A PROFILE OF THE SOUTH AFRICAN GARLIC MARKET VALUE CHAIN

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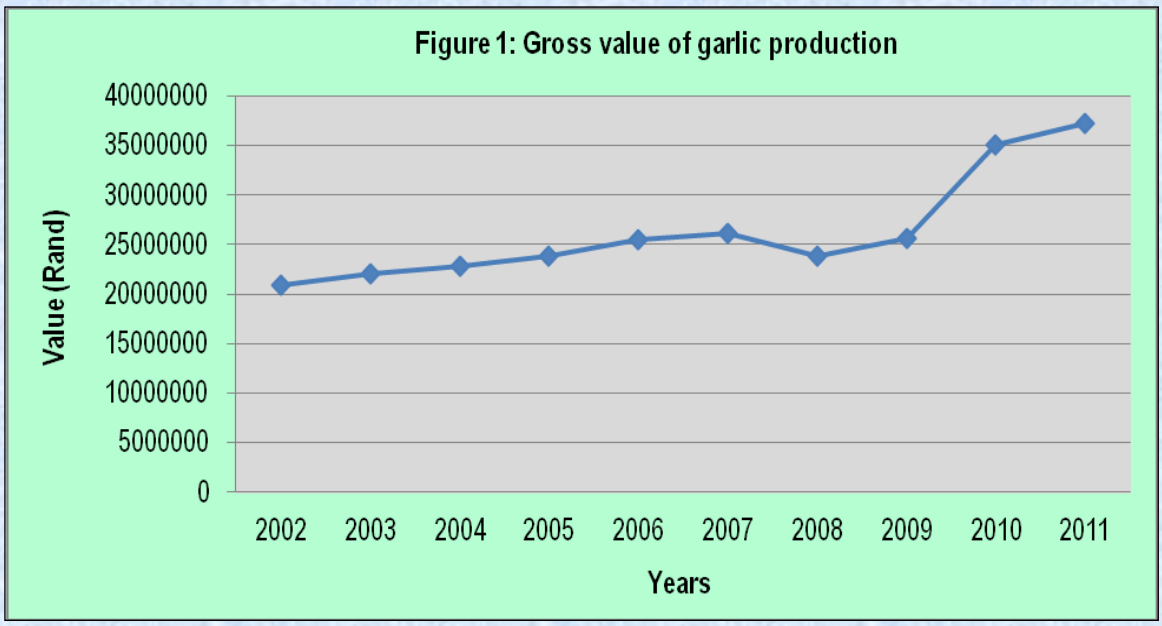
1. DESCRIPTION OF THE INDUSTRY

Garlic is a close relative of onion, which includes leeks, chives and shallots. In size and growth habit, garlic resembles the onion. 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 flavoring and seasoning dishes, pickles and sauces. Large amount 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. More people are discovering its culinary splendor, and producers have found garlic to be a potentially highly profitable crop. Figure 1 presents the gross value of garlic production during the past ten years.

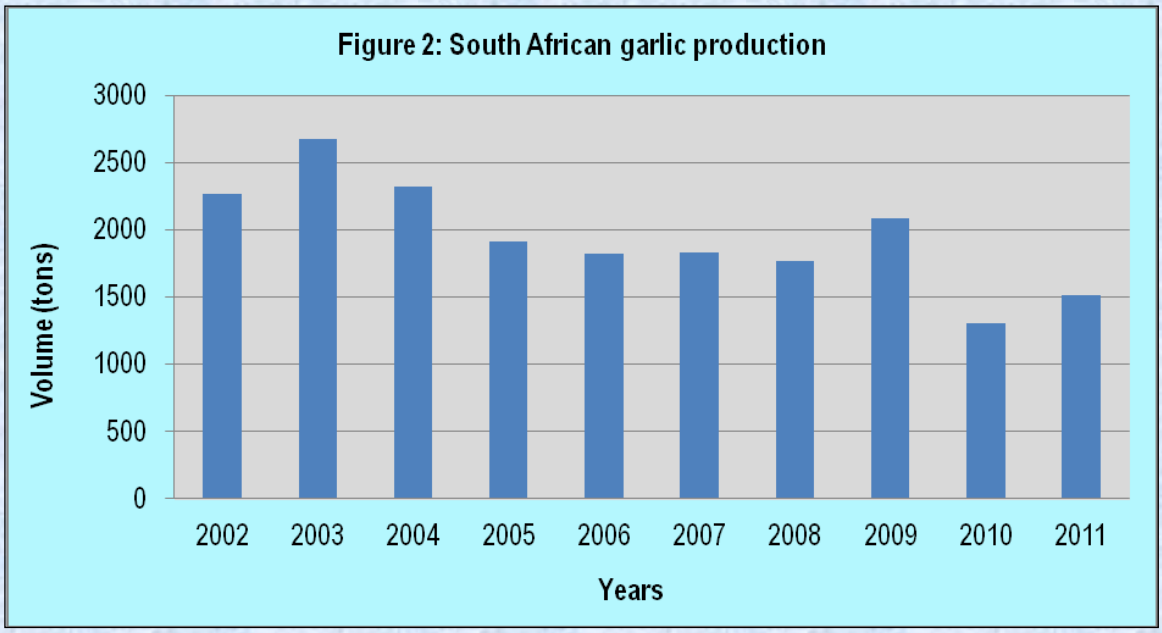


Source: Statistics and Economic Analysis, DAFF

The contribution of the garlic industry has increased steadily from 2003 to 2007. In 2008, the gross value of production dropped by 8.7% due to decline in production in the same production season. In 2009, the contribution increased by 7% when compared to the previous year. 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 favorable producer prices in the same year.

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 Kwa-Zulu 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 77% of world output. The second largest producer is India accounting for 4.1%, followed by South Korea with 2%, Egypt and Russia are tied in fourth place with 1.6% and United States with 1.4% (FAOSTAT 2010).. The total volumes of garlic produced in South Africa during the past ten years are depicted in Figure 2.



