

# A PROFILE OF THE SOUTH AFRICAN GARLIC MARKET VALUE CHAIN

2019



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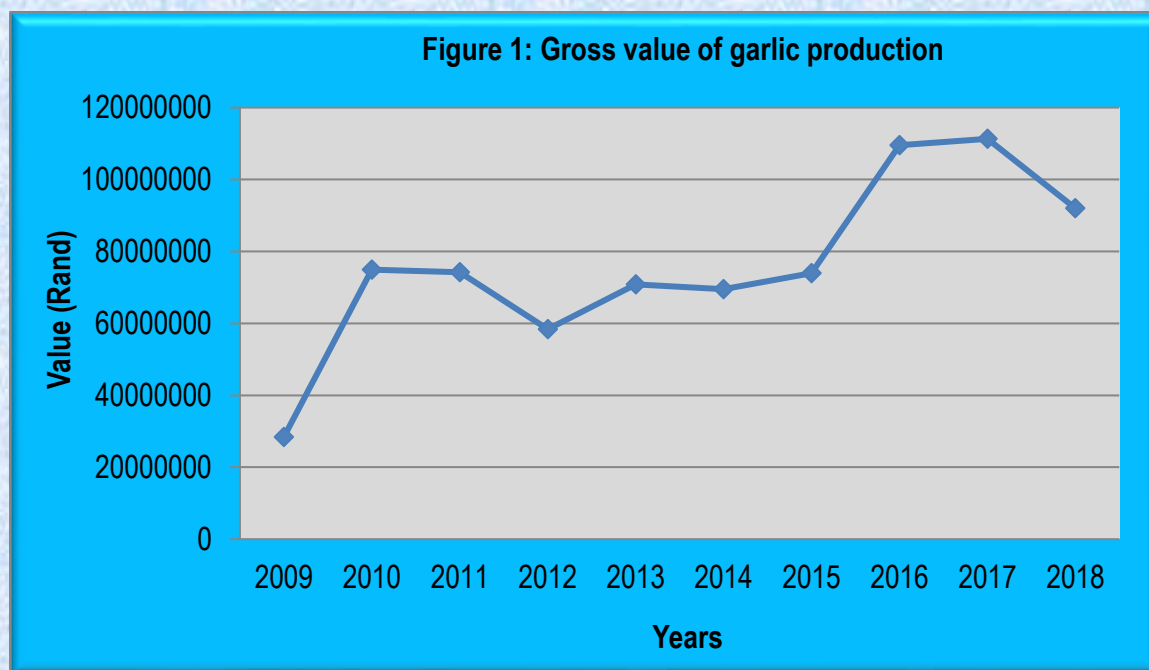
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## 1. DESCRIPTION OF THE INDUSTRY

Garlic is a close relative of the onion, which includes leeks, chives and shallots. In size and growth habit, garlic resembles the onion. Garlic has a history of human use of over 7 000 years, and it is native to central Asia. Besides onion, garlic is the most important bulb crop grown almost all over South Asia. Garlic has been used throughout recorded history for both medicinal and culinary purposes. It is widely used for flavouring and seasoning dishes, pickles and sauces. While garlic is produced primarily for food favouring, its uses are also noted for qualities of furthering good health. The large amounts of garlic are produced in China and India. Garlic has become an increasingly popular vegetable in recent years among producers, marketers and consumers. Its long acclaimed nutritional and medicinal values are proving to be valid. Different branches of traditional medicine and scientific studies have pointed to garlic as an antibiotic agent, immunity booster, and a blood pressure regulator. Garlic is often kept in oil to produce flavoured oil. However, the practice requires measures to be taken to prevent the garlic from spoiling. More people are discovering its culinary splendour, and producers have found garlic to be a potentially highly profitable crop.

Figure 1 presents the gross value of garlic production from 2009 to 2018.



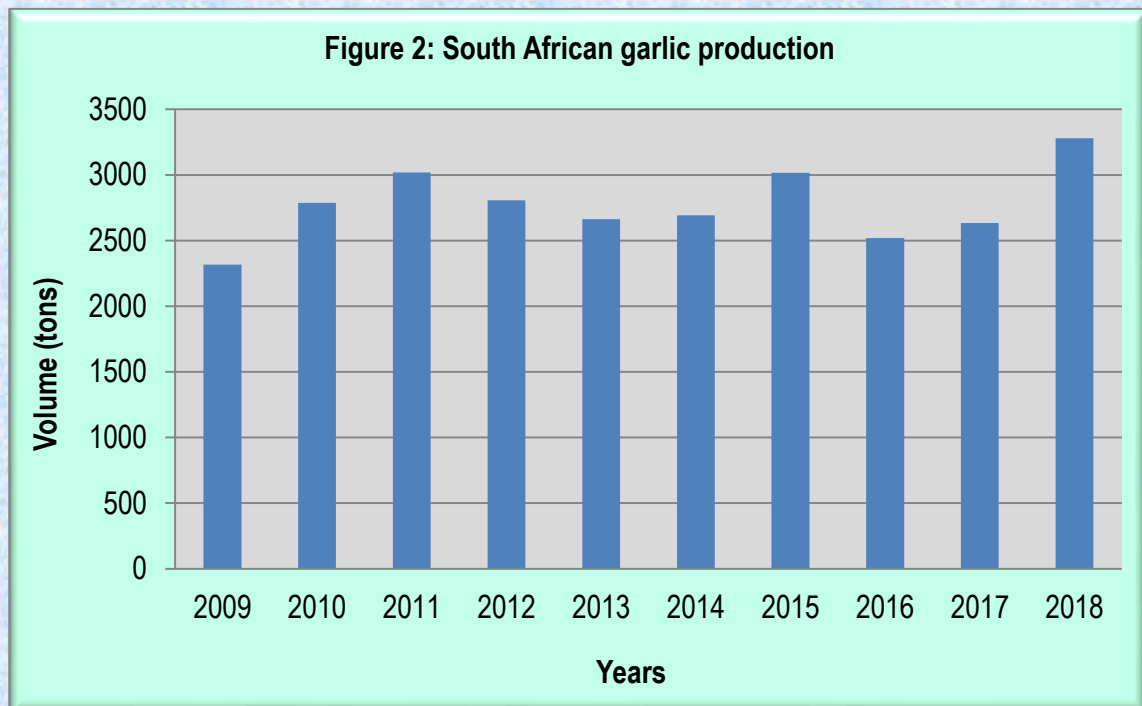
Source: Statistics and Economic Analysis, DAFF

Figure 1 illustrates garlic industry contribution to the agricultural gross value during a ten year period. In 2009, South Africa garlic gross value was a record low in a ten year period. In 2010, the industry contribution increased significantly by 36%, despite the lowest volumes supplied in the same year. This can be attributed to higher prices received by producers across the markets. The highest garlic industry contribution was recorded in 2011, due to a slight increase in garlic output and favourable producer prices in the same year. In 2012, garlic industry contribution declined slightly by 0.8% when compared to 2011 contribution. This can be attributed to a drop in producer price in the same production season. During 2013, garlic gross value increased by 21.3% when compared to 2012

gross value and this can be attributed to an increase in producer prices in the same year. In 2014, garlic gross value has dropped slightly by 1.9% in comparison to 2013 gross value and this can be ascribed to a drop in producer prices during the same year. There was 6% increase in garlic gross value during 2015 and this can be attributed to 12% increase in the production output. There was a significant increase of 48% in garlic gross value in 2016, when compared to 2015 gross value and this can be attributed to good producer price of garlic in the same year. During 2017, there was a slight increment of 1.6% in garlic gross value relative to 2016 gross value and this can be ascribed to 4.6% increase in production output. As of 2018, South Africa garlic gross value fell notable by 17% in comparison to 2017 gross value and this can be attributed to a drop in producer prices in the same season.

### 1.1 Production Areas

As a general rule, conditions suitable for onion production are also suitable for garlic production. The highest quality garlic is produced in the cool, dry regions of South Africa. These production areas include Limpopo province in particular (Polokwane Plateau); North West province, Gauteng ; northern, western and southern Free State province; part of KwaZulu Natal; the Western Cape province (in particular the Karoo); as well as parts of the Northern Cape (Douglas area). Globally, China is by far the largest producer of garlic, accounting for over 80% of world output. The second largest producer is India, followed by Bangladesh, Republic of Korea, Egypt, Spain and United States of America (FAOSTAT 2018). The total volumes of garlic produced in South Africa during the past ten years are depicted in Figure 2.



Source: Statistics and Economic Analysis, DAFF

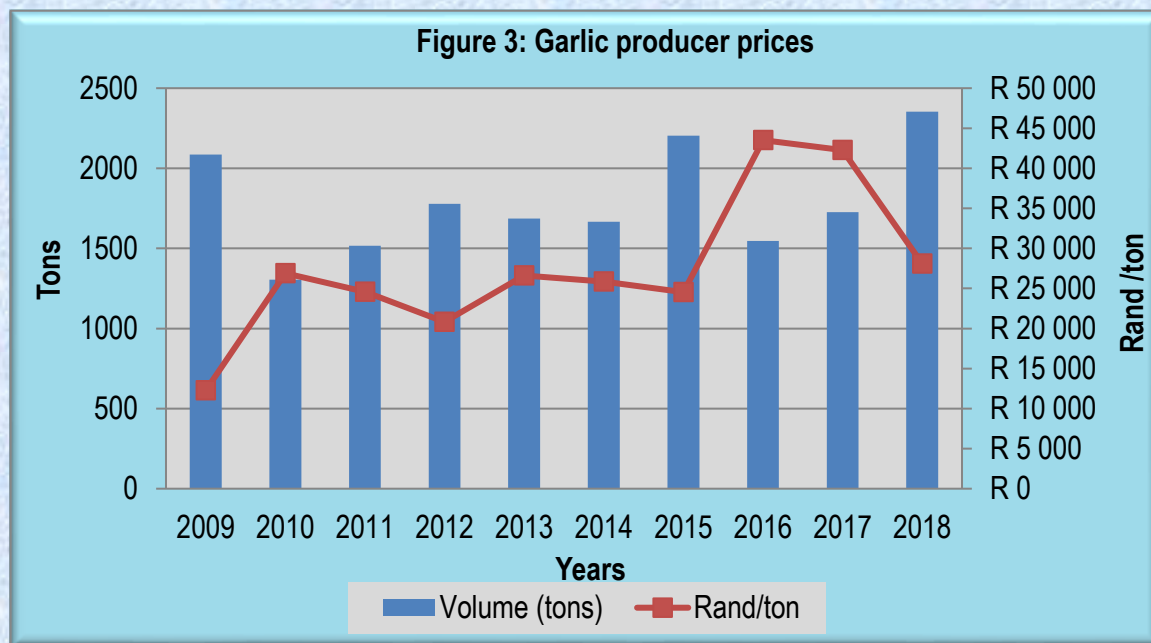
Garlic production has been fairly unstable during the period under review. In 2009, the production volumes was a record low in a ten year period and in 2010, production output has gone up by 20% in comparison to the production in 2009. Garlic imports from the world where production costs are much lower. During the 2011 season, production output increased by 16%, when, compared to the

2010 production season. In 2012, garlic production output dropped slightly by 7% when compared to the 2011 production output. Production volumes dropped further by 5.1% in 2013, in comparison to the 2012 production output. During 2014, production output has gone up slightly by 1% in comparison to the previous year production output. In 2015, there was a 12% increment in production output, when compared to 2014 production output. Garlic production dropped by 16.5% during 2016, when compared to the previous year. In 2017, garlic production output rose by 4.6% in comparison to 2016 production output. As of 2018, there was a 24% increment in garlic production output relative to 2017 production output.

## 2. MARKET STRUCTURE

### 2.1 Domestic market and prices

In South Africa, garlic is sold through different marketing channels such as the National Fresh Produce Markets (NFPMs), hawkers, directly to the retailers, restaurants and processors. Garlic is marketed as a fresh product, dehydrated or as certified seed. It is also exported to other countries through export agents and marketing companies. Most of the commercial garlic production is grown under contract between growers and buyers. South Africa has a limited market for garlic and consumes only 3 000 tons of garlic per annum. Figure 3 illustrates the volumes of garlic sold at the NFPMs as well as prices for garlic during the past ten years.



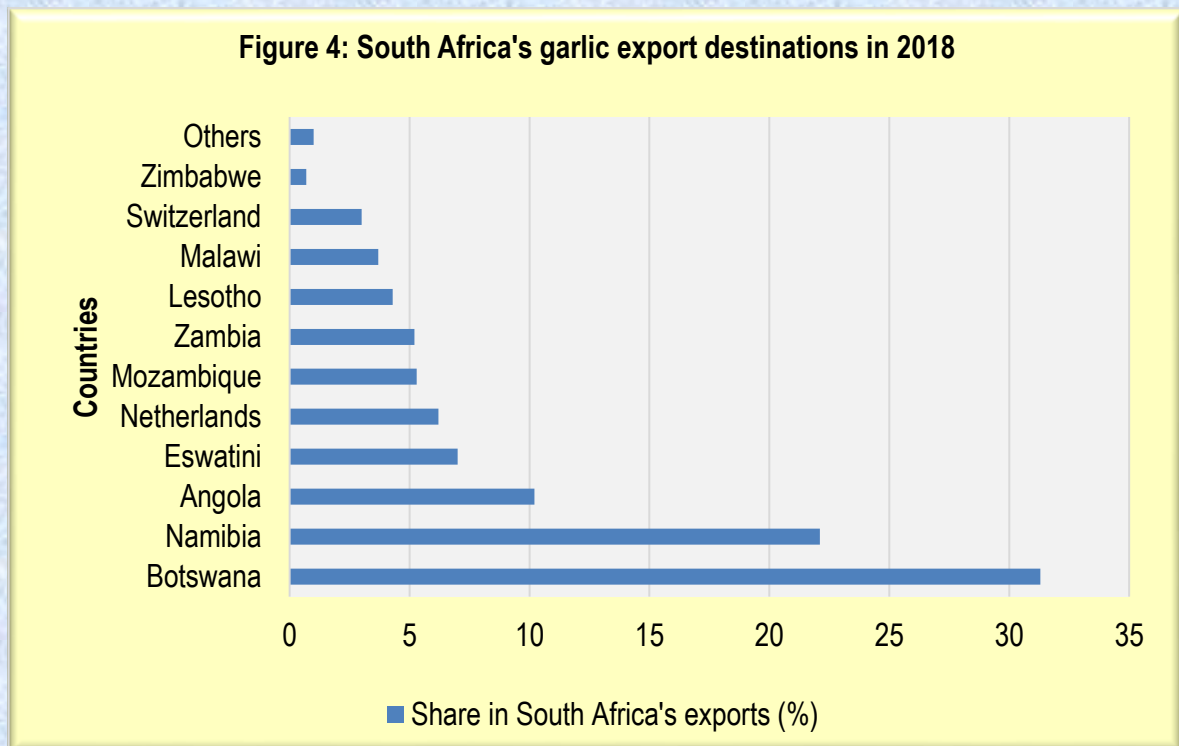
Source: Statistics and Economic Analysis, DAFF

There were relative fluctuations in the volumes and prices of garlic sold in the major fresh produce markets. The general trend observed is that prices increase substantially when few volumes are supplied to the markets. During 2009, garlic supplied at the fresh produce market was just above 2 085 tons. In 2010, a record low volume was supplied to the market and in the same year garlic prices surged by 118% when compared to the previous year. In 2011, garlic prices dropped by 8.5% due to an increase in production output. During 2012, there was a 17% increase in garlic supplied across the markets and this resulted in a 15% drop in market price. Producer prices increased substantially by 27.9% during 2013 and this can be attributed to a slight decrease in garlic supplied at the market.

Market price dropped further by 2.9% in 2014, despite a 1.2% drop in garlic volume supplied at the market and this can be ascribed to poor garlic demand in the same year. In 2015, there was a 32% increment in garlic volume supplied at the market and this resulted in a 5% decrease in market price. There was a notable drop of 29.7% in garlic supplied at the market during 2016, as a result the market price surged by 77% when compared to 2015 garlic price. In 2017, garlic volume supplied at the market rose by 11.65 and as a subsequent, the market price eased lower by 2.8% relative to 2016 market price. During 2018, volume supplied at the market increased substantially by 36% and as a subsequent the market price fell by 33% in comparison to 2017 market price.

## 2.2 Exports

South Africa is not a major garlic exporter. In 2018, South Africa garlic export represents 0.1% of world exports for this product, and its ranking in world garlic exports is 23. South Africa has gained its competitiveness in term of world garlic exports as in 2017, it was ranked number 24 in the world garlic exports. During 2018, South Africa exported garlic, mainly to the following countries: Botswana, Namibia, Angola, Eswatini, Netherlands, Mozambique and Zambia. In 2018, Botswana with 31.3% was the main trading partner in garlic exports, followed by Namibia with 22.1% and Angola with 10.2% of South Africa's export. China is ranked number one in the world garlic exporters (China is the largest garlic producer in the world) followed by Spain, Argentina, Netherlands, France, Italy, and Italy respectively. Figure 4 below; illustrate major destinations for South Africa's garlic exports in 2018.



