CANOLA MARKET VALUE CHAIN PROFILE

2012

Department of Agriculture, Forestry and Fisheries

Directorate Marketing
Private Bag X 15
Arcadia
0007

Tel: 012 319 8455/6
Fax: 012 319 8131
Email: MogalaM@daff.gov.za

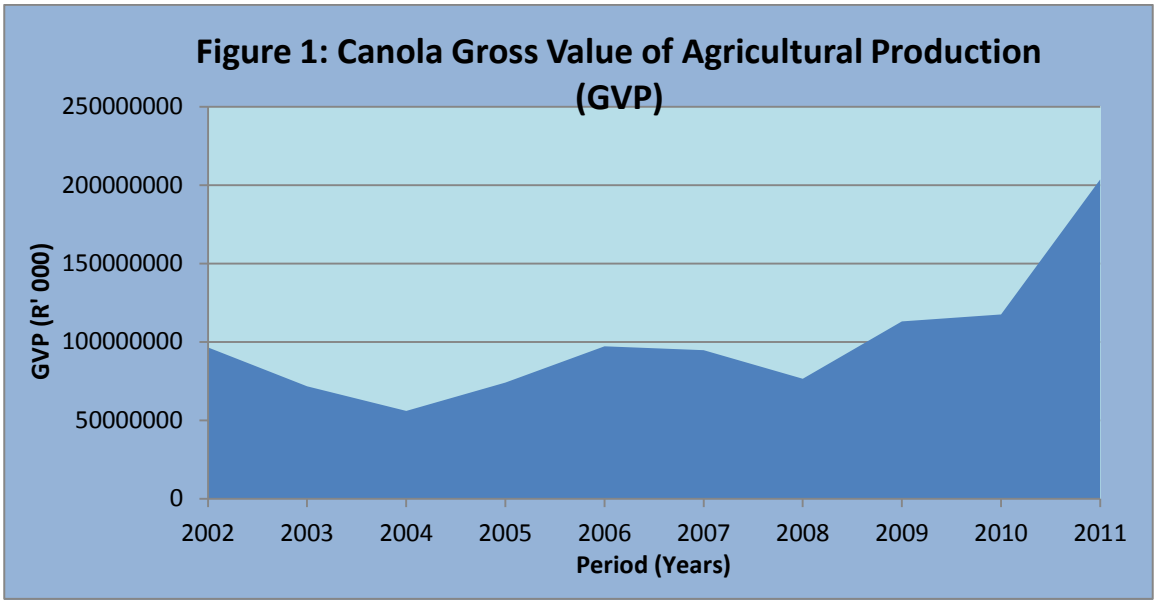
agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

TABLE OF CONTENTS

1. DESCRIPTION OF THE INDUSTRY

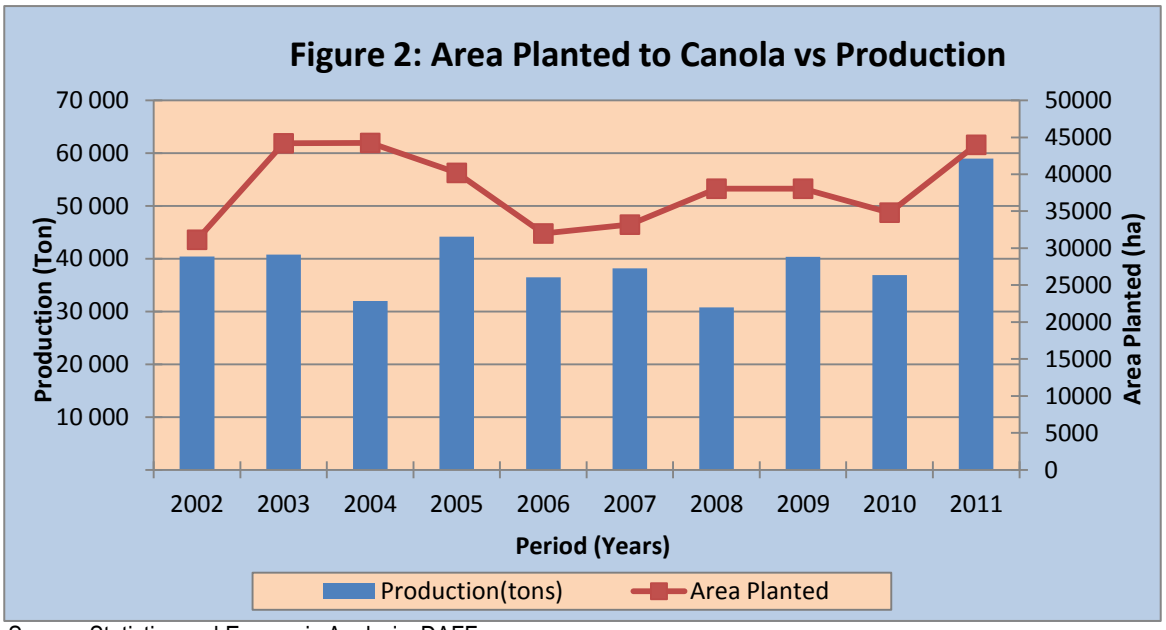
Canola, *Brassica Napus,* (also known as rape seed) is an oilseed crop that is mainly grown in the Southern Western Cape, with farmers in the other areas of South Africa such as North West and Limpopo Provinces also starting to plant Canola. The handling of Canola after being harvested is slightly more labor intensive as a result of the small pips. Road and rail trucks need to be sealed more tightly than other commodities in order to prevent losses in transit. Canola is primarily used for the manufacturing of canola oil and oil cake. The production of canola in South Africa is usually lower than the demand and the local consumption requirements for canola is around 37 500 tons per year, with the favorable prices being achieved. Canola is a good source of protein in animal feed and large quantities of protein for animal feeds have to be imported every year.



Source: Statistics and Economic Analysis, DAFF

Figure 1 above shows the gross value of production for canola. The gross value of production for canola was relatively higher during the year 2002 and this was followed by a slight decline between the year 2003 and 2004. In general the gross value of canola production has been on the increase during the past three years and this is attributable to the improved volumes of production as well as slightly improved producer prices. The highest level of GVP for canola was attained during the year 2011 due to an improved local production coupled with relatively higher prices and the lowest was attained during the year 2004.

Figure 2 and Table 1 below show the area planted to canola and the local production volumes for the past ten years. The period under analysis opened higher volumes of canola in the market followed by a slight increase in production volume during the year 2003 mainly as a result of an increment in the area planted to canola over the same time period.



Source: Statistics and Economic Analysis, DAFF

The period under analysis closed with the highest quantities of canola in the local market in 2011 due to the increment in area planted to canola during the same year. During the year 2011, 59 000 tons of canola were produced locally and this is about 46% higher compared to what was harvested during the year 2002 and 60% higher compared to what was produced during the year 2010.

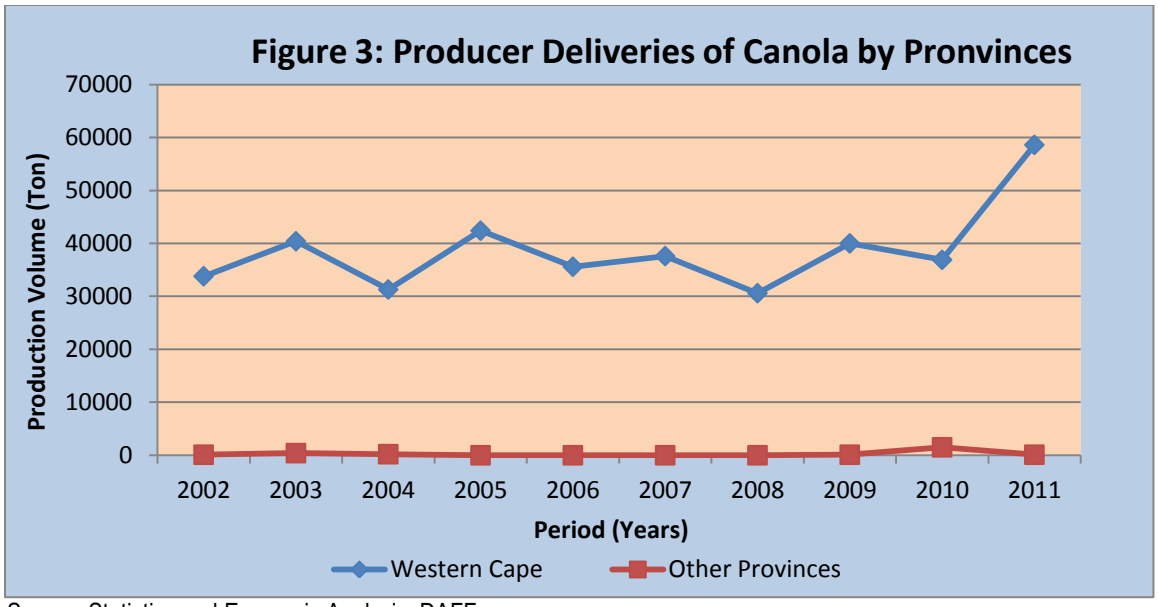
Table 1: Area Planted to Canola and the Local Production