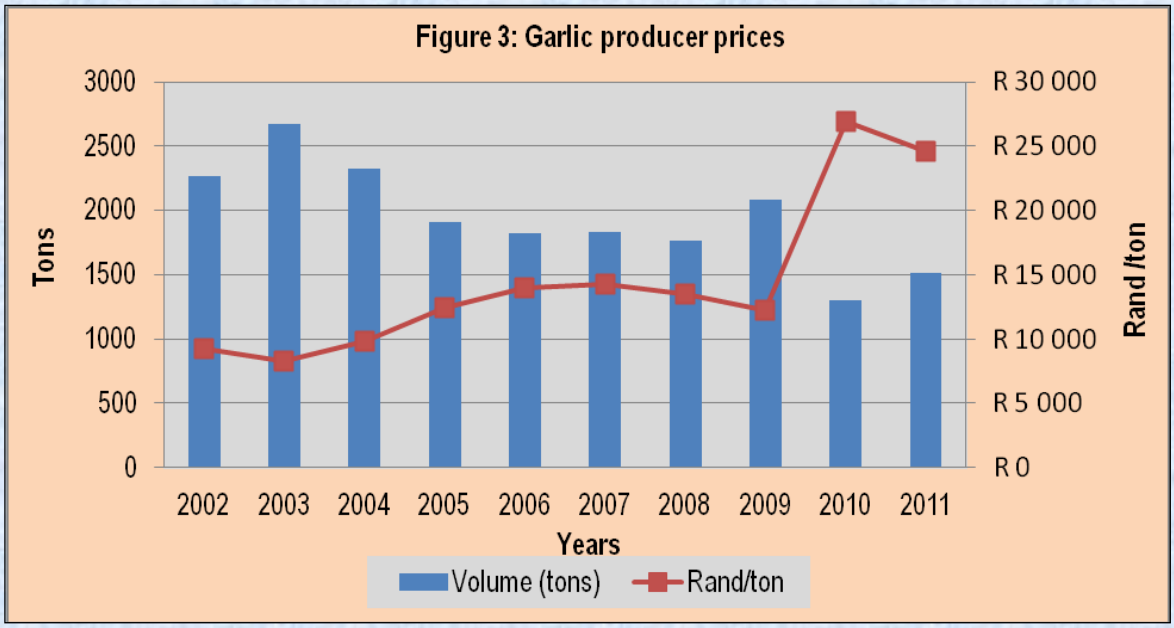
Source: Statistics and Economic Analysis, DAFF

Garlic production has been fairly unstable during the period under review. In 2003, the production output increased by 18% compared to tonnages produced in the year 2002. The production declined steadily from 2004 to 2006. In 2009, the production volumes increased by 18% when compared with 2008 production season and in 2010, production output dropped by 37% when compared to production in 2009. The drop in production can be attributed to the unfavorable climatic conditions and South African producers having to compete with cheaper 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.

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 seeds. It is also exported to other countries through export agents and marketing companies. Most of 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 volumes of garlic sold at the NFPMs as well as prices for garlic during the past ten years.



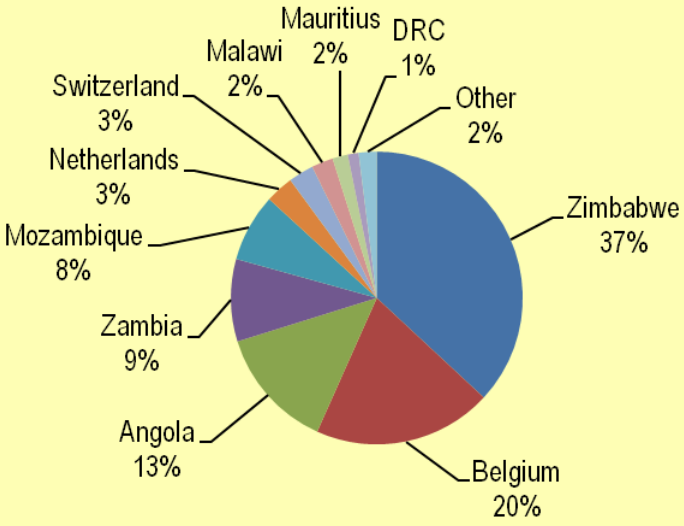
Source: Statistics and Economic Analysis, DAFF

There were relative fluctuations in the volumes and prices of garlic sold in the major fresh produce markets. The prices were very low in 2002 to 2004 due to high volumes across the markets. The general trend observed is that prices increase substantially when few volumes are supplied to the markets. The highest volume was supplied in 2003 and the price was 10% lower compared to 2002 garlic price. Prices increased from 2004 to 2007 as volumes declined significantly across the markets. In 2009, the prices dropped by 9% due to an 18% increase in volumes across the market. Garlic prices increased by 118% in 2010 due to a 37% decrease in garlic volumes supplied in the same year. In 2011, garlic prices dropped by 8.5% due to an increase in production output.

2.2 Exports

South Africa is not a major garlic exporter. It represents 0.02% of world exports for this product, and its ranking in world garlic exports is 32. South Africa has enhanced its competiveness in term of world garlic exports as in 2010 it was ranked number 35. In the past five years South Africa exported garlic mainly to the following countries: Zimbabwe, Belgium, Angola, Zambia, Mozambique Netherlands, Switzerland, and Malawi. China is ranked number one in the world garlic exporters followed by Argentina, Spain, Netherlands, France and Italy respectively. Figure 4 below; illustrate major destinations for South Africa's garlic exports in 2011.

