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Western Cape Government
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Market Intelligence Report for Lemons in RSA

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Contents

List of Figures

List of Tables

1. Introduction

South African citrus farms operate on a large scale and are export-driven which is evident in the export volumes that have increased from 1.08 million tons in 2007 to 1. 72 million tons in 2014 and again 1.77 million tons in 2015 (Genis, 2017; CGA, 2016). The 45 000-ton increase in 2015 was mainly exported to new export markets (CGA, 2016). The South African Citrus Industry is the third biggest exporter in the world in terms of the quantity being exported for the year 2016(CGA, 2016, ITC, 2017). When compared with the previous year South Africa was ranking second but was passed in 2016 by Turkey with tonnages of 1 706 710 compared with South Africa's 1 701 426 tonnages (ITC, 2017; CGA, 2016). According to CGA (2016), the SA citrus industry has shown a 6% year-on-year growth rate for the past 15 years.

The main focus of this report will be on lemon and limes which is a sub-sector of citrus and from this point forward the term lemons[1] will be referred to. When looking at trade data the International Harmonized System (HS) code (HS080550)[2] will be used.

Lemons are more acidulous compared to other citrus fruits. It is specifically grown for the fresh market and the juice is primarily used as a flavouring in beverages (FAO, 2010). According to the FAO (2010), lemons prefer a more temperate climate such as the western United States, Spain, Italy, and Argentina. Lemons can grow in drier climates like Egypt and Iran but are very sensitive to cold weather, so, therefore, are exclusively grown in tropical climates (FAO, 2010).

South African lemon production is showing an average annual growth rate of 4% in tons (looking at 2006 till 2016 period), an 11% average annual growth rate in r/ton [3] received for exports for the period of 2006 till 2016(CGA, 2017[b]; CGA, 2016). This will be discussed in more detail under heading 3.1. The continued growth in the lemon industry is leading to producers seeing this as a business opportunity, so for this reason producers are either expanding existing hectares or new producers are entering the industry. The CGA's database shows that new lemon plantings amounting to 4 million lemon buds were established over the past 2 years (CGA, 2017[a]). The significant increase in plantings is of huge concern, as this would raise the volume of lemons produced for export. According to the CGA's 2016 report, exports of lemons would

[1] The term lemons will include limes, throughout this document.
[2] In the past, HS code 080530 was used and was discontinued in 2001 and replaced by HS 080550.
[3] The average price which is quoted in ZAR/ton.

increase to 38 million cartons in the near future (CGA, 2017[a]). The substantial increase in volume is a concern for the industry because there is no increased market demand for the additional volumes and market access protocols to new markets first have to be established for additional lemon volumes (CGA, 2017[a]).

The additional volumes of lemons produced in South Africa can have serious implications at hand. For example, an oversupply will occur in local markets which will lead to a decline in local market prices. This will result in producers flooding the export markets which will again pressurise average market prices to record lows. The aforementioned implications have led to decision-makers seeking information that could inform production decisions on-farm; such as to establish and/or re-establish lemon orchards going forward. This report is compiled in response to such an enquiry received and arise from concerns that an overproduction in global markets could lead to considerable price reductions in the coming years. For example, the Landbouweekblad recently published an article that warns citrus producers against new plantings, citing the sharp price decline in the current season as a result of export volumes which are at record levels (Botha, 2017).

The article mentioned above is causing great concern and distress amongst producers and answers are needed to plan for the immediate future as well as in a few years' time. To support sound decision making and to inform industry stakeholders, this report seeks to analyse the lemon market in South Africa by looking at key trends in production, prices and international trade. An overview of the latest statistics available regarding this industry will also shed some light on what producers can expect in the coming years. This report is concluded with a synthesis of the findings and a few recommendations.

2. Global Context

2.1 Production of lemons

The global production of lemons has increased rapidly as from 2000 until 2009. A slight decrease in world production occurs from 2010 onwards, as illustrated in Figure1, shown by the almost plateau shape. The market, however, recovered again in 2014. The global production of lemons grew by an average annual growth rate of 2% for 2000 until the 2014 period (FAOSTAT, 2017). The outlier years in Figure 1 which are

indicating the above average production years are from 2007 – 2009 and again in 2014.

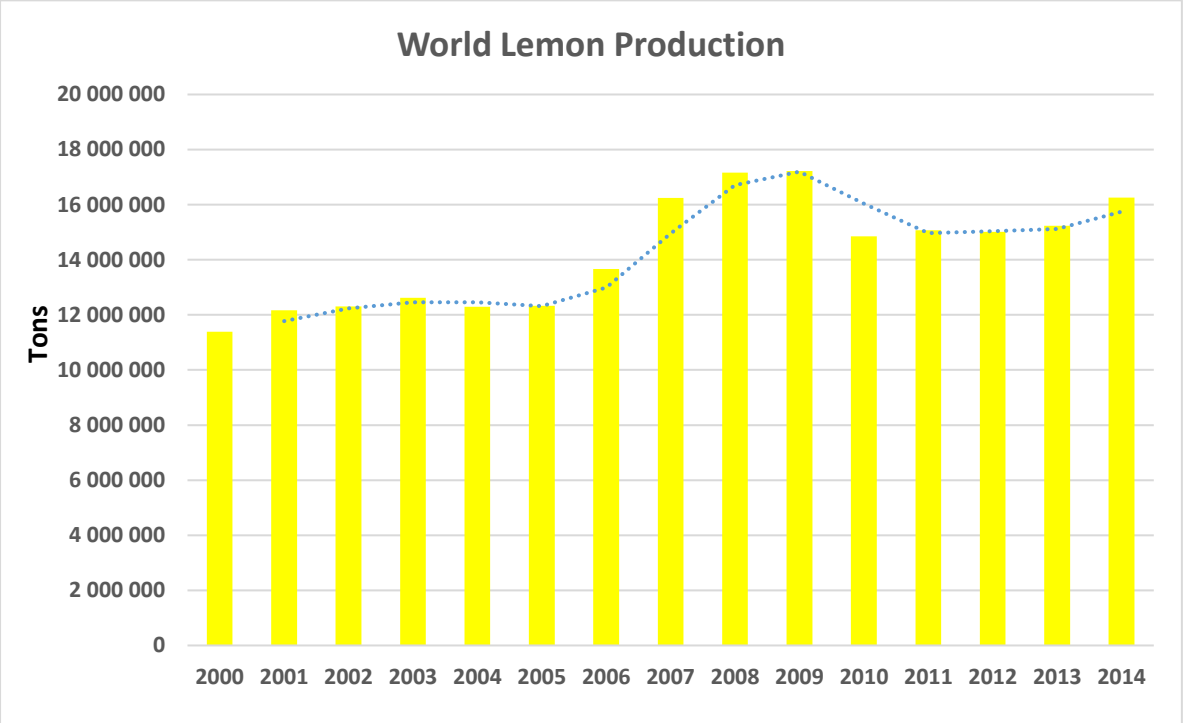

Figure 1: World Lemon Production

Source: FAOSTAT, 2017

Knowing where production takes place in the world and which countries are in the lead when in production, is important for export decision making. Figure 2 provides a summary of the top 11global production countries of lemons. India, Mexico, and China mainland are the top 3 producers of lemons with respective productions output of 2 835 020 tons, 2 205 079 tons and 2 130 500 tons for the 2014 production season.

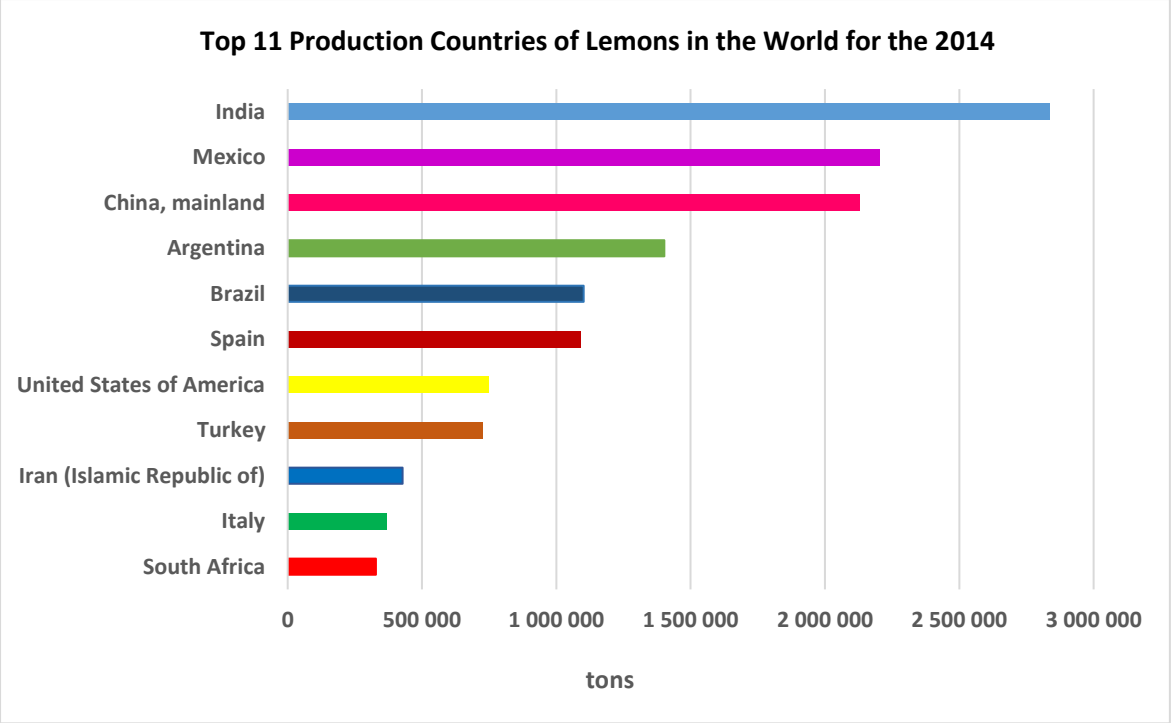

Figure 2: Top 11 Production Countries of Lemons in the World for the 2014 period

Source: FAOSTAT, 2017; CGA, 2017[b]

South Africa is ranked 11[th] in terms of global production with a total production of 328 401 tons during 2014(FAOSTAT, 2017; CGA, 2017[b]).