Production Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Planted (ha)	33 000	44 200	45 500	40 200	32 000	33 200	38 058	38 060	34 820	44 000
Production (Tons)	40 406	40 791	32 000	44 200	36 500	38 150	30 800	40 350	36 900	59 000

Source: Statistics and Economic Analysis, DAFF

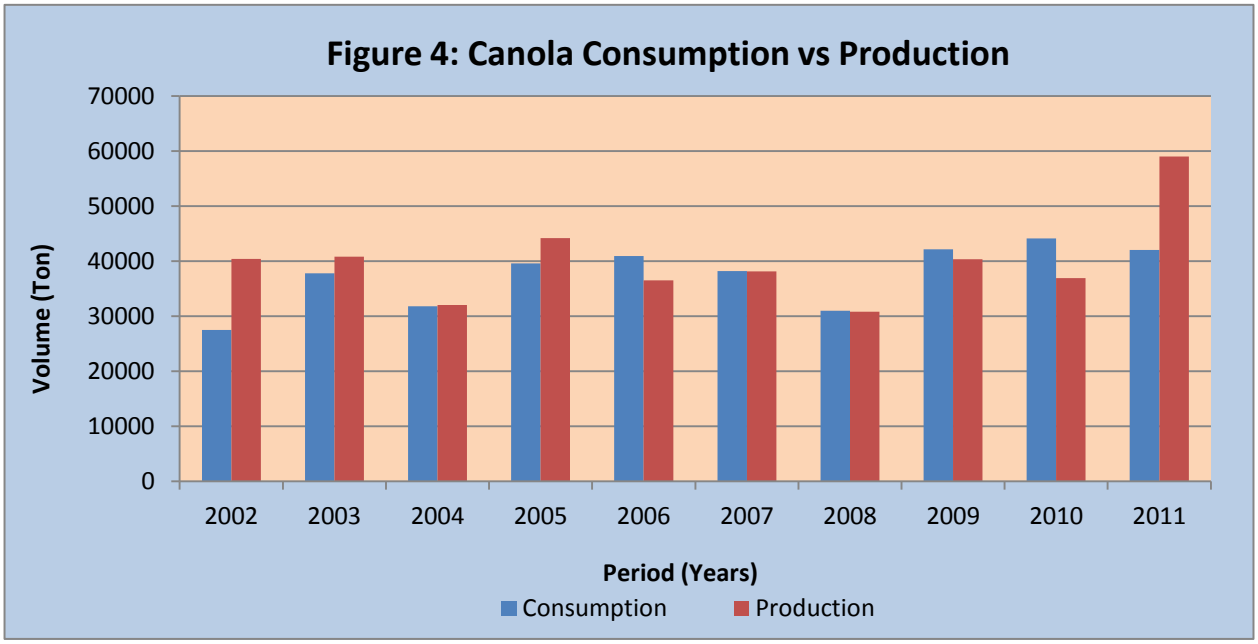
1.1. Production Areas

Canola oil seed crop is mainly grown in the Southern Western Cape, and farmers in the Northern areas such as North West Province and Limpopo are also expanding their agricultural practices towards the planting of canola crop. The South Western Cape is regarded as the commercial production area for canola seed crop because high capacity of canola supply originates from there.



Source: Statistics and Economic Analysis, DAFF

Figure 3 shows that Western Cape accounts for about 99% of South Africa's total canola supply while other provinces contribute about 1%. The figure also indicates that canola supply trends for the Western Cape, in most cases, depict the trend for the rest of South Africa as a result of Western Cape being the largest producer. It is also clear from the figure that canola supply from Western Cape was relatively higher during the year 2002 and the crop generally fluctuates between 30 thousand and 40 thousand tons. The volume of canola supply from Western Cape increased substantially and reached the highest level during the year 2011. The supply by other provinces except Western Cape was very low throughout the period under analysis except during 2010 when supply from these provinces increased slightly.



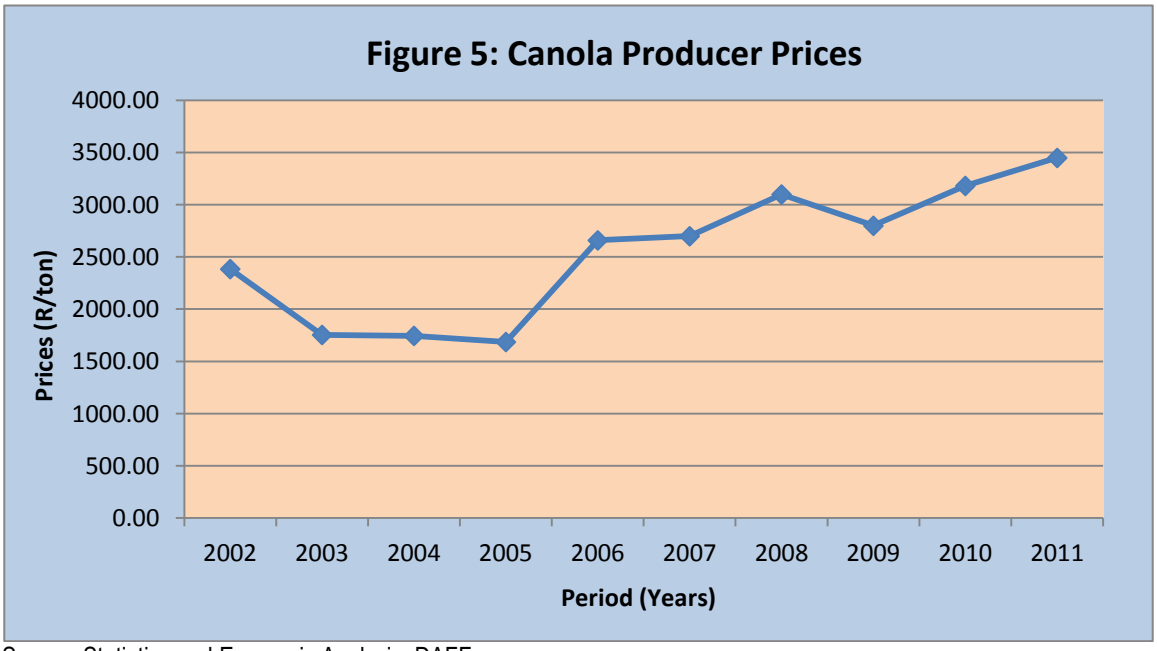
Source: Statistics and Economic Analysis, DAFF

Figure 4 above indicates that on average canola production is slightly above consumption volumes. An average of about 37 thousand tons/annum of canola are processed for various purposes in the local market while the local production is sitting at around 39 thousand tons per annum. The figure indicates that the local production for canola was enough to meet the local demand from the year 2002 until 2005 as a result of relatively lower consumption volumes during these years. There are only few incidences, such as the years 2009 and 2010, where the local production for canola was less than consumption volumes but in general the local production is enough to meet the local demand.

2. MARKET STRUCTURE

2.1 Canola Domestic Producer Prices

Figure 5 and Table 2 below shows canola producer prices in rands/ton given from the production period 2002 to 2011. The canola industry has been experiencing some fluctuations in producer prices for the past ten years due to limited production in the country and less supply in the market. The figure shows increase decline in producer prices between the years 2003 and 2005 and this can be attributed to the improved local supply levels at the time. The highest price was attained during the year 2011 (R3 449/ton) while the lowest (R1 686.54/ton) was experienced during the year 2005.



