A PROFILE OF THE SOUTH AFRICAN CANOLA MARKET VALUE CHAIN

2018

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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 labour 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, which on average is 77 thousand tons per annum, is usually higher than the demand, although the local consumption requirements for canola has recently increased to around 80 517 tons per year, with the favourable 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.

![Figure 1: Canola Gross Value of Production (GVP)](image)

Source: Agricultural Statistics

Figure 1 above shows the gross value of production for canola from 2008 to 2017. The gross value of production for canola was relatively lower and stable during the period between 2008 and 2010. In general the gross value of canola production has been on the increase during the past five 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 2016 due to an improved local production coupled with relatively higher prices and the lowest was attained during the year 2008. The GVP for canola decreased slightly during 2015 marketing season and this can be attributed to severe drought conditions that hampered production levels. During the year 2016, GVP for canola increased to a peak followed by a slight decrease during the 2017 marketing season.

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 with the lowest volumes of canola production in 2008, which then followed by a slight increase in production volume during the year 2009.
Figure 2 above indicates that canola production has been on the rise between the year 2011 and 2014, before dropping in 2015 and increased in 2016 followed by a slight decrease in 2017. During the year 2014, canola production reached a peak of 121,000 tons which were produced locally and this is about 218% higher compared to what was harvested during the year 2007 and 8% higher compared to what was produced during the year 2013. The canola production volumes dropped by 11% in 2017 when compared to 2015 season. During the year 2017, canola production declined by 11% as compared to the year 2016.

Table 1: Area Planted to Canola and the Local Production

<table>
<thead>
<tr>
<th>Production Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Planted (ha)</td>
<td>38,058</td>
<td>38,060</td>
<td>34,820</td>
<td>44,000</td>
<td>44,000</td>
<td>72,000</td>
<td>95,000</td>
<td>78,000</td>
<td>68,000</td>
<td>84,000</td>
</tr>
<tr>
<td>Production (Tons)</td>
<td>30,800</td>
<td>40,350</td>
<td>36,900</td>
<td>59,000</td>
<td>80,000</td>
<td>112,000</td>
<td>123,000</td>
<td>98,000</td>
<td>105,000</td>
<td>93,000</td>
</tr>
</tbody>
</table>

Source: Agricultural Statistics

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: SAGIS

Figure 3 show that Western Cape Province is the greatest supplier of canola in South Africa which contributed about 99.6% of South Africa’s total canola supply during the year 2017. 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. The volume of canola supply from Western Cape increased substantially from 2011/12 marketing season until the highest level were attained during the year 2014/15. This was followed by a slight decrease in canola supply during the 2015/16 marketing season. The supply by other provinces except Western Cape was very low throughout the period under analysis. During 2016/17 marketing season, the supply of canola from Western Cape increased by 11.17% as compared to 2015/16 season.
Figure 4 above indicates that on average canola production is slightly below consumption volumes. An average of about 80,517 tons of canola is processed for various purposes in the local market every year while the local production is sitting on the average of 77 thousand tons per annum. The figure indicates that the local consumption for canola is slightly above production even though this has not been the case in the previous season. There are only few incidences, such as the years between 2008 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. Between the years 2015 and 2017, canola production was significantly below the local consumption and this has contributed to a shortfall of 3,517 tons for the period under review.

2. MARKET STRUCTURE

2.1 Canola Domestic Producer Prices

Figure 5 and Table 2 below show canola producer prices in Rand/ton given for the production period 2008 to 2017. 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 that the period under analysis opened with below average producer prices during the year 2008, which further declined in 2009. The highest price was attained during the year 2015 (R5,950/ton) while the lowest (R2,800.00/ton) was experienced during the year 2009.
The closing price (during the year 2017) for canola was R5 300/ton, which is 71% higher compared to the opening price during the year 2008 and 7% less as compared to the canola price attained in 2016. This represents a significant increase in the levels of canola prices over the past ten years.