2.2 Global Trade

In order to understand the dynamics in the South African lemon market, it is important to look at the world market's supply and demand of lemon within the international markets. An indication thereof is provided in Figure 3, showing aggregate world exports and imports of lemons. When looking at Figure 3, both import and exports are following a slightly upward trend, whilst the trend lines are almost parallel to each other with slight differences in tonnages exported. The difference can be due to capturing errors when trade transactions are recorded. The annual growth rate for lemon exports from 2002 till 2016 amounted to 3.41%.

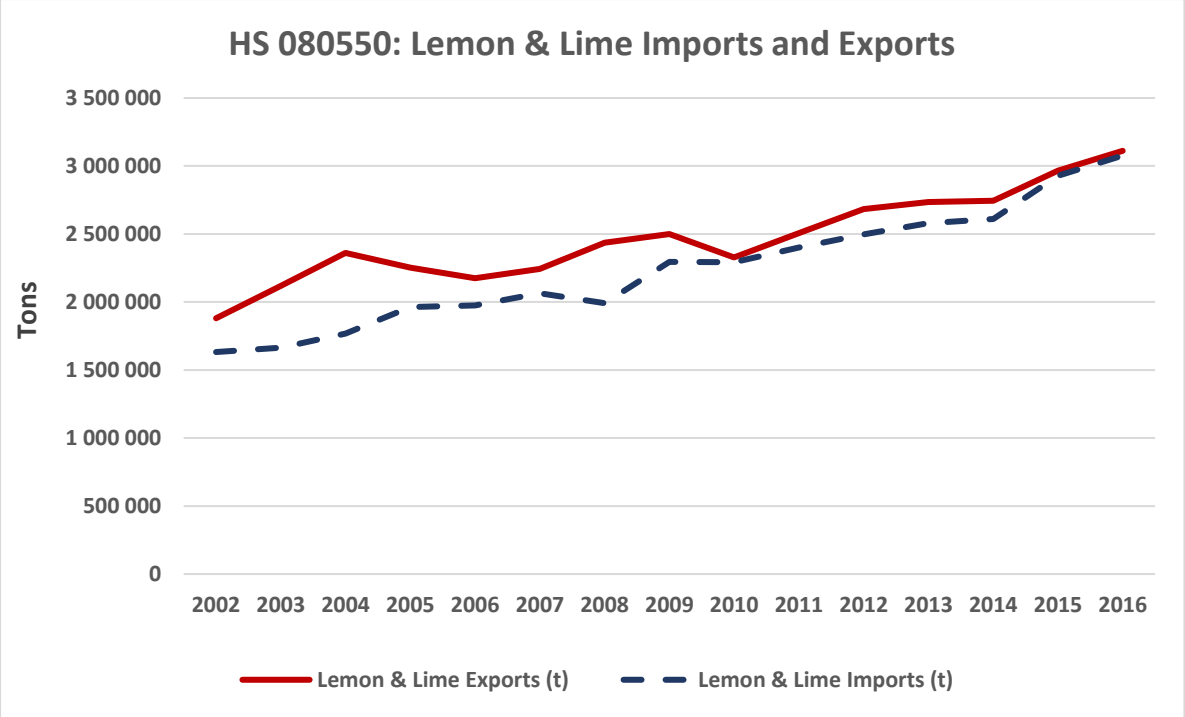

Figure 3: Lemon Imports and Exports

Source: ITC, 2017

When it comes to imports and exports it is vital to understand who the key players are in this global industry. In addition, it is also important to identify where the opportunity for growth in export markets exists. Figure 4 and Figure 5 provides a summary of the top 10 global export and import countries of lemons in the world.

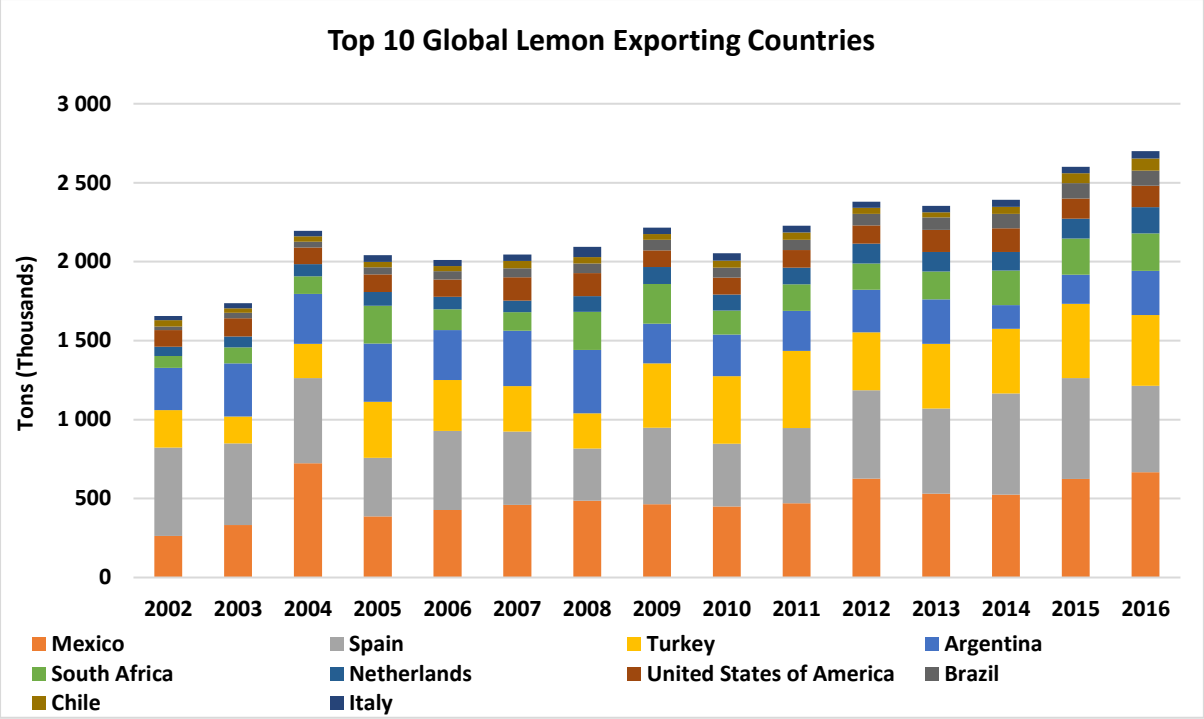

Figure 4: Top 10 Global Lemon Exporting Countries

Source: ITC, 2017; CGA, 2016; CGA, 2017[b]

Mexico is the leading exporter of lemons with a total of 667 572 tons for the 2016 production season, followed by Spain and Turkey with 545 524 tons and 448 781 tons respectively. South Africa obtained a 5th place in terms of ranking on the global export scale for lemons in 2016 as it exported 236 868 tons. Italy ranked in 10th place in terms of the global export scale with 46 563 tons exported during 2016 (ITC, 2017; CGA, 2017[b]).

Figure 5 indicates that the United States of America (USA) is the leading importer of lemons with a total of 640 870 tons recorded for the 2016 production season. Netherland and the Russian Federation are in second and third place with a total of 198 232 tons and 192 266 tons respectively imported for 2016. The world's tenth importer of lemons is Canada with a total of 102 096 tons recorded as imports during 2016.