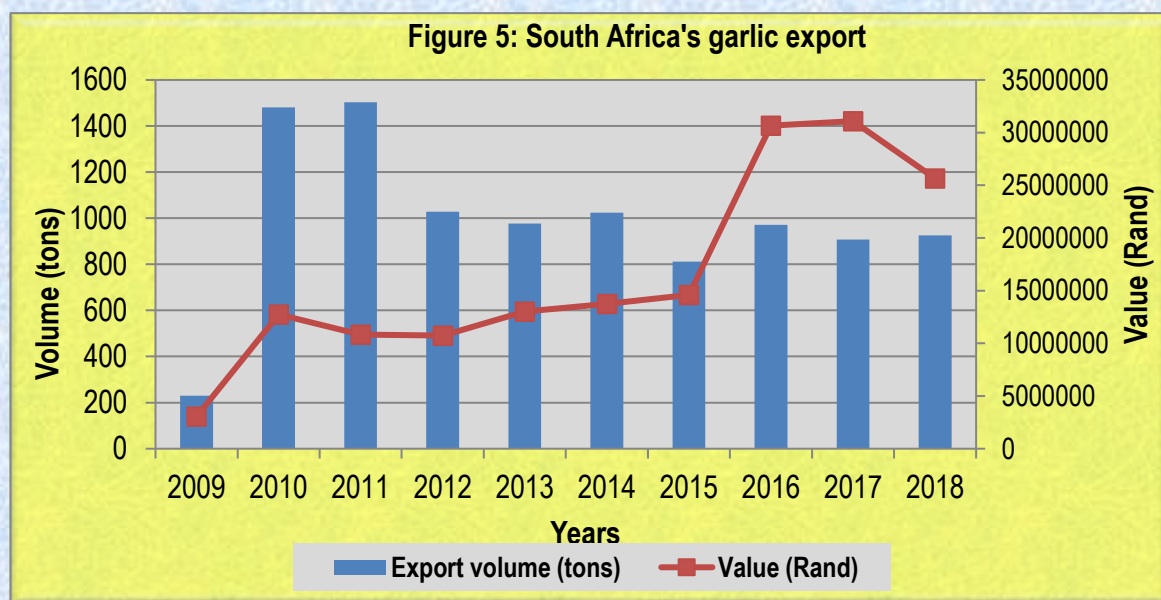
Source: Trademap, ITC

**Table 1: South Africa's garlic exports in 2018**

Importers	Value exported in 2018 (USD thousand)	Trade balance 2018 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2018 (Tons)	Growth in exported value between 2014-2018 (% p.a.)	Growth in exported quantity between 2014-2018 (% p.a.)	Growth in exported value between 2017-2018 (% p.a.)
World	1949	-2572	100	920	17	-1	-16
Botswana	610	610	31.3	181	10	0	0
Namibia	430	430	22.1	250	19	5	-3
Angola	198	198	10.2	27	41	-19	-66
Eswatini	137	137	7	31	2	-20	22
Netherlands	120	120	6.2	42	122	130	-33
Mozambique	104	104	5.3	211	16	11	58
Zambia	101	101	5.2	81	20	12	63
Lesotho	83	83	4.3	54	11	-19	-14
Malawi	73	73	3.7	16	33	22	11
Switzerland	58	58	3	7	19	7	-5
Zimbabwe	13	13	0.7	8	-24	-22	-7

Source: Trademap, ITC

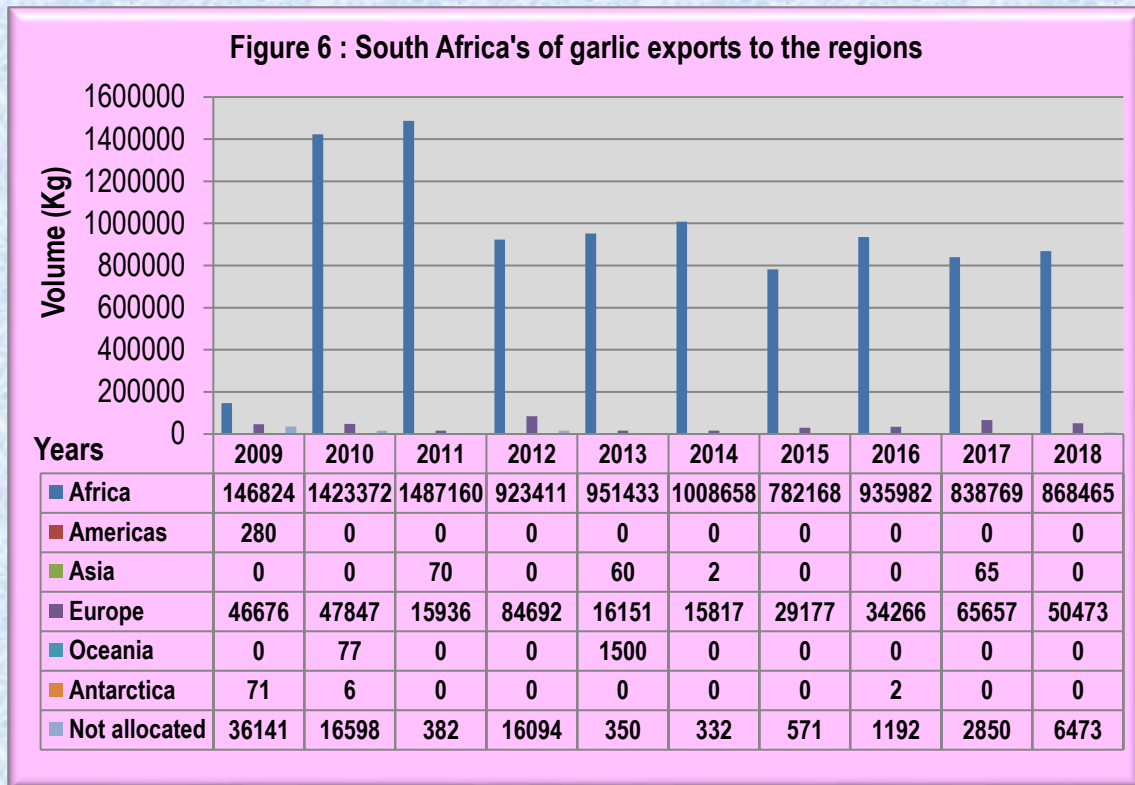
Table 1 indicates that in 2018, 31.3% of garlic was exported to Botswana, Namibia was second recipient with 22.1%, Angola has commanded 10.2% of exports and Eswatini has received 7% of South Africa's garlic exports. South African garlic exports to Botswana have increased by 10% in value between 2014-2018 periods. South African garlic exports to the Namibia have increased by 19% and 5% in value and quantity respectively between 2014 and 2018. Garlic exports to Angola have increased by 41% in value and has decreased by 19% in quantity between 2014 and 2018.



Source: Quantec Easydata

\* Quantec easy data has revised export data to include export to SACU countries from 2010.

Figure 5 above illustrates garlic exports from South Africa over the past 10 years. In 2009, South Africa has exported a record low garlic volume of 229 tons per annum. In 2010, garlic exports were incomparably higher in comparison to the previous year exports and this can be attributed to 20% in garlic production volumes. During 2011, South Africa's garlic export has gone up slightly by 1.9%, which can be ascribed to 16% increase in the domestic production. In 2012, South Africa's garlic exports decreased by 32% when compared to the 2011 exports. During 2013, South Africa's garlic exports dropped further by 4.9%, which can be ascribed to a 5.1 % drop in domestic garlic output. Garlic exports increased slightly by 4.9% during 2014. There was a 20% decline in South Africa garlic export during 2015, despite a 12% increase in the domestic production output. In 2016, South Africa's garlic export increased notably by 19.6%, in comparison to the previous year garlic export. During 2017, South Africa's garlic export declined by 6.6% relative to 2016 export volume. In 2009, 2013 to 2015, it was also more profitable to export garlic. It was notably more profitable to export garlic during 2016, when compared to other years. In 2017, it was more profitable to export garlic in comparison to 2016 export value. As of 2018, South Africa garlic export dropped slightly by 1.9% and it was also less profitable to export relative to 2017 exports. Figure 6 below shows garlic exports to the various regions over the past ten years.

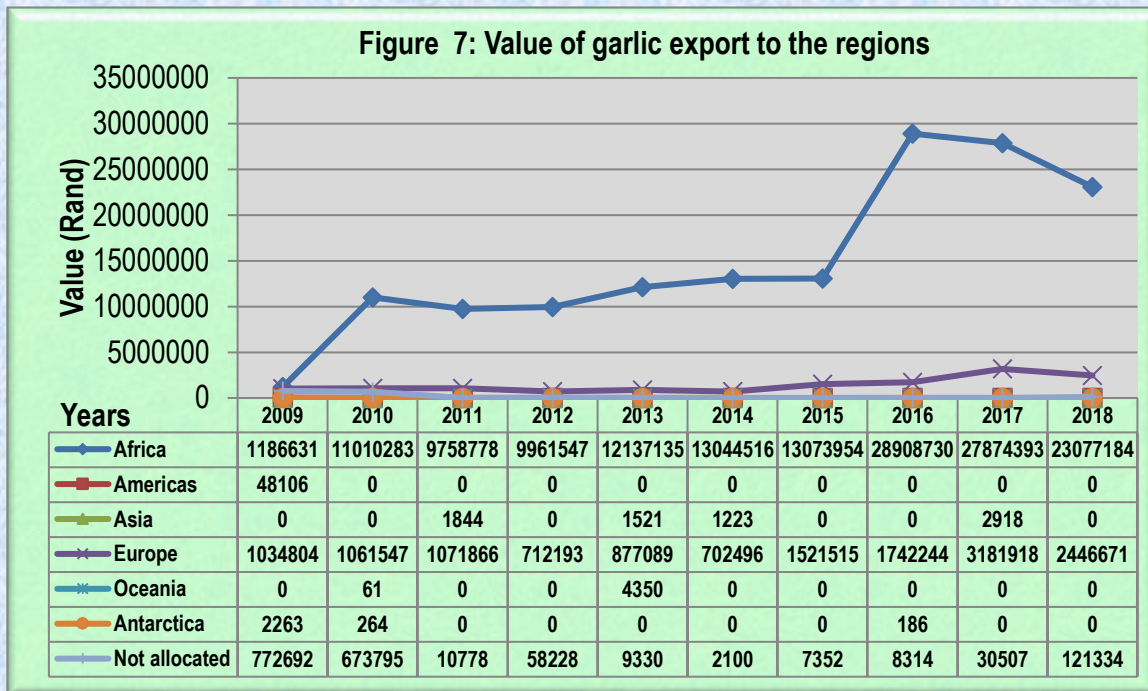


Source: Quantec Easydata

It is clear that; African region was the primary export market for garlic originating from South Africa from 2009 to 2018 period. South Africa also exported considerable amounts of garlic to European countries (mainly Switzerland and Netherlands). In 2009, high quantities of garlic exports were not allocated to any region and during 2010, 2011 and 2014, unallocated exports have significantly decreased. Garlic exports to Asia, Oceania, Antarctica and Americas regions were insignificant. During 2010 and 2011, garlic was mainly exported to the African (Zimbabwe, Zambia, Angola, Mozambique and Malawi) and Europe regions (Belgium). During 2013, neighbouring African countries (Botswana, Namibia, Angola, Lesotho and Zimbabwe) continued to be the preferred market



for garlic exports from South Africa. South Africa also exported considerable garlic to Oceania (Papua New Guinea) and European (Switzerland and Netherlands) region. At the same time a notable volume was exported to Oceania region. In 2014 Africa and Europe remained the most preferred export markets for garlic originating from South Africa. South Africa export to Africa region has dropped by 22.4% during 2015, while the exports to Europe region have increased by 84.5% in comparison to 2014 exports. Africa region is still the largest recipient of South Africa's garlic exports and during 2016, the export to this region grew by 19.7% when compared to 2015 exports. At the same time, garlic export destined to Europe region has increased by 17%. In 2017, Africa region has continued to be the primary export market for garlic export originating from South Africa, however the export volume has eased lower by 10%. In the same year, there was a notable increment in garlic exports destined to Europe region, garlic export to Asia was trivial whilst there unallocated garlic export rose by 139% relative to 2016. As of 2018, Africa region was still by far the primary export market for garlic exported from South Africa and approximately 90% of garlic was exported to this region. At the same time, a notable volume was exported to Europe region and there was also an increase in unallocated garlic export.

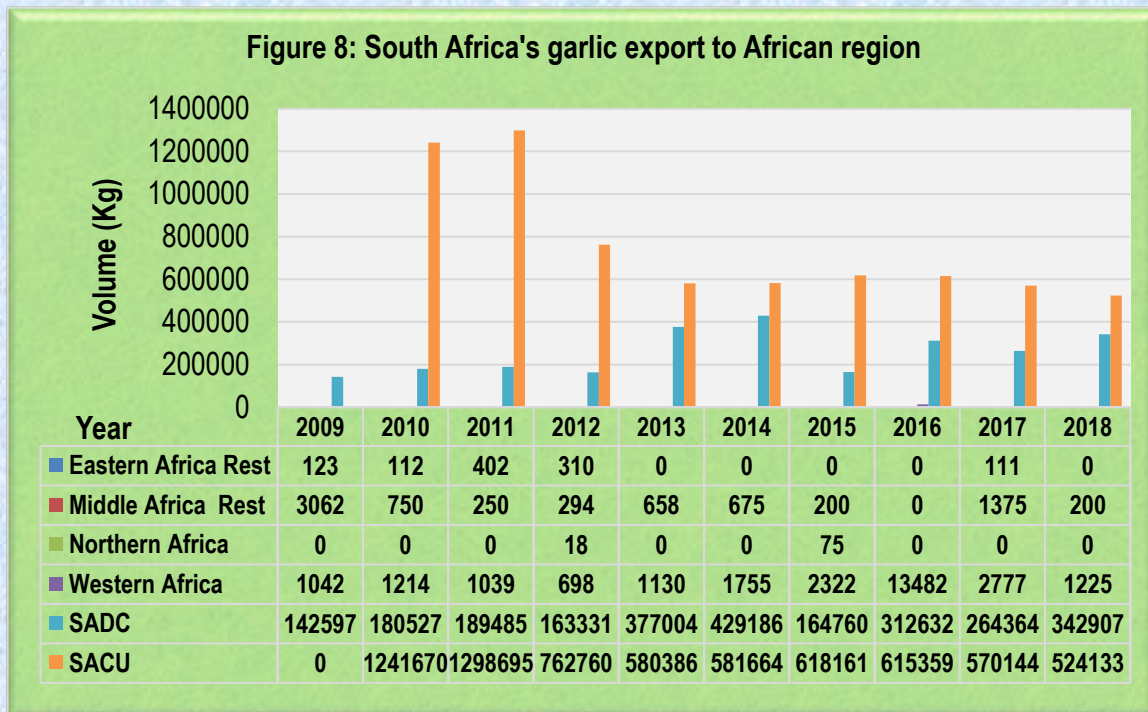


Source: Quantec Easydata

Figure 7 above illustrates the values of garlic exports to the regions. It was more profitable to export garlic to Europe than African region since high values were recorded for fewer volumes exported. High export values were recorded in 2009 for the European region and in 2011 for the African region. The export values for Asia and Americas regions were insignificant. Significant export value was recorded in 2009 for the Americas region. During 2012, it was still more profitable to export garlic to the European region. During 2013, it was still more profitable to export garlic to European region and unallocated exports had high value. It was less profitable to export garlic to Africa and Asia regions. In 2014, Asia was the most profitable market, followed by Europe, while Africa was still the less profitable market for garlic from South Africa. In 2015 and 2016, Europe was still by far the most profitable market and garlic export destined to Africa region had a lower export value, whilst Antarctica export value was insignificant. Europe has continued to be the most profitable market for

garlic exported from South Africa followed by Africa region, whilst unallocated exports had lesser value. As of 2018, Europe was by far the most profitable market for garlic originating from South Africa and exports to Africa region was less profitable.

Figure 8 below shows the volume of garlic exports destined to Africa region. SADC countries and SACU countries are the primary export markets for garlic originating from South Africa. A high volume of garlic was exported to SADC in 2009 and considerable exports were destined to Middle Africa and West Africa. High garlic volumes were exported to SACU region during 2010 and 2011. There was a notable increase in garlic volume exported to SADC region in 2013 and 2014. Garlic export to SACU countries (Botswana, Namibia and Lesotho) has increased while the export to SADC (Zimbabwe, Mozambique, Angola and Malawi) has notably dropped. At the same time, the garlic export destined to West Africa has also increased. In 2016, SADC and SACU countries are still the largest recipients of garlic from South Africa and exports to Western Africa has also notable increased. During 2017, SACU and SADC countries have remained the primary destinations for garlic exports from South Africa, while the export destined to West Africa, Middle Africa and Eastern Africa were less significant. As of 2018, SACU region has commanded more than 64% of garlic export destined for Africa region and export to SADC region increased by 29.7% relative to 2017 exports.

