 750	10 300	10 000	9 850

Source: USDA (2016a, b).

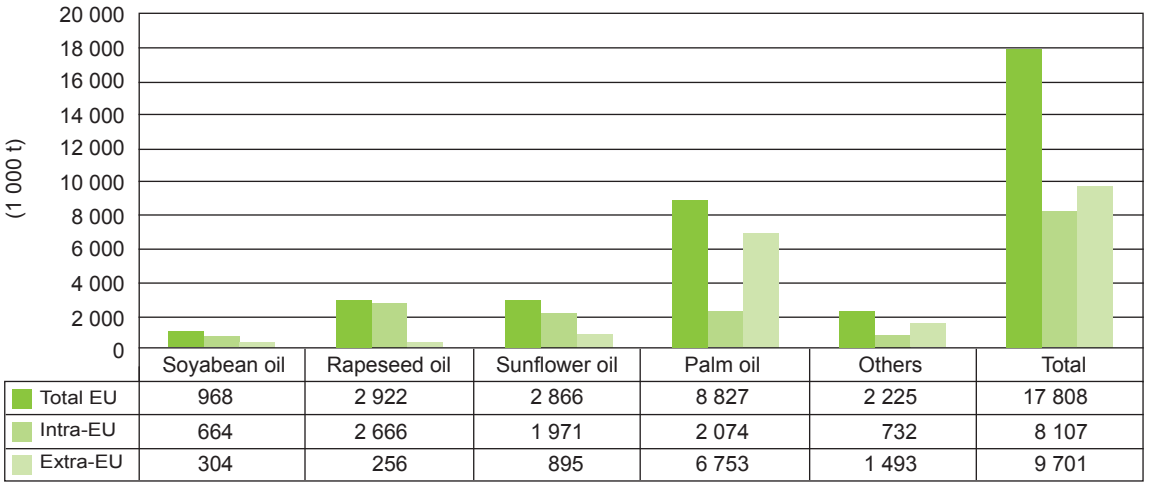
Figure 5. Breakdown of rapeseed oil usage (x 1000 t).

Source: FEDIOL (2015).

Figure 6. European Union's rapeseed oil usage.

(66.6% of the total oils and fats imports) and sunflower oil at 974 000 t (8.8%). Imports of other oils and fats were small. Based on data gathered from FEDIOL (2015), EU (both intra and extra-EU) imported 17.81 million tonnes of vegetables oils and fats. About 54% of the vegetable oils and fats were imported from countries outside of EU, especially palm oil (*Figure 7*). Soft oils such as rapeseed oil and sunflower oil were mainly sourced within the EU countries, namely France and Germany. Imports of palm oil had increased significantly by 7.9% from 5.3 million tonnes in 2011 to 7.4 million tonnes in 2015, and were mainly sourced from Malaysia and Indonesia. Palm oil is imported mainly for both edible and non-edible sectors. In the non-edible sector, palm oil is used as feedstock in biodiesel production, energy and electricity generation. In contrast, imports of rapeseed oil had dropped significantly by 63.0% to 230 000 t in 2015 from 622 000 t in 2011.

Utilisation of Malaysian Palm Oil by EU. In 2016, EU was the second largest export destination for Malaysian palm oil after India. EU is a traditional market for Malaysian palm oil and its products, covering palm kernel oil, palm kernel cake, oleochemicals and finished products. Despite its own domestic production of oils and fats, EU's imports of palm oil continue to increase steadily. The European oils and fats manufacturers are familiar with palm oil and its products, and are quite aware of its techno-economic advantages both for edible and non-edible applications. According to *Oil World* (2016a), in 2015, Malaysia was the second biggest supplier of palm oil to EU, accounting for 31.8% of the total palm oil exports there. However, Malaysia's palm oil market share had decreased to 31.7% in 2015 from 34.9% recorded in 2010 because of competition from Indonesian palm oil. According to MPOB data (2016), exports of Malaysian palm oil to EU in 2016 stood at 2.06 million tonnes, a decline by 15.3% from 2.43 million tonnes in 2015. Other palm-based products exported in 2016 were palm kernel cake, oleochemical products, palm kernel oil products, *etc.* (*Tables 8* and *9*). Exports of biodiesel had increased significantly by 91.1% to 152 440 t in 2015 from the previous year, taking advantage of EU's reduced purchase of biodiesel from



	Soyabean oil	Rapeseed oil	Sunflower oil	Palm oil	Others	Total
Total EU	968	2 922	2 866	8 827	2 225	17 808
Intra-EU	664	2 666	1 971	2 074	732	8 107
Extra-EU	304	256	895	6 753	1 493	9 701

Source: FEDIOL (2015).