Source: Statistics and Economic Analysis, DAFF

The closing price (during the year 2011) for canola was 44.65% higher compared to the opening price during the year 2002. This represents a significant rise in the levels of canola prices over the past ten years.

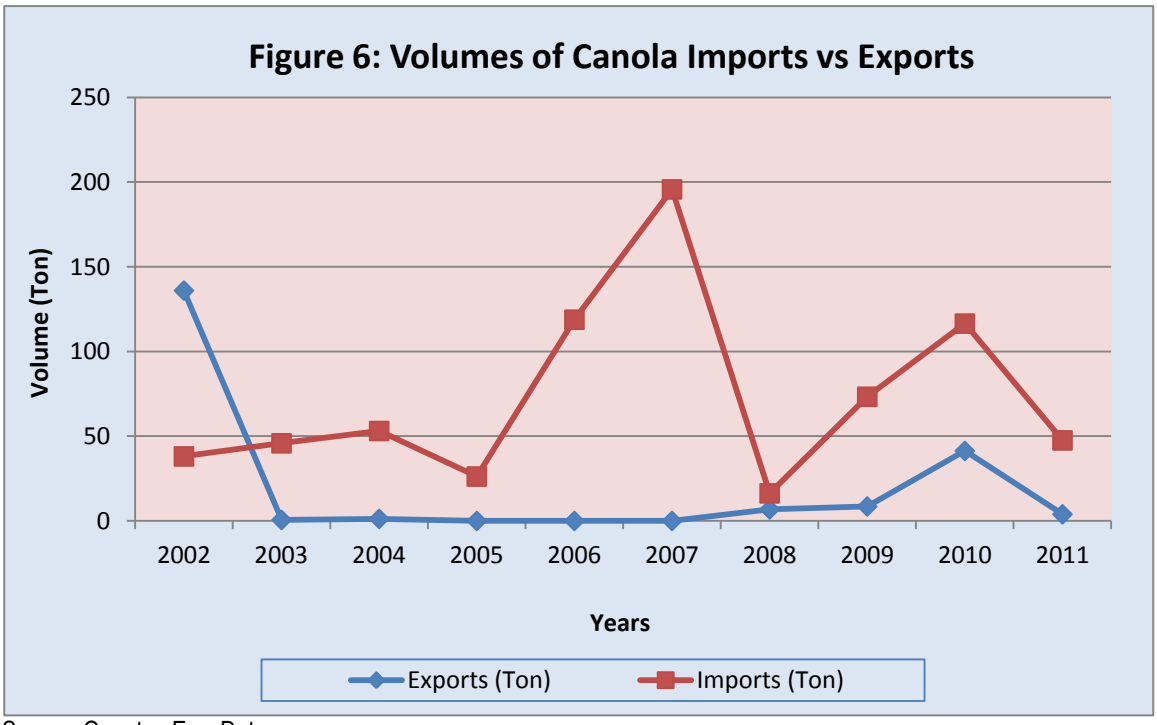
Table 2: Canola producer prices

Production Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Producer Prices (R/ton)	2385.00	1754.50	1745.38	1673.09	2660.00	2480.00	3100.00	2800.00	2 700.00	3 449.94

Source: Statistics and Economic Analysis, DAFF

2.2 Imports and Exports

Due to lower levels of local canola production, South Africa has been a net importer of canola over the past ten years. South Africa has, over the past ten years, exported an average of 15.48 tons of canola per annum while importing 67.56 annually.

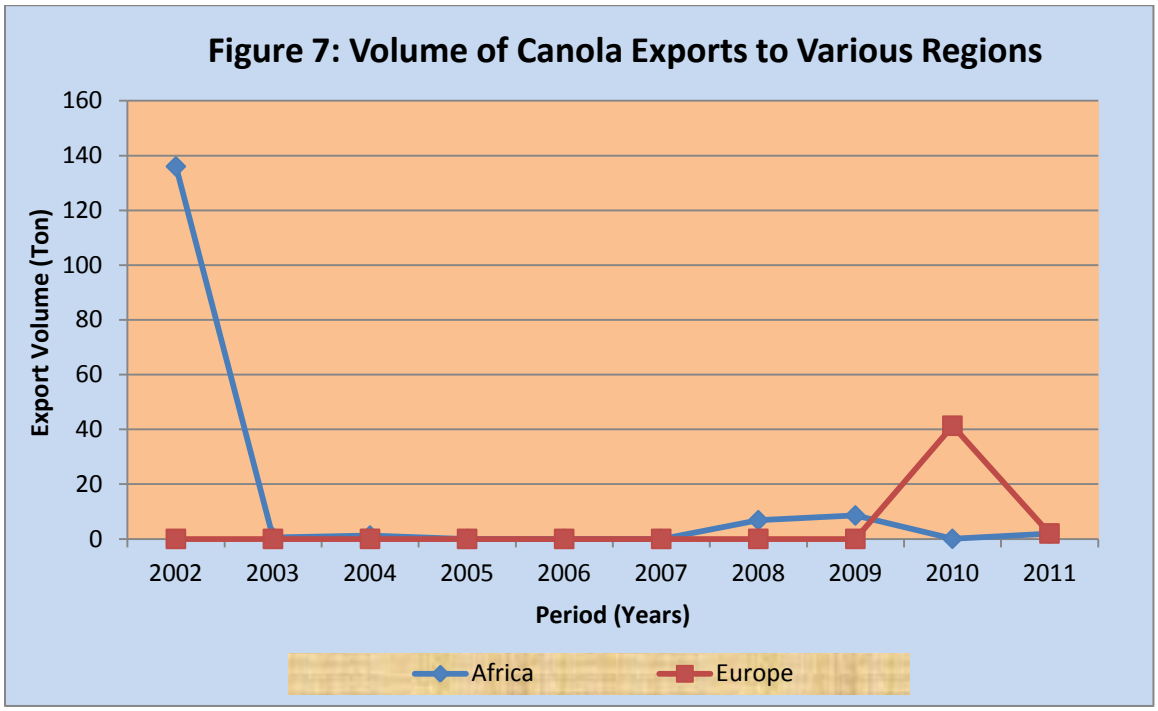


Source: Quantec EasyData

Figure 6 shows that South Africa exports only lower and unreliable volumes of canola to other countries, mainly as a result of lower levels of local production. With regard to imports, the period under review opened with relatively lower imports of canola which increased slightly between the years 2003 and 2004. The highest level of imports was attained during the year 2007 (197.76 Tons) while the lowest was attained in 2008 (16.28 Tons). Both imports and exports of canola remained at moderate levels (below 100 tons) during the year 2010. In general, it can be observed from Figure 6 that trade of canola is very low in South Africa and this is due to lower levels of production and lower utilization levels for canola in the country. The period under analysis closed with lower volumes of both imports and exports of canola during the year 2011.