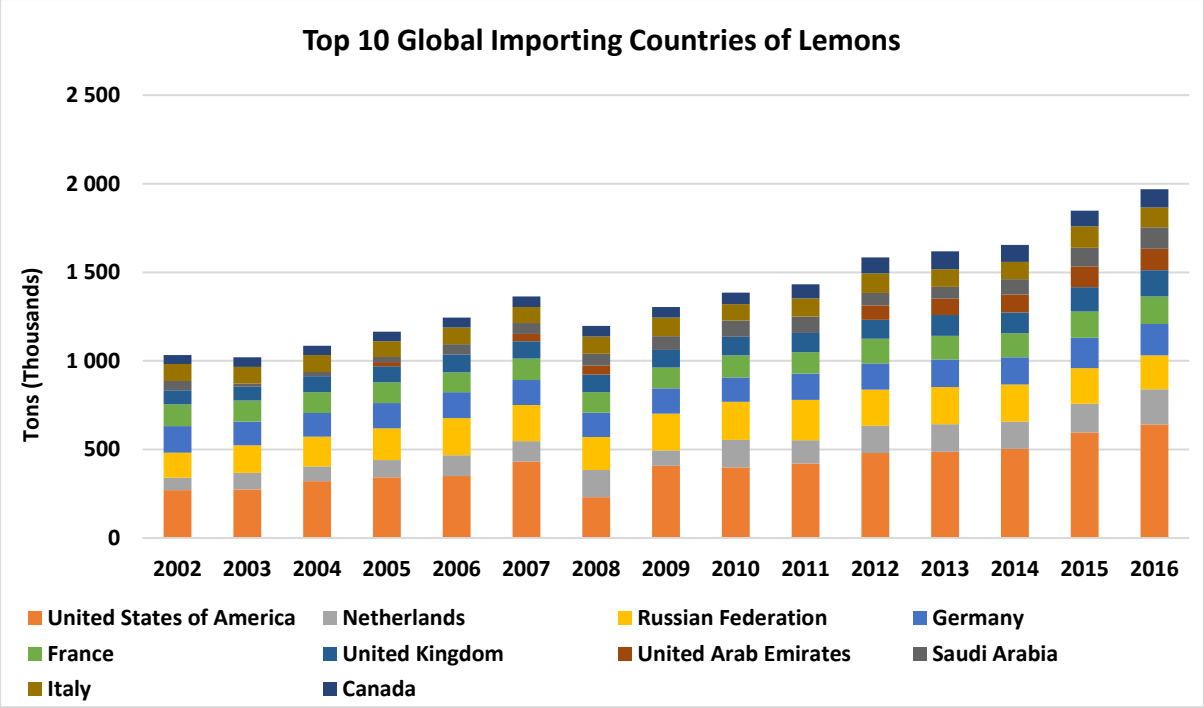

Figure 5: Top 10 Global Importing Countries of Lemons

Source: ITC, 2017

2.3 Consumption

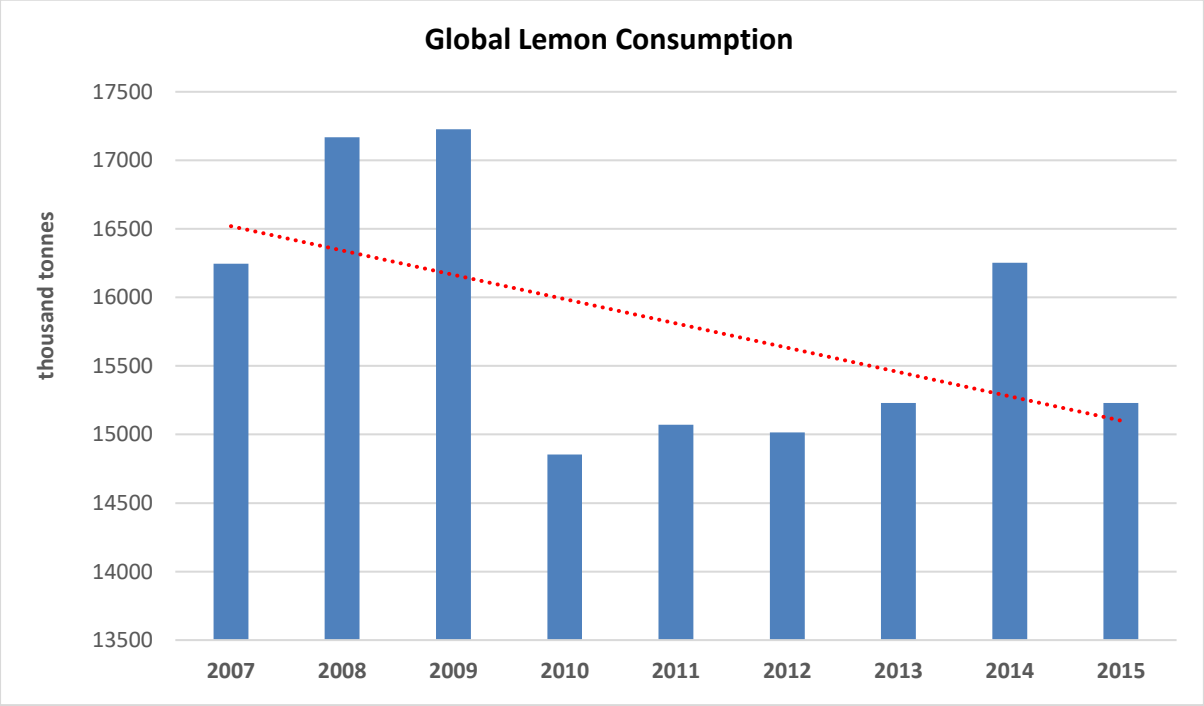

Figure 6: Global Lemon Consumption

Source: Index Box, 2017

The global lemon consumption from 2007 up to 2015 is following a moderate decreasing trend. When looking at Figure 6, major fluctuations can be noticed from 2010 till 2013. 2014 shows a moderate increase of 7%, but during 2015 consumption went down again with -6% per annum. The average annual growth rate for the 2007 to 2015 period is -1% per annum.

3. South African Lemon Industry

3.1 Production of Lemons

In South Africa, 72 731 hectares of citrus were planted according to the CGA during 2016. Figure 7 gives a summary of the different varieties which made up the 72 731 hectares[4] of which lemons where the fourth most popular variety comprising of 9 781 hectares which subsequently represents 13% of the total citrus planted (CGA, 2017[b]).

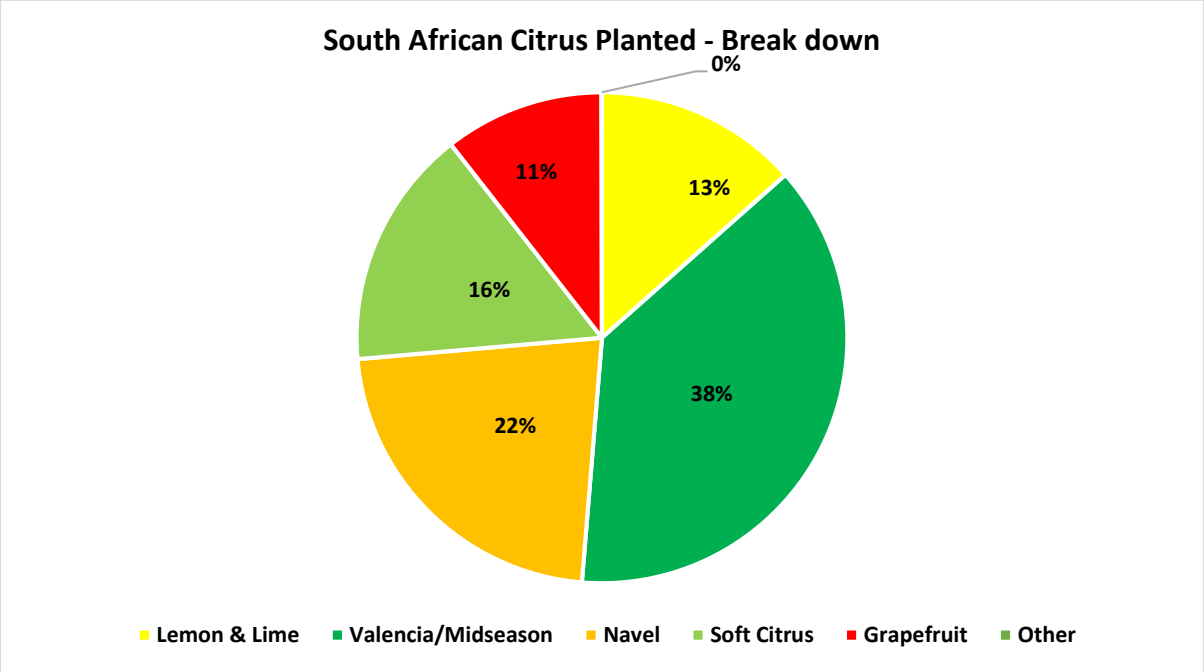

Figure 7: South African Citrus Planted - Break down

Source: CGA, 2017[b]

Lemons are produced in 7 of the 9 provinces in South Africa. The three main lemon production provinces are the Eastern Cape which produces 46% of South Africa's lemons, followed by Limpopo with 31% and the Western Cape with 10%. Figure 8

[4] Swaziland and Zimbabwe's lemons are included in the total production figures for South Africa (CGA, 2017[b]).

illustrates the percentages each province contributes to the total area under lemon production.

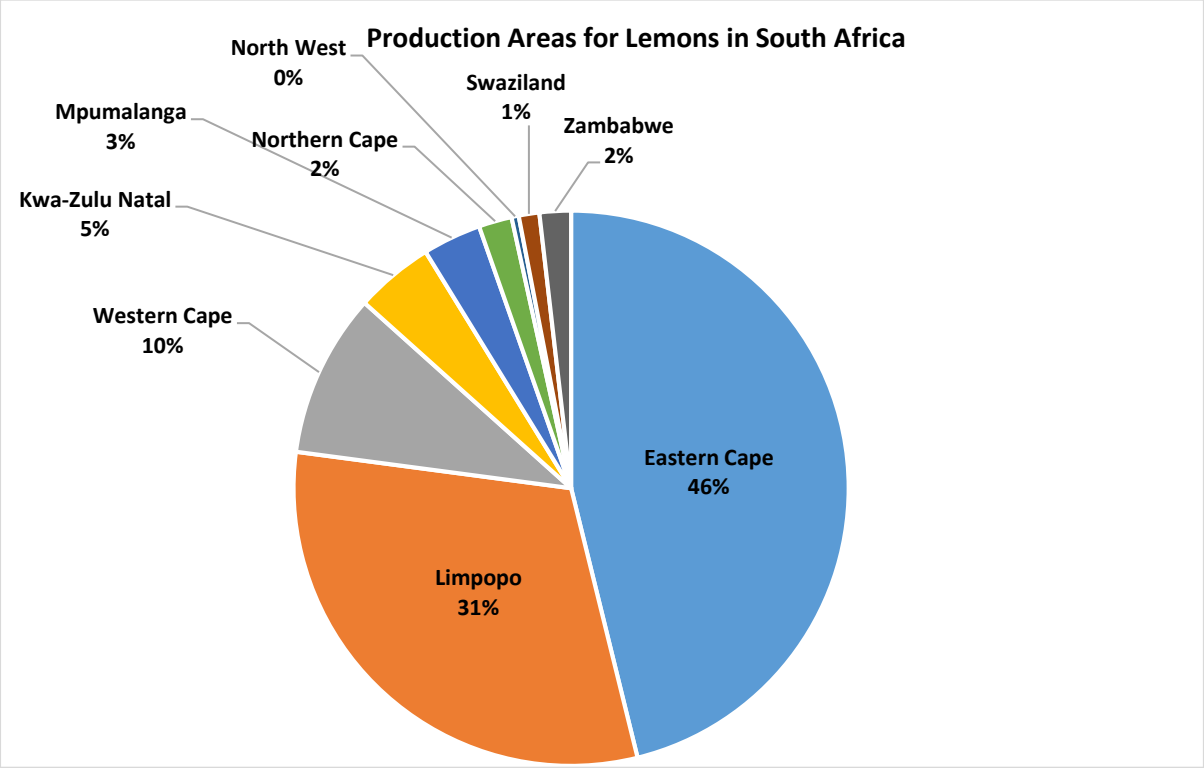

Figure 8: Production Areas for Lemons in South Africa

Source: CGA, 2017[b]

The South African lemon industry has shown an increase in production as illustrated in Figure 9. From the year 2015, production rapidly increased even further. The average annual growth rate for lemons from 1990 to 2017[5] amounted to 5% per annum.