Figure 7. European Union's imports of vegetable oils and fats in 2015 (x 1000 t).

TABLE 8. MARKET SHARE OF PALM OIL BY EXPORTING COUNTRIES(x 1000 t)

Year	Malaysia	% share	Indonesia	% share	Singapore	% share	Others	% share	Total
2010	2 045	34.9	3 083	52.5	502	8.6	238	4.1	5 868
2011	1 881	35.2	2 406	45.1	553	10.4	498	9.3	5 338
2012	2 223	36.1	2 701	43.9	566	9.2	665	10.8	6 155
2013	2 349	32.5	3 660	50.7	544	7.5	669	9.3	7 222
2014	2 079	28.2	4 061	55.2	519	7.1	702	9.5	7 361
2015	2 318	31.7	3 725	50.9	571	7.8	698	9.57	312

Note: Intra-EU trade is excluded.
Source: *Oil World* (2016a).

TABLE 9. EXPORTS OF MALAYSIAN OIL PALM PRODUCTS TO EU (t)

Palm products	2011	2012	2013	2014	2015	2016
Palm oil	2 011 710	2 226 848	2 336 759	2 411 060	2 432 504	2 059 207
Palm kernel oil	144 685	148 842	207 526	252 602	268 982	245 185
Palm kernel cake	878 324	970 928	832 601	770 424	690 328	677 572
Oleochemical products	493 025	660 451	625 914	636 474	563 422	529 629
Biodiesel	38 811	21 832	141 532	79 750	152 440	69 766
Finished products	26 406	15 894	20 848	18 931	16 437	15 323
Others	17 018	43 133	47 068	97 064	88 255	30 285
Total	3 609 979	4 087 928	4 212 248	4 266 305	4 212 368	3 626 967

Source: MPOB (2016).

Argentina and Indonesia. In 2016, the major markets for Malaysian palm oil in EU were the Netherlands (at 1.02 million tonnes), Italy (436 881 t), Spain (249 533 t) and Sweden (99 624 t). Palm oil destined for the Netherlands was also transhipped or re-exported to other countries in EU.

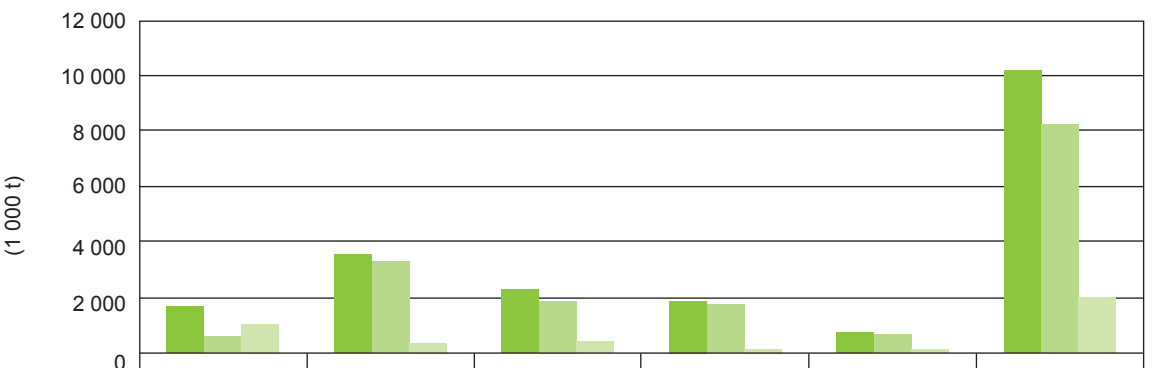
Export. In terms of exports, the amount of oils and fats exported by EU is small. Total exports of oils and fats increased by 38.2% to 2.8 million tonnes in 2015 from 2.1 million tonnes in 2011. The major oils and fats exported in 2015 were soyabean oil at 1.0 million tonnes (37.2%), olive oil at 550 000 t (19.4%), sunflower oil at 380 000 t (13.4%) and rapeseed