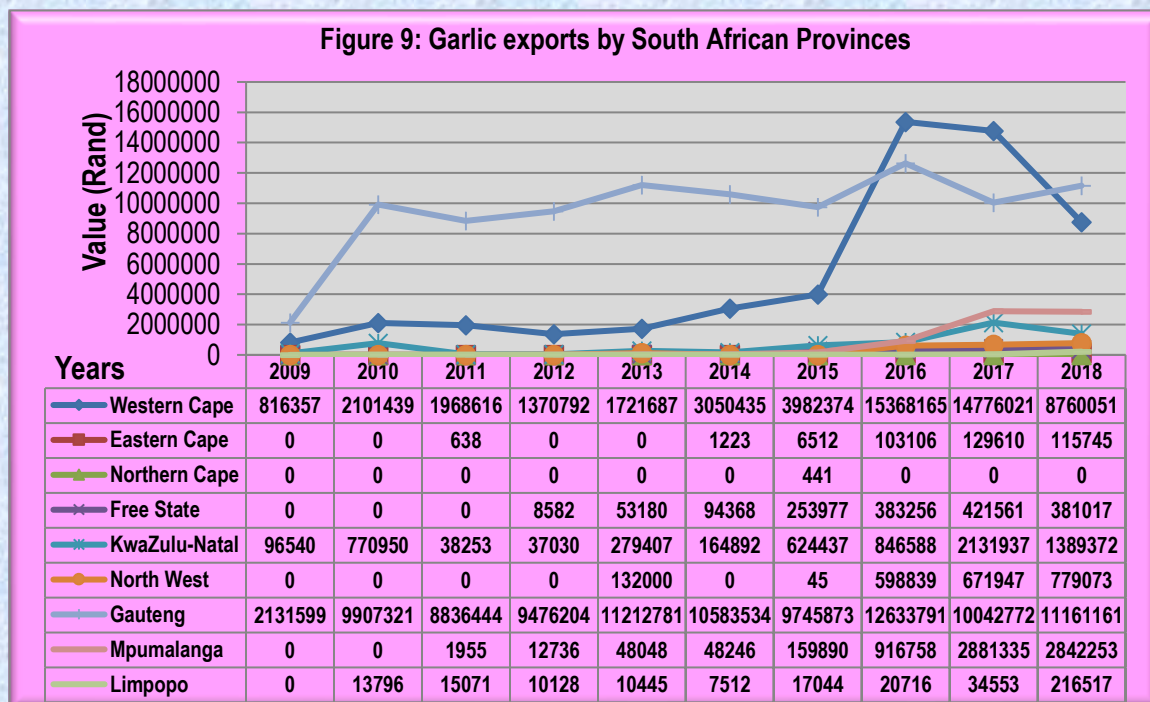


Source: Quantec Easydata

Figure 9 below illustrates the values of garlic exports by the various provinces of South Africa between 2009 and 2018. The key highlight of garlic exports was that the Western Cape and Gauteng, KwaZulu Natal, has contributed to the garlic exports to a lesser extent. Higher exports from these provinces can be attributed to exports exit points, the Cape Town Harbour, Durban Harbour and Freight Airport at OR Tambo International Airport. In 2010, Gauteng province has recorded the highest garlic export value, followed by Western Cape and KwaZulu Natal. In the same year, Limpopo province has recorded its first export value. In 2011, Eastern Cape Province contributed to South

African garlic exports for the first time in a 10 year period but the value was insignificant. In 2012, Free State and Mpumalanga provinces have notably contributed to South African garlic export. At the same time garlic exports values for Western Cape has dropped while Mpumalanga and Gauteng garlic export value have notably increased. During 2013, Western Cape, Gauteng and KwaZulu Natal continued to be major contributors to garlic exports from South Africa. In the same year North West, Mpumalanga and Free State have considerably increased their garlic export values. This can be attributed to the notable increase in garlic exports to Botswana and Lesotho. During 2014, Gauteng garlic export has notably dropped, whereas Free State, KwaZulu Natal, and Mpumalanga have significantly increased. There was a notable increase in garlic export value for Eastern Cape, Free State, KwaZulu Natal, Gauteng, Mpumalanga and Limpopo during 2015.

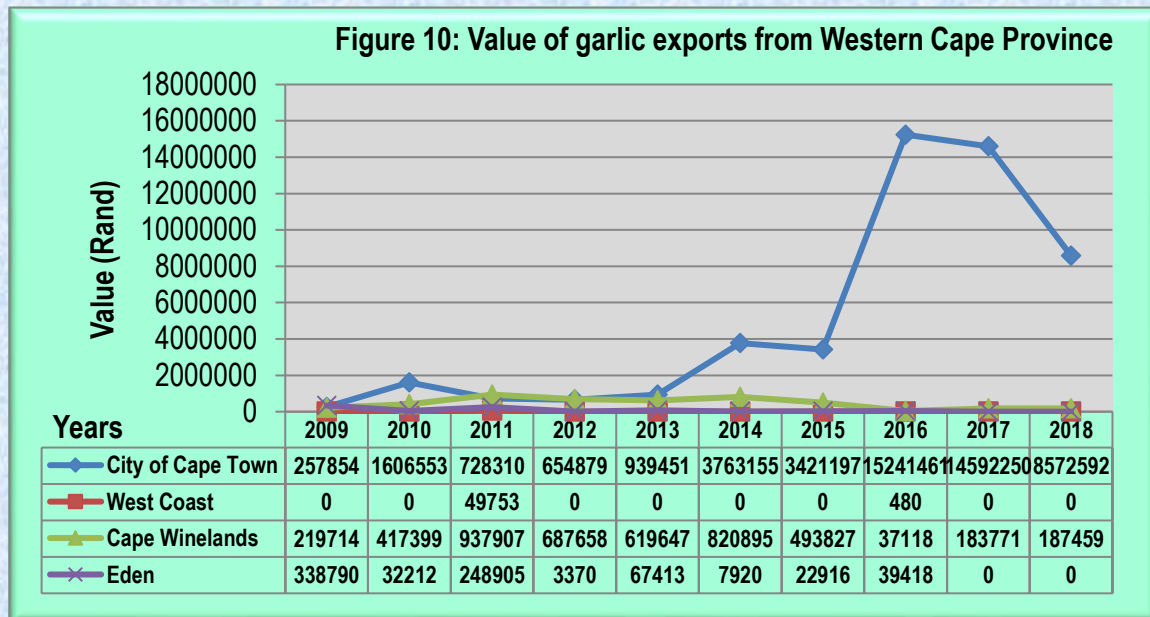
Notable increase garlic export values for Mpumalanga, Western Cape and Limpopo provinces can be attributed to increase in garlic export to the neighbouring countries with exit border situated in these provinces. In 2016, there were significant increases in Western Cape, Gauteng, KwaZulu Natal, North West, Eastern Cape and Free State provinces. High garlic values by these provinces can be ascribed to notable increase in garlic exports destined to Botswana, Lesotho, Mozambique and Zimbabwe. During 2017, Western Cape and Gauteng provinces have continued to be the primary exit points for South Africa's garlic exports; however, the export values have notably dropped relative to 2016 export values. In the same year, Eastern Cape, Free State, KwaZulu Natal, North West, Mpumalanga and Limpopo export values have experienced significant increments. As of 2018, Gauteng was the primary exit point for garlic exports originating from South Africa, followed by Western Cape, however the export value has notable dropped by 40% relative to 2017 export value. North West export value grew by 15.9% and this can be ascribed to 10% growth to the neighbouring Botswana. In the same year, Free State, KwaZulu Natal, Mpumalanga and Limpopo have experience decrements in export values. The following figures (Figure 10-15) shows the value of garlic exports from the various districts in the provinces of South Africa.



Source: Quantec Easydata

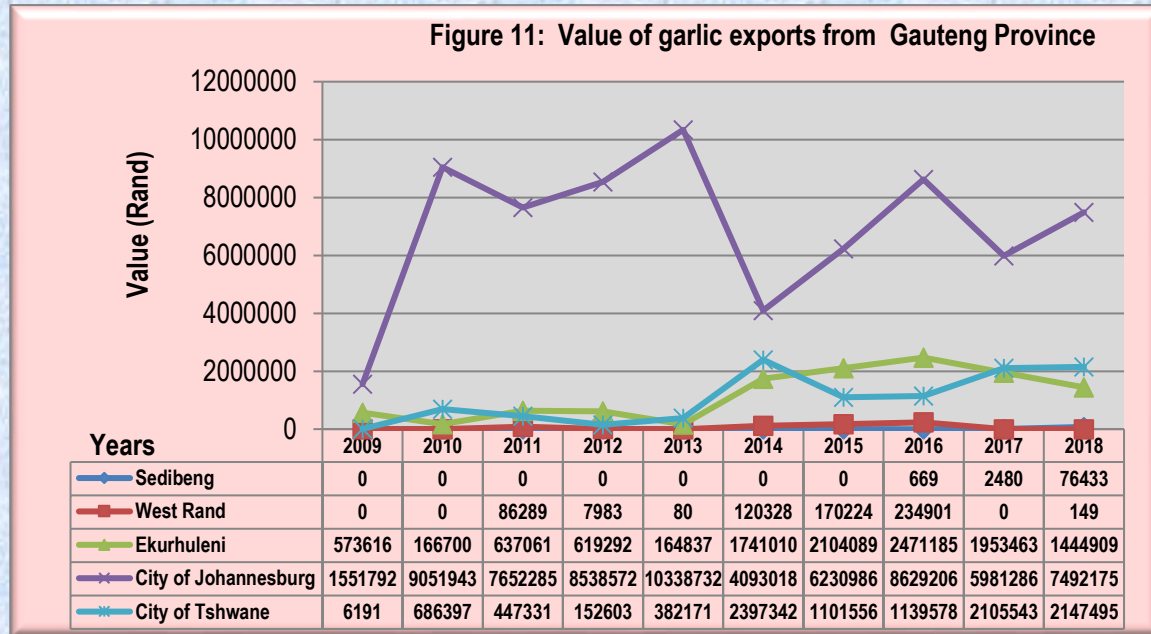
As can be seen from the below figure 10, garlic exports from Western Cape province were mainly from the City of Cape Town municipality, Cape Winelands and Eden district has contributed to a lesser extent. Higher exports from the City of Cape Town can be attributed to the Cape Town harbour, which renders an export exit point. The high export value was recorded in 2010 for the City of Cape Town. In 2009, Eden has contributed to Western Cape garlic export, while City of Cape Town and Cape Winelands export value have declined. During 2011, West Coast contributed for the first time to Western Cape garlic export, whereas Eden and Cape Winelands district garlic, exports have notably increased when compared to 2010 values. At the same time export, value for the value for the City of Cape Town has decreased significantly. In 2012, export values for the City of Cape, Cape Winelands and Eden have dropped.

During 2013, The City of Cape Town continued to lead in garlic exports from Western Cape and at the same time Cape Winelands export value has slightly dropped. Eden district has substantially increased its garlic export value. City of Cape Town has recorded the highest export value during 2014. Cape Winelands has also increased its export value, whereas Eden export value has significantly dropped. During 2015, there was a notable decline in garlic export values recorded for the City of Cape Town and Cape Winelands, while the Eden export value has notably increased. City of Cape Town garlic export value surged in 2016, while Cape Winelands garlic export value has significantly dropped when compared to 2015 export values. At the same time, Eden garlic export value increased slightly while West Coast has recorded a trivial export value. During 2017, City of Cape Town was still by far the primary exit point for Western Cape garlic export, however the export value eased lower by 4% relative to 2016 export value In the same year, Cape Winelands garlic export value was incomparably higher compared to 2016 value. As of 2018, City of Cape Town export value dropped further by 41%, whereas Cape Winelands export value increased by 2% relative to 2017 export.



Source: Quantec Easydata

Figure 11 illustrates the value of garlic exports from Gauteng province.

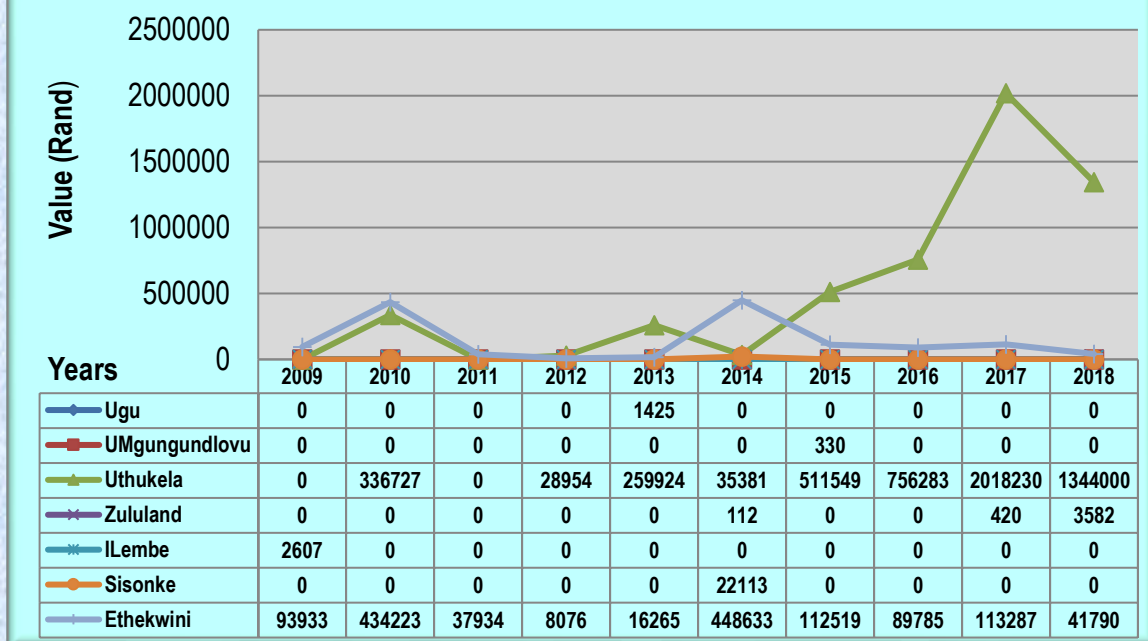


Source: Quantec Easydata

Figure 11 above shows that garlic exports from Gauteng province were mainly from the City of Johannesburg. In 2009, City of Johannesburg and Ekurhuleni were the primary exit points for Gauteng garlic exports OR Tambo International Airport serves as an exit point from these district municipalities. In 2010, City of Johannesburg has recorded a notable high garlic export value and City of Tshwane export value has notably increased. The high export value for Ekurhuleni was recorded in 2011 and West Rand contributed notably to Gauteng garlic export. In 2012, export values for West Rand, and City of Tshwane have significantly dropped when compared to 2011 export values. The highest export value for Gauteng province was recorded in 2013 and it was through the City of Johannesburg municipality.

In 2014, West Rand, Ekurhuleni and City of Tshwane garlic export values have substantially increased their export values when compared to the previous year. In the same year, City of Johannesburg export values have notably dropped. City of Johannesburg, Ekurhuleni and West Rand export values has notably increased in 2015, while the City of Tshwane export value has dropped when compared to the 2014 export values. During 2016, City of Johannesburg export value increased by 38%, City of Tshwane garlic export value has gone up by 3.4% and Ekurhuleni export value has gone up by 17% in comparison to 2015 export values. City of Johannesburg was still the main exit point for Gauteng garlic exports in 2017, however the export value notably eased lower by 34%. In the same year, Ekurhuleni export value has decreased by 20.9% whilst City of Tshwane export value has sharply increased by 85% relative to 2016 export value. As of 2018, City of Johannesburg export value has experienced a sharp increase of 25%, Ekurhuleni export value declined by 26%, whilst West Rand export value was incomparably higher relative to 2017 export value.