Table 2: Canola producer prices

<table>
<thead>
<tr>
<th>Production Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer Prices (R/ton)</td>
<td>3100.00</td>
<td>2800.00</td>
<td>2700.00</td>
<td>3449.94</td>
<td>4568.94</td>
<td>4760.66</td>
<td>4750.00</td>
<td>5400.00</td>
<td>5200.00</td>
<td>5300.00</td>
</tr>
</tbody>
</table>

Source: Agricultural statistics

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 16 tons of canola per annum and imported 2 227 tons annually.
Figure 6 show 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 from 2008 up until 2016. The highest level of imports was attained during the year 2017 (21,160 tons), while the lowest was attained in 2008 (16 tons). Both imports and exports of canola remained at moderate levels (below 100 tons) during the years 2011, 2012 and 2013 respectively. 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 relatively lower volumes of canola exports, while imports increased significantly during the year 2017.

2.2.1. Canola/rape seed exports

The following figure (Figure 7) shows the volumes of canola exports from South Africa to various regions around the globe.
Figure 7 indicates the volume of canola exports to various regions in the world. The figure indicates that South Africa exports mainly to two continents, Europe and Africa. Furthermore, the figure indicates that on average, volumes of canola exports to Europe and Africa are less than 50 tons per year. 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 minimal. The period under review closed with lower levels of canola exports to both Europe and Africa in 2017.

Figure 8 below summarizes the trend of canola exports from South Africa to other African countries. The figure indicates that SADC region was the major recipient of South African canola throughout the period under analysis. On the African continent South Africa export its canola to the Western Africa, SADC and SACU regions with insignificant amounts of exports going to SADC and SACU. 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 for most part of the period under review, and more particularly during the years 2010, 2011 and 2012 where only less than 5 tons was exported. The exports to the continent went slightly higher in 2013 and dropped further to lower levels again in 2014 up until 2017. During the year 2017, South Africa exported about 1 ton to the African continent.
Figure 9 below indicates exports of canola by province from 2008 to 2017. It is observable from the figure that Gauteng province is traditionally the greatest exporters of canola in South Africa followed by Western Cape and KwaZulu-Natal. However on average, the Western Cape Province has appeared to be the least exporter of this product over the past seven years. The figure further indicates that the values of exports from different provinces were fluctuating throughout the period under analysis. It is also clear from the figure that the exports of canola from both KwaZulu-Natal and Western Cape were minimal throughout the period under analysis.
Figure 10 below indicates value of canola exports in Gauteng province from 2008 to 2017. The figure indicates that City of Johannesburg is generally the major exporters of canola as compared to other district. Generally exports of canola from Gauteng province were highly volatile throughout the period under analysis. It is also observable from the figure that Ekurhuleni and City of Tshwane are also the major exporters of canola in Gauteng province although exports of the product from these two regions have been very low and inconsistent. It can also been seen from figure 10 that canola exports for both Ekurhuleni and City of Tshwane increased above the exports of canola from the City of Johannesburg between 2016 and 2017 respectively.

Source: Quantec Easy Data
Figure 11 above shows the value of canola exports from Western Cape Province. The figure shows that City of Cape Town and Eden District are the major exporters of canola in that province. The highest values of canola exports from Western Cape Province were recorded during the year 2014, mainly from Eden District. During the same year exports of canola from City of Cape Town were very low. The marketing season for canola exports closed with very low imports from Eden, while the City of Cape Town experienced an increase in exports of canola, slightly above Eden District in 2017.

2.2.2 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 2017 mainly originating from Oceania. The Figure also indicates that imports from Europe were consistent at moderate levels for the entire period under review, with the exception of the years 2012, 2013 and 2014. Between the years 2013 and 2017, South Africa imported greater volumes of canola from Oceania than any other region.