oil at 343 000 t (12.1%). Although production of rapeseed oil had increased by more than two-fold during the period 2000-2015, exports of rapeseed oil remained constant at an average of 250 000 t during the same period. This was due to the fact that most of the rapeseed oil is used within EU. Exports of rapeseed oil are small, but had increased to 343 000 t in 2015 from 286 000 t in 2011, up by 19.9%. Rapeseed oil is mainly exported to Norway and China PR. Data extracted from FEDIOL (2015) indicated that in 2015, EU exported 10.25 million tonnes of vegetables oils and fats, and these data consisted of both the intra- and extra-EU statistics (*Figure 8*). About 80.7% of EU's vegetable oils and fats are exported within EU (intra-EU trade). There is also re-exporting of palm oil from one EU member country to another as the port of Rotterdam is an important transit port.

As production of rapeseed oil is mainly for domestic consumption while trade in this commodity is considered small because of the higher domestic demand, the impact of rapeseed oil production on Malaysian palm oil trade in EU is minimum. In addition, the region depends on imports of oilseeds and vegetable oils to cater for the high domestic demand, especially from the edible sector. Palm oil is widely used by EU's food manufacturers because of its functional and textual properties as well as its price competitiveness as compared with rapeseed oil. Therefore, Malaysian palm oil has an advantage and a role to play in satisfying EU's demand for vegetable oils. Based on available information from FEDIOL (2015), in 2011, 67% of palm oil was used for food and feed, 12% for biodiesel-related industries, 11% for non-energy technical sector, and 10% for combined heating and power generation. Although Malaysia has ample opportunities to export more palm oil, especially for the growing edible sector, the Malaysian palm oil industry needs to strategise itself to face many challenges, such as misleading claims as well as the negative perception about palm oil, such as deforestation and sustainability issues.

Consumption

Being the major vegetable oil produced, naturally rapeseed oil is the most consumed vegetable oil in EU, followed by other oils, such as palm oil and sunflower seed oil. According to *Oil World* (2016a), in 2015, consumption of rapeseed oil increased significantly by 12.4% to 10.5 million tonnes in 2015 compared with 9.4 million tonnes in 2011. Most of the oils and fats in EU are consumed as food, followed by biofuel production and other industrial uses. In 2015, out of 32.5 million tonnes of oils and fats consumed, 20.7 million tonnes (or 63.6%) were for food use, while the remaining 11.8 million tonnes (36.4%) were used as feedstock for the energy sector. Within the energy sector, out of 11.8 million tonnes of oils and fats used, about 92.1% was used as feedstock for the biodiesel sector, while the remaining 7.8% was used in energy/heat generation and other industrial application (*Table 10*). Data available from FEDIOL (2015) also reflected the same situation, which is that in 2014, 48% of the total vegetable oils consumption was for food



	Soyabean oil	Rapeseed oil	Sunflower oil	Palm oil	Others	Total
Total EU	1 696	3 643	2 270	1 907	741	10 257
Intra-EU	641	3 299	1 883	1 791	659	8 273
Extra-EU	1 055	344	387	166	82	1984

Source: FEDIOL (2015).

Figure 8. European Union's exports of vegetable oils and fats in 2015 (x 1000 t).

TABLE 10. ESTIMATED USAGE OF 17 TYPES OF OILS AND FATS IN EUROPEAN UNION (million tonnes)

Total consumption	2010	2011	2012	2013	2014	2015
17 types of oils and fats	**31.04**	**29.82**	**30.09**	**31.02**	**32.47**	**32.54**
For energy	10.09	9.17	9.48	10.51	11.90	11.83
• Biodiesel	8.96	8.38	8.47	9.35	10.76	10.90
• Energy/heat/electricity	0.84	0.72	0.94	1.13	1.11	0.91
• Direct usage	0.29	0.07	0.07	0.03	0.03	0.02
Other uses (mainly for food)	20.95	20.68	20.60	20.50	20.4	120.71
Per capita usage (kg)*	41.4	41.4	41.2	41.0	40.0	40.6