[5] The 2017 production figure only accounts up to the second quarter of the year (Quantec, 2017).

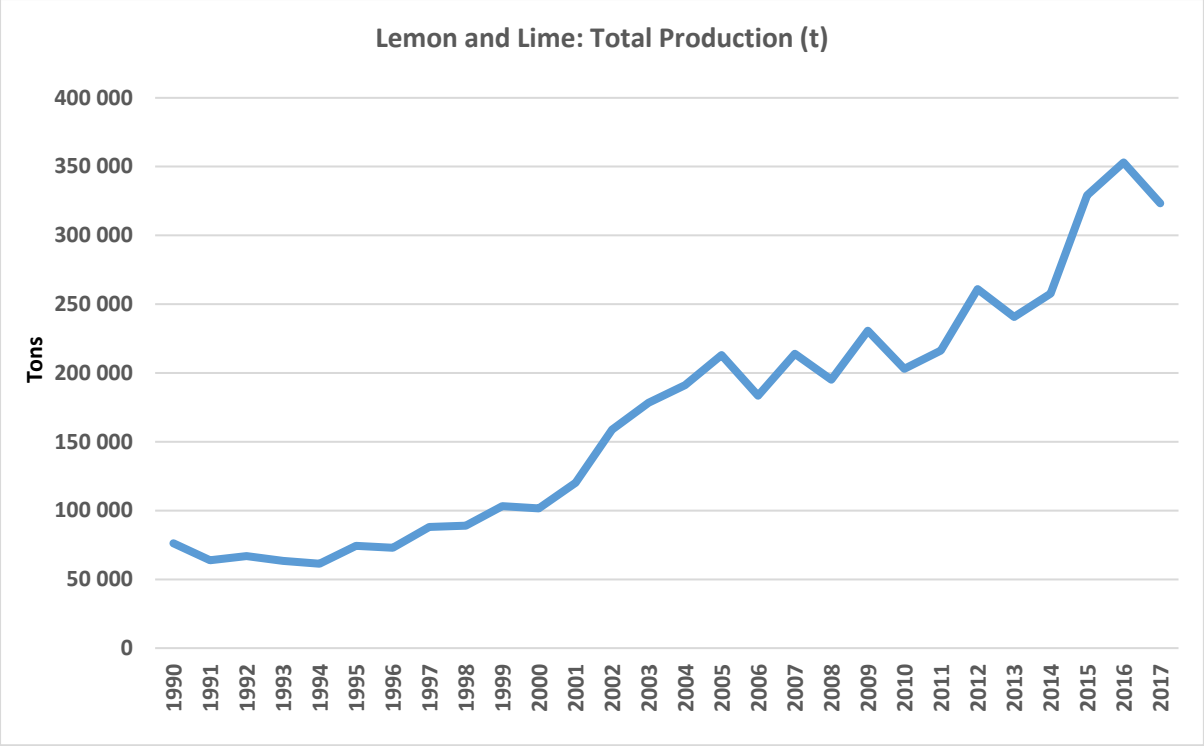

***Figure* 9: South African Lemon- Total Production**

Source: Quantec, 2017; DAFF, 2017

To fully understand the structure of the lemon industry it is important to see where the tonnage of lemons mentioned in Figure 9 is marketed. Figure10 gives a summary of the marketing distribution of the tonnage of lemons produced in South Africa.

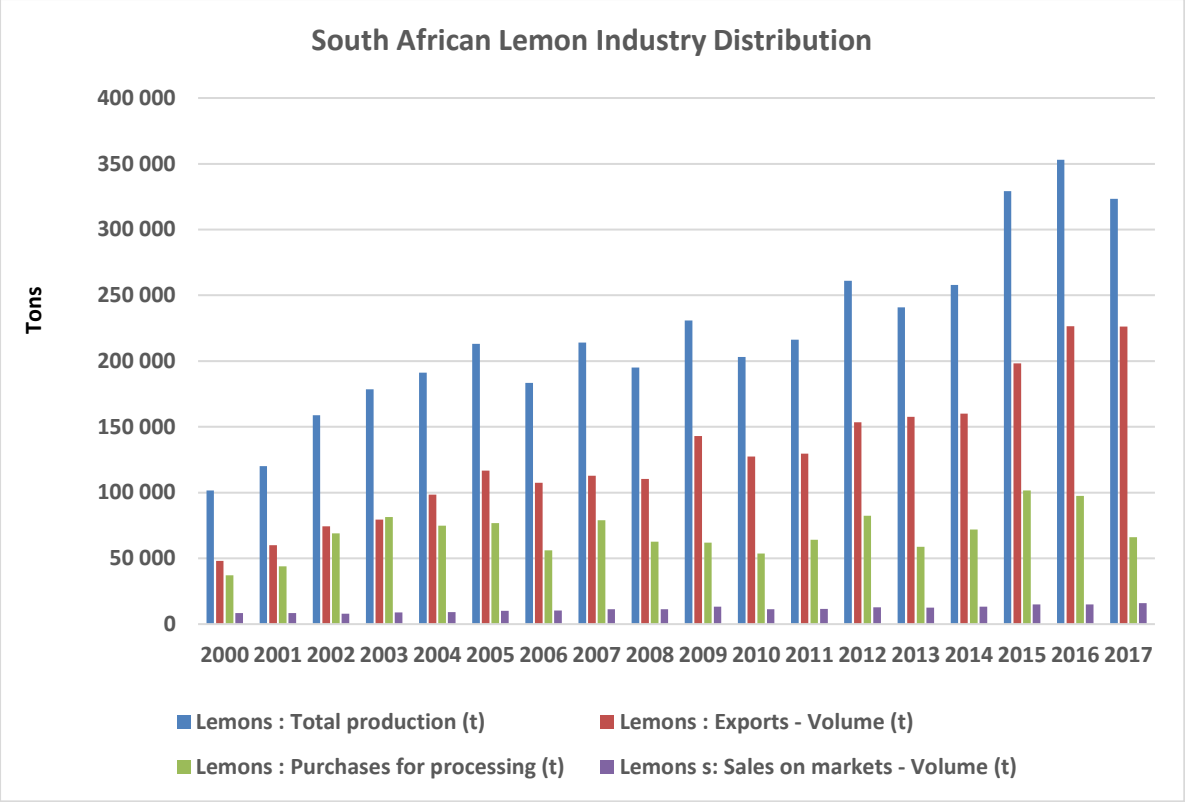

Figure 10: South African Lemon Industry Distribution

Source: Quantec, 2017; DAFF, 2017

When looking at Figure 10 above it can be seen that from the total lemon production from 2000 until the 2017 production season; that the majority of the tonnage is allocated for exports with an average of 57% destined for export markets. The percentage of exports in relation to the total production in 2016 amounted to 64% and for 2017 the total tons being exported in relation to the total production amounted to 70%.

Allocations towards the processing markets get the second largest allocation for lemons with an average of 32% for the period between 2000 and 2017. The least amount of lemons are allocated to sales on the local markets which equals to an average of 5% of the overall production for the period between 2000 and 2017.

Figure 10 also shows that exports of lemons are significantly increasing, especially with reference to the year 2015 to 2017. The average annual growth rate for exports amounts to 9% per annum. This significant change can be attributed to various reasons, however, the price of lemons being exported can be one of the main reasons why exports are on an upward trend. It is for this reason that Figure 11 provides a summary of the historical price trends for lemons.

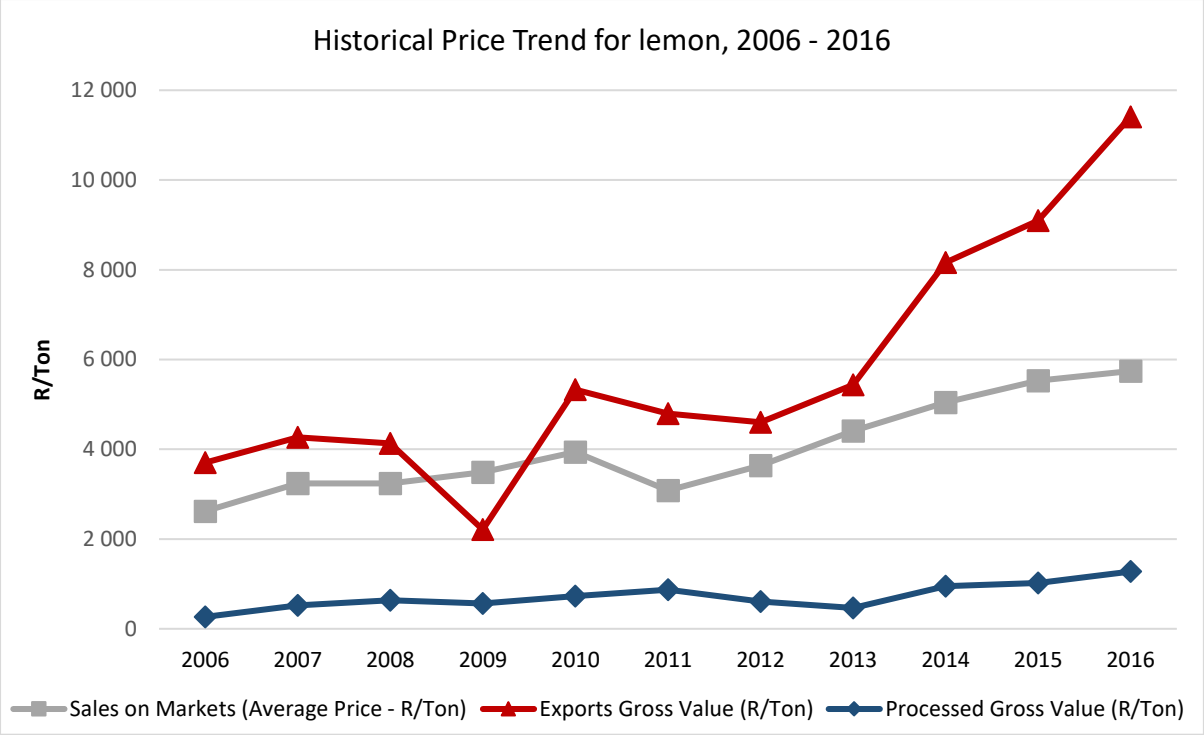

Figure 11: Historical Price Trends for lemon, 2006 - 2016

Source: CGA, 2017[b]

Figure 11 shows a steep upward trend in average market prices as quoted in R/ton for exports received from the year 2013 to 2016. Looking at 2006 to 2016, the average annual growth rate for the value of exports amounted to 11% compared to the average annual growth rate for sales on the local market which equated to 7% and a 15% average annual growth rate for the processing market. Although the annual processing growth rate is higher than the annual export growth rate, the gross value quoted in R/ton received for exports is higher than the processing market. This made the export market an attractive option for producers and subsequently, producers opted to rather export than to sell their lemons on the local market or to send produce for processing.