2.2.1. Canola/rape seed provincial exports

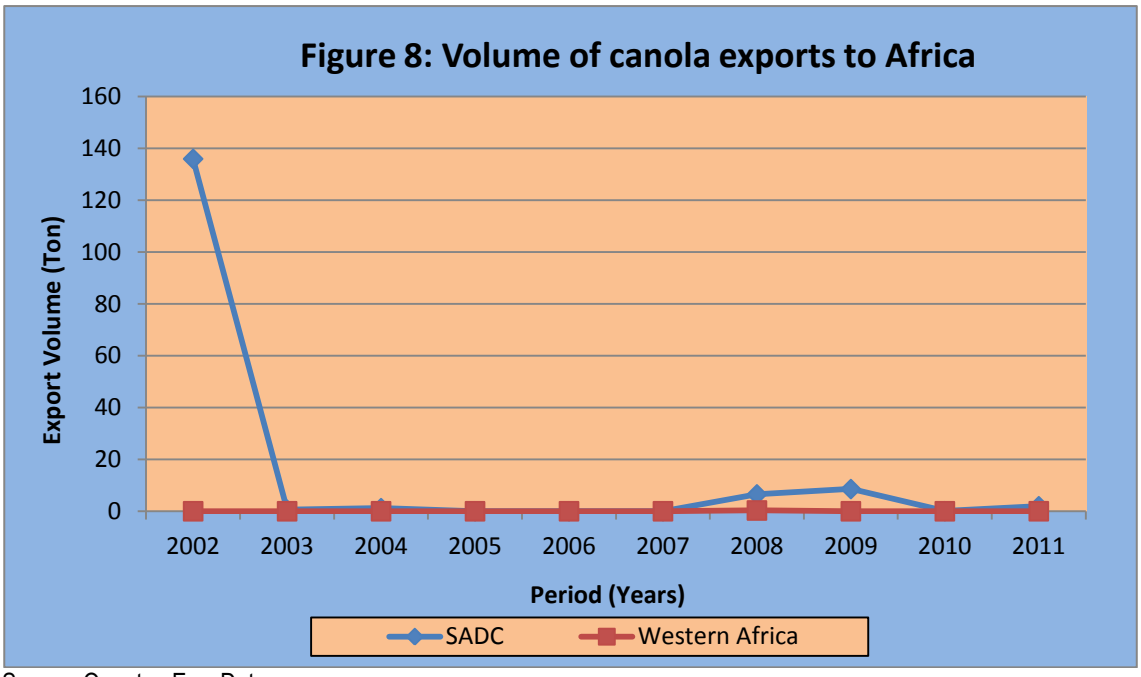
The following figure (Figure 7) shows the volumes of canola exports from South Africa to various regions around the globe.



Source: Quantec EasyData

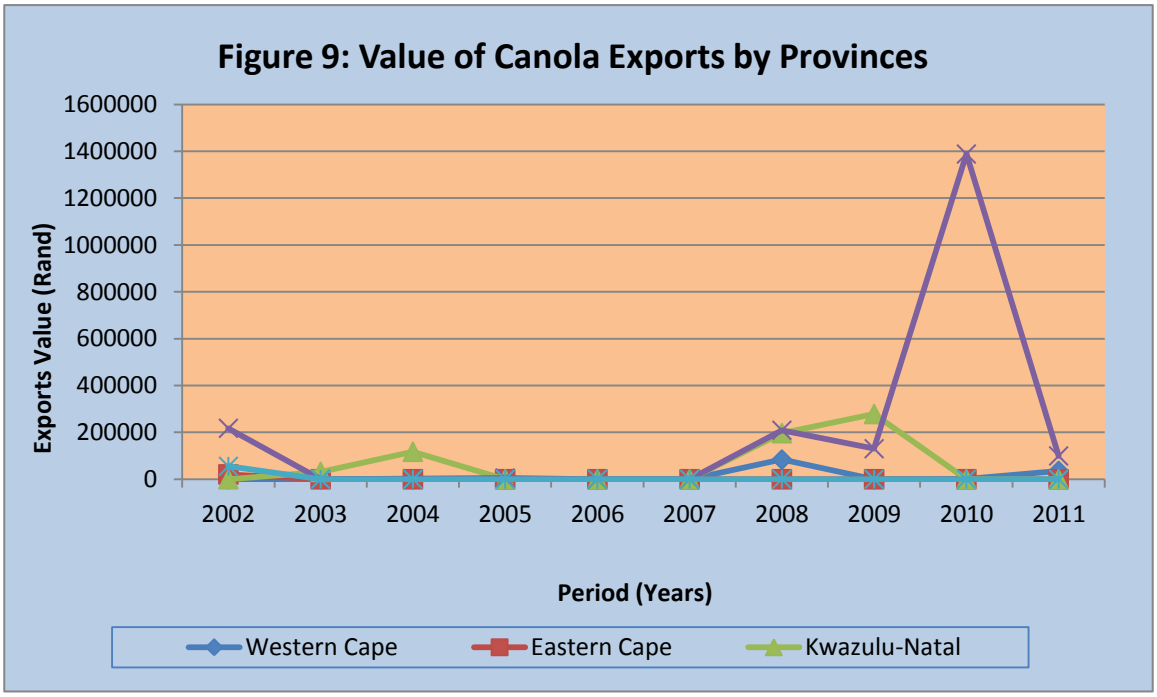
Figure 7 above confirms the earlier observation that South Africa exports smaller and erratic quantities of canola due to lower levels of local production. South Africa has, over the past ten years, exported canola to only two continents, namely Africa and Europe. It is also clear from the figure that most canola exports from South Africa are destined for the market in other African countries while exports to Europe remained at lower levels throughout the period under analysis. South Africa is by far the largest producer of canola in Africa while Europe is the largest producing continent in the world and this explains why most of South Africa's canola exports are destined for other African countries while exports to Europe are at minimum.

Volumes of canola exports to the African continent are displayed in Figure 8 below. In the African continent, South Africa exports most of its canola to other SADC countries such as Mozambique, Zimbabwe, Zambia, DRC and Malawi. The fact that South Africa is in close proximity to these countries, the SADC Free Trade Agreement as well as the fact that South Africa is the only major producer of canola in the SADC give South Africa an advantage as a supplier of canola in SADC. Exports of canola to the African continent were very low during the year 2010 when only 36 kg was exported and the exports to the continent remained very low between the years 2010 and 2011.

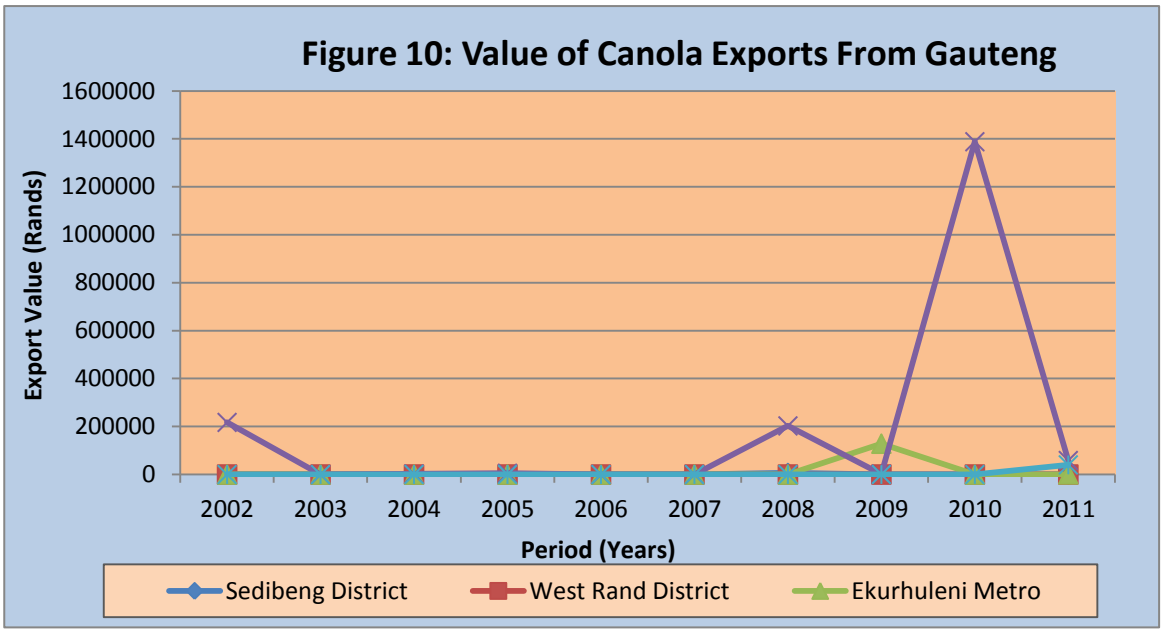


Source: Quantec EasyData

Figure 9 indicates that over the period under review, canola or rape seed was mainly exported from Gauteng province, followed by KZN and Western Cape provinces. Canola is mostly produced in the Western Cape province in the country, but Gauteng province's capacity to export is brought about by availability of favorable agro-logistics, the presence of a large number of exporters in the province and the presence of Randfontein grain market.