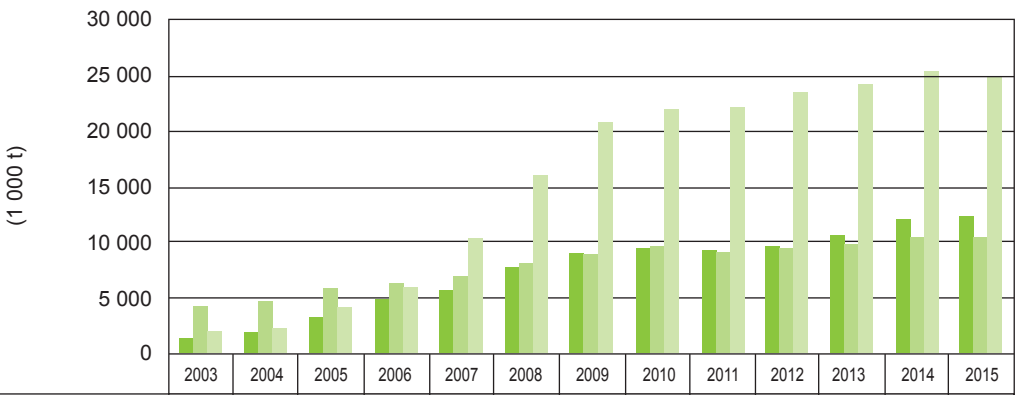
Note: *Including usage in the energy sector.
Source: *Oil World* (2016).

uses, 38% for biodiesel and the remaining for feed, direct energy, direct fuel and others. Use of vegetable oils as biodiesel increased from 31% in 2010 to 38% in 2014, whereas the vegetable oils share for food uses decreased from 54% to 48% over the same period.

Situation of Biodiesel

EU is the major producer of biodiesel in the world, followed by USA and Brazil. Biodiesel is an important biofuel in EU, and on an energy basis represents about 80% of the total transport biofuels market. In fact, biodiesel was the first biofuel developed and used in EU in the transportation sector. In 2016, EU produced 12.4 million tonnes of biodiesel (37.5% of world production). Based on available data from the European Biodiesel Board (EBB) (2016) and *Oil World* (2016a), production of biodiesel by EU had increased from a small amount of 1.4 million tonnes in 2003 to 12.4 million tonnes in 2016, up by 8.8 times. During this period, production capacity also increased by 11-fold to 24.2 million tonnes in 2013 from only 2.0 million tonnes in 2003 (*Figure 9*) because of the Directives relating to biofuels. Major biodiesel producers are Germany and France with a combined output of more than 2.0 million tonnes.

However, despite EU maintaining its ranking as the world's largest biodiesel producer, nearly two-thirds of the region's installed production capacity is currently lying idle. According to EBB, the total biodiesel installed capacity is 24 million tonnes, while actual production reached only 12 million tonnes. Even with this high percentage of unutilised capacity, EU produced 41.8% of the world's biodiesel in 2015. According to available data from USDA (2016a, b), there were about 250 biodiesel



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Biodiesel production	1 434	1 933	3 184	4 890	5 713	7 755	9 046	9 570	9 340	9 740	10 650	12 200	12 370
Rapeseed oil production	4 256	4 764	5 714	6 344	6 977	8 121	8 985	9 683	9 109	9 555	9 855	10 395	10 577
Production capacity	2 048	2 246	4 228	6 069	10 289	16 000	20 909	21 904	22 117	23 538	24 216	25 440	24 927

Source: European Biodiesel Board (2016a, b), USDA (2016), *Oil World* (2016a).

Figure 9. European Union's biodiesel production and capacity.

TABLE 11. EUROPEAN UNION'S BIODIESEL PRODUCTION AND FEEDSTOCK USE (million tonnes)

Item	2011	2012	2013	2014	2015	2016
Production	9.34	9.74	10.65	12.20	12.37	12.35
Feedstock used:						
Rapeseed oil	5.64	5.60	5.71	6.32	6.47	6.25
Palm oil	1.43	1.92	2.78	3.27	3.35	3.42
Used cooking oil	0.95	1.26	1.30	1.44	1.47	1.49
Soyabean oil	0.84	0.42	0.29	0.49	0.48	0.58
Tallow & greases	0.33	0.36	0.41	0.43	0.44	0.44
Sunflower seed oil	0.11	0.13	0.08	0.17	0.10	Na
Others	0.05	0.05	0.10	0.09	Na	Na

Note: Na - not available.
Source: *Oil World* (2016c).

plants in EU having an average capacity utilisation of 41%. The structure of the biodiesel sector is very diverse, and plant sizes range from an annual capacity of 2000 t owned by a group of farmers to 600 000 t owned by a large multi-national company.