Figure 4: South Africa's garlic exports destinations in 2011



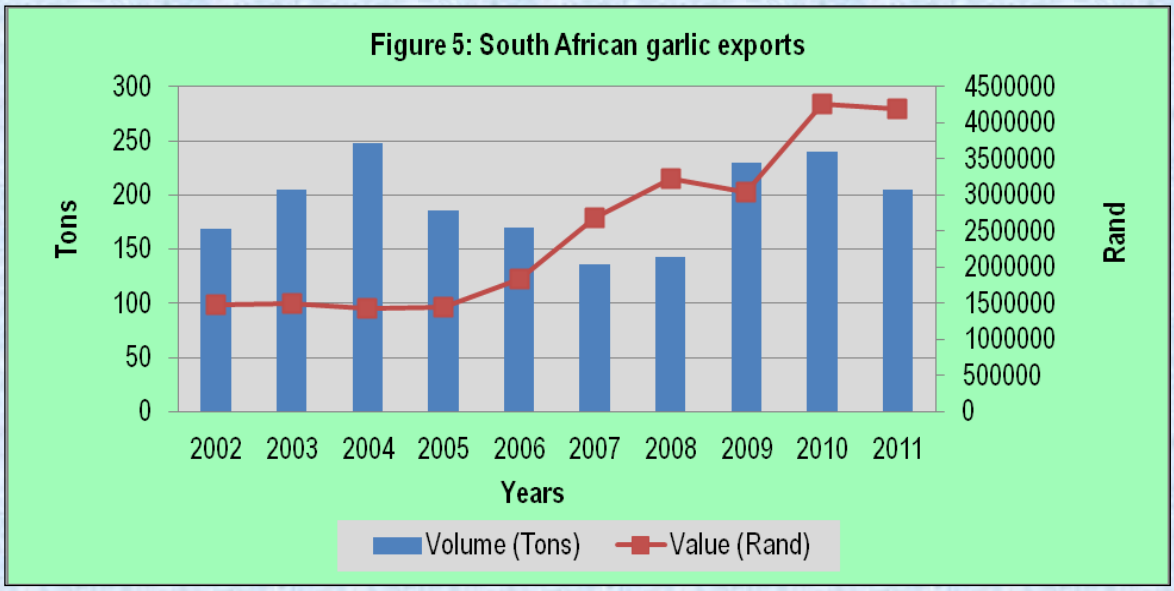
Source: Trademap, ITC

Table 1: South Africa's garlic exports in 2011

Importers	Exported value 2011 (USD thousand)	Share in South Africa's exports (%)	Imported quantity 2011	Exported quantity 2011 (tons)	Exported growth in value between 2007-2011 (%, p.a.)	Exported growth in quantity between 2007-2011 (%, p.a.)	Exported growth in value between 2010-2011 (%, p.a.)
World	572	100	1751	207	13	15	-3
Zimbabwe	211	36.9	1305	53	123	109	34
Belgium	113	19.8	263	10			528
Angola	77	13.5	61	37	11	19	-37
Zambia	52	9.1	21	22	152	117	247
Mozambique	43	7.5	22	71	23	28	30
Netherlands	18	3.1	22	3	-26	-33	-79
Switzerland	16	2.8	25	3	-8	-22	-59
Malawi	14	2.4	1	3	-4	-13	250
Mauritius	10	1.7	5	1			
DRC	7	1.2	4	2	49	7	-46
Saint Helena	6	1	23	1	20	0	200

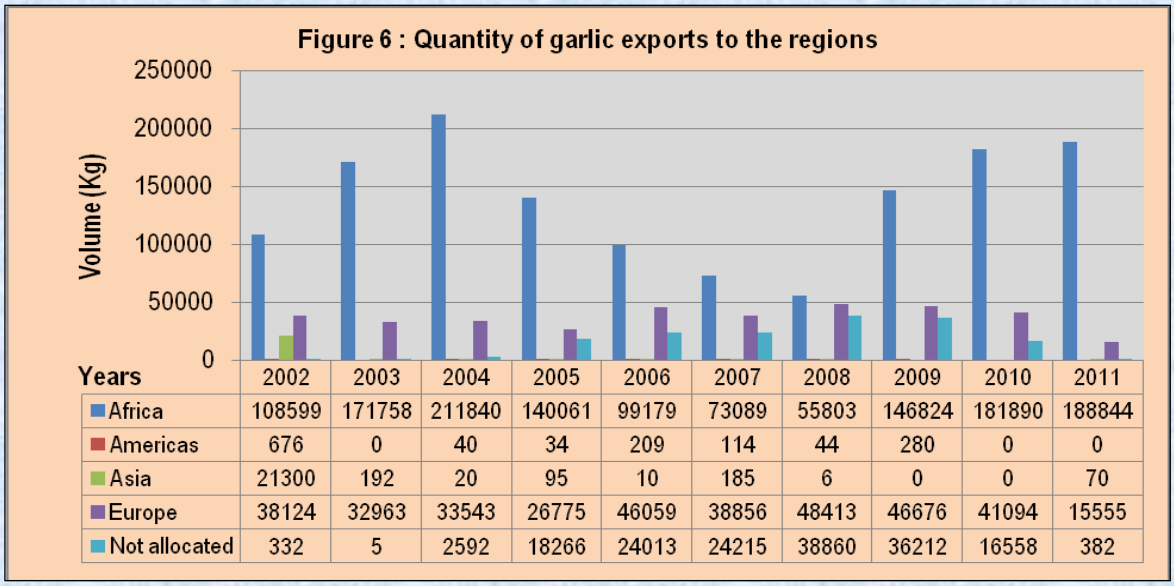
Source: Trademap, ITC

Table 1 indicates that in 2011, 36.9% of garlic was exported to Zimbabwe. Belgium absorbed 19.8%, followed by Angola with 13.5% and Zambia with 9.1% of South Africa garlic exports. South African garlic exports to Angola have decreased by 37% in terms of value between 2010-2011 periods. South African garlic exports to Netherlands have decreased by 26% and 33% in value and quantity respectively between 2007 and 2011. Garlic exports to Switzerland have decreased by 8% and 22% in value and quantity respectively between 2010 and 2011.



Source: Quantec Easydata

Figure 5 above illustrate garlic exports from South Africa over the past 10 years. From 2003 to 2004, garlic exports have steadily increased. The highest export volumes were recorded in 2004 and from 2005 to 2008, the export volumes have declined. The decline in exports in 2005 to 2008 can be attributed to the decline in production in the same years. In 2009, there was a 60% increase in garlic exports. The high exports can be attributed to high production volume in the same year. In 2010, there was 4% increase in garlic exports despite a significant decrease in garlic production volumes. During 2011, South Africa's garlic exports decreased by 14.4% despite a slight increase in the domestic production. In 2007, 2008, 2010 and 2011, it was more profitable to export garlic since higher export values were recorded for volumes exported. Figure 6 below shows garlic exports to the various regions over the past ten years.

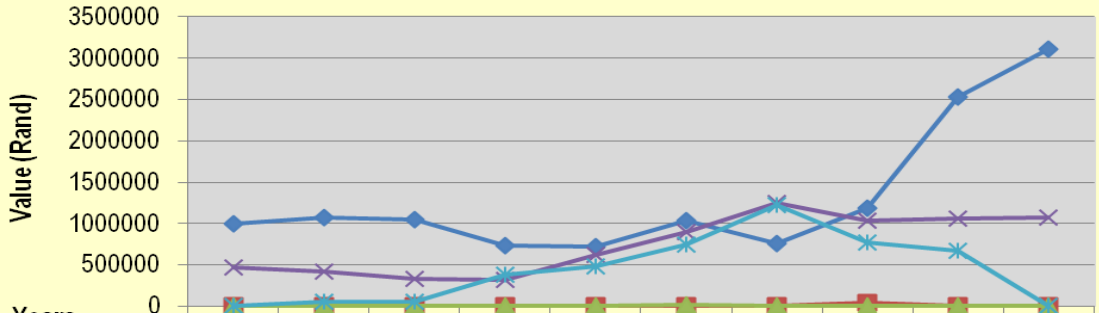


Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa	108599	171758	211840	140061	99179	73089	55803	146824	181890	188844
Americas	676	0	40	34	209	114	44	280	0	0
Asia	21300	192	20	95	10	185	6	0	0	70
Europe	38124	32963	33543	26775	46059	38856	48413	46676	41094	15555
Not allocated	332	5	2592	18266	24013	24215	38860	36212	16558	382

Source: Quantec Easydata

It is clear that South Africa exports high quantities of garlic to African countries (mainly Zimbabwe, Angola, Zambia, Mozambique and Malawi). South Africa also exported considerable amounts of garlic to European countries (mainly Belgium and Netherlands). From 2005 to 2010, high quantities of garlic exports were not allocated to any region. Considerable garlic exports to Asia were recorded in 2002. In 2010 there were no garlic exports to Americas and Asian region. In 2011, garlic was mainly exported to the African and Europe regions.