Figure 12: Volume of canola imports from various regions

Source: Quantec Easy Data

Figure 13 below indicates that South Africa’s canola imports from Europe originate mainly from the European Union countries such as France, United Kingdom, Netherlands, Germany, Belgium and Denmark. It is also clear from the figure that most of canola imports from the EU originate mainly from the Netherlands, Germany and Denmark in that order. It has also been noted that canola imports from Europe declined significantly during the years between 2012 and 2014 and started to increase again in 2016 and 2017. The period under review closed with higher imports of canola from the EU originating mainly from Germany and Denmark in 2017.
Figure 14 shows that South African canola imports from Oceania are mainly from Australia and New Zealand. The figure also shows that canola imports from this region were slightly lower at the beginning of the period under review in 2008. An 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 and 2012. Imports of canola increased from the year 2013 until a peak was attained in 2015 and this was followed by drastic decrease up until 2017. The period under analysis closed with lower volumes of canola imports from Australia and New Zealand in 2017.
3. MARKET INTELLIGENCE

3.1. Trade Competitiveness

Table 5: List of Importing Countries for canola exported by South Africa in 2017

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>27</td>
<td>100</td>
<td>2</td>
<td>818</td>
<td>50</td>
<td>1550</td>
<td>50</td>
</tr>
<tr>
<td>Lesotho</td>
<td>13</td>
<td>48</td>
<td>1</td>
<td>13,000</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>Malawi</td>
<td>14</td>
<td>521</td>
<td>0</td>
<td>438</td>
<td>600</td>
<td>0</td>
<td>600</td>
</tr>
</tbody>
</table>

Source: ITC Trade Map

Table 5 indicates that during the year 2017, South Africa exported canola mainly to Malawi and Lesotho. During the same year, Malawi and Lesotho were the destination for about 52% and 48% of South Africa's total canola exports respectively. The table further indicates that South African canola exports to the world increased by 50% in value terms between the years 2016 and 2017.

The following table (Table 6) shows the list of supplying countries for the canola imported by South Africa in 2017.

Table 6: List of Exporting Countries for Canola Imported by South Africa in 2017

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>10275</td>
<td>100</td>
<td>21 161</td>
<td>486</td>
<td>838</td>
<td>17 388</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>8 790</td>
<td>85.5</td>
<td>20 998</td>
<td>419</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>779</td>
<td>7.6</td>
<td>87</td>
<td>8954</td>
<td>0</td>
<td>-4</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>439</td>
<td>4.3</td>
<td>38</td>
<td>11553</td>
<td>88</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

Source: ITC Trade Map
Table 6 and Figure 14 indicate that in 2017 South Africa imported canola mainly from countries such as Bulgaria, Australia, and Chile. It is clear from the figure and the table that Bulgaria was the largest exporter of canola to South Africa during the year 2017. During the same year, Bulgaria accounted for 85.5% of South Africa’s total canola imports followed by Australia and Chile with 7.6%, and 4.3% respectively. The value of canola imports from the rest of the world into South Africa increased by 838% in quantity between the years 2016 and 2017. Figure 14 also indicates that if South Africa wishes to diversify its canola imports market the prospective markets exist in Canada, France, Romania and Ukraine.

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 14: Prospects for Diversification of Canola/Rape Seeds Imports

Prospects for diversification of suppliers for a product imported by South Africa in 2017
Product: 1205 Rape or colza seeds, whether or not broken

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 flavours 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

- The following diagram (Diagram) 27 represents 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.

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. The following diagram below explains the canola seed processing stages after harvesting periods.

![Diagram 28: 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 counter current 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, colour bodies, iron and copper, as well as some sulphur 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 colour of the oil is retrieved to use as salad- or cooking oil.

6.6 Deodorization

Any free fatty acids or odiferous or flavour 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.

Table 10: Canola Seed suppliers in South Africa

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Contact Person</th>
<th>Contact Number</th>
<th>City</th>
<th>E-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricol</td>
<td>Jaco Kellerman</td>
<td>021 9811126</td>
<td>Brackenfell</td>
<td><a href="mailto:jkellerman@agricol.co.za">jkellerman@agricol.co.za</a></td>
</tr>
</tbody>
</table>
7. ACKNOWLEDGEMENTS

The following organizations and Departments are acknowledged:

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