In EU, rapeseed oil is the major feedstock for the biodiesel industry accounting for 52.3% of total production in 2015. However, this share had decreased from 60.4% in 2011, mostly because of the higher usage of palm oil and recycled vegetable oil/used cooking oil. In 2016, the share was at 50.6%. According to the International Institute for Sustainable Development (Gerashimchuk and Koh, 2013), EU can further increase its rapeseed production to supply oil to the biodiesel sector. However, the varying yield performance among the EU member countries and the high cost of agricultural production are noteworthy when compared with the low-priced agricultural commodities from developing countries. Thus, the biodiesel sector has to rely on imported feedstock, such as palm oil.

In contrast, the share of palm oil, which is the second most important feedstock, had increased from 15.3% (1.4 million tonnes) in 2011 to 27.1% (3.3 million tonnes) in 2015. According to USDA (2016a, b), the use of palm oil has increased further mainly because of its use in hydrogenated vegetable oil production and its price competitiveness. Used cooking oil is the third major important feedstock. Utilisation of used cooking oil as feedstock had also increased (from 10.1% in 2011 to 11.9% in 2015) as a result of the current RED that allows double counting, thus leading to a declining use of rapeseed oil for biodiesel. Apart from this, the strong competition from animal fats and recycled oils as well as the current low crude oil prices have affected negatively the profitability of producing biodiesel from rapeseed oil. However, further growth in the utilisation of used cooking oil is curbed by the amount of vegetable oil used directly and the costs of recycling used cooking oil (collection from households, *etc.*). Decreasing reliance on first generation biofuels in the policy mix may give certain EU member states the incentive to step up their efforts in expanding the collection of used oils and other double-counted feedstock.

Trade

Apart from using vegetable oils as feedstock for biodiesel output, EU also imports biodiesel from Malaysia, South Korea, Brazil and India. Between 2008 and 2012, EU imported biodiesel from USA, Argentina and Indonesia. However, imports from these countries declined significantly because of problems of dumping; EU producers were at disadvantage when Argentina and Indonesia sold biodiesel to EU below their cost of production. In the case of USA, the decline in imports was related to the 'splash and dash' issue. According to USDA (2016a, b), in March 2009, EC introduced countervailing duties and anti-dumping duties on biodiesel imports from USA. In May 2011, the duties were extended to all biodiesel from USA (2016a, b), irrespective of the blending ratio. These duties dramatically reduced EU biodiesel imports from USA. However, hopes by EU's domestic biodiesel industry that this would reduce the pressure on the market had not materialised as the void was filled by increased biodiesel imports from Argentina and Indonesia. In an attempt to curb biodiesel imports from Argentina and Indonesia, EC enforced anti-dumping duties on biodiesel imports from these countries of origin in May 2013. As a result, imports from both countries declined considerably in 2013,

TABLE 12. SWOT ANALYSIS TO EVALUATE EUROPEON UNION'S RAPESEED INDUSTRY

Strengths	Weaknesses
• Largest biodiesel producer • Large biodiesel industry • Major importer of oils and fats • Vegetable oils processing and trading hub	• Dependence on oils and fats imports • Constant (unchanging) rapeseed output • Under-utilised biodiesel processing capacity • Biofuel Policy Post 2020
Opportunities	**Threats**
• Higher usage of rapeseed oil • EU is part of the Ukraine Deep & Comprehensive Free Trade Area	• Competition from imported vegetable oils

Note: EU – European Union.

and almost ceased entirely in 2014. The void was partially filled by domestic production in EU and partially by higher imports from countries not covered by the anti-dumping duties. Here the biggest beneficiaries were Malaysia, South Korea, India and Brazil.

EU's biodiesel exports to destinations outside the region are marginal and normally only amount to around 1% of total production. The exceptional increase in exports in 2013 was due to higher exports to USA, and can be attributed to one company taking advantage of an elevated demand in USA and the blenders' credit. The latter expired at the end of 2013 and was only reintroduced for 2014 very late in the year. As a result, EU exports to USA declined sharply in 2014. Exports are forecast to drop further but at a slower rate in 2015, and will remain flat in 2016 (USDA, 2015a, b).