Figure 7: Value of garlic export to the regions

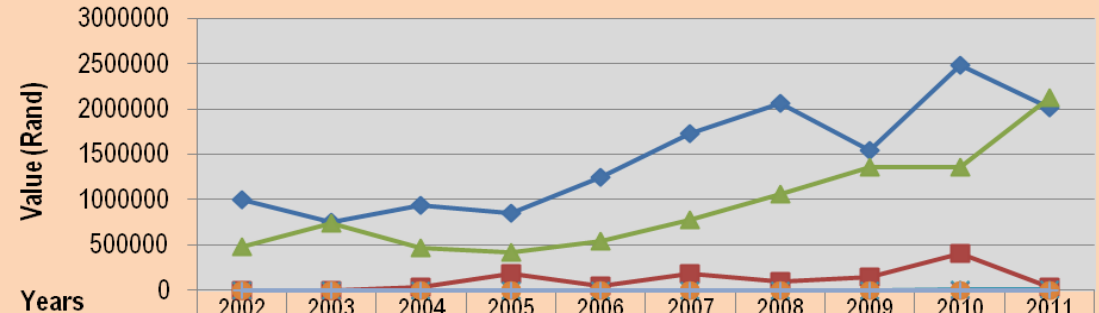


Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa	997084	1070373	1044428	734256	722517	1032430	753511	1186631	2528741	3111912
Americas	1252	0	1171	756	7449	4511	1072	48106	0	0
Asia	8000	3962	2538	4188	200	13458	100	0	0	1844
Europe	470253	415137	337865	320817	623454	897717	1244206	1034804	1061547	1071866
Not allocated	250	50116	50116	387083	482297	742584	1230250	774955	665819	10778

Source: Quantec Easydata

Figure 7 above illustrates 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 2008 for European region and in 2011 for African region. The export values for Asia and America regions were insignificant.

Figure 8: Garlic exports by South African Provinces

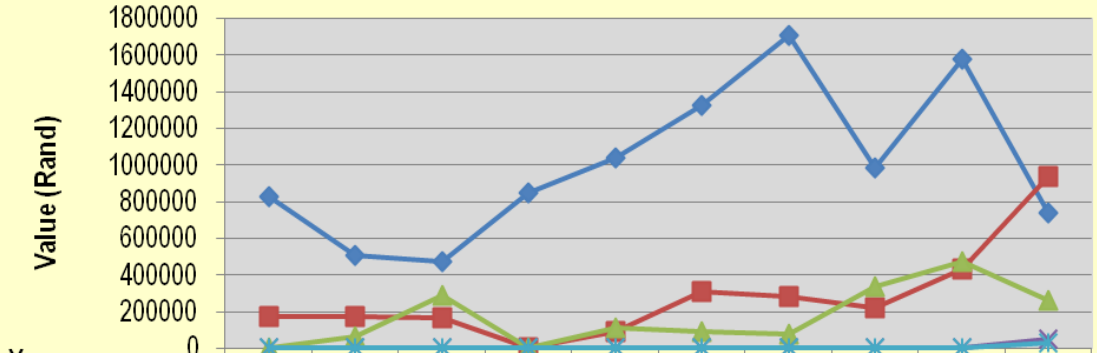


Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Western Cape	1005004	746449	931302	846745	1248311	1726373	2063049	1543435	2480261	2019373
Kwazulu-Natal	651	492	34417	177607	46413	184998	100905	142154	404319	28327
Gauteng	473889	741369	470399	422748	539018	778362	1065185	1358907	1357527	2126877
Mpumalanga	0	1692	0	0	2175	967	0	0	0	3949
Limpopo	0	0	0	0	0	0	0	0	14060	14497
Eastern Cape	0	0	0	0	0	0	0	0	0	638
North West	0	0	0	0	0	0	0	0	0	2739

Source: Quantec Easydata

Figure 8 above illustrates values of garlic exports by the various provinces of South Africa between 2002 and 2011. The key highlight of garlic exports was that the Western Cape, Gauteng and Kwazulu Natal commanded the greatest share of total garlic exports. This can attributed to exports exit points, the Cape Town harbour, Durban harbour and Freight Airport at OR Tambo International Airport. In 2011, Gauteng province has recorded the highest garlic export value, followed by Western Cape and Kwazulu Natal. In 2011, Eastern Cape and North West provinces contributed to South African garlic exports for the first time in 10 years period. The exports value recorded for these two provinces were less significant. The following figures (Figure 9-12) shows the value of garlic exports from the various districts in the provinces of South Africa.

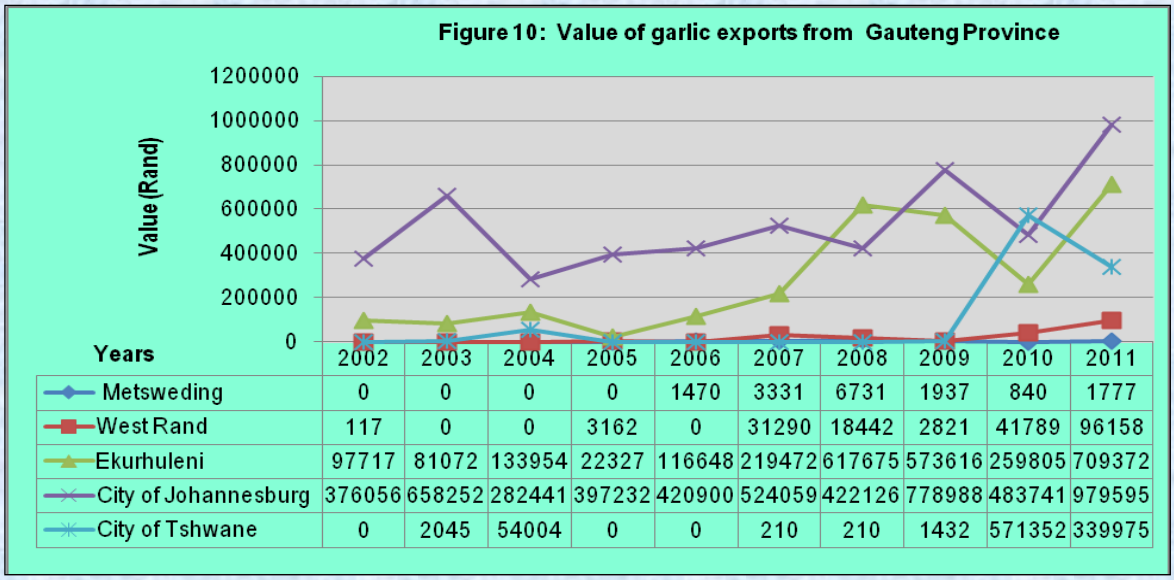
Figure 9: Value of garlic exports from Western Cape Province