The fact that producers can receive higher average market prices per ton on the export market as well as observing increases in local market prices led to producers planting more lemon orchards. This eventually means that an increasing amount of lemon orchards will come into production. Subsequently, this has already led to higher production volumes, as illustrated in Figures 9 and 10. Figure 12 supports the above statement by looking at the increase in the sale of lemon plant material.

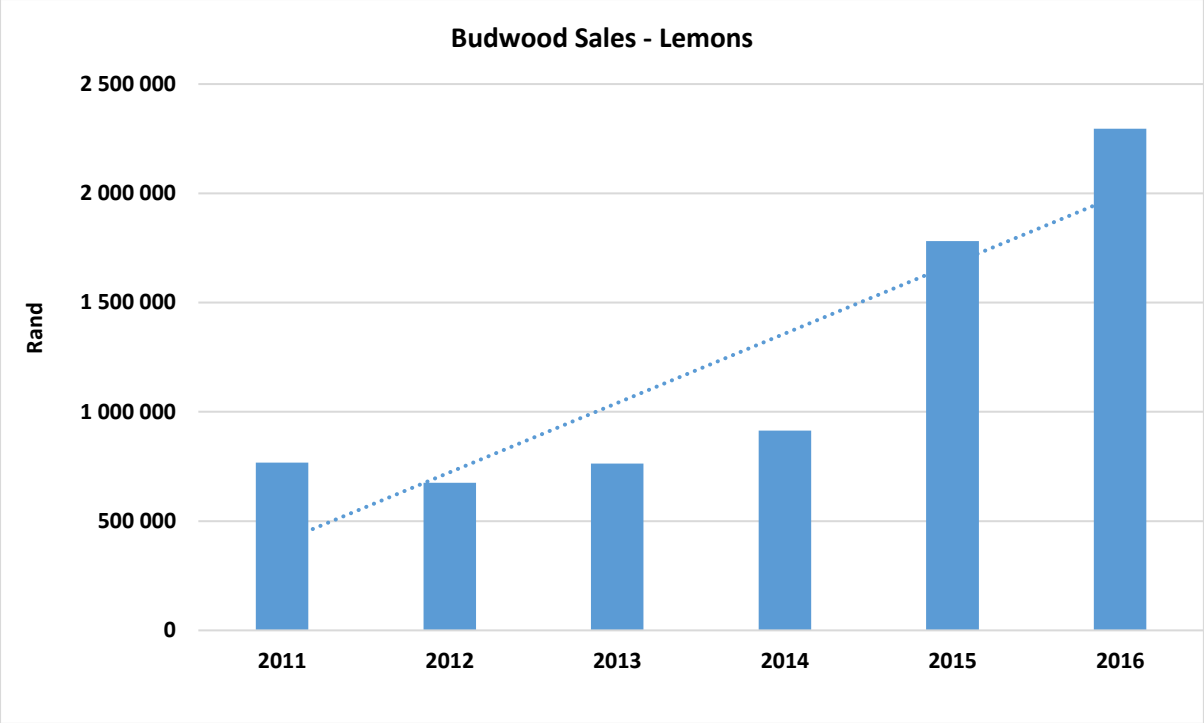

Figure 12: Budwood Sales – Lemons

Source: CGA, 2017[b]

As can be seen in Figure 12 above, Budwood sales have been increasing from 2011 to 2016, which indicates that more lemon orchards were planted.

3.2 Consumption

Lemons are part of the citrus fruit family and are hardly consumed alone due to its high acid content. The lemons' juice or peel are normally consumed as an ingredient in cooking and baking, used as a garnish, juiced in lemonade or used in carbonated beverages and other drinks. The peel of the lemon can be candied and the oil of the peel is normally used in furniture polish, perfumes and in bleaching products (USDA, 2004; FAO, 2010).

Consumption in South Africa is moderately increasing, as can be seen in Figure 13.

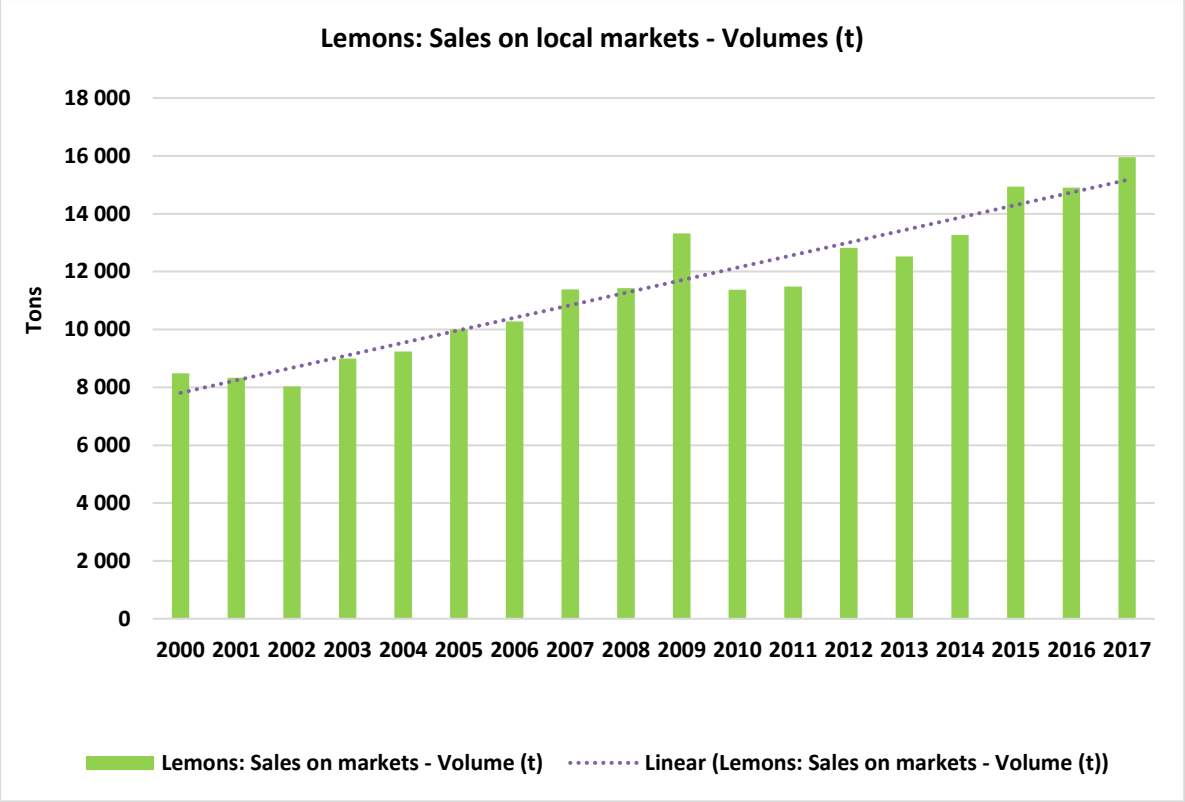

Figure 13: Lemons: Sales on local markets - Volumes (t)

Source: Quantec, 2017

The average annual growth rate for sales on local markets is 4% per annum. When comparing South African consumption to global consumption, figure 6 shows an -1% average annual growth rate for global consumption. Whilst consumption (local market sales) for the 2016 to 2017 period increased by 7%.

3.3 Employment

The agriculture sector directly employs approximately 870 000 people in South Africa, of which the Citrus Industry provides about 125 000 jobs, which represents14% of the total agricultural sector labour market (CGA, 2016). The citrus industry is very labour intensive and employs mostly unskilled labour (DAFF, 2016; CGA, 2017[a]). Large numbers of workers are employed in the orchards, pack houses and throughout the supply chain such as the transport, storage port handling and allied services (DAFF, 2016).

Table 1 below gives a summary of the prescribed minimum wages that should be paid to farm workers in South Africa as from 1 March 2016 to 28 February 2018. This minimum wage scale can be used as a baseline for determining basic wages in accordance

with the legislation governing the basic conditions of employment in South Africa (DAFF, 2016). According to DAFF and Free State Agriculture (2016, 2017), the Department of Labour uses the consumer price index (CPI) to calculate annual wage adjustments. The wage increase is calculated by using the previous year's minimum wage plus CPI + 1% (DAFF, 2016; Free State Agriculture, 2017).

Table 1: Minimum wages for Farm Worker Sector in South Africa

	1 March 2016 to 28 February 2017				1 March 2017 to 28 February 2018			
	Monthly	**Weekly**	**Daily**	**Hourly**	**Monthly**	**Weekly**	**Daily**	**Hourly**
Minimum Rates for the Period	2 778,83	641,32	128,26[6]	14,25	3 001,13	692,62	138,52	15,39

Source: Department of Labour, 2016; Free State Agriculture, 2017;

The labour pool (working age population – 15 to 64 years) in South Africa is quite large, 37.37 million people, whilst the unemployment rate is currently standing at 27.7% (6.2 million people) in the third quarter of 2017 (Stats SA, 2017). In chapter 6 of the 2012 National Development Plan (NDP) it was suggested that the agricultural sector can create 1 million jobs by 2030 in agricultural production, processing and related activities (National Planning Commission, 2012; Genis, 2017). A matrix was developed to indicate where agricultural growth and employment potential in the sub-sectors of agriculture can be stimulated to create those above jobs (National Planning Commission, 2012). Figure 14 below shows these sub-sectors of agriculture.