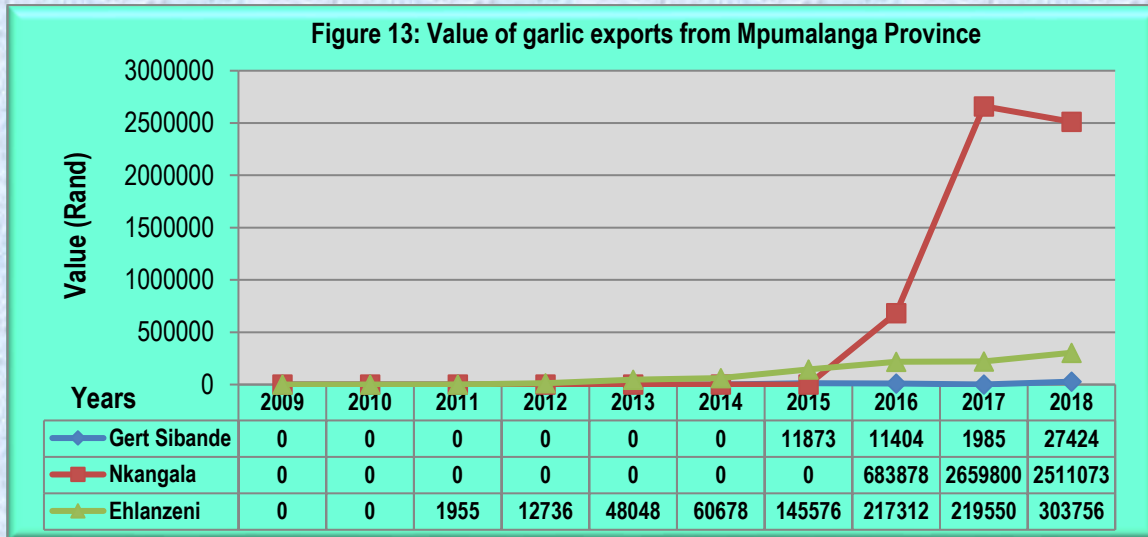
**Figure 12: Value of garlic export from KwaZulu Natal province**



Source: Quantec Easydata

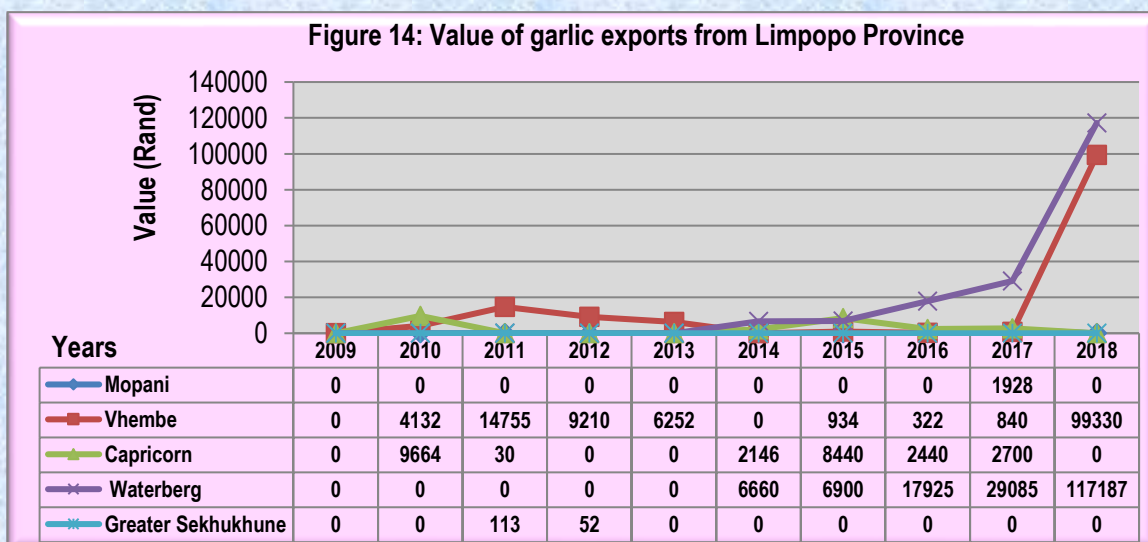
As can be seen from figure 12 above, garlic exports from the KwaZulu Natal province were mainly from the Ethekwini district municipality. High garlic exports at Ethekwini municipality can be attributed to the use of Durban harbour export exit point. ILembe district has contributed to KwaZulu Natal garlic export during 2009. The high export value was recorded in 2010 for Ethekwini and Uthukela. In 2011 garlic, export was only from Ethekwini district municipality and the export value has drastically dropped in comparison to 2010 export value. During 2012, Uthukela was a leading municipality in terms of garlic exports from KwaZulu Natal, while the exports by Ethekwini have significantly dropped in the same year. During 2013, Uthukela municipality was still the main contributor in garlic export from KwaZulu Natal province and in the same year, Ethekwini export value has notably increased.

During 2013, Ethekwini has recorded the highest export in the KwaZulu Natal province and export value for Uthukela has significantly dropped, when compared to the export value of the previous year. In the same year, Sisonke and Zululand contributed to KwaZulu Natal garlic exports for the first time in a ten year period but Zululand export value was insignificant. Uthukela district has contributed to KwaZulu Natal garlic export during 2015, while Ethekwini export value has significantly dropped by 74.8% when compared to 2014 figures. In 2016, Ethekwini garlic export value dropped further by 20.2%, whereas, Uthukela export value gone up to 47.8% when compared to the previous year exports. During 2017, Uthukela district was the primary exit point for KwaZulu Natal garlic exports, followed by Ethekwini and Zululand has recorded a trivial export value. As of 2018, Uthukela was still the primary exit point for KwaZulu Natal garlic export, however the export value was down by 33% and Ethekwini export value declined by 63%, when compared to 2017 export value.



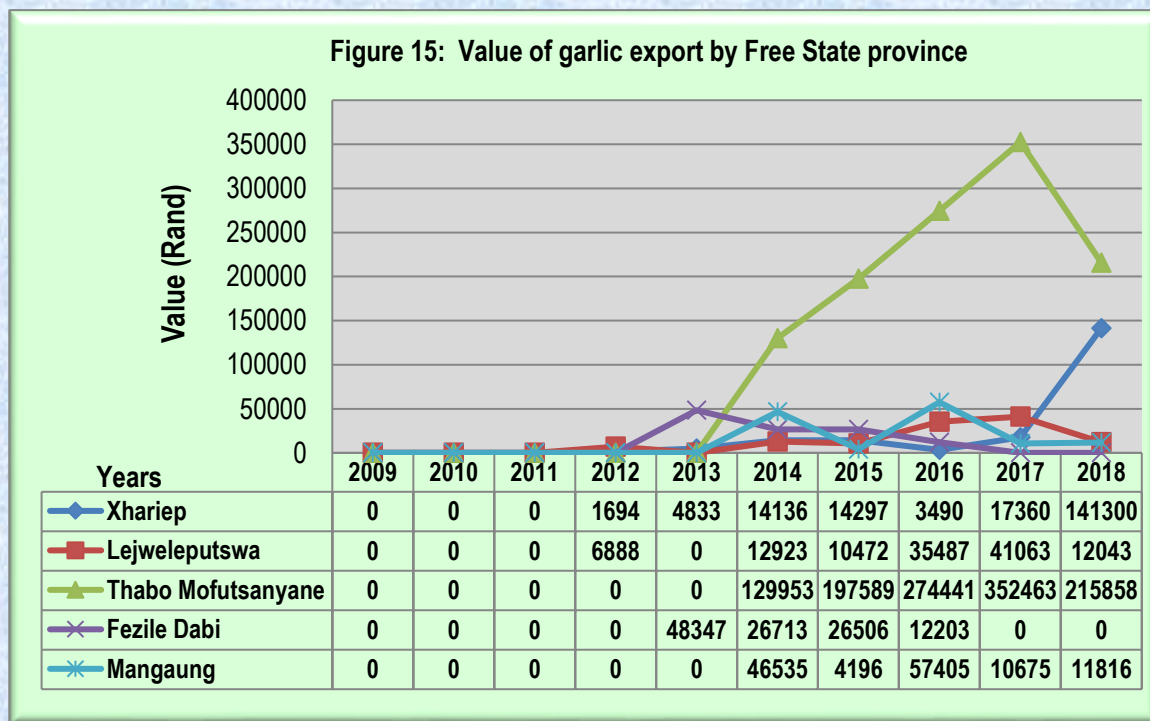
Source: Quantec Easydata

Figure 13 above shows that garlic exports from Mpumalanga province garlic export was mainly from Ehlanzeni district municipality. In 2009 to 2010, the province has recorded a zero trade for garlic. In 2012, the province has recorded a notable export value. During 2013, Ehlanzeni export value was incomparably higher, when compared to the 2011 export value. In 2014, Ehlanzeni garlic export value has gone up by 26% in comparison to 2013 export value and the export was a record high for the Mpumalanga province. Ehlanzeni export value has surged during 2015 and Gert Sibande has contributed for the first time to Mpumalanga garlic export. High garlic export value can be attributed to export destined to the neighbouring Eswatini. In 2016, Nkangala has significantly contributed to Mpumalanga garlic exports, Ehlanzeni garlic export increased by 49% whilst Gert Sibande export value has dropped by 3.9% in comparison to 2015 export values. During 2017, Nkangala has continued to contribute largely to Mpumalanga garlic export and Ehlanzeni export value has slightly increased by 1%, whilst Gert Sibande export value has drastically dropped by 82.5%. As of 2018, Nkangala export value decreased slightly by 5%, Ehlanzeni export value was up marginally by 38.5% and Gert Sibande has contributed significantly to Mpumalanga export value.



Source: Quantec Easydata

Figure 14 above illustrates that garlic export from Limpopo province was mainly from Vhembe district. In 2009, Limpopo province has recorded a zero garlic trade. During 2010, the province exported garlic through Vhembe and Capricorn districts. In 2011, Vhembe export value has gone up, whereas Capricorn and Greater Sekhukhune export values were insignificant. In 2012 and 2013, export value for Vhembe has notably dropped. During 2014, Limpopo province has exported garlic through Capricorn and Waterberg districts. In 2015, Capricorn and Waterberg district has recorded an increment in garlic export values in comparison to 2014 values. During 2016, Waterberg garlic export surged, Capricorn garlic export value has notably dropped by 71%, while Vhembe has recorded a trivial export value. In 2017, Waterberg district was the main exit point for Limpopo garlic exports and the export value has increased by 62%. In the same year, Mopani has contributed for the first time to Limpopo garlic export and Capricorn export value has increased by 12%. During 2018, Waterberg and Vhembe districts were the primary exit points and the export values were incomparably higher when compared to 2017 export values.



Source: Quantec Easydata

Figure 15 above shows Free State garlic exports during a ten-year period. From 2009 to 2011, the province has recorded a zero trade for garlic. In 2012, Free State province exported garlic through Xhariep and Lejweleputswa district municipalities. During 2013, high export value was recorded for Fezile Dabi while Xhariep export value was less significant. In 2014, Thabo Mofutsanyane has recorded the highest value for garlic exports value from Free State. In the same year, garlic was also exported through Mangaung, Fezile Dabi and Xhariep. During 2015, Thabo Mofutsanyane has recorded a 52% increment in garlic export value, while Mangaung export value has notably dropped. Thabo Mofutsanyane continued to lead in Free State provincial garlic export and in 2016, the export value has increased by 38.8%. In the same year, Mangaung and Lejweleputswa have also increased their garlic export values while Xhariep and Fezile Dabi export values have experienced a notable decrement. During 2017, Thabo Mofutsanyane was still the primary exit point for garlic export from Free State province and the export value has gone up by 28%. At the same time, Xhariep,



Lejweleputswa export values have increased whilst Mangaung district has experienced a notable decline. As of 2018, Lejweleputswa was still the main exit point for Free State garlic exports, however the export value fell marginally by 70%, Thabo Mofutsanyane export value dropped by 38%, Mangaung export value rose by 10%, whereas Xhariep export value was incomparably higher when compared to 2017 export value.

### 2.3 Share analysis

Table 2 below illustrates the provincial shares of garlic exports total South African garlic exports for the past ten years. The trend indicates that Gauteng, followed by Western Cape provinces have commanded the greatest share of garlic exports originating from South Africa during the period under review. North West, Limpopo and Northern Cape also produce garlic, but their export share is less significant because the province's lack marketing infrastructure, registered exporters and Agro logistics. The Western Cape, Gauteng and KwaZulu Natal provinces have an advantage of being located near exit points and the registered exporters are based in these provinces. In 2010, Western Cape province has commanded 16.13% share and Gauteng accounted for 77.71% share of South Africa garlic exports. In 2011, Gauteng province has gained garlic exports share, while Western Cape and KwaZulu Natal have lost in garlic export shares compared to previous year. During 2012, Gauteng continued to increase its share to 86.83%, while the Western Cape province dropped its export share to 12.48%. In 2013, North West province commanded 1.01% of South Africa's provincial garlic exports shares for the first time during the 10 year period.

During 2014, garlic export share for KwaZulu Natal, Western Cape and Free State have increased whereas, Gauteng export share has dropped to 60.74% share. The increased share for Free State, Mpumalanga and North West, can be attributed to increased garlic exports to Lesotho, Swaziland and Botswana. In 2015, Gauteng export share has increased to 65.79%, KwaZulu Natal has recorded 4.28%, while Western Cape export share has dropped to 26.97%. In the same year, there were slight increment in Eastern Cape, Free State, Mpumalanga and Limpopo export shares. Western Cape increased notably its garlic export share to 49.97% during 2016, whereas Gauteng garlic export share has significantly dropped to 40.69%. At the same time, North West and Mpumalanga province has experienced notable gains in their garlic export shares, whilst Free State KwaZulu Natal has experience decrement in garlic export shares. In 2017, Western Cape has commanded 47.53%, Gauteng export share has dropped to 32.30%, KwaZulu Natal export has gone up to 6.86% and Mpumalanga has commanded 9.27% of garlic export share. As of 2018, Gauteng was in the lead in South Africa's garlic export and it has commanded 43.52%, Western Cape export share declined to 34.16%, Mpumalanga export share increased slightly to 11.08% and KwaZulu Natal has recorded 5.42% share.

**Table 2: Share of provincial garlic exports to the total RSA garlic exports (%)**

Year Provinces	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Western Cape</b>	26.81	16.13	18.12	12.56	12.79	21.87	26.93	49.78	47.53	34.16
<b>Eastern Cape</b>	0	0	0.01	0	0	0.01	0.04	0.33	0.42	0.45
<b>Free State</b>	0	0	0	0.08	0.40	0.68	1.72	1.24	1.36	1.49
<b>KwaZulu-Natal</b>	3.17	6.05	0.35	0.35	2.13	3.68	4.28	2.76	6.86	5.42
<b>North West</b>	0	0	0.00	0	1.01	0	0	1.95	2.16	3.04
<b>Gauteng</b>	70.01	77.71	81.37	86.83	83.55	60.74	65.79	40.69	32.30	43.52

Year Provinces	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mpumalanga	0	0	0.02	0.12	0.37	0.44	1.08	2.98	9.27	11.08
Limpopo	0	0.11	0.14	0.09	0.05	0.06	0.11	0.07	0.11	0.84
RSA	100	100	100	100	100	100	100	100	100	100

Source: Calculated from Quantec Easydata

**Table 3: Share of district garlic exports to the total Western Cape provincial garlic exports (%)**

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
City of Cape Town	31.59	78.13	37.07	48.66	57.76	81.95	86.88	99.50	98.76	97.86
West Coast	0	0	2.53	0	0	0	0	0	0	0
Cape Winelands	26.91	20.30	47.73	51.09	38.10	17.88	12.54	0.24	1.24	2.14
Eden	41.50	1.57	12.67	0.25	4.14	0.17	0.58	0.26	0	0
Western Cape	100	100	100	100	100	100	100	100	100	100

Source: Calculated from Quantec Easydata

Table 3 above indicates that the City of Cape Town and Cape Winelands have commanded the greatest share of garlic exports from Western Cape province. In 2009, Eden commanded the highest share of 41.50% and Cape Winelands export share has dropped from 33.59% to 26.91%. In 2011, the City of Cape Town commanded 37.07%, which was a significant drop in export share compared to 78.13% share in 2010, whereas Cape Winelands share has gone up to 47.73%. This was a significant gain in export share as in 2010, the Cape Winelands has commanded 20.30% share. In the same year, West Coast contributed to Western Cape province garlic export share, but the share was less significant. During 2012, City of Cape Town and Cape Winelands increased their export share while Eden export share has dropped from 12.67% to 0.25% share.

During 2013, City of Cape Town contributed 57.76% share of garlic export from Western Cape and Cape Winelands has commanded 38.10% export share. At the same time the export share for Eden has slightly increased its export share. In 2014, City of Cape Town export share has notably increased from 57.76% to 81.95% share whereas Cape Winelands export share has dropped to 17.88%. During 2015, City of Cape Town has continued to command high export values, while Cape Winelands export has decreased to 12.54%. Cape Town harbour renders an exit point for garlic exports from Western Cape province. City of Cape Town has advanced its garlic export share and in 2016, it has recorded 99.50% share of Western Cape garlic export whereas Cape Winelands export share decreased from 12.54% to 0.24%. During 2017, City of Cape Town has continued to lead in Western Cape garlic export share by commanding 98.76% share and Cape Winelands has increased slightly to 1.24% share. In 2018, City of Cape Town garlic export share declined slightly to 97.86% and Cape Winelands has commanded 2.14% share of exports.