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
City of Cape Town	828806	505651	474334	845558	1039724	1322927	1705256	984932	1575064	738213
Cape Winelands	176198	175831	167587	0	94677	310312	280060	219714	434543	937907
Eden District	0	64967	289381	1187	113911	93133	77733	338790	470654	260117
West coast	0	0	0	0	0	0	0	0	0	51577
Overberg	0	0	0	0	0	0	0	0	0	31560

Source: Quantec Easydata

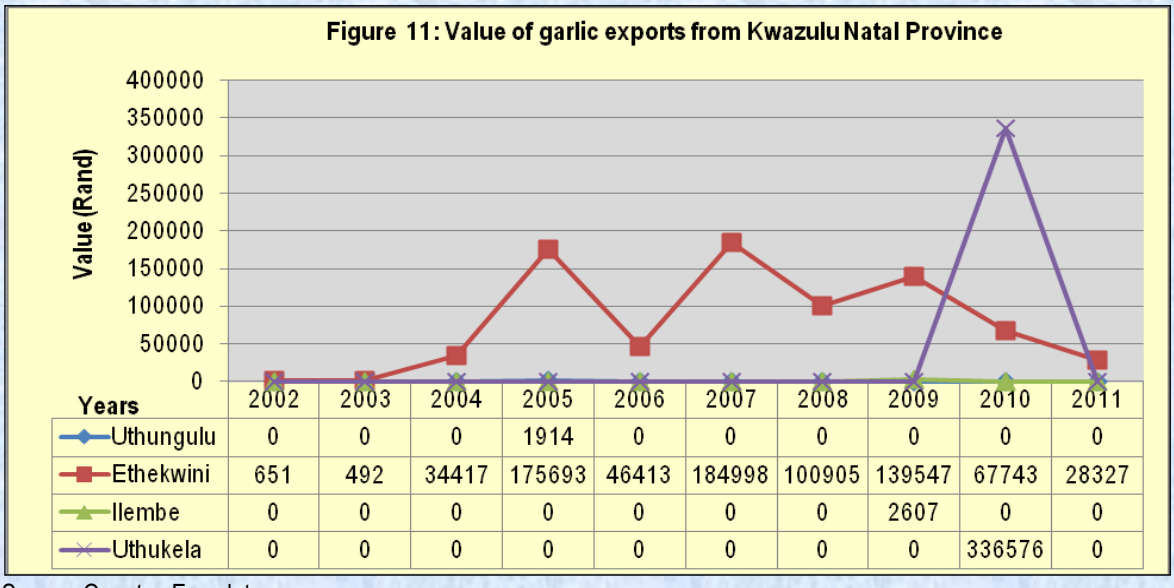
As can be seen from the above figure 9, garlic exports from Western Cape province were mainly from the City of Cape Town municipality, Cape Winelands and Eden district municipality. In 2011, West Coast and Overberg district contributed to Western Cape garlic export for the first time in 10 years period. High exports from the City of Cape Town can be attributed to the Cape Town harbor which renders an export exit point. The highest exports value was recorded in 2008 from the City of Cape Town. In 2011, there was a significant increase in exports value for Cape Winelands district and the value for City of Cape Town and Eden districts have decreased significantly.



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Metsweding	0	0	0	0	1470	3331	6731	1937	840	1777
West Rand	117	0	0	3162	0	31290	18442	2821	41789	96158
Ekurhuleni	97717	81072	133954	22327	116648	219472	617675	573616	259805	709372
City of Johannesburg	376056	658252	282441	397232	420900	524059	422126	778988	483741	979595
City of Tshwane	0	2045	54004	0	0	210	210	1432	571352	339975

Source: Quantec Easydata

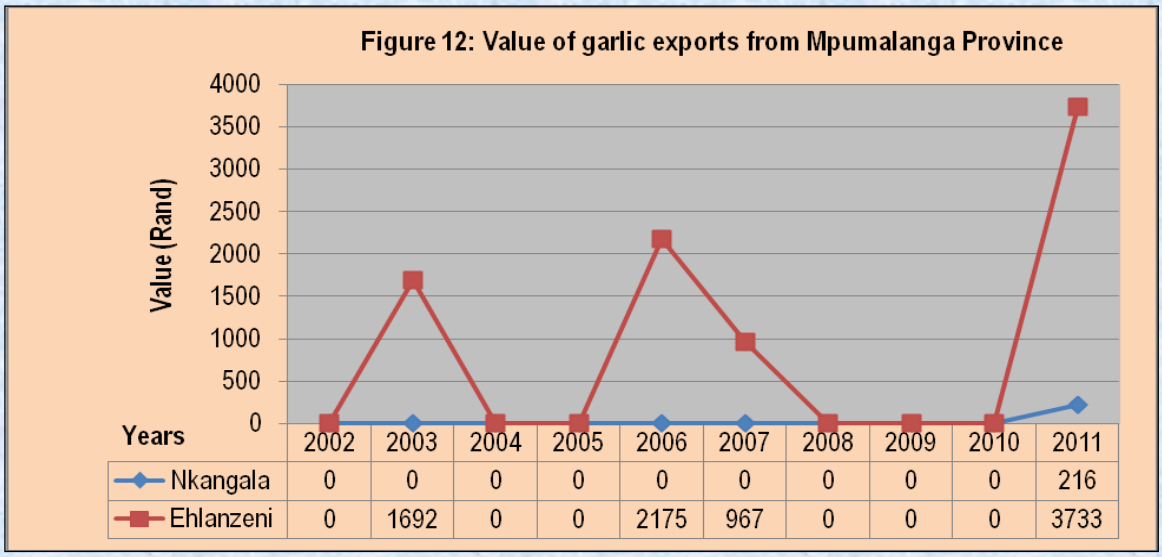
Figure 10 above shows that garlic exports from Gauteng province were mainly from City of Johannesburg and Ekurhuleni. The West Rand, Metsweding and City of Tshwane municipalities have contributed to a lesser extent. OR Tambo International Airport serves as an exit point from these district municipalities. The high export values were recorded in 2011 for the City of Johannesburg, Ekurhuleni and West Rand. In 2010, City of Tshwane has recorded the highest garlic export value and in 2011 the export value has decreased significantly.