[6] Daily wage is calculated for an employee working 9 hours a day.

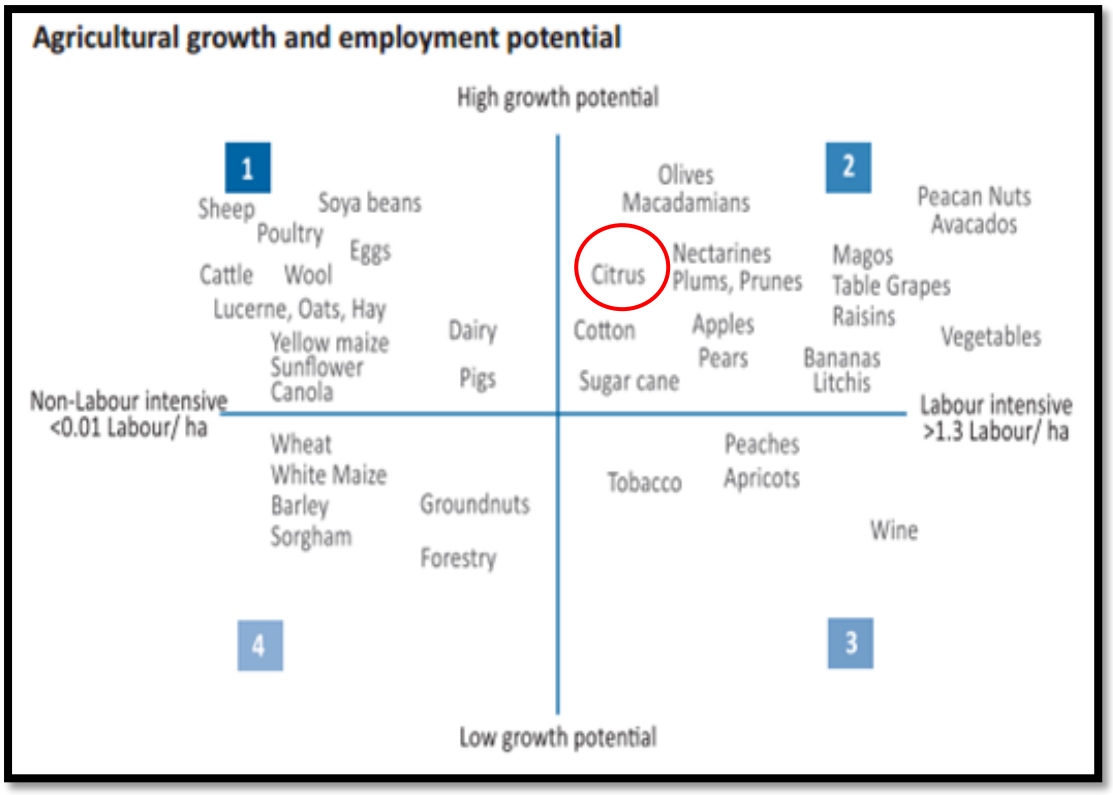

Figure 14: Agricultural growth and employment potential

Source: National Planning Commission, 2012

Citrus, vegetables, olives, nuts (macadamias and pecan nuts) and subtropical fruit (bananas, avocados, litchis, and mangoes) and deciduous fruit (apples, pears, table grapes, raisins, plums, prunes, and nectarines) shows the most potential for economic growth and job creation according to Figure 14. The NDP suggests that for these subsectors to be growth accelerators and employment driven, investment in water expansion initiatives and irrigation infrastructure must be increased, smallholder farmers must be linked to markets, joint ventures must be promoted, innovative financing options should be created and tenure security for communal area farmers should also be established (Genis, 2017; National Planning Commission, 2012).

Looking at the citrus sub-sectors' exports, growth in terms of the volumes exported can be seen from 1.08 million tons in 2007 to 1.77 million tons in 2015. This growth pattern made the citrus industry one of the sub-sectors which are believed to be one of the biggest employers within agriculture as well as the biggest potential sub-sector for job creation, especially for unskilled labour (Genis, 2017). In order for the citrus industry to create more jobs, expansion of citrus production is key, but for this industry to expand

certain constraints such as capital, water, regulation, and markets must first be addressed(Genis, 2017).

3.4 Levies

A statutory body exists for the South African citrus industry and is administered by the Citrus Growers Association (CGA). A levy is charged on all citrus exports and is then used for research and technical support, market access, market development, consumer assurance, information, logistics, transformation and administration services for the benefit of citrus growers in Southern Africa (CGA, 2016). Table 2 below gives a summary of the levies charged since 2008 for a 15kg carton of citrus fruit. In addition, the below Table also indicates what the levies will be until 2020.

Table 2: Levy for the Citrus Industry

Period	Levy amount excluding VAT
2008	32c /15kg carton
2009	38c /15kg carton
2010	39c /15kg carton
2011	40c /15kg carton
2012	41c /15kg carton
2013	47c/15kg carton
2014	50c/15kg carton
2015	53c/15kg carton
2016	56c/15kg carton
2017	68c/15kg carton
2018	70c/15kg carton
2019	72c/15kg carton
2020	74c/15kg carton

Source: CGA, 2014; CGA, 2016; Government Gazette, 2008: No 31379; CGA, 2013; CGA, 2017[a]

4. Export Potential and Prices

4.1 South African Trade – Exports

South African lemons have shown an increase in volumes produced and exported as seen in Figure 10. This increase in production outputs is due to an increase in the average Rand[7] received per ton exported. This price phenomenon can be seen in Figure 11. Figure 11 also illustrates that the average market price per ton grew by 20% per annum for the 2013 to 2016 seasons. Figure 15 below once again highlights the

[7] Values are deflated and the base year 2010 was used.

occurrence of Figure 10 and 11, which depicts that the increase in the average Rand received per ton of exports are leading to production outputs also increasing.

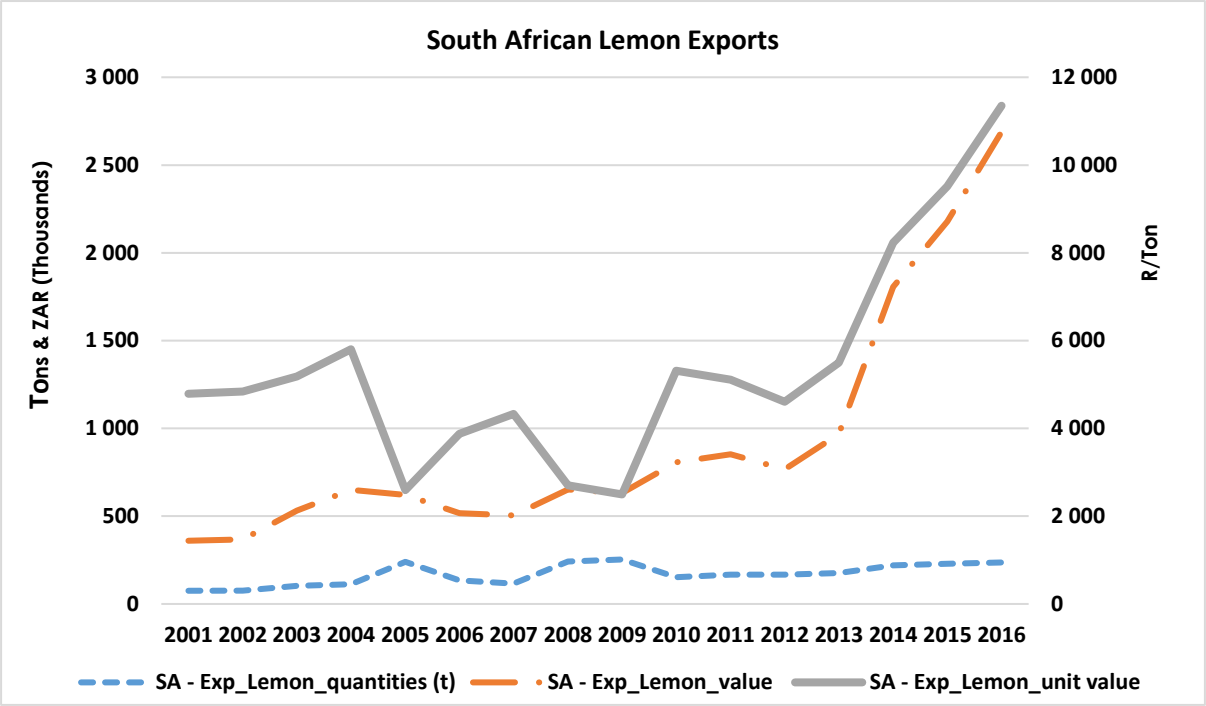

Figure 15: South African Lemon Exports

Source: ITC, 2017

The increasing trend in lemon exports can also be explained by Figure 16, which looks at the net realisation value of citrus exports. The Figure illustrates the exports of lemons, oranges, grapefruit, and naartjies from South Africa from 2000 to 2017. Naartjie exports are not depicted in the Figure, due to the incompleteness of data[8]. Lemons, oranges, and grapefruit average market prices per ton are following an increasing parallel trend from 2000 till 2010. From the year 2011, it can clearly be seen that average lemon market prices per ton exported are rapidly increasing and that the average market price per ton gap between lemons and the other two varieties more than doubled during the reported period.

The price per ton received for lemons in 2017 amounted to R16 478.46, compared to R8 550.00 for a ton of oranges and R7 824.76 for a ton of grapefruit.

[8] Naartjie export net realisation data is only capture or available till 1995.