**Table 4: Share of district garlic exports to the total KwaZulu Natal provincial garlic exports (%)**

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ugu	0	0	0	0	0.51	0	0	0	0	0
UMgungundlovu	0	0	0	0	0	0	0.1	0	0	0
Uthukela	0	43.68	0	78.19	93.63	6.99	81.93	89.39	94.67	96.7

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Zululand	0	0	0	0	0	0.02	0	0	0.02	0.26
ILembe	2.70	0	0	0	0	0	0	0	0	0
Sisonke	0	0	0	0	0	4.37	0	0	0	0
Ethekwini	97.30	56.32	100	21.81	5.86	88.62	18.02	10.61	5.31	3.00
KwaZulu Natal	100	100	100	100	100	100	100	100	100	100

Source: Calculated from Quantec Easydata

Table 4 shows that Ethekwini district commanded the greatest share of garlic exports from KwaZulu the Natal province. In 2010, Uthukela has commanded 43.68% share, whereas Ethekwini export share has dropped from 97.30% to 56.32% share of KwaZulu Natal garlic export. In 2011, Ethekwini has commanded 100% share of garlic export value exported in KwaZulu Natal province. During 2012, Uthukela commanded a 78.19% share of garlic export value while the Ethekwini export share has dropped significantly when compared to the 100% share it commanded in 2011. In 2013, Uthukela continued to lead in garlic exports by commanding 93.63% of garlic originating from KwaZulu Natal and Ethekwini export share has dropped further to 5.86% during the same year. Ethekwini garlic export share has significantly increased to 88.61%, while Uthukela export share has dropped to 7%. During 2015, Uthukela has recorded the highest export share of 81.93%, while Ethekwini export share has experienced a sharp decline from 88.61% to 18.02%. Uthukela has advanced its garlic export share to 89.39% whereas, Ethekwini export share has dropped further to 10.61% in comparison to 2015 export share. During 2017, Uthukela has increased further its garlic export share by commanding 94.67% and Ethekwini export share eased lower to 5.31% share. In 2018, Uthukela was still in the lead in KwaZulu Natal export share and it has commanded 96.7% and Ethekwini has registered a 3% share of garlic export.

**Table 5: Share of district garlic exports to the total Gauteng provincial garlic exports (%)**

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
West Rand	0	0	0.98	0.09	0	1.44	1.77	1.88	0	0
Ekurhuleni	26.91	1.68	6.95	6.65	1.50	20.02	21.90	19.81	19.46	13.04
City of Johannesburg	72.80	91.39	87.00	91.63	94.99	49.83	64.86	69.17	59.57	67.59
City of Tshwane	0.29	6.93	5.07	1.64	3.51	28.70	11.46	9.13	20.97	19.37
Gauteng	100	100	100	100	100	100	100	100	100	100

Source: Calculated from Quantec Easydata

Table 5 shows that the City of Johannesburg has commanded the greatest share of garlic exports from Gauteng province. City of Johannesburg export share has notably increased from 72.80% to 91.39% share during 2010. In 2011, City of Johannesburg commanded 87% and Ekurhuleni district commanded a 6.95% share of garlic by Gauteng province. During 2012, City of Johannesburg increased their export shares to 91.63%, while the City of Tshwane has dropped its export share from 5.07% to 1.64% in the same period. OR Tambo International Airport renders the exit point of garlic exports from Gauteng province. During 2013, City of Johannesburg continued to command high export share of 94.99% and City of Tshwane export share has slightly increased when compared to the previous year export shares. In 2014, Ekurhuleni and City of Tshwane has notably increased

its export shares to 20.02% and 28.70% respectively. At the same time, West Rand has notably increased its garlic export share while Sedibeng has commanded its first export share for the first time in a 10 year period. In 2015, City of Johannesburg export share has gone up to 64.86%, followed by Ekurhuleni with 21.90% export share and the City of Tshwane export share has declined to 11.46%. City of Johannesburg continued to lead in Gauteng garlic export share by recording 69.17% share, Ekurhuleni and City of Tshwane export shares have slightly dropped to 19.81% and 9.13% respectively. During 2017, City of Tshwane garlic export share has notably increased from 9.13% to 20.97%, whilst City of Johannesburg export share eased lower from 69.17% to 59.57% share. As of 2018, City of Johannesburg export share rose to 67.59%, City of Tshwane has commanded 19.37% and Ekurhuleni has recorded 13.04% share.

**Table 6: Share of district garlic exports to the total Free State provincial garlic exports (%)**

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Xhariep	0	0	0	19.74	9.09	6.14	5.65	0.91	4.12	37.08
Lejweleputswa	0	0	0	80.26	0	0	4.14	9.26	9.74	3.16
Thabo Mofutsanyane	0	0	0	0	0	56.44	78.08	71.65	83.61	56.65
Fezile Dabi	0	0	0	0	90.91	11.60	10.47	3.19	0	0
Mangaung	0	0	0	0	0	25.82	1.66	14.99	2.53	3.10
<b>Free State</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Calculated from Quantec Easydata

Table 6 shows that from 2009 to 2011, Free State province has recorded a zero trade for garlic. In 2012, Lejweleputswa has commanded 80.26% and Xhariep has commanded 19.74% share of garlic exports. During 2013, Fezile Dabi was to be a leading municipality by commanding 90.91% share of garlic exports from Free State province. During 2014, Thabo Mofutsanyane has commanded 56.44%, followed by Mangaung district with 25.82%, Fezile Dabi with 11.60% and Xhariep with 6.14% share of Free State garlic export share. In 2015, Thabo Mofutsanyane export share has increased to 78.08%, Lejweleputswa export share has increased to 4.14% while Mangaung export share has notably dropped to 1.66% Thabo Mofutsanyane export share dropped to 71.65% during 2016, while there was a notable increase in Mangaung and Lejweleputswa garlic export values. Thabo Mofutsanyane has advanced its garlic export share to 83.61%, Xhariep export share increased from 0.91% to 4.12%, whereas Mangaung export share dropped to 2.53% share. As of 2018, Thabo Mofutsanyane export share declined to 56.65%, Xhariep commanded a 37.08% share, whilst Lejweleputswa export share dropped to 3.16%.

**Table 7: Share of district garlic exports to the total Limpopo provincial garlic exports (%)**

Year District	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Vhembe	0	29.95	99.00	99.44	100	0	5.74	1.56	5.58	45.88
Capricorn	0	70.05	0.20	0	0	24.37	51.86	11.79	7.81	0
Waterberg	0	0	0	0	0	75.63	42.40	86.65	84.18	54.12
Greater Sekhukhune	0	0	0.76	0.60	0	0	0	0	0	0
<b>Limpopo</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

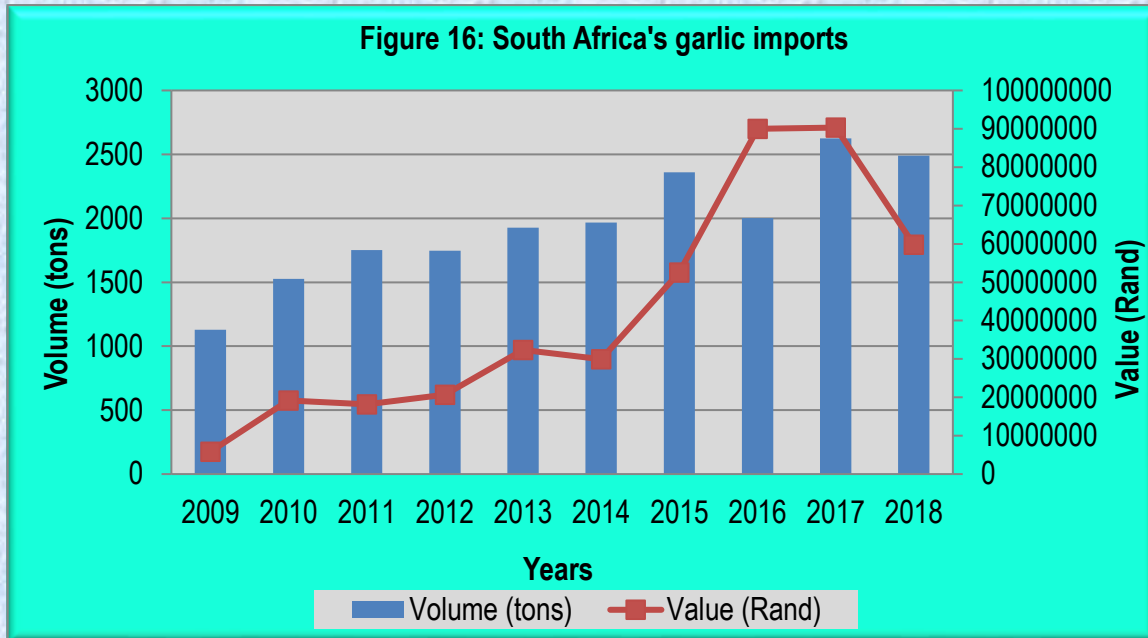
Source: Calculated from Quantec Easydata

Table 7 above indicates Limpopo provincial garlic export share in a ten year period. Capricorn district has commanded highest garlic export share of 70.05% and Vhembe has commanded 29.95% share during 2010. During 2011, Vhembe has commanded the greatest share of 99%, whereas Greater Sekhukhune export share was insignificant. During 2012, Vhembe continued to lead in garlic export share and in 2013, it commanded 100% share of garlic exports from Limpopo province. In 2014, Waterberg commanded a 75.63% share and Capricorn has commanded 24.37% of Limpopo garlic export share. Capricorn export share has increased to 51.86% during 2015, while Waterberg export share has declined to 42.40%. In 2016, Waterberg garlic export share has increased to 86.65% whilst Capricorn garlic export share has notably dropped from 51.86% to 11.79%. Waterberg continued to lead in Limpopo garlic export share by recording 84.18% share, Vhembe garlic export has increased from 1.56% to 5.58%, whereas Capricorn export share dropped to 7.81% share. As of 2018, Waterberg garlic export share declined notably to 54.12%, whereas Vhembe export share increased sharply to 45.88%.

#### **2.4 South African garlic imports**

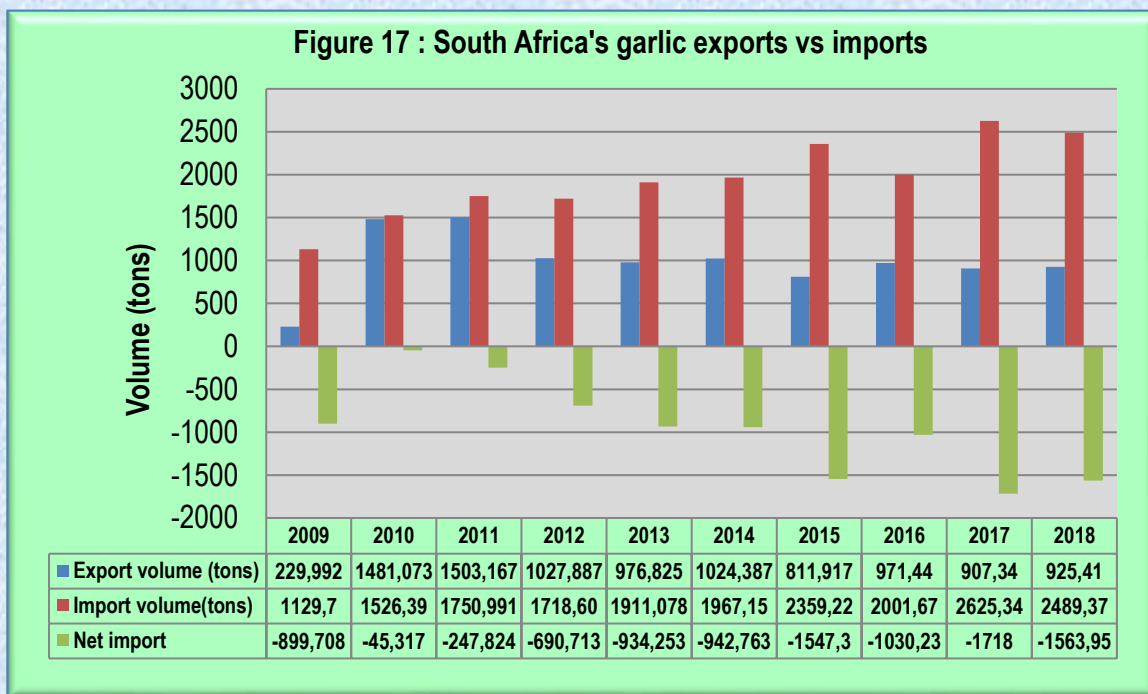
South Africa is not a major garlic importer and its garlic imports still represents 0.2% of world imports in 2018, and its ranking is still changed to 49 in the world. During 2018, Spain with 63.7% of import share was still the primary supplier of South Africa garlic import, India was in the second place and it has accounted for 15.7% share of garlic imports. Italy, Argentina, Viet Nam, Egypt and China have supplied South Africa with garlic to a lesser extent. Globally, Indonesia is the biggest garlic importer, followed by Viet Nam, Brazil, United States of America, Malaysia and Germany. Figure 16 illustrates garlic imports by South Africa over a period of 10 years.

In 2009, South Africa garlic import was a record low of 1 129 tons. As of 2010, there was a 35% increase in garlic import, despite 20% increment in domestic production output. In 2011, import volume has gone up by 14.7% and despite to 16% increase in domestic garlic output. From 2010 to 2012, it was more expensive to import garlic since high values were recorded for volumes imported. During 2012, garlic import has slightly by 0.3%, in spite of a 7% decline in the domestic garlic output. In 2013, garlic import increased by 10.3%, when compared to 2012 garlic imports and it was also more expensive to import garlic in the same year. South Africa's garlic imports have gone up by 2% despite 1% increment in the domestic production output during 2014. There was a notable 19% increase in South Africa garlic import in 2015, despite 12% increase in domestic garlic production output. During the same year, it was more expensive to import garlic, in comparison to 2014 import. In 2016, there was a 15% decrement in South Africa's garlic imports despite 16.5% drop in the domestic production output. It was also notably more expensive to import garlic in comparison to other years. During 2017, South Africa's garlic imports grew notably by 31% relative to 2016 imports, despite a 4.6% increment in domestic garlic production output. It was also cheaper to import garlic in comparison to 2016 imports. As of 2018, South Africa garlic import volume fell by 5% and it was relatively cheaper to import garlic when compared to 2017 import value.



Source: Quantec Easydata

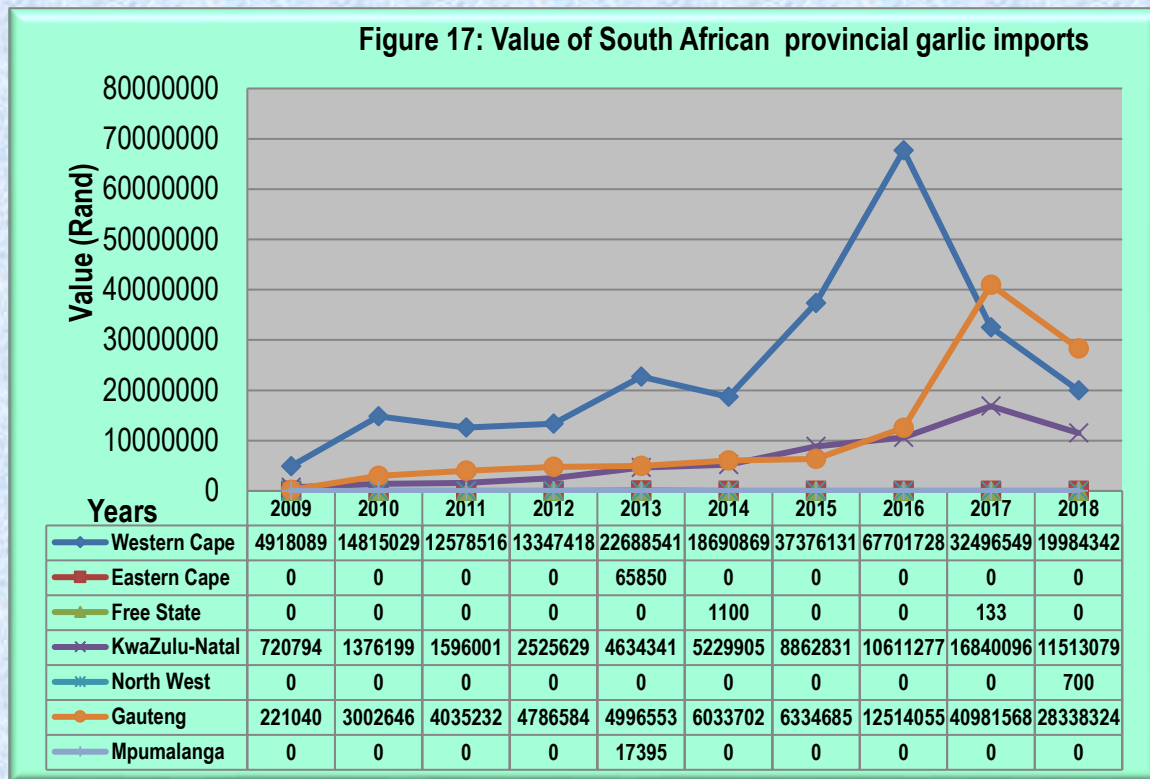
Figure 17 illustrates South Africa's garlic export and imports.