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Uthungulu	0	0	0	1914	0	0	0	0	0	0
Ethekwini	651	492	34417	175693	46413	184998	100905	139547	67743	28327
Ilembe	0	0	0	0	0	0	0	2607	0	0
Uthukela	0	0	0	0	0	0	0	0	336576	0

Source: Quantec Easydata

As can be seen from Figure 11 above, garlic exports from Kwazulu Natal province were mainly from Ethekwini district municipality. High garlic exports at Ethekwini municipality can be attributed to the use of Durban harbor export exit point. The high export value was recorded in 2007 for Ethekwini. In 2010 and 2011 the export value for Ethekwini district municipality has decreased significantly. In 2009, Ilembe district municipality has recorded an export value. In 2010, Uthukela has recorded the highest export for Kwazulu Natal province.



Source: Quantec Easydata

Figure 12 above shows that garlic exports from Mpumalanga province recorded in 2003, 2006 and 2007 were from Ehlanzeni district municipality. From 2008 to 2010, the province has recorded zero trade for garlic. In 2011, the province has recorded export values from Nkangala and Ehlanzeni district. The export value for Nkangala was insignificant.

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 the Western Cape, Gauteng and Kwa-Zulu Natal province to a lesser extent have commanded the greatest share of garlic exports for the past 10 years. North West, Limpopo and Northern Cape also produce garlic but their export share is less significant because the provinces lack marketing infrastructure, registered exporters and agro logistics. The Western Cape, Gauteng and Kwa-Zulu Natal provinces have an advantage of being located near exit points and the registered exporters are based in these provinces. In 2011, Western Cape province has commanded 48.12% share and Gauteng accounted for 50.68% share of South Africa garlic exports. In 2011, Gauteng province has gained garlic exports share, while Western Cape and Kwazulu Natal has lost in garlic export shares compared to previous year.

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

Year Province	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Western Cape	67.93	50.10	64.85	58.51	67.99	64.16	63.89	50.70	58.47	48.12
Kwazulu-Natal	0.04	0.03	2.40	12.27	2.53	6.88	3.12	4.67	9.53	0.68
Gauteng	32.03	49.76	32.75	29.21	29.36	28.93	32.99	44.63	32.00	50.68
Limpopo	0	0	0	0	0	0	0	0	0.33	0.35
North West	0	0	0	0	0	0	0	0	0	0.07
Eastern Cape	0	0	0	0	0	0	0	0	0	0.02
Mpumalanga	0	0.11	0	0	0.12	0.04	0	0	0	0.09
South Africa	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	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
City of Cape Town	82.47	67.74	50.93	99.86	83.29	76.63	82.66	63.81	63.50	36.56
Cape Winelands	17.53	23.56	17.99	0	7.58	17.97	13.58	14.24	17.52	46.45
Eden District	0	8.70	31.07	0.14	9.13	5.39	3.77	21.95	18.98	12.88
West Coast	0	0	0	0	0	0	0	0	0	2.55
Overberg	0	0	0	0	0	0	0	0	0	1.56
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 commanded the greatest share of garlic exports from Western Cape province. In 2011, the City of Cape Town commanded 36.56%, which was a significant drop in export share compared to 63.50% share in 2010. Eden has commanded 12.88% which was also a drop in share compared to 18.98% in 2010. Cape Winelands has commanded 46.45% share of garlic exports from Western Cape Province. This was a significant gain in export share as in 2010 the Cape Winelands has commanded 17.52% share. Cape Town harbour renders an exit point for garlic exports from Western Cape province.

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

Year District	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Uthungulu	0	0	0	1.08	0	0	0	0	0	0
Ethekwini	100	100	100	98.92	100	100	100	98.17	16.75	100
Ilembe	0	0	0	0	0	0	0	1.83	0	0
Uthukela	0	0	0	0	0	0	0	0	83.25	0
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 Natal province. In 2004, Uthungulu commanded the highest share of garlic exports. The greatest share by Ethekwini can be attributed to Durban harbour which serves as exit point for garlic exports. In 2010, Uthukela has commanded 83.25% share of garlic exports from Kwazulu Natal. In 2011, Ethekwini has commanded 100% share of garlic export value exported in Kwazulu Natal province.

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

Year District	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Metsweding	0	0	0	0	0.27	0.43	0.63	0.14	0.06	0.08
West Rand	0.02	0	0	0.75	0	4.02	1.73	0.21	3.08	4.52
Ekurhuleni	20.62	10.94	28.48	5.28	21.64	28.20	57.99	42.22	19.14	33.35
City of Johannesburg	79.36	88.79	60.04	93.97	78.09	67.33	39.63	57.33	35.63	46.06
City of Tshwane	0	0.28	11.48	0	0	0.03	0.02	0.11	42.09	15.98
Gauteng	100	100	100	100	100	100	100	100	100	100

Source: Calculated from Quantec Easydata

Table 5 shows that the City of Johannesburg and Ekurhuleni commanded the greatest share of garlic exports from Gauteng province. In 2011, City of Johannesburg commanded 46.06% and Ekurhuleni district commanded 33.35% share of garlic by Gauteng province. In 2011, City of Tshwane has commanded 15.98%; this was a significant drop in export share compared to 42.09% commanded in 2010. OR Tambo International Airport renders exit point of garlic exports from Gauteng province.

Table 6: Share of district garlic exports to the total Mpumalanga provincial garlic exports (%)

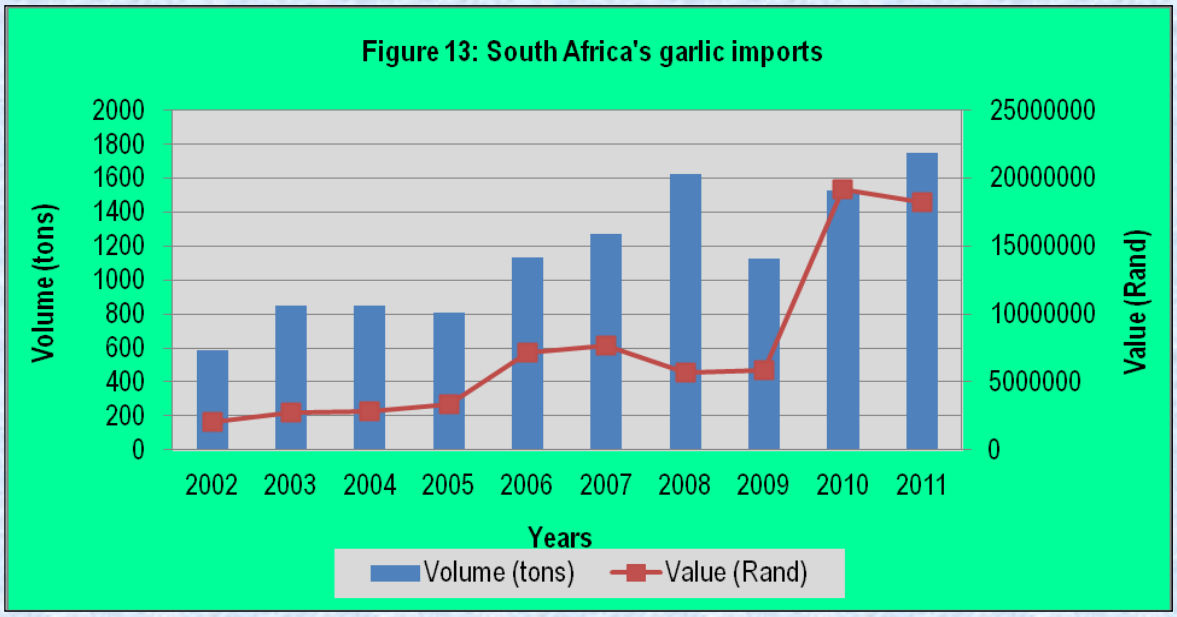
Year District	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Ehlanzeni	0	100	0	0	100	100	0	0	0	94.53
Nkangala	0	0	0	0	0	0	0	0	0	5.47
Mpumalanga	0	100	0	0	100	100	0	0	0	100