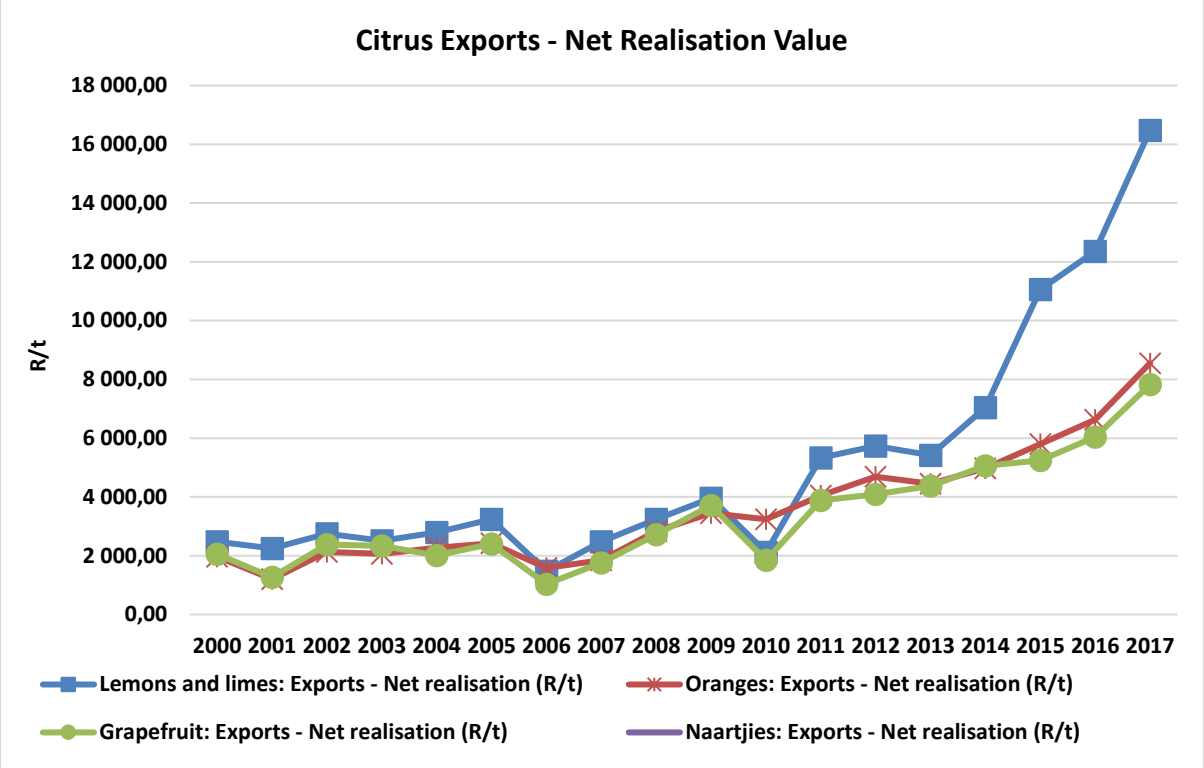

Figure 16: Citrus Exports - Net Realisation Value

Source: Quantec, 2017

When looking at the yearly exports, there is an increase in volumes and prices received.

In order to determine whether the increased tonnage that is being produced has an effect on prices received, monthly trade activities in the lemon market have to be looked at. Figure 17 gives a summary of the total value of monthly export received for South African lemons. The period reviewed for this analysis applies to be from month 10 of 2009 to month 10 of 2017. When looking at Figure 17 the conclusion can be drawn that for the last four years, from 2014 to 2017 higher values have been received for exports. Having a closer look at the period as from 2014 to 2017; by comparing the months and years the following observations can be put forward: the monthly value of lemons that were exported in month 1 of 2017 was lower compared with 2014, 2015 and 2016. This was due to lower volumes being exported, as indicated in Figure 18. The values received for month 4, 5, 8 and 9 of 2017 were subsequently lower than the corresponding periods during 2016, although the volumes that were exported during the mentioned months were higher during 2017. Although export volumes were much lower in month 9 of 2015, if compared to the same period in 2017 – the average

market prices (value) received during 2015 were much higher than 2017; as illustrated in Figure 17 and 18.

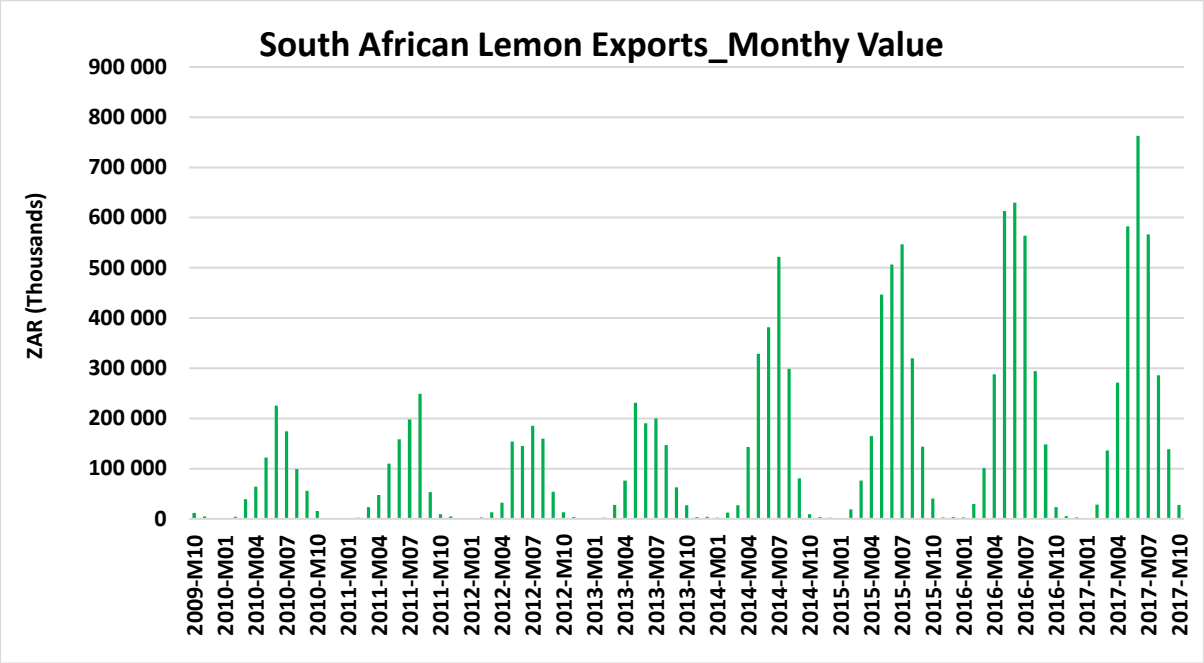

Figure 17: South African Lemon Export - Monthly Value

Source: ITC, 2017; Quantec, 2017

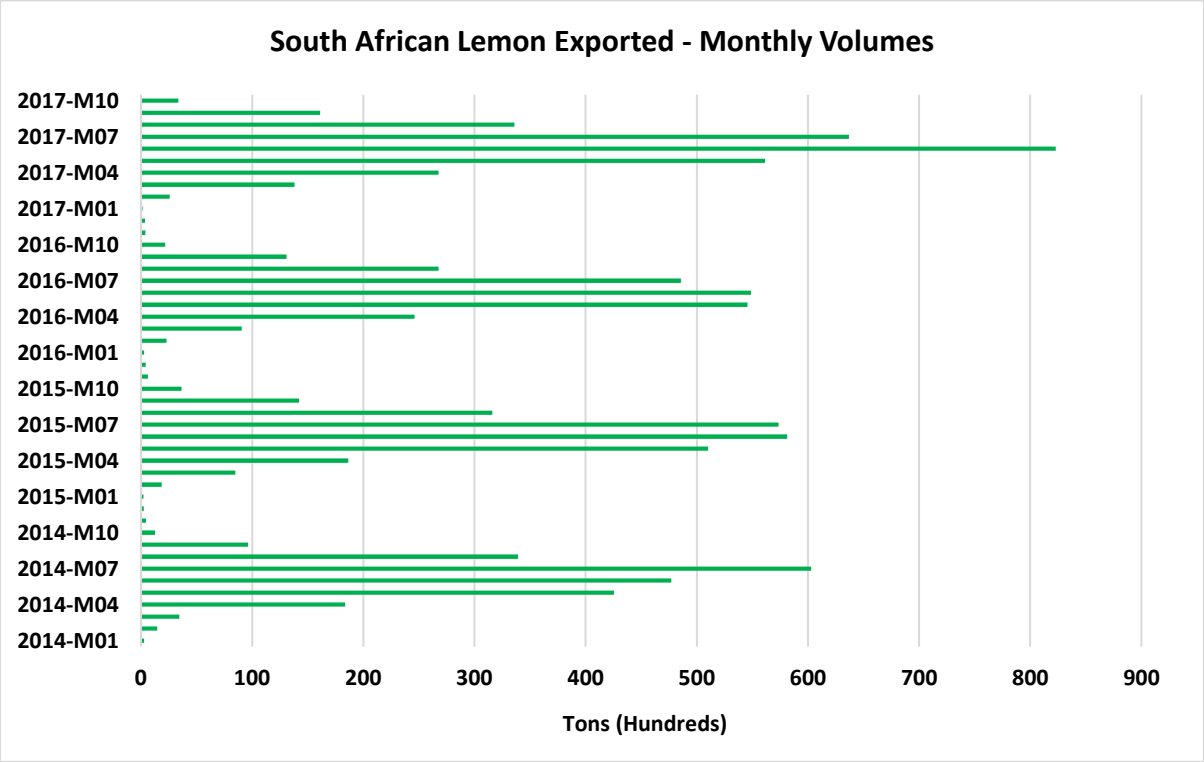

Figure 18: South African Lemon Exported – Monthly Volumes

Source: ITC, 2017

When comparing the 2017 and 2016 marketing season with the year 2015, Figure 17 shows that month 8 and month 10 of the year 2015 performed better than 2014, 2016 and 2017 in terms of the monthly exported value obtained during these months. However, if compared to the volumes exported within these years, the picture looks totally different.

Looking at the monthly unit value per kilogram, Figure 19 below depicts the same trend as in Figure 17 (if Figure 18 is taken into account. Figure 19 below thus illustrates the monthly lemon export expressed in unit value per kilogram from 2005 till 2017.