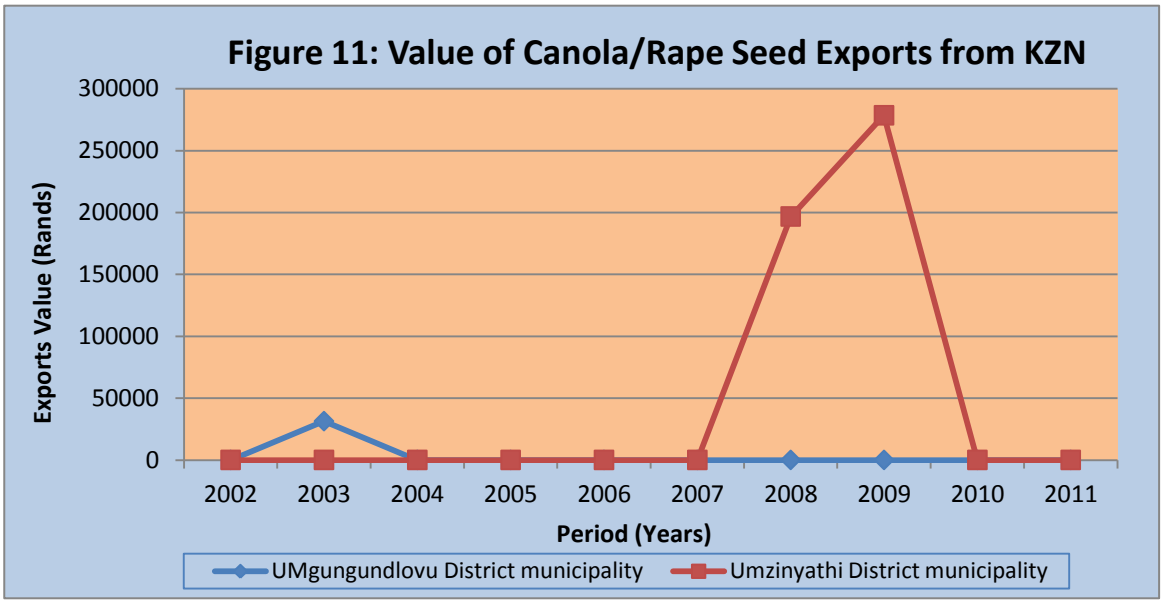


Source: Quantec EasyData



Source: Quantec EasyData

Figure 10 shows that canola exports from Gauteng Province originate mainly from City of Johannesburg and Ekurhuleni Metropolitan Municipalities. Higher values of canola exports were recorded from City of Johannesburg in 2002, 2008 and 2010. Exports from Ekurhuleni were relatively higher in 2009 followed by a decline during the years 2010 and 2011. Similar to the national trend, exports of canola from Gauteng province experienced a general decline during the year 2011.



Source: Quantec EasyData

Figure 11 indicates that UMgungundlovu and Umzinyathi District Municipalities are the major exporters of canola or rape seed in KwaZulu-Natal province. The highest values of canola exports

from the province were recorded during the year 2009, mainly from Umzinyathi District. This was followed by a massive decline during the year 2010 and 2011.

2.2.2. Share Analysis

Table 3 shows shares of various provinces to the total export value of canola oil in South Africa during the past decade.

Table 3: Share of provincial canola oil exports to the total South African canola oil exports (%)

Year / Province	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Western Cape	0.00	0.00	0.00	0.00	0.00	0.00	17.11	0.00	0.05	26.15
Eastern Cape	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KwaZulu-Natal	0.00	100	98.10	0.00	0.00	0.00	40.18	68.09	0.00	0.00
Gauteng	74.19	0.00	1.90	100	0.00	0.00	42.71	31.91	99.95	73.85
Mpumalanga	18.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Calculated from Quantec Easydata

Table 3 above indicates that Gauteng province command the greater share of South Africa's total canola exports followed by the KwaZulu-Natal and Western Cape provinces. This trend indicates that the greatest percentage of canola exports were recorded as originating from the Gauteng Province and less from Western Cape and other provinces despite the fact that Western Cape province is the largest producer of canola seed in the country. Most of canola seed produced in this province is transported to Gauteng because Gauteng province is well equipped with storage and much better infrastructure and have a range of grain traders located in the province. The shares of various districts to total Gauteng export value for canola during the past ten years are presented in Table 4.

Table 4: Share of the district canola exports to the total Gauteng canola oil exports (%)

Year / District	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sedibeng	0.00	0.00	0.00	0.00	0.00	0.00	2.96	0.00	0.00	0.00
West Rand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ekurhuleni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.67	0.00	0.60
City of Johannesburg	100	0.00	100	100	0.00	0.00	97.04	1.33	100	58.92
City of Tshwane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.48

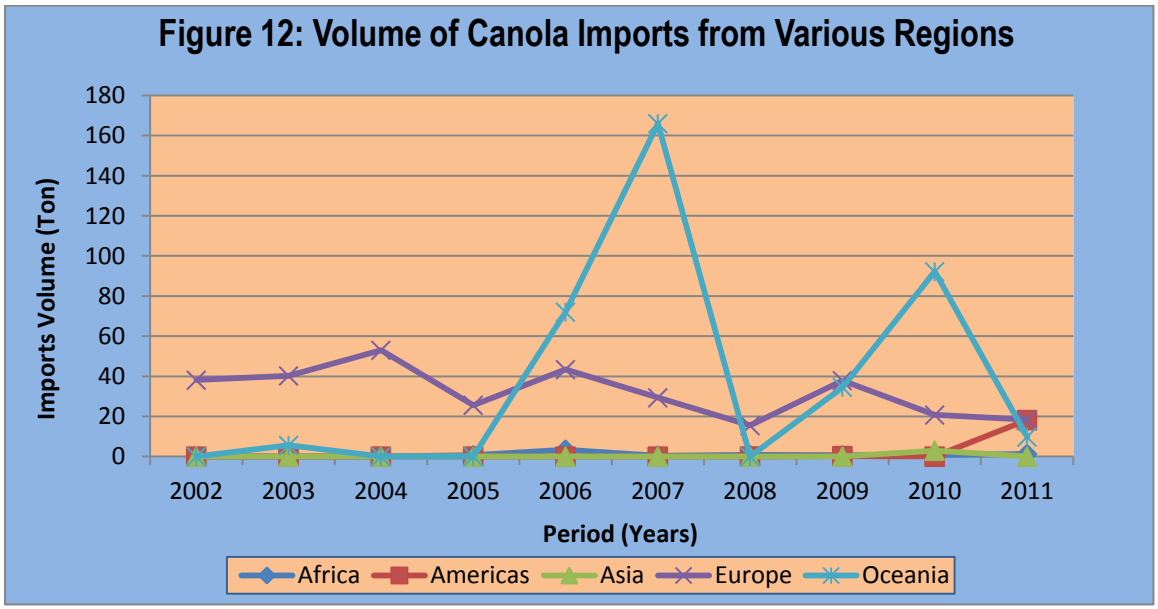
Source: Calculated from Quantec Easydata

Table 4 shows the contribution of various districts to the total Gauteng canola exports. The City of Johannesburg is the major exporter of canola from Gauteng Province, having commanded the greatest shares for the most part of the period under review followed by Ekurhuleni District. The

table also indicates that there were no exports of canola seed from the Gauteng Province during the years 2003 and 2007. City of Johannesburg was the sole exporter of canola in Gauteng during the year 2010. City of Tshwane has, during the year 2011, emerged to be one of the major exporters of canola having accounted for about 40.48% of Gauteng's total value of exports in 2011.