The SWOT analysis was used to evaluate EU's rapeseed industry in terms of its strengths, weaknesses, opportunities and threats.

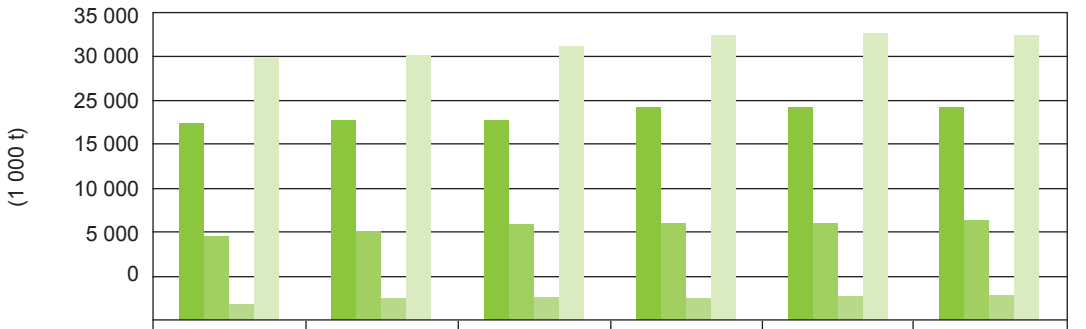
Strengths

Large biodiesel producer and industry. As mentioned earlier in this report, EU is the largest biodiesel producer in the world. Biodiesel is the most important biofuel in EU, and on the basis of energy represents about 80% of the total transport biofuels market. In 2015, EU produced 12.4 million tonnes, or 41.6% of the world's biodiesel production, followed by USA at 4.9 million tonnes (16.5%), Brazil at 3.5 million tonnes (11.6%) and Argentina at 1.8 million tonnes (6.1%). The reasons for this dominant role are the supply availability of domestic rapeseed oil and the biofuel goals set out in the EU Directives. Biodiesel production facilities exist in every EU member state with the exception of Luxemburg. The biodiesel industry in EU is large with 250 biodiesel plants having a total production capacity of 24.9 million tonnes in 2015 (European Biodiesel Board, 2015).

Vegetable oils processing and trading hub. EU, especially the Netherlands, plays an important role as a vegetable oils processing and trading centre. The Netherlands has an important function as a trade and refining hub, as well as having storage and handling capabilities. Vegetable oils entering the country through the port of Rotterdam are shipped to other European countries via inland vessels, or stocked and handled by storage companies at the port (Port of Rotterdam, 2016). In recent years, the port of Rotterdam has benefited from new investments made in palm oil processing facilities by both South-east Asian and European companies. Currently, the five companies that have refining facilities at the port are Wilmar Edible Oils, MaasRefinery, Cargill Refined Oils Europe, IOI-Loders Croklaan and Unimills, thus making the port a major player in the supply of edible oils to the European food industry. In Rotterdam, vegetable oils such as palm, sunflower seed, rapeseed and coconut oils are refined and processed on a large scale. Apart from this, the production of biofuels, especially biodiesel, has further strengthened the position of the port of Rotterdam in the vegetable and animal oils and fats sector.

Weaknesses

Dependence on oils fats import. EU is highly dependent on imports of oilseeds and oilseed products (protein meals and vegetable oils) to meet the demand for food, feed and industrial uses, including biofuel production. EU imports substantial amounts of oils and fats because of high domestic consumption (more than 30 million tonnes annually) and a constant (unchanging) production



	2011	2012	2013	2014	2015	2016
Production	22 338	22 838	22 582	24 318	24 294	24 127
Import	9 622	10 078	11 002	11 020	11 060	11 127
Export	2 055	2 578	2 785	2 615	2 835	2 941
Consumption	29 852	30 085	31 008	32 313	32 515	32 468

Source: *Oil World* (2016c).

Figure 10. Situation of European Union's oils and fats (x 1000 t).

volume of oils and fats, which has been at about 24 million tonnes per year for the past five years (*Figure 10*). Imports have increased by 17.2% to 11.28% million tonnes in 2016 from 9.62 million tonnes in 2011, while palm and sunflower seed oils are the major vegetable oils imported. Imports of palm oil have been increasing for the past decade due to the growing demand from the food sector as well as the biodiesel sector. The increased usage of rapeseed oil for domestic biodiesel may have also contributed to a switch to palm oil. According to available data from *Oil World* (2016a), the EU biodiesel industry increased its usage of palm oil by almost six-fold to 3.45 million tonnes in 2016 from only 0.62 million tonnes in 2007.