Source: Quantec Easydata

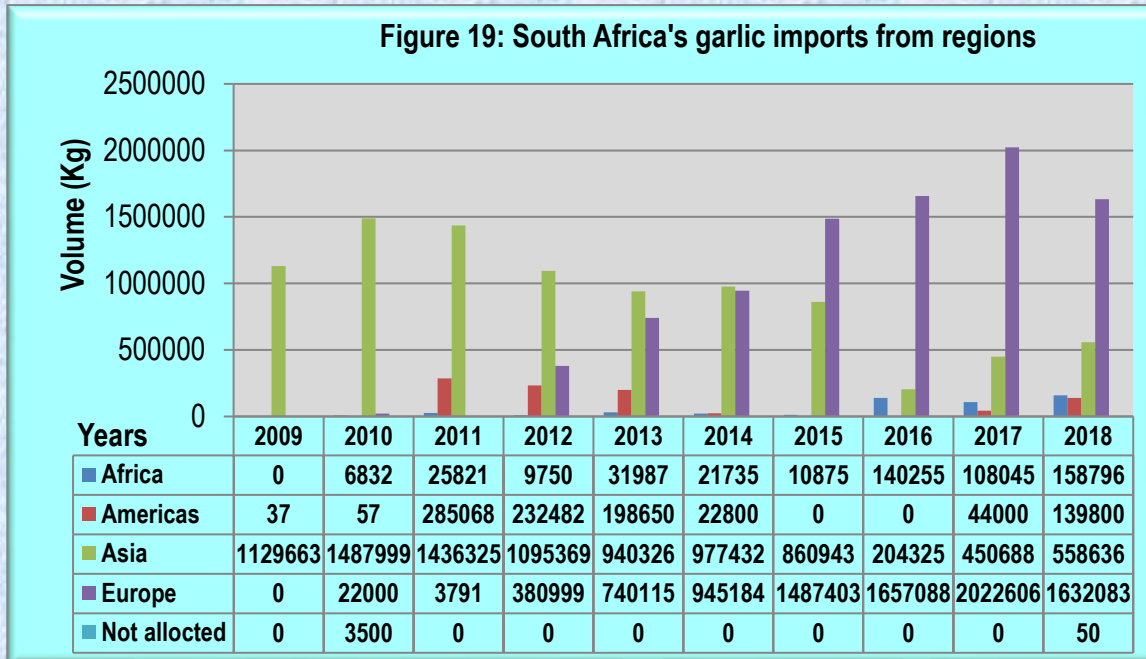
Figure 17 above compares volumes of exports and volumes of imports of garlic from 2009 to 2018. For the period under analysis, South African garlic exports were far less than imports except in 2010 and 2011 where the trade balance was low. This means that South Africa consumes more garlic that the country produces. As indicated in Figure 16, South Africa is a net garlic importer. Higher net imports were recorded in 2008, 2015 and 2016. During 2017, South Africa has recorded the highest net imports for garlic. As of 2018, South Africa net imports dropped by 8.9% relative to 2017 net

imports. Figure 16 also illustrates that when domestic output drops, garlic imports increases and this presents an opportunity for domestic producers, as demand is more than the current supply.



Source: Quantec Easydata

Figure 18 above illustrates South Africa's provincial garlic imports. South Africa imported garlic mainly through Western Cape, followed by Gauteng and KwaZulu Natal. In 2009, notable import values for garlic imports were recorded for Western Cape, KwaZulu Natal and Gauteng province. From 2010 to 2014, import values for Gauteng and KwaZulu Natal have steadily increased, whereas imports by Western Cape were unsteady and the highest import value were recorded in 2013. Mpumalanga recorded an import value in during 2013 and Free State has recorded an import value in 2014 but the value was insignificant. During 2015, Western Cape import value has surged, KwaZulu Natal and Gauteng import values has also increased, in comparison to 2014 import values. In 2016, Western Cape has continued to be the primary entry point for South Africa's garlic imports. KwaZulu Natal and Gauteng import values have also significantly increased. During 2017, Gauteng province was for the time in ten years a primary entry point for South Africa's garlic import, KwaZulu Natal import value has marginally increased by 58.6% whilst Western Cape garlic import value declined sharply by 52% relative to 2016 imports. As of 2018, Western Cape garlic import value has dropped by 38.5%, KwaZulu Natal import value declined by 31.6%, Gauteng import value dropped by 30.8% relative to 2017 import values whereas North West has recorded a trivial import value.



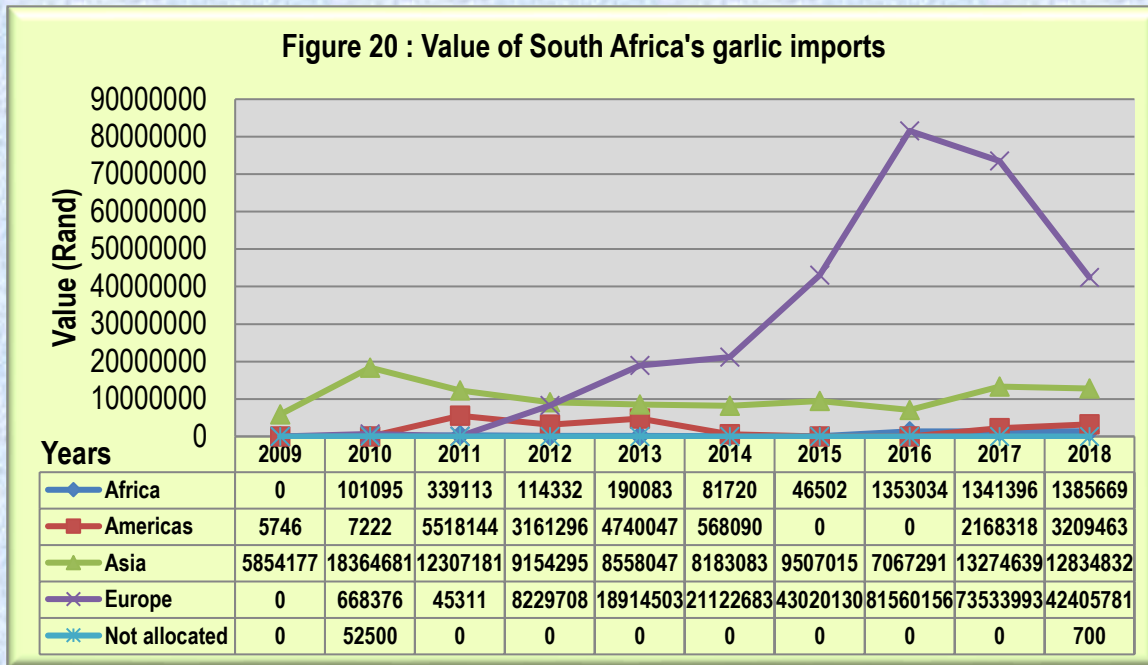
Source: Quantec Easydata

Figure 19 above indicates that garlic imports by South Africa originated mainly from Asia during the 10 year period. Top countries producing garlic are located in Asia and Americas regions. During 2009, there was no garlic import from the Europe and African regions and imports from Americas were insignificant. In 2011, South Africa's garlic imports were mainly from Asian, Americas and African regions. During 2012, South Africa sourced garlic mainly in Asia, followed Americas and Europe regions. In 2013, Asia continued to be the main supplier of garlic imports by South Africa, followed by Europe. At the same time imports from African region has notably increased while the imports from Americas region has slightly dropped when compared to 2012 garlic imports. South Africa's garlic imports were mainly sourced from Europe and Asia regions during 2014. A record high volume of garlic was sourced from Europe region during 2015, while import from Asia and Africa region has declined in comparison to 2014 import volumes. In 2016, Europe region was the main supplier of South Africa's garlic imports, whereas garlic imports from Asia region dropped notably by 76% in comparison to 2015 import volume. During the same year, Africa region imports increased to a record high volume imported from this region. In 2017, Europe region was still the primary supplier for South Africa's garlic imports and the import volume eased higher by 22%, there was also a surge in garlic import from Asia, America has also supplied a notable volume of garlic while imports from Africa region dropped by 22% relative to 2016 imports. As of 2018, Europe has continued to be the primary source of South Africa' garlic imports, however the import volume has declined by 19% relative to 2017 imports. In the same year, there was a 46.9% increase in garlic sourced from Africa region, imports from America have gone up by 21.7% and import from Asia was 23.9% more, when compared to the previous year (2017) imports.

Figure 20 below illustrates the value of garlic imports for various regions. It is generally more expensive to import garlic from Europe and Americas region. During 2013, it was cheaper to import garlic from African, followed by Asia. At the same time, it was more expensive to import from Europe and the Americas region. In 2014, it was by far more expensive to import garlic from Asia region followed by Europe region. During 2015, garlic imports from Europe region (Spain) were relatively more expensive, followed by Asia and garlic from Africa region was much cheaper. It was cheaper

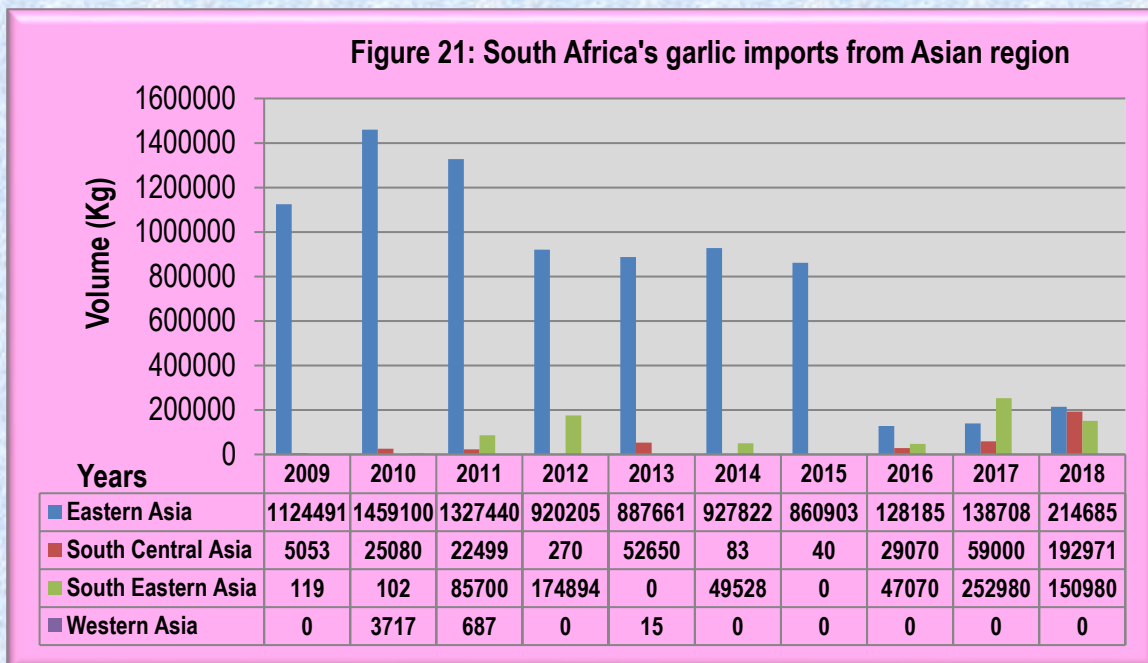


for South Africa to import garlic from Africa region, followed by Asia, while it was still expensive to import garlic from Europe region. During 2017, it was relatively more expensive to import garlic from America, followed by Europe and Asia, whereas garlic imports from Africa region was relatively cheaper. As of 2018, it was more expensive to import garlic from Europe, followed by Asia, America and it was cheaper to import garlic from Africa region.



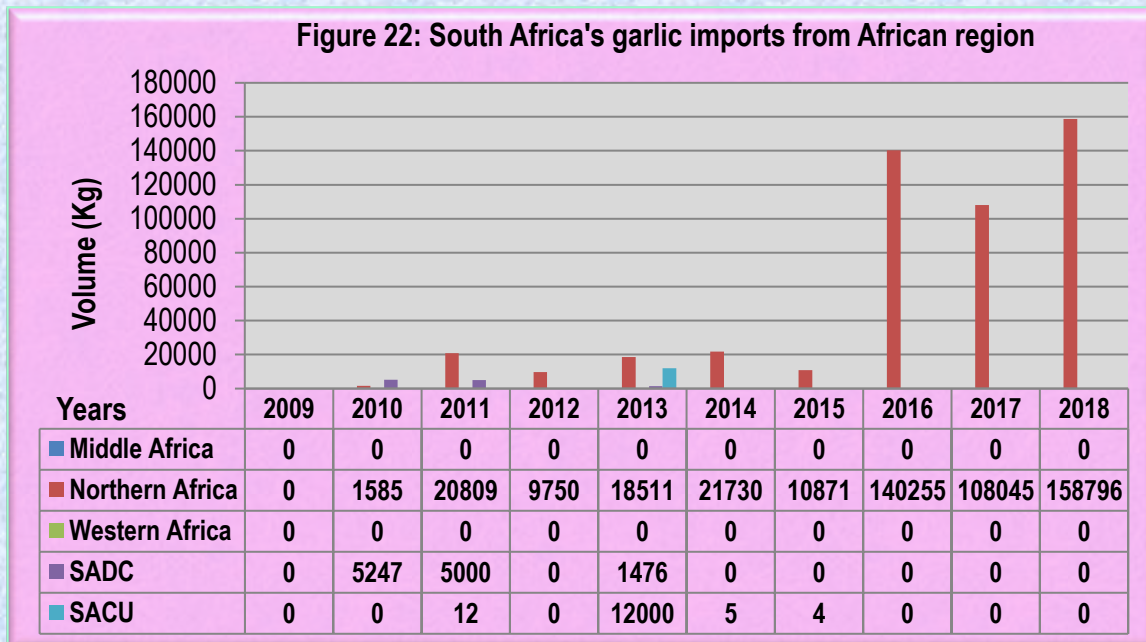
Source: Quantec Easydata

Figure 21 illustrates South Africa's garlic imports originating from the Asian region.



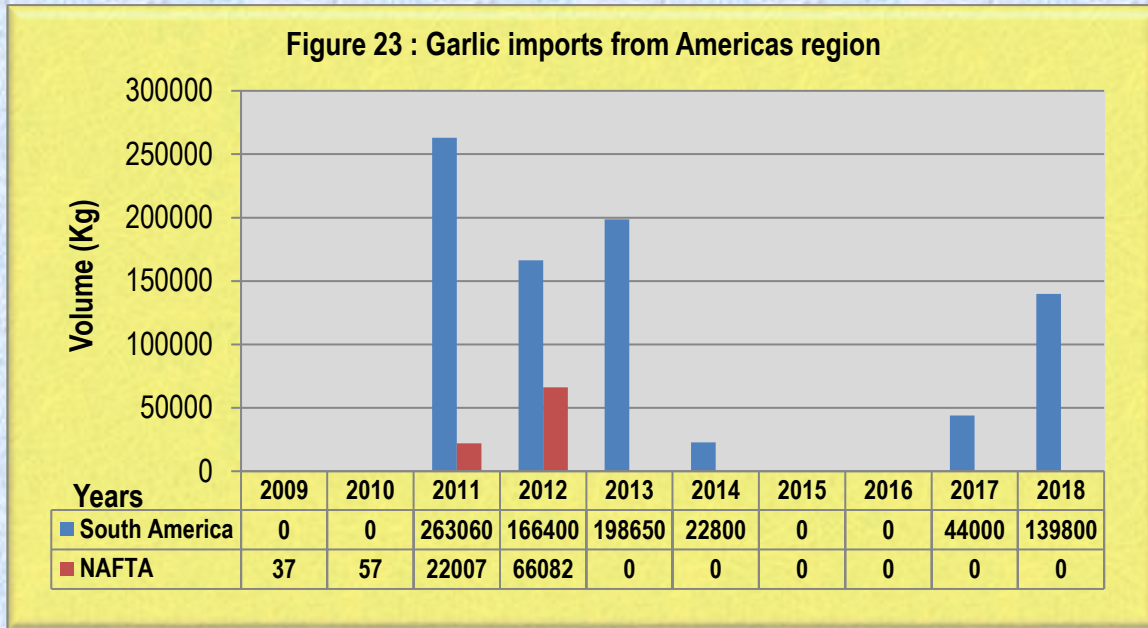
Source: Quantec Easydata

Figure 21 above shows that from the Asian region, South African garlic imports were sourced mainly from the Eastern Asia (China, Hong Kong, Taiwan, Republic of Korea and Japan). In South Central Asia, the imports originate from India, Pakistan and Sri Lanka and in South Eastern Asia from Indonesia, Malaysia, Singapore, Viet Nam and Thailand. In 2010 and 2011, South Africa imported small volumes of garlic from Western Asia (Israel). During 2012, there were no imports from Western Asia and the imports from South Central Asia were insignificant. During 2013, Eastern Asia (China) continued to supply high volume of garlic and South Eastern Asia (India) has increased its supply of garlic to South Africa. In the same year, garlic imports from Western Asia were less significant. In 2014, South Africa's garlic from Asia was sourced mainly from Eastern Asia (China) and South Eastern Asia (Malaysia and Vietnam). During 2015, Eastern Asia (China) was still the main source for garlic imported from South Africa. In 2016, from Asia region, South Africa has imported garlic from Eastern Asia, South Central Asia and South Eastern Asia. During 2017, South Eastern Asia (India) was the primary supplier of South Africa's garlic imports, followed by South Eastern Asia (China) and South Central Asia. As of 2018, South Africa's garlic import was mainly sourced from East Asia (India and China), South Central Asia and South Eastern Asia (Viet Nam and Cambodia).