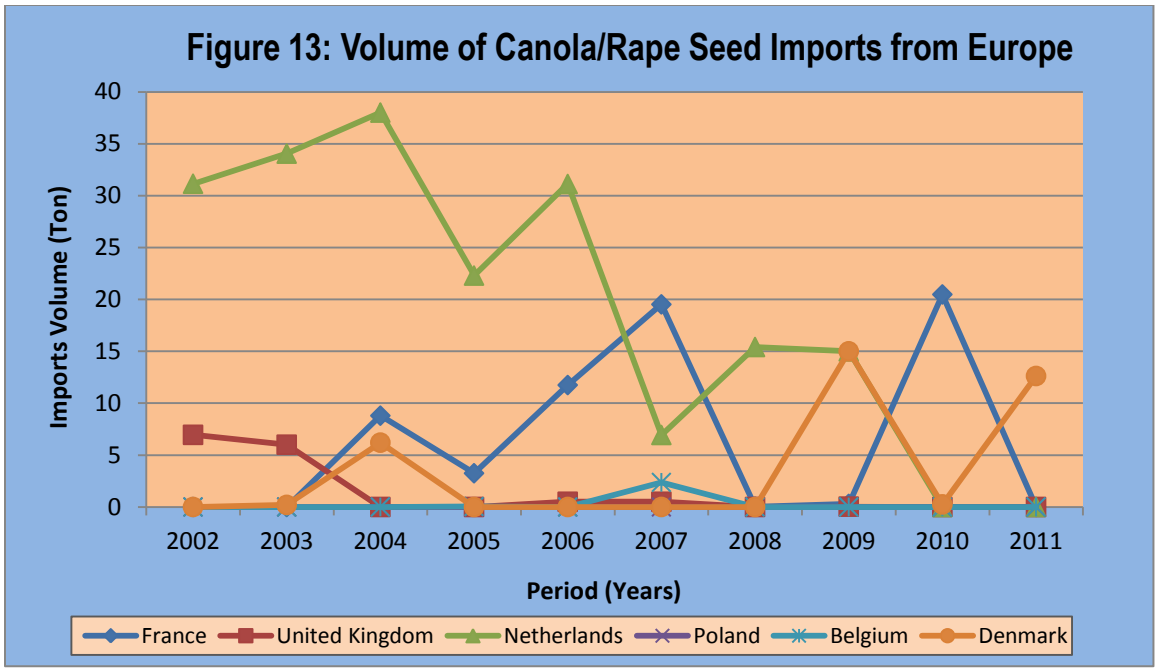
2.2.3. Canola/Rape Seed Imports

Figure 12 below indicates that South Africa imports canola/rape seed mainly from Europe and Oceania while imports from Africa were very low over the period under analysis. Europe's competitive advantage rests on the fact that Europe is the biggest producing continent for canola in the world. The figure also indicates that canola imports from different regions fluctuated considerably over the period under analysis and that the highest volumes of imports were attained in 2007 mainly originating from Oceania. The Figure also indicates that imports from Europe were consistent at moderate levels for the entire period under review.



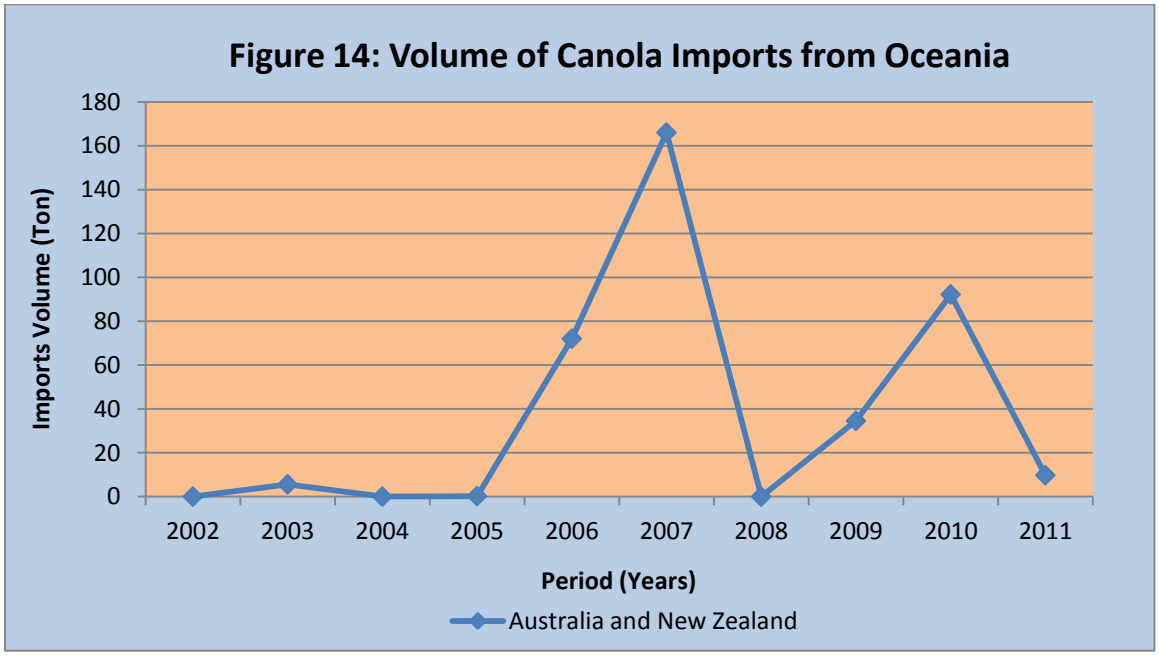
Source: Quantec Easydata

Volumes of canola imports from Europe are presented in Figure 13 below.



Source: Quantec Easydata

Figure 13 above indicates that South Africa's canola imports from Europe originate mainly from the European Union countries such as France, United Kingdom, Netherlands, Poland and Denmark. It is also clear from the figure that most of canola imports from the EU originate mainly from Netherlands, France and United Kingdom in that order. It has also been noted that canola imports from Europe declined significantly during the year 2011 with the exception of Denmark whose exports of canola to South Africa increased significantly during the year 2011. Volumes of canola imports from Oceania are shown in Figure 14.



Source: Quantec Easydata

Figure 14 shows that South African canola imports from Oceania are mainly from the Australia and New Zealand. The figure also shows that canola imports from this region were very low at the beginning of the period under review and increased significantly from the year 2006 until a peak was reached in 2007. Another increase in imports volume from Oceania was observed between the years 2009 and 2010. This was followed by a slight decline in the volume of canola imports from this region in 2011.

3. MARKET INTELLIGENCE

3.1. Trade Competitiveness

A list of countries that imported canola from South Africa during 2011 are presented in Table 5 below.

Table 5: List of Importing Countries for canola Exported by South Africa in 2011

Importers	Exported value 2011, USD thousand	Share in South Africa's exports, %	Exported quantity 2011	Quantity unit	Unit value, (USD/unit)	Exported growth in value between 2007-2011, %, p.a.	Exported growth in quantity between 2007-2011, %, p.a.	Exported growth in value between 2010-2011, %, p.a.	Estimated tariff faced by RSA(%)
'World	60	100	5	Tons	12 000	-	5	-68	0
Malawi	41	68.3	1	Tons	41 000	-	-	-	0
Zambia	10	16.7	2	Tons	5 000	-	-	-	0
France	8	13.3	2	Tons	4 000	-	-	-96	0
Mozambique	1	1.7	0	Tons	-	-	-	-	0

Source: ITC Trade Map

Table 5 indicates that during the year 2011 South Africa exported oats mainly to countries such as Malawi, Zambia, France and Mozambique. During the same year, Malawi was the destination for about 41% of South Africa's total canola exports followed by Zambia and France which absorbed about 10% and 8% of South Africa's total oats exports respectively. The table further indicates that South African canola exports to the world declined by 68% in value terms between the years 2010 and 2011.

The following table (Table 6) shows the list of supplying countries for the canola imported by South Africa in 2011.