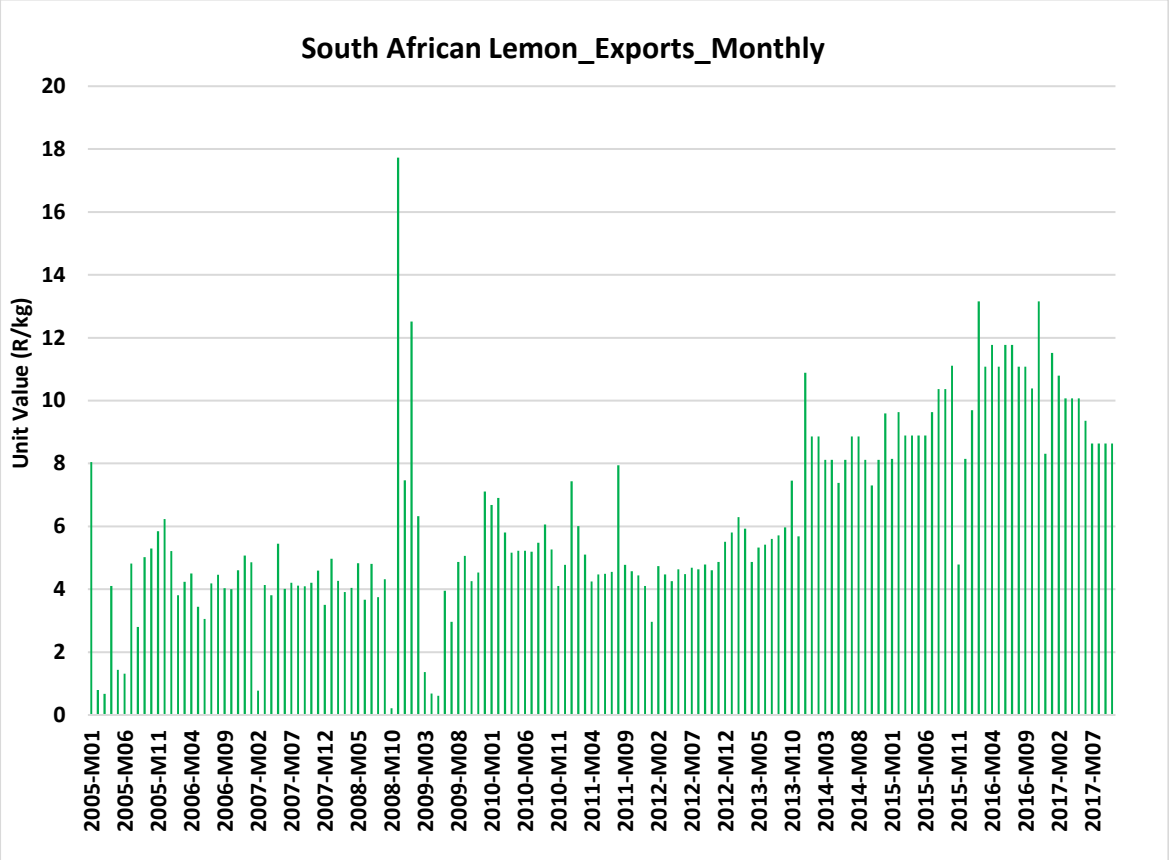

Figure 19: South African Lemon Exports - Monthly

Source: ITC, 2017

Figure 19 indicates outlier years and months, in which price increases dramatically as well as where export market prices[9] dropped exponentially. Focussing on the last four years, it can clearly be seen that producers received higher prices per kilogram exported during 2014 till 2017. Figure 20 is a snapshot of last mentioned timeframe.

[9] Prices have been deflated and the base year 2010 was used.

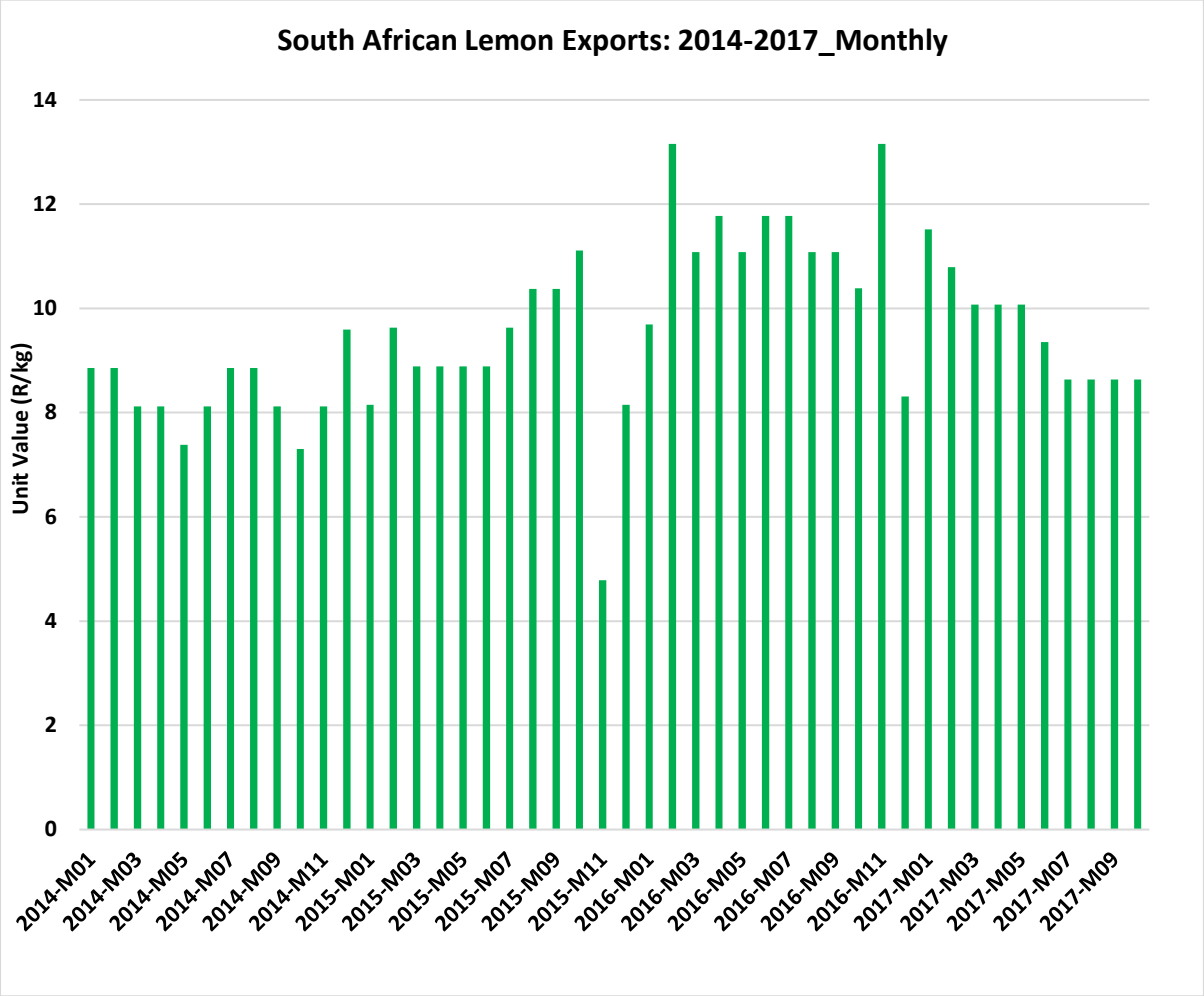

Figure 20: South African Lemon Exports: 2014 - 2017 Monthly Prices per Kg

Source: ITC, 2017

Figure 20 shows that year 2016 have obtained record average export prices[10] of R13 per kilogram for month 2 and month 11. When calculating the average export market prices for these 4 years; during 2014 an average price of R8 per kg was obtained, 2015 a price of R9 per kg, 2016 a price of R11 per kg and 2017 a price of R10 per kg for lemons exported. Comparing the 2017 marketing season with 2016, a price reduction per kilogram occurred during 2017 if comparing month 2 till month 10 of 2017 with the same period within the previous year. When comparing Figure 20 and Figure 18, it can be concluded that the subsequent increase in volumes being exported is

[10] Prices have been deflated and the base year 2010 was used.

contributing to the lowering of unit price received for the exporting of lemons within recent years.

5. Conclusion and Recommendations

The South African lemon industry showed a 5% average annual growth rate for the total production (from 1990 to 2017), whereas the average export price received for lemons increased by 11% during the same period. As a result of the aforementioned, the lemon industry has been deemed very attractive and thus expansions of plantings and new entrants is evidently a cause of concern going forward; especially if current market trends are taken into consideration.

Global consumption of lemons is decreasing annually with -1%, which mean that South Africa will have an increased supply of lemons without any new markets as the demand thereof is not increasing at the same rate as South African supply and confined by a surplus of volumes that cannot be exported to existing markets. Thus leaving South Africa with an oversupply in local markets. Local market consumption although showing an increase won't be able to absorb the surplus volumes of lemons. This oversupply will subsequently lead to a price decline received per carton exported as well as the price received per kilogram which will eventually affect the overall performance of the lemon industry. It should, however, be considered that the oversupply effect within the South African export market can already be seen as depicted in Figure 19 and 20 where a declining trend of monthly export prices of lemons for the 2017 season is already evident.

A few recommendations are listed below, in order to curb the oversupply of lemon in South Africa:

- New plantings of lemon orchards should not be encouraged and old orchard replacement should take place.
- New lemon producers trying to enter the lemon industry should be restricted; by highlighting the increased risk factor faced by such producers given the relatively high capital outlay associated with new lemon plantings.
- The industry together with the national government has to secure access to new markets to afford South African producers to diversify their marketing portfolio.

- The industry has to embark on intensive marketing campaigns, promoting lemons and the health benefits thereof so that consumption can increase more rapidly within the export market, especially given that the consumption within the domestic market is limited.

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