Constant rapeseed production. Production of rapeseed in EU has remained constant and unchanged at about 21-22 million tonnes for the past 10 years. According to the *EU Agricultural Outlook Report* (2016a, b), for the period 2016-2026, there will be a decline in rapeseed area to 5.7 million hectares in 2026 from the current 6.5 million hectares. Rapeseed output is forecast to drop to 19.5 million tonnes in 2026 from 20.0 million tonnes in 2016. This is in line with the overall declining crop area due to several factors: namely, developments in the biofuel as well as feed sectors, the rapeseed's current prominence in crop rotation, and agronomic constraints linked to the ban on neonicotinoids and potentially a reduced availability of pesticides under the Sustainable Use Directive. In addition, varying yield performance and high cost of production are also contributing factors (Gerashimchuk and Koh, 2013).

Biofuel policy post-2020. Currently, the EU member countries have agreed on a new 2030 Framework for Climate and Energy with the aims to help the region achieve a more competitive, secure and sustainable energy system, and to meet its long-term 2050 greenhouse gas reduction target. On 30 November 2016, EC published a formal proposal to recast RED 2009/28/EC. The new directive called RED II will succeed the existing regulation and enter into effect on 1 January 2021. RED II proposes a set of policy measures to achieve a 27% renewable energy share from energy consumed by the electricity, heating and cooling, and transportation sectors by 2030. RED II will mandate that 6.8% of transportation fuels be derived from renewable sources, specifically advanced alternative fuels and renewable electricity.

Acording to to EC, RED II will allow member states to count food-based biofuels (*i.e.* first generation biofuels) towards the overall 27% renewable energy target, but this contribution is capped at 7% of the total road and rail transport fuels in 2021, and will decline to 3.8% in 2030. The biofuels industry, especially UFOP, is of the opinion that the market outlets of the oilseeds producers are directly threatened by this proposal. According to ICCT (2017), with no objectives in transport, the EC proposal could lead to the end of the first generation biofuel sector, and will lead to a fall in oilseed prices, resulting in a shrinkage of the rapeseed area at the European level. The limits imposed on the first generation biofuels will result in a degradation of the already prevailing European deficit in plant proteins, and will also have an

impact on the diversity of the crop rotations. In EU, of the vegetable oils going into biofuel production, the largest share comes from rapeseed oil (about 62%), followed by palm oil (33%). According to the *EU Agricultural Outlook Report* (2017a, b), the share of vegetable oils in the biofuels complex is projected to decrease in favour of waste oils and residues.

The debate on the future of the first generation biofuels is still on-going within the biofuel industry. The biofuel industry players (namely, EBB, UFOP and FEDIOL) reminded the EU policy-makers of the challenges that the EU biodiesel producers and farmers are facing in view of the huge investments made in this sector in the past. Furthermore, over the years, the biodiesel outlet has helped in reducing oilseeds price volatility and in guaranteeing income for the farmers. According to FEDIOL, EU imports 30 million tonnes of diesel every year (15% of its total consumption); as 60% of the biofuels comes from European feedstocks, biodiesel production improves energy security by reducing fossil fuel imports. In addition, domestic biodiesel improves energy security and provides more than 200 000 jobs in the rural areas. Biodiesel produced from vegetable oils also triggers the concurrent production of considerable volumes of feed materials (in the form of meal) in Europe which are used in animal feeds, thus contributing to the reduction in EU's protein dependency on imported meals while ensuring a steady income for European farmers. EC's proposal (RED II) will have to get the approval of the EU Council and the European Parliament before it can come into force.

Under-utlised biodiesel processing capacity. Although EU is the world's largest biodiesel producer, nearly two-thirds of the region's installed processing capacity is currently lying idle. According to EBB (2016a, b), the biodiesel total installed capacity measures nearly 24 million tonnes, while actual production reaches only 12 million tonnes. The limits imposed on first generation biofuels usage under the proposed RED II is expected to have an impact on the oilseeds sector, particularly rapeseed, in EU as the current growth in the EU's oilseeds sector has been triggered by developments in the biofuel sector.