Table 6: List of Exporting Countries for Canola Imported by South Africa in 2011

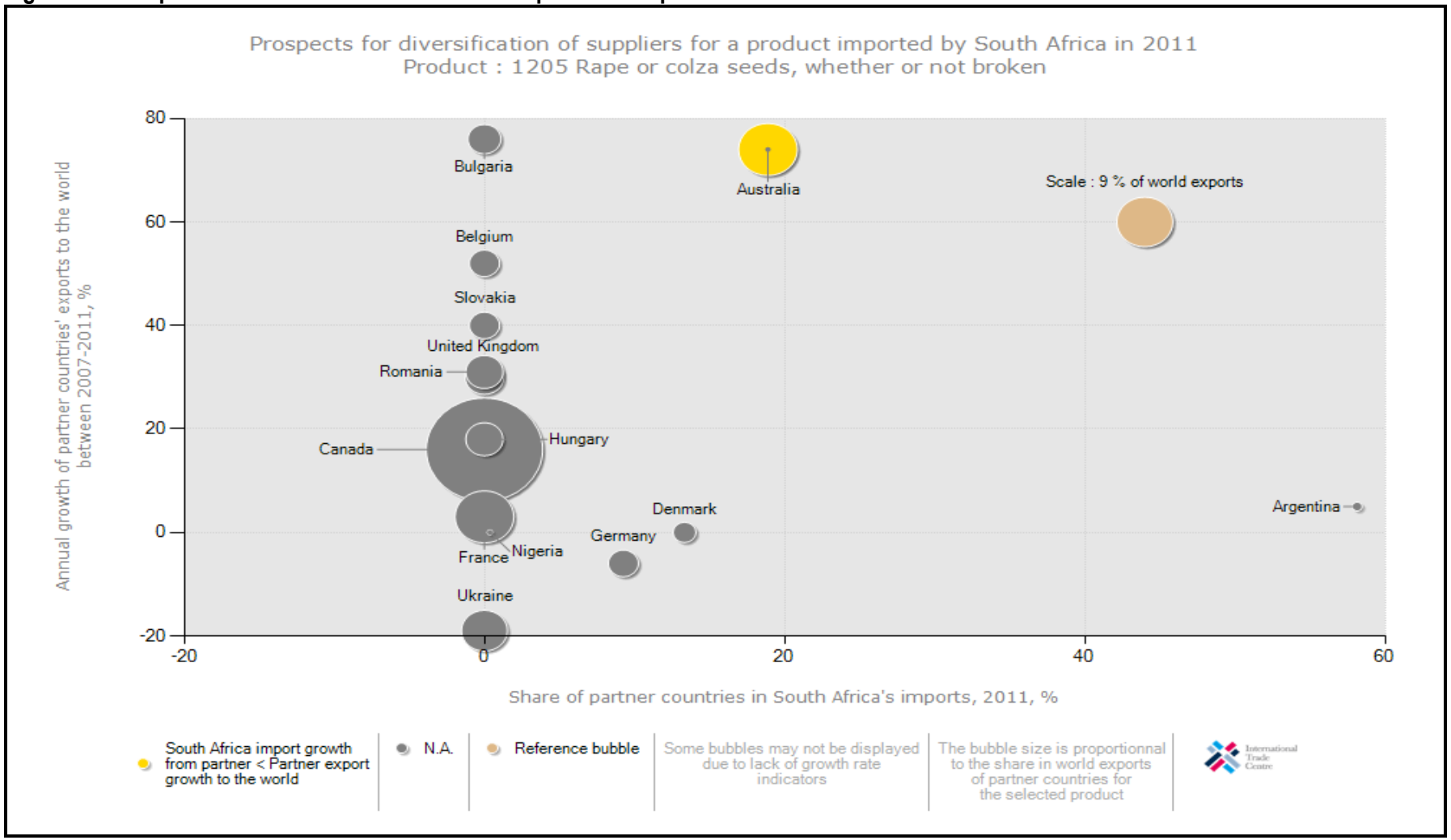
Exporters	Imported value 2011, USD thousand	Share in South Africa's imports, %	Imported quantity 2011	Quantity unit	Unit value, (USD/ton)	Imported growth in value between 2007-2011, %, p.a.	Imported growth in quantity between 2007-2011, %, p.a.	Imported growth in value between 2010-2011, %, p.a.	Estimated tariff applied by RSA (%)
'World	270	100	48	Tons	5 625	28	-8	-64	-
Argentina	157	58.1	18	Tons	8 722	-	-	-	9
Australia	51	18.9	10	Tons	5 100	20	-50	-91	9
Denmark	36	13.3	13	Tons	2 769	-	-	-	0
Germany	25	9.3	6	Tons	4 167	-	-	-82	0
'Nigeria	1	0.4	1	Tons	1 000	-	0	-	9

Source: ITC Trade Map

Table 6 and Figure 15 indicate that in 2011 South Africa imported canola mainly from countries such as Argentina, Australia, Denmark, Germany and Nigeria. It is clear from the figure and the table that Argentina was the largest exporter of canola to South Africa during the year 2011. During the same year, Argentina accounted for 58.1% of South Africa's total canola imports followed by Australia, Denmark and Germany with 18.9%, 13.3% and 9.3% respectively. The value of canola imports from the rest of the world into South Africa decreased by 8% in quantity between the years 2007 and 2011. Figure 14 also indicates that if South Africa wishes to diversify its canola imports market the prospective markets exist in Hungary, Canada, Romania, United Kingdom and Bulgaria.

With regard to import tariffs, South Africa applies a duty to an amount 9% of the FOB price on imports of canola, except in situations where there is a bilateral agreement between South Africa and the supplying Nation(s).

Figure 15: Prospects for Diversification of Canola/Rape Seeds Imports



Source: ITC Trade Map

4. THE USES OF CANOLA SEED

Canola is primarily used for manufacturing of the following:

- Canola oil (Crude oil and Bottled oil-used as a salad and frying oil, in margarines, shortenings and in foods that contain vegetable oil such as baked goods, potato chips, French fries, etc.).
- Canola oil Biodiesel
- Canola based mayonnaise
- Canola oil cake and
- Canola meal (is the by-product of canola oil processing, used as a high protein feed ingredient in the rations of Animals).

4.1. Versatile Uses for Canola Oil

Canola oil is one of the healthiest and most versatile cooking oils available to home cooks and professional chefs alike. It is light, clear and mild, making it ideal for cooking, fondues, stir-frying, baking, salads and marinades. It is internationally highly recommended for great-tasting, healthy recipes.

4.1.1 Excellent for cooking

- Canola oil doesn't transfer food flavors in fondues or deep fryers (strain oil before re-using).
- Canola oil can be heated to a higher temperature than other oils before it starts to smoke.
- Canola oil drains more thoroughly than melted shortening.

4.1.2 Better for Baking

- Canola oil can replace other types of fat or oil in baking to lower the saturated and trans-fat content of the baker's recipes.
- Canola oil can also be used to grease cake pans and cookie sheets.

4.1.3 Great for Salads

- Canola oil remains clear and free running when stored in the refrigerator.
- Canola oil doesn't separate from other salad dressing ingredients.
- Canola oil helps to blend ingredients in salad dressings together.

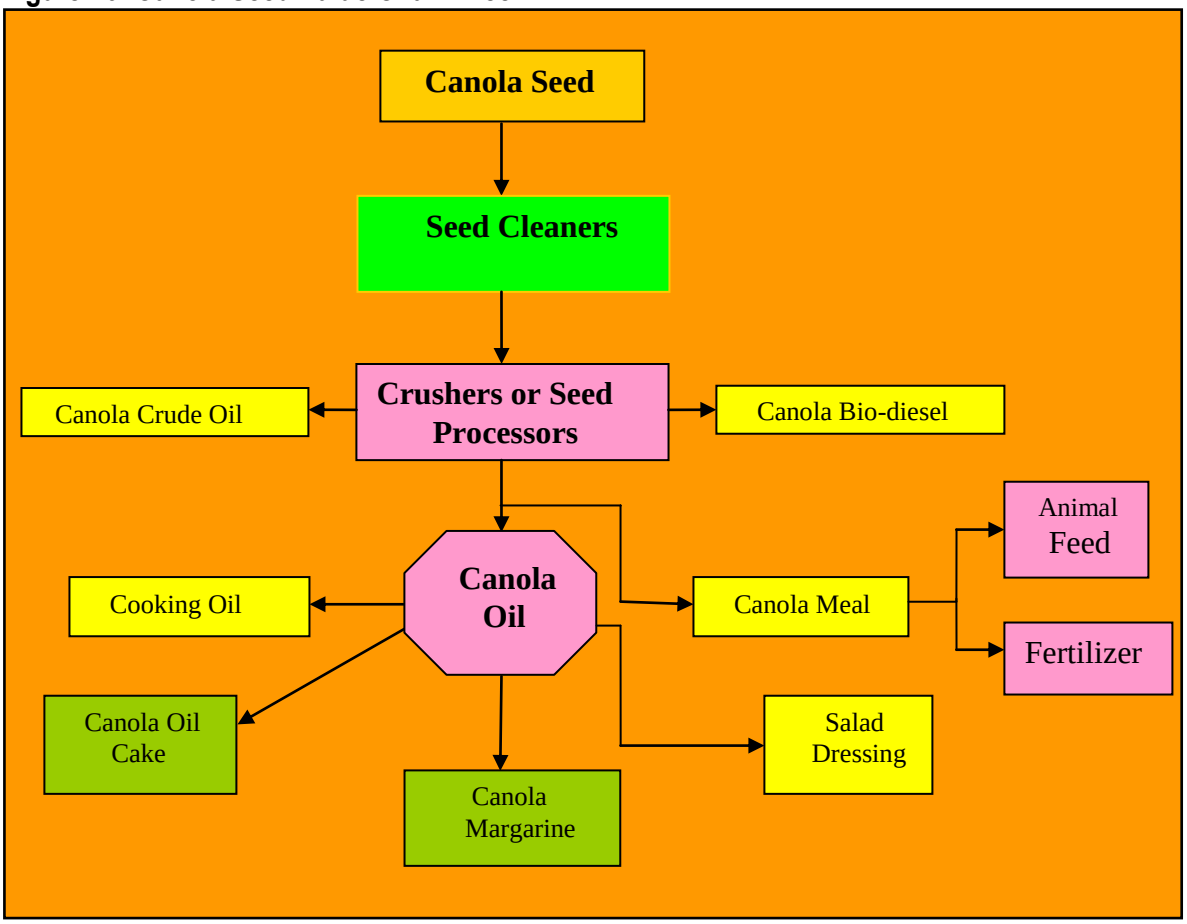
Canola is a good source of protein in animal feed and because of less canola production in the country large quantities of protein for animal feeds have to be imported sometimes every year.