Source: Calculated from Quantec Easydata

Table 6 shows that in 2003, 2006 and 2007, Ehlanzeni commanded 100% share of garlic exports from Mpumalanga province. From 2008 to 2010, Mpumalanga province has recorded zero trade for garlic. In 2011, Ehlanzeni has commanded 94.53% and Nkangala has commanded 5.47% share of garlic exports.

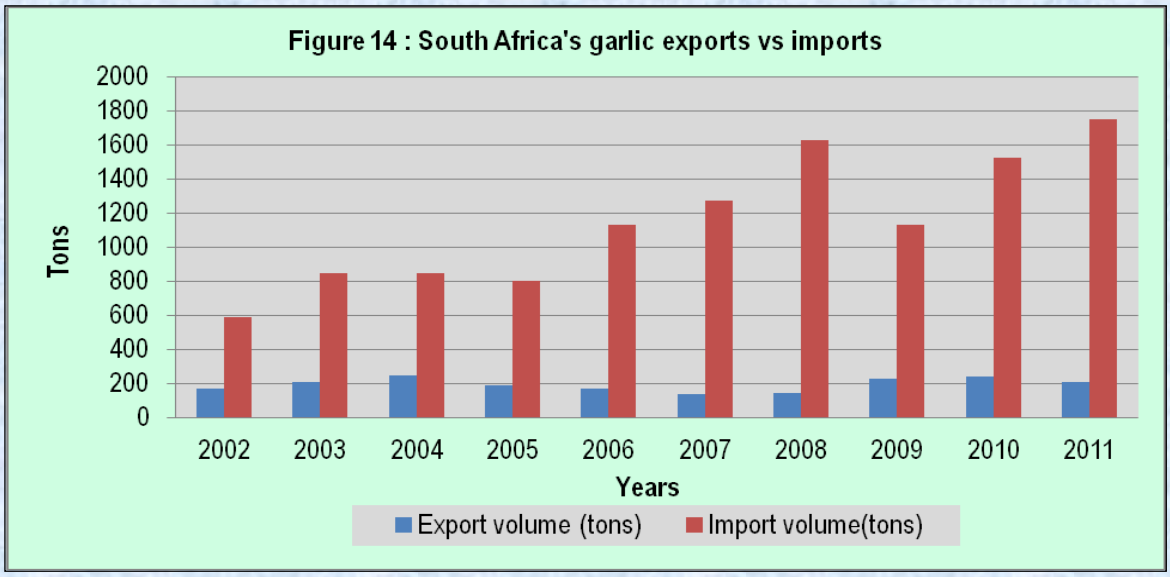
2.4 South African garlic imports

South Africa is not a major garlic importer and its garlic imports represented 0.11% of world imports in 2011, ranking 76th in the world. In 2011, South Africa imported garlic from China, Argentina, Viet Nam, Egypt, Mexico, India, Malaysia and Israel. Globally, Indonesia is the biggest garlic importer followed by Brazil, Vietnam, United States of America, Italy and Malaysia. Figure 13 illustrates garlic imports by South Africa over a period of 10 years.



Source: Quantec Easydata

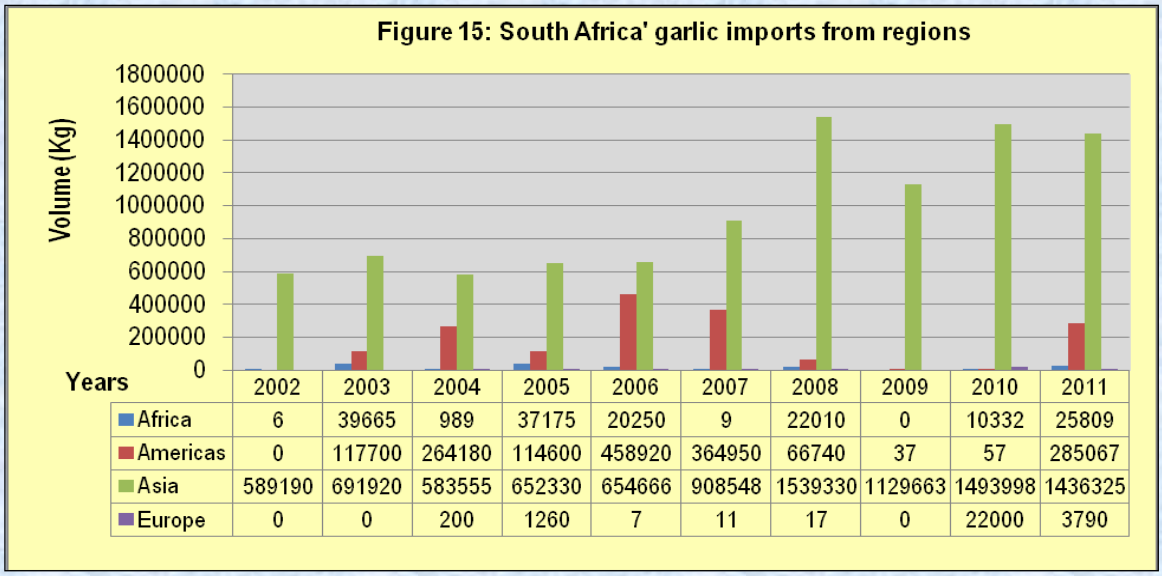
In 2002 to 2005, South Africa has imported low volumes of garlic. This can be attributed to high domestic production in the same years. From 2006 to 2008 there was a significant increase in garlic imports. The increase can be attributed to the drop in production in the same years. It was also cheaper to import garlic from 2002 to 2010, since more volumes were imported at lesser values. In 2009, garlic imports declined by 30% compared to 2008. The decline in imports can be attributed to an increase in domestic production in the same year. There was a 35% increase in garlic import in 2010, which can be attributed to a drop in domestic production. In 2011, import values declined by 14.7% and this can be attributed to 16% increase in domestic garlic output.