Opportunities

There is an opportunity for EU to further increase the usage of rapeseed oil despite the unchanging domestic rapeseed and rapeseed oil production volumes and the growing import volumes of vegetable oils. According to a study by Van Duren *et al.* (2015), there is probably still potential for increasing rapeseed productivity in the majority of the European countries. Better varieties, improved agricultural technologies and more efficient energy use can probably increase further the energy efficiency of bioenergy production from rapeseed. Increasing opportunities can also be seen through the EU – Ukraine Deep & Comprehensive Free Trade Area that became effective on 1 January 2016, which opens up markets on both sides through the progressive removal customs duties and restrictions on services and public procurement. According to EC, as of 1 January 2016, EU and Ukraine will no longer apply import duties on most products exported from EU to Ukraine, and *vice versa* (99.1% on the Ukrainian side and 98.1% on the EU side). Therefore, there is an opportunity for EU to import oilseeds and vegetable oils, particularly rapeseed/rapeseed oil as well as sunflower seed/sunflower seed oil at lower duties.

Threats

The EU rapeseed industry faces strong competition from imported oils and fats due to growing demand from the edible and non-edible sectors. Palm oil is the main oil imported, and according to FEDIOL, EU's imports of palm oil had increased in the past 10 years due to higher demand from the food industry because of the preference for palm oil's functional and textual properties as well as its price competitiveness. National programmes supporting combined heating and power (CHP) installations also contributed to the increase in imports. Consumption of palm oil increased by almost three-fold to 7.23 million tonnes in 2015 from 2.45 million tonnes in 2000. Apart from this, EU is not self-sufficient in oils and fats and has no sources of solid fats other than animal fats like lard and tallow. Unlike palm oil, soyabean, rapeseed and sunflower seed oils are liquid and cannot be used to manufacture solid fat products without adding a solid fat component (Yusof, 2013). However, the higher imports and uses of palm oil are seen to replace or threaten domestic edible oils (particularly rapeseed oil), and this has caused serious concerns among the edible oil producers and NGO, thus initiating the anti-palm oil campaigns in Europe. The European NGO have long campaigned against the production of palm oil in developing countries, alleging that it damages the environment (specifically tropical rainforests) and endangers threatened species, *e.g.* the orang utan. These groups are opposing the production and imports of palm oil because the oil threatens the market share of vegetable oil produced from EU-grown rapeseed (Roberts, 2010).

PROSPECTS OF EU'S RAPESEED INDUSTRY

EU will continue to produce rapeseed to cater for domestic demand (in the edible and non-edible sectors). According to Biofuels International, the European rapeseed oil industry was valued at USD 23.76 billion (€ 21.83 billion) in 2014, and is expected to reach USD 35.39 billion by 2021 at a compound annual growth rate of 6.9%. This growth will be driven by various health benefits and advantageous properties of rapeseed, such as the use of its oil in biodiesel production, and as vegetable oil in food and other applications. Historically, the EU rapeseed industry crushes the seed primarily for meal which is then channelled to the livestock industry. However, as rapeseed oil became more important as a biofuel/biodiesel feedstock and the price had risen due to higher domestic demand, rapeseed crushing activity has also increased significantly resulting in higher rapeseed meal output. According to FEDIOL (2016a, b), the production of 13.9 million tonnes of rapeseed meal is directly related to EU's biodiesel production. Therefore, in the absence of biofuel outlets for the oil, the meal will not be produced in EU and will have to be imported, in particular soyabean meal. With the uptake of biofuel in EU, rapeseed meal production had nearly doubled from 1.92 million tonnes in 2000 to 4.37 million tonnes in 2015. Based on the SWOT analysis, the competitiveness of EU's rapeseed industry depends on the biofuel/biodiesel sector and EU's future policy on biofuels.

CONCLUSION

The rapeseed industry is a crucial and important sector in EU in order to satisfy growing domestic demand. However, due to stagnant production of oilseeds as well as oils and fats, EU will continue to import huge amount of oils and fats, especially palm oil, to cover the deficit, although some quarters view this competition from imported vegetable oils as a threat to the domestic rapeseed and rapeseed oil industry. Palm oil is expected to continue to be the major oils and fats imported by the region to cater for demand from both the edible and non-edible sectors.

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