Source: Quantec Easydata

Figure 22 above illustrates South African garlic imports from the African region in a 10 year period. In 2009, South Africa has recorded zero import trade in African region. In 2010 and 2011 South African garlic imports were sourced from the SADC countries (Zimbabwe and Mozambique) and in 2009 there were no garlic imports from the African region. Garlic imports from Middle Africa and Western Africa were insignificant. During 2012, South Africa imported garlic solely from the Northern Africa (Egypt). In 2013, South Africa garlic imports were sourced in Northern Africa, SACU and SADC countries. Northern Africa was the main supplier of South Africa's garlic imports in 2014 and 2015, while the import volumes from SACU were insignificant. In 2016, South Africa's garlic import was sourced solely from Northern Africa. Northern Africa (Egypt) was the only supplier of South Africa's garlic imports from Africa region during 2017. As of 2018, Northern Africa (Egypt) was still the sole supplier of garlic imports from Africa region.



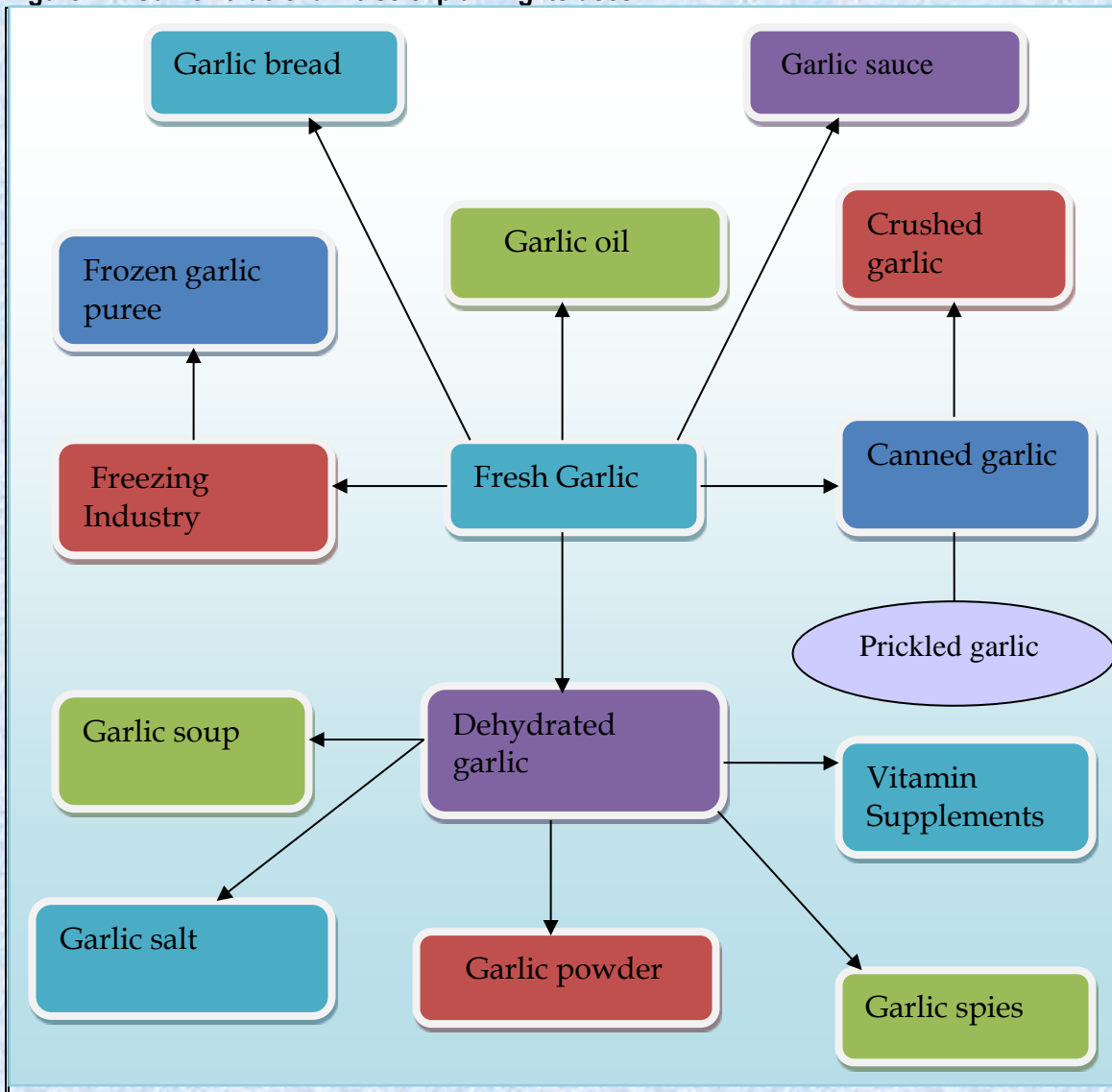
Source: Quantec Easydata

Figure 23 above shows that in the Americas region, South Africa imported garlic from South America (Argentina) and NAFTA (United States and Mexico). In 2009, there were no imports from South America. Notable garlic imports from NAFTA were insignificant except in 2011 and 2012. During 2012, South Africa imports were sourced mainly from Argentina, Mexico and United States. In 2013, South America (Argentina) continued to be the main supplier of garlic sourced from Americas region. During 2014, South Africa imported garlic from South America, but the import volume has substantially dropped in comparison to 2013 import volume. In 2015 and 2016, there was no garlic imports sourced from America region. During 2017, South Africa's garlic import was sourced from South America (Argentina). As of 2018, South America was still a sole supplier of South Africa's garlic imports and the import volume was incomparably higher when compared to the 2017 import value.

## 2.5 Processing

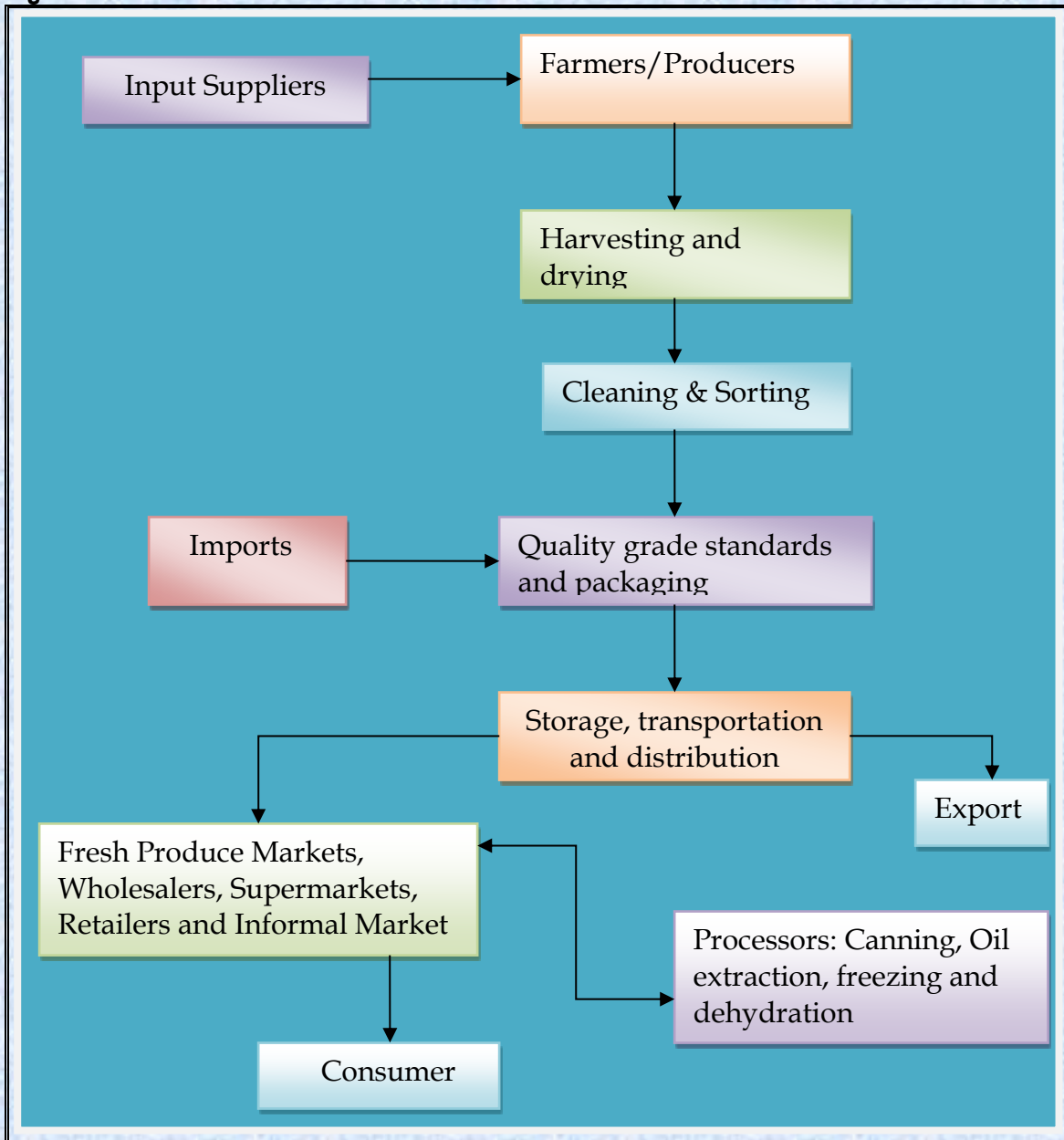
Garlic is a high value crop that can be marketed as being fresh, dehydrated or as certified seed. It is widely used around the world for its strong flavour as a seasoning or condiment. The majority of garlic is dehydrated and used in a variety of processed foods. Garlic bulb can be peeled, sliced, flaked and dried. This can be packaged or processed further as food spice, vegetable mixtures and sprays. India also produces odourless oil and oleoresin from garlic. Garlic can be used externally for skin problems and fungal infections. Garlic is also claimed to help prevent heart disease (including atherosclerosis, high cholesterol, and high blood pressure) and cancer. Garlic is used to prevent certain types of cancer, including stomach and colon cancers. It is also used as insect repellent. Garlic is also alleged to help regulate blood sugar levels. Figure 24 below shows different end products after value adding and processing.

Figure 24: Garlic value chain tree explaining its uses



The market value chain for garlic is illustrated in Figure 25 below. The garlic value chain can be broken down into the following levels: the producers of garlic (farmers); pack house owners (dry, cleans, grade and quality control); cold storage and transport facilities (store and transport garlic on behalf of farmers); traders in garlic (market and sell garlic); processors (add value by canning, oil extraction, dehydration and freezing of garlic and process garlic to other usable forms); and end users (consumers).

Figure 25: Market value Chain for Garlic



### 3. MARKET INTELLIGENCE

#### 3.1 Tariffs

Table 7 below indicates tariffs applied by various export markets to garlic from South Africa

**Table 7: Tariffs for garlic exports**

Country	Product description (H070320)	Trade regime description	Applied tariff	Estimated total ad valorem equivalent tariff	Applied tariff	Estimated total ad valorem equivalent tariff
			2017		2018	
Angola	Garlic fresh or chilled	MFN duties (Applied)	50.00%	50.00%	325c/kg	9.03%
Botswana	Garlic fresh or chilled	Intra SACU rate	0.00%	0.00%	0.00%	0.00%
China	Garlic fresh or chilled: Bulbs	MNF duties (Applied)	13.00%	13.00%	13.00%	13.00%
Congo	Garlic fresh or chilled	MNF duties (Applied)	20.00%	20.00%	325c/kg	9.03%
DRC	Garlic fresh or chilled	MFN duties (Applied)	10.00%	10.00%	325c/kg	9.03%
Egypt	Garlic fresh or chilled	MFN duties (Applied)	2.00%	2.00%	325c/kg%	9.03%
France	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
Ghana	Garlic fresh or chilled	MFN duties (Applied)	20.00%	20.00%	20.00%	20.00%

Country	Product description (H070320)	Trade regime description	Applied tariff	Estimated total ad valorem equivalent tariff	Applied tariff	Estimated total ad valorem equivalent tariff
			2017		2018	
India	Garlic fresh or chilled	MFN duties (Applied)	100%	100%	100%	100%
Saint Helena	Garlic fresh or chilled	MFN duties (Applied)	325c/kg	9.03%	325c/kg	9.03%
Lesotho	Garlic fresh or chilled	Intra SACU rate	0.00%	0.00%	0.00%	0.00%
Malawi	Garlic fresh or chilled	Preferential tariff for SADC	0.00%	0.00%	0.00%	0.00%
Mexico	Garlic, onion and shallot	MFN duties (Applied)	10.00%	10.00%	10.00%	10.00%
Mozambique	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
Namibia	Garlic, onion and shallot	Intra SACU rate	0.00%	0.00%	0.00%	0.00%
Netherlands	Garlic fresh or chilled	MFN duties (Applied)	0.00%	0.00%	325c/kg	9.03%
Swaziland	Garlic fresh or chilled	Intra SACU rate	0.00%	0.00%	0.00%	0.00%
United States of America	Garlic fresh or chilled	MFN duties (Applied)	\$4.30/ton	0.29%	325c/kg	9.03%
Zambia	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
Zimbabwe	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%

Source: Market Access Map, ITC

During 2018, Botswana, Namibia and Angola were the primary markets for garlic exports originating from South Africa. Botswana and Namibia apply Intra SACU rate of 0% to garlic exports from South Africa whilst Angola has reduced applied tariff from 50% to 9.03%. South Africa has also exported garlic to Eswatini, Netherlands, Mozambique, Zambia, Lesotho and Malawi. These countries apply 0% tariff to garlic exports from South Africa. In African markets, South Africa can look for more market opportunities in Zambia as applies 0% preferential tariff to garlic exports originating from South Africa due to SADC-FTA agreement and Malawi has reduced its garlic tariff from 10% to 0% preferential tariff. Mozambique has also reduced its garlic tariff from 15% to 0%. China and India are the top garlic producers in the world and their domestic producers are still protected by 13% and 100% tariff respectively. Egypt is ranked six in South Africa garlic suppliers and its market is protected by 9.03% tariff.

### **3.2 Non-tariff barriers**

#### **3.2.1 The European Union**

Non-tariff barriers can be divided into those that are mandatory and laid out in the EU Commission's legislature and those that are as a result of consumers, retailers, importers and other distributions' preferences.

##### **3.2.1 (a) Product legislation: quality and marketing**

There are a number of pieces of EU legislation that govern the quality of produce that may be imported, marketed and sold within the EU.

**General Food Law** covers matters in procedures of food safety and hygiene (micro-biological and chemical), including provisions on the traceability of food (for example, Hazard Analysis and Critical Control Points, of HACCP).

**EU Marketing Standards**, which govern the quality and labelling of vegetables, are laid out in the CAP framework under regulation EC 2200/96. These regulations include diameter, weight and class specifications, and any produce that does not comply with these standards are not allowed to be sold on the EU markets (detailed lists of products and their standards can be found in the annexes to the directive). The legislation (under EU 1148/2001) also dictates that a Certificate of Conformity must be obtained by anyone wishing to export and sell vegetables in the EU, if that particular vegetable falls under the jurisdiction on the EU marketing standards, vegetables to be used in further processing needs a Certificate of Industrial Use, whilst another legislative directive covers the Maximum Residue Limits (MRL) of various pesticides allowed.

##### **3.2.1 (b) Product legislation: phytosanitary regulations**

The international standard for phytosanitary measures was set up by the International Plant Protection Committee (IPPC) to protect against the spreading of diseases or insects through the importation of certain agricultural goods. The EU has its own particular rules formalized under EC 2002/89, which attempts to prevent contact of EU crops with harmful organisms from elsewhere in the world. The crux of the directive is that it authorizes the Plant Protection Services to inspect a large number of vegetable products upon arrival in the EU. This inspection consists of a physical examination of a consignment deemed to have a level of phytosanitary risk, identification of any



harmful organisms and certification of the validity of any phytosanitary certificate covering the consignment. If the consignment does not comply with the requirements, it may not enter the EU, although certain organisms can be fumigated at the expense of the exporter.

### **3.2.1(c) Product legislation: packaging**

The EU commission lays down rules for materials that come into contact with food and which may endanger people's health or bring about an unacceptable change in the composition of the foodstuffs. The framework legislation for this is EC 1935/2004. Recycling packaging materials are also emphasized under 94/62/EC, whereby member states are required to recycle between 50% and 65% of packaging waste. If exporters do not ship produce in packaging which is reusable, they may be liable for the costs incurred by the importing companies. Wood packaging is subject to phytosanitary controls (see Directive EC 2002/89) and may need to undergo heat treatment, fumigation, etc.