5. CANOLA VALUE CHAIN TREE

- Figure 16 presents the various products and by-products that can be or are derived from canola seed. After harvest canola seed is took to the cleaning process which is then followed by the seed crushing or processing. During the processing stage canola seed are refined to canola oil and the products that can be derived from this process are, canola crude oil, canola bio-diesel and canola meal.

- Canola meal is the by-product of canola oil processing, used as a high protein feed ingredient in the rations of Animals and also preferably used a fertilizer especially for organic farming. The canola oil produced from the canola seed processes can be used for the cooking oil, canola oil cake, and canola margarine and also in salad dressing. The use of canola oil is increasing steadily among health conscious consumers around the world due to its lowest content of saturated fatty acids (5 to 8%) among edible oils.

Figure 16: Canola Seed Value Chain Tree



Canola oil is preferred by food professionals and processors because of its nutritional profile and high smoke point. Canola oil has become even more valuable with high oleic varieties that reduce the need for hydrogenation. This oil is the healthiest of all commonly used cooking oils. It is lowest in saturated fat, high in cholesterol, lowering mono unsaturated fat and the best source of omega-3

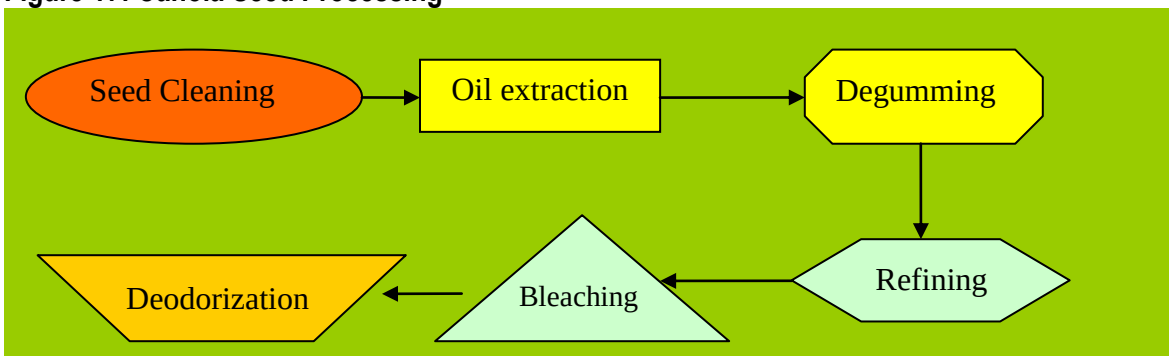
fats of all popular oils. It is light, clear and mild, also highly versatile and suitable for use in salads, baking, stir-frying and deep-frying.

6. CANOLA SEED PROCESSING

After Canola seeds are harvested by farmers in the area, it is stored in silos for production and refining. The final product is bottled and branded with a B-Well label, for a premium class product on the shelves of a variety of retail outlets. Although some of the cultivar in North America is genetically modified, local crop contains no genetically modified materials (GMO's).

Canola seed undergoes several stages of preparation before it can reach the final consumers as a processed product. Figure 17 below explains the canola seed processing stages after harvesting periods.

Figure 17: Canola Seed Processing



6.1 Cleaning seeds

Before processing, canola seeds undergo cleaning to reduce the presence of any foreign materials. These materials (referred to as docage) consist mainly of damaged canola seed together with weeds. The presence of damaged canola seed has been shown to be detrimental to the quality of the extracted oil and should be reduced as much as possible before oil extraction.

6.2 Oil extraction

Once cleaned, canola seeds are rolled or flaked to fracture the seed coat and rupture the oil cells. The production of thin flakes (0.2-0.3mm thick) is extremely important as high surface to volume ratio is critical during oilseed processing. Flaked canola seeds generally undergo mild pressing to reduce the oil content from 42 to 16-20%, while compressing the grain flakes into large cake fragments. Canola cake fragments are solvent-extracted with normal hexane to remove the remaining oil. This is achieved by countercurrent movement of the cells of pressed canola cake and hexane, thus interfacing the oil in the flake or cake with a rich solvent-oil solution. The solvent is recovered from the oil.

The solvent-extracted oil is combined with the pre-pressed oil to form the crude oil fraction. The crude oil contains a variety of minor constituent that must be by a series of unit processing steps including degumming, alkali refining, bleaching and deodorization.

6.3 Degumming

Conventional degumming is carried out in most plants by treating the crude oil with steam. This process precipitates the water-hydrated phospholipids, which are then removed by centrifugation. The major drawback to this type of degumming process is that it only removes hydratable phospholipids and still leaves 150 to 250ppm of phosphorus in the oil.

6.4 Refining

The crude degummed oil is then subjected to refining, which removes free fatty acids, phospholipids, color bodies, iron and copper, as well as some sulfur compounds. The major type of refining is alkali refining, although there is a shift toward physical refining due to fewer environmental problems associated with the latter process. In physical refining the free fatty acids from canola oil is begin removed by steam distillation.

6.5 Bleaching

Before hydrogenation or deodorization, canola oil is bleached with acid-activated bleaching clay under vacuum. In this process the perfect color of the oil is retrieved to use as salad- or cooking oil.

6.6 Deodorization

Any free fatty acids or odiferous or flavor degradation products remaining in the oil are removed by deodorization. This involves steam distillation under vacuum. Most plants use a deodorizing system that is comprised of large cylindrical tank or shell through which oil is pumped in and passed through a series of trays where it is de-aerated and successively deodorized with sparging steam. The oil is then cooled, pumped through a polishing filter, and sparged with nitrogen.

7. CANOLA SEED SUPPLIERS

The suppliers of canola seed in South Africa are presented in Table 7 below.

Table 7: Canola Seed suppliers in South Africa

Company Name	Contact Person	Contact Number	City	E-mail address
Agricol	Jaco Kellerman	021 9811126 or 0834616674	Brackenfell	jkellerman@agricol.co.za

8. ACKNOWLEDGEMENTS

The following organizations and Departments are acknowledged:

Agricultural Statistics: Department of Agriculture
Tel: (012) 319 8453
Fax: (012) 319 8031
Website: www.nda.agric.za

Grain South Africa
Website: www.grainsa.co.za

Quantec Easydata
P.O.Box 35466
Menlo Park
Pretoria
0102
Tel: 012 361 5154
Fax: 012 348 5874
Website: www.quantec.co.za

Protein Research Foundation
P.O. Box/ Posbus 5562
Rivonia
2128
Tel: +27 11-234 3400
Fax: +27 11-234 3402
Website: www.proteinresearch.net

Southern Oil Ltd
P.O. Box 707,
Swellendam, 6740
Tel: +27(0)28 514 3441
Fax: +27(0)28 514 1295
Website: www.soill.co.za

Agricol (PTY) LTD
PO Box 300

Brackenfell
7560
Republic of South Africa
Tel: (021) 981 1126

Fax: (021) 981 1120
Website: www.agricol.co.za