### **3.2.1. (d) Non-legal market requirements: social and environmental accountability**

To access a market, importers must not only comply with the legal requirements set out above, but also with market requirements and demands. For the most part, these revolve around quality and the perceptions of European consumers about the environmental, social, health and safety aspects of both the products and the production techniques. Whilst supplying vegetables that complies with these issues may not be mandatory in the legal sense, they are becoming increasingly important in Europe and cannot be ignored by existing or potential exporters.

**(i) Social responsibility** is becoming important in the industry, not only amongst consumers, but also for retail outlets and wholesalers. The Social Accountability 8000 (SA8000) certification is a management system based on International Labour Organization (ILO) conventions, and deals with issues such as a child labour, health and safety, and freedom of association, and requires an on-site audit to be performed annually. The certificate is seen as necessary for accessing any European market successfully. The major retailers in the EU also play an important role in tackling environmental issues, which means that exporters have to take these into account when negotiating exporting arrangements.

**(ii) Environmental issues** are becoming increasingly important with European consumers. Consumer movements are lobbying against purchasing non-environmental friendly or non-sustainable produce. To this end, both governments and private partners have created standards (such as ISO 14001 and EUREPGAP) and labels to ensure produce adhere to particular specifications. Labels are an absolute must for exporters attempting to enter the rapidly expanding organic produce market. The EU Commission has recently adopted an EU label for identifying food produced according to EU organic standards in the directive EEC 209/91

### **3.2. 1(e) Consumer health and safety requirements**

Increasing consumer conscience about health and safety issues has prompted a number of safety initiatives in Europe, such as EUREPGAP on good agricultural practices (GAP) by the main European retailers, the international management system of HACCP, which is independently certified and required by legislation for European producers as well as food imported into Europe (EC 852/2004), and the ISO 9000 management standards system (for procedures and working methods), which is certified by the International Standards Organization (ISO).

### 3.2.2 The United States

The USDA has quality standards for vegetables that provide a basis for domestic and international trade and promote efficiency in marketing and procurement. At the same time the USDA issues quality certificates based on these standards and a comprehensive grading system. Graders are located around the country at terminal markets. These certification services, which facilitate the ordering and purchasing of products by large-volume buyers, assure these buyers that the product they purchase will meet the terms of the contract in terms of quality, processing, size, packaging and delivery.

### 3.2.3 Asian Market Access

Japan's agricultural sector is heavily protected, with calculations from the Organization for Economic Co-operation and Development (OECD) estimating that almost 60% of the value of Japan's farm production comes from trade barriers or domestic subsidies. Japan uses tariff rate quotas (TRQ) to protect its most sensitive products, and reserves the right for trading many of these products (within the quota) for one or two state trading enterprises. However, these extremely protective measures apply only to some products; others are able to compete more effectively with outside competition, often on the grounds of higher quality.

Perhaps the biggest barrier to trade with Japan in vegetable markets is its strict phytosanitary requirements, which have often been challenged in the WTO as having little or no scientific justification. Other measures that are being challenged include Japan's use of fumigation on agricultural products when cosmopolitan pests (already found in Japan) are detected. Japan is also increasing its labelling requirements

## 4. GENERAL DISTRIBUTION CHANNELS

There are roughly three distinct sales channels for exporting vegetables. One can sell directly to an importer with or without the assistance of an agent (usually larger, more established commercial farms). One can supply a vegetable combine, which will then contract out importers/marketers and try to take advantage of economies of scale and increased bargaining power. At the same time vegetable combines might also supply large retail chains. One can also be a member of a private or co-operate export organization (including marketing boards) which will find agents or importers and market the produce collectively. Similar to a vegetable combine, an export organization can either supply wholesale markets or retail chains depending on particular circumstances. Export organizations and marketing boards will wash, sort and package the produce.

## 5. LOGISTICAL ISSUES

### 5.1 Mode of transport

The transportation of vegetables falls within two categories – **ocean cargo** and **air cargo** – with ocean cargo taking much longer to reach the desired location but costing considerably less. Of course, the choice of transportation method depends, for the most part, on the fragility of the produce and how long it can remain relatively fresh. With the advent of technology and container improvements, the feasibility, cost and attractiveness of sea transportation have improved considerably. As more developing countries begin to export and supply major developed countries

markets, so the number and regularity of maritime routes, and the container vessels travelling these routes, increase.

Presently South American countries like Peru benefit from the asparagus trade, which has led to some level of economies of scale with other vegetable products, and this has enabled cheaper transport prices for their other vegetable varieties. Such economic of scale could benefit SADC countries if more producers became exporters and took advantage of the various ports which have special capabilities in handling vegetable produce (for example, the proposed terminal in Maputo).

## **5.2 Cold chain management**

**Cold chain management** is crucial when handling perishable products, from the initial packing houses to the refrigerated container trucks that transport the produce to the shipping terminals, through to the storage facilities at these terminals (and their pre-cooling capability), onto the actual shipping vessels and their containers, and finally on to the importers and distributors that must clear the produce and transport it to the markets/retail outlets, etc. For every 10°C increase above the recommended temperature, the rate of respiration and ripening of produce can increase twice or even thrice. Related to this are the increasingly important traceability standards, which require an efficiently controlled supply chain and internationally accepted business standards.

## **5.3 Packaging**

**Packaging** also plays a vital role in ensuring safe and efficient transport of a product and conforming to handling requirements, uniformity, recyclable materials specifications, phytosanitary requirements, proper storage needs and even attractiveness (for marketing purposes).

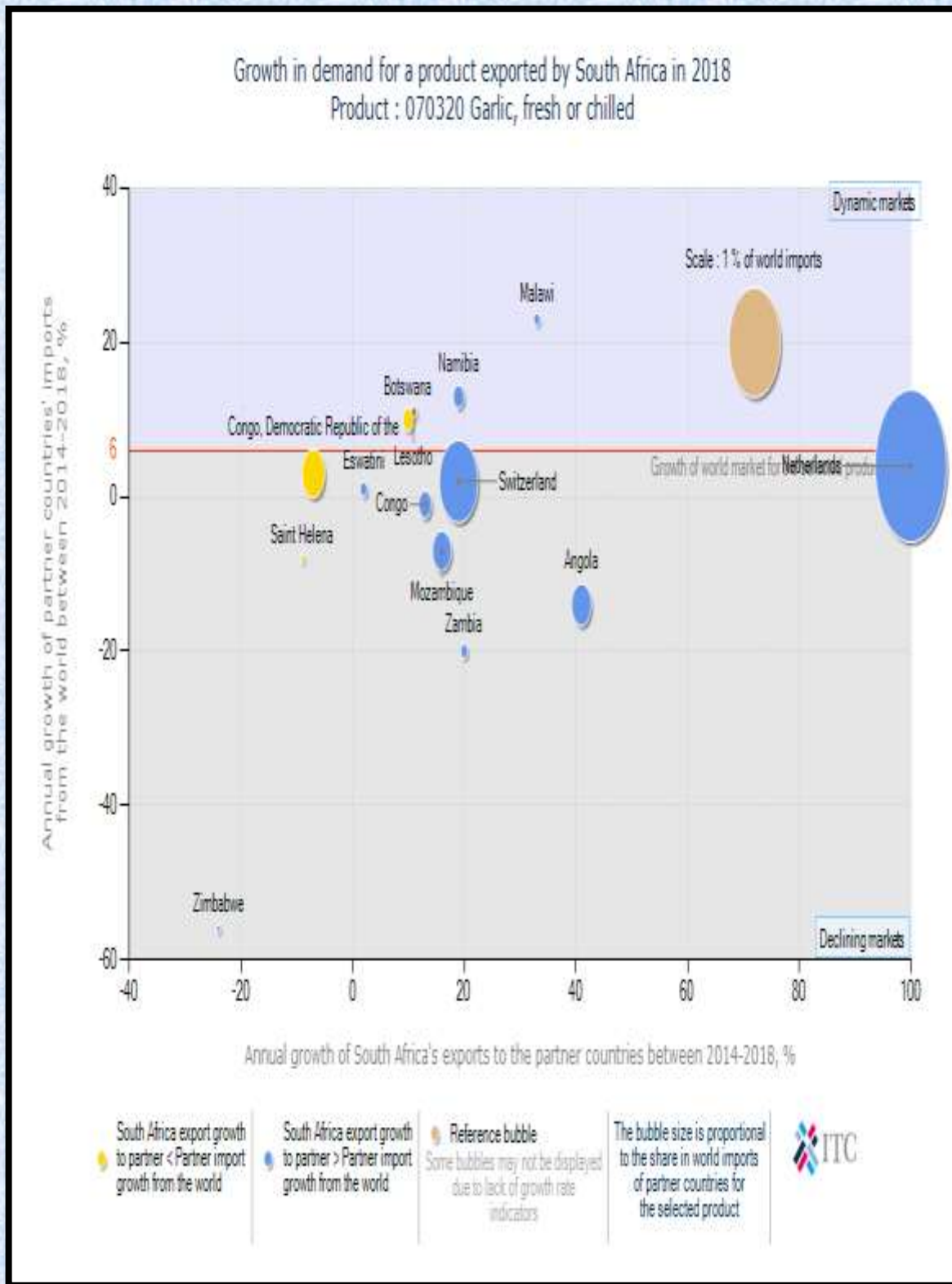
## **5.4 Storage**

Garlic is ready to eat after harvest, curing is only important if you intend to store it. For this reason, many growers who market garlic directly to retail customers do not cure it after harvest. If long-term storage is desired, freshly harvested garlic can be cured by placing it on racks with good airflow. The racks should be placed in a location out of direct sunlight and the weather for approximately 3 weeks or until the outer 2 leaves are completely dry. Many smaller growers spread their bulbs on the wooden floor of a barn to cure. Once cured, trim the tops and roots and clean the remaining soil from the bulb. The cured bulbs should be placed in clean cardboard boxes or burlap bags and stored at 32-35°F and 65-75 percent relative humidity.

## **6. COMPETITIVENESS OF SOUTH AFRICAN GARLIC EXPORTS**

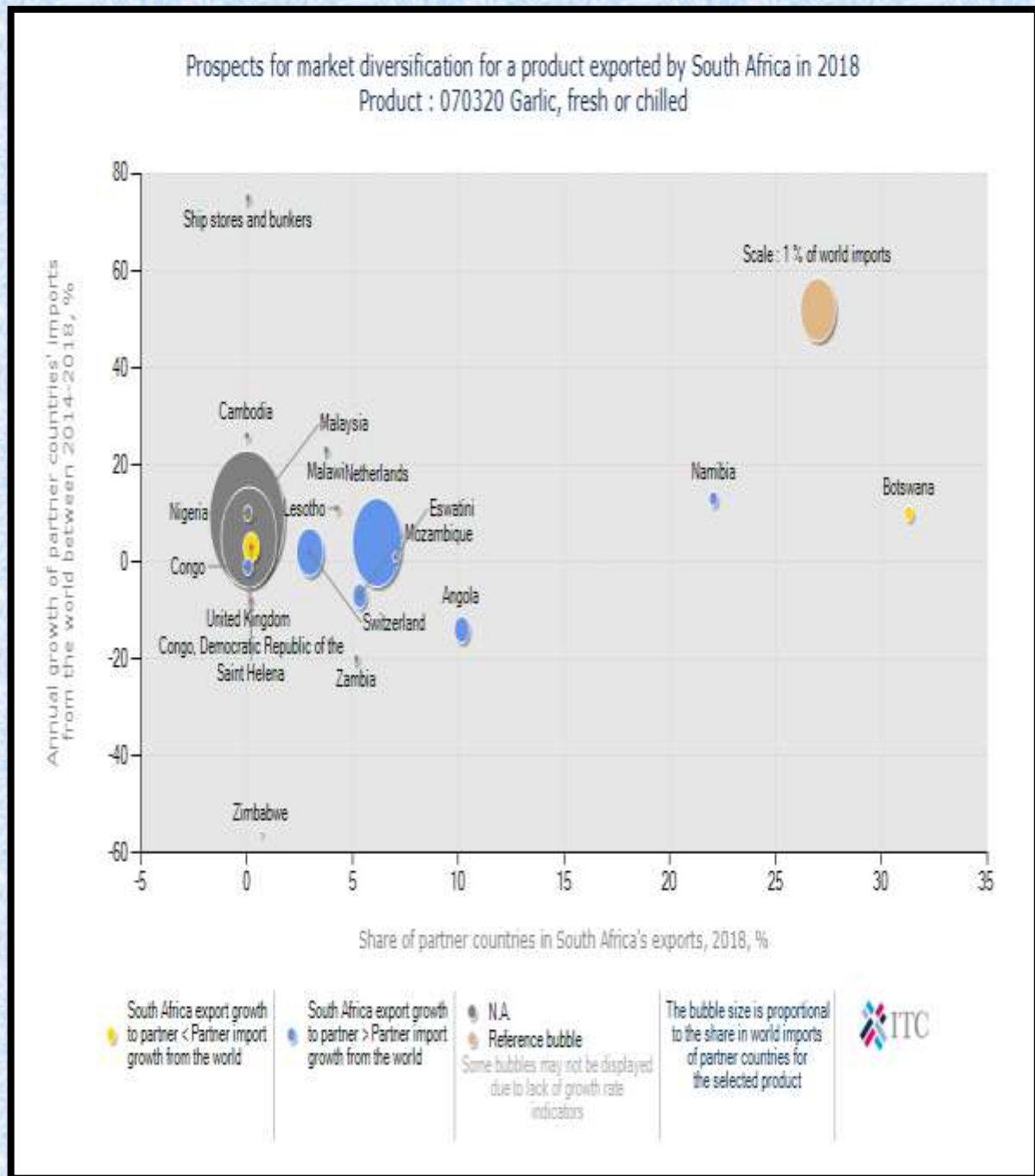
Figure 26 below, shows that South Africa garlic exports are growing faster than the world garlic imports into Congo, Democratic Republic of the Congo, Netherlands, Switzerland and Namibia. South Africa's performance in those countries can be regarded as a gain in the dynamic markets. South Africa garlic exports to Eswatini, Democratic Republic of Congo, Botswana and Lesotho are growing slower than the world garlic imports into these countries. South Africa's Performance is regarded as a loss in the dynamic market. South Africa's garlic imports are growing while the world garlic imports are declining into Mozambique, Switzerland, Zambia, Angola and Zimbabwe. South Africa's performance is regarded as a gain in a declining market.

**Figure 26: Growth in demand for garlic exported by South Africa in 2018**



Source: Trade Map, ITC

**Figure 27: Prospects for market diversification for garlic exported by South Africa in 2018**



Source: Trade Map, ITC

Figure 27 above, shows that the primary markets for South Africa's garlic exports were still in Angola, Botswana and Namibia during 2018. Prospective markets for garlic exports exist in Saint Helena, Uganda and Netherlands. Other smaller prospective markets exist in Nigeria, Lesotho and Malaysia. However, if South Africa is to diversify its garlic exports, the most lucrative markets exist in Malawi, which has increased its garlic imports from the world by 34% between the period 2014 and 2018. Mozambique, Zimbabwe, Angola and Zambia have recorded a negative growth between 2014 and 2018 period.

## **7. BUSINESS OPPORTUNITIES AND CHALLENGES**

### **7.1 Opportunities**

Garlic consumption has increased significantly over the past years. The main uses of garlic are in the culinary field, although it has other uses in the alternate medicine field because of its medicinal qualities and a pesticides and fungicides. Recently there have been some more developments in the human medicine field for garlic in which there is a compound, which has been identified as lowering cholesterol. If these developments come to the commercial phase, it could mean a massive increase in garlic production. South Africa is still a net importer of garlic by far, these present an opportunity for farmers to increase domestic production.

### **7.2 Challenges**

Garlic is high risk, labour intensive crop to grow successfully. Garlic has a specific growing window that has to be adhered to. In order to survive, each garlic producer must strive to obtain maximum yield and quality. Knowledge of the garlic plant, its growth cycle and the factors affecting its growth, yield and quality is thus of utmost importance. Marketing of garlic can also be quite difficult for the smaller producer. The market is demanding large, clean unblemished bulbs that are well graded and well packaged. South Africa garlic producers also have to compete with cheap garlic imports. In 2019/10/18 IOL article, consumers have been warned about an influx of crushed garlic from China and has been dumped on the South Africa retail markets, with experts cautioning consumers to be wary of cheap products that may contain other ingredients like peanuts. A growing number of crushed garlic products include extra preservatives and this provides a flavourless taste.

## 8. ACKNOWLEDGEMENTS

The following industries are acknowledged

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### **J.G Niederwieser**

#### **Guide to Garlic Production in South Africa handbook**

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### **Quantec Easy Data**

[www.easydata.co.za](http://www.easydata.co.za)

### **Market Access Map**

[www.macmap.org](http://www.macmap.org)

International Trade Centre (ITC)

[www.trademap.org](http://www.trademap.org)

### **South Africa Garlic Growers Association**

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