Source: Quantec Easydata

Figure 14 above compares volumes of exports and volumes of imports of garlic from 2002 to 2011. For the period under analysis, South African garlic exports were far less than imports. This means that South Africa consumes more garlic that the country produces. As indicated in Figure 14, South Africa is a net garlic importer. Figure 14 also illustrates that when domestic output drops, garlic imports increases and this presents an opportunity for domestic producers as demand is more than current supply.

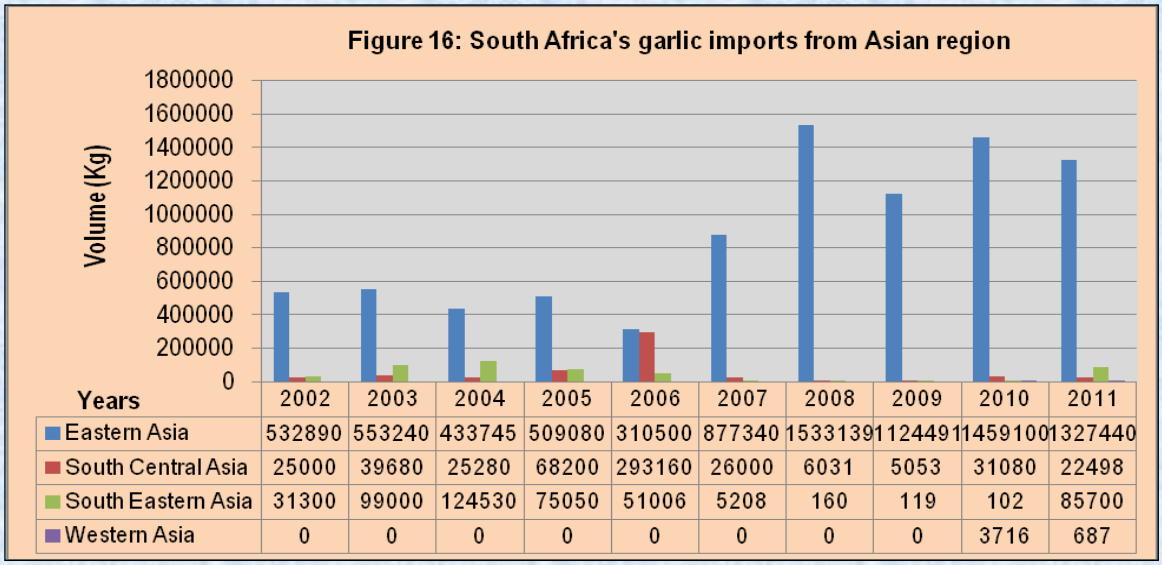
Figure 15 below indicates that garlic imports by South Africa originated mainly from Asia during the 10 year period. From 2003 to 2007, South Africa also imported high quantities of garlic from the Americas. Top countries producing garlic are located in these regions. In 2009, there were no garlic imports from Europe and African regions. South Africa also imported considerable quantities of garlic from African region. In 2010, garlic imports from Americas region were insignificant. In 2011, South Africa's garlic imports were mainly from Asia, Americas and African regions.



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa	6	39665	989	37175	20250	9	22010	0	10332	25809
Americas	0	117700	264180	114600	458920	364950	66740	37	57	285067
Asia	589190	691920	583555	652330	654666	908548	1539330	1129663	1493998	1436325
Europe	0	0	200	1260	7	11	17	0	22000	3790

Source: Quantec Easydata

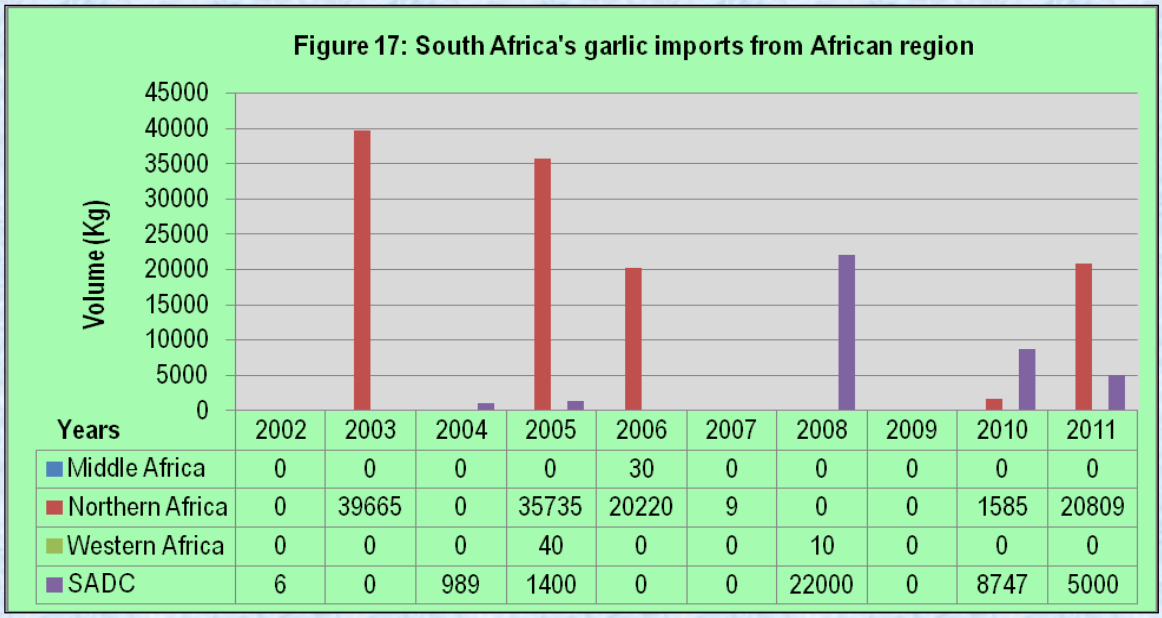
Figure 16 shows that from the Asian region, South African garlic imports came from Eastern Asia (China, Hong Kong, Taiwan and Japan) from 2002 to 2011. In South Central Asia the imports originates from India, Pakistan and Sri Lanka and in South Eastern Asia from Indonesia, Malaysia, Singapore, Viet Nam and Thailand. In 2010 and 2011, South Africa imported small volumes of garlic from Western Asia (Israel).



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Eastern Asia	532890	553240	433745	509080	310500	877340	1533139	1124491	1459100	1327440
South Central Asia	25000	39680	25280	68200	293160	26000	6031	5053	31080	22498
South Eastern Asia	31300	99000	124530	75050	51006	5208	160	119	102	85700
Western Asia	0	0	0	0	0	0	0	0	3716	687

Source: Quantec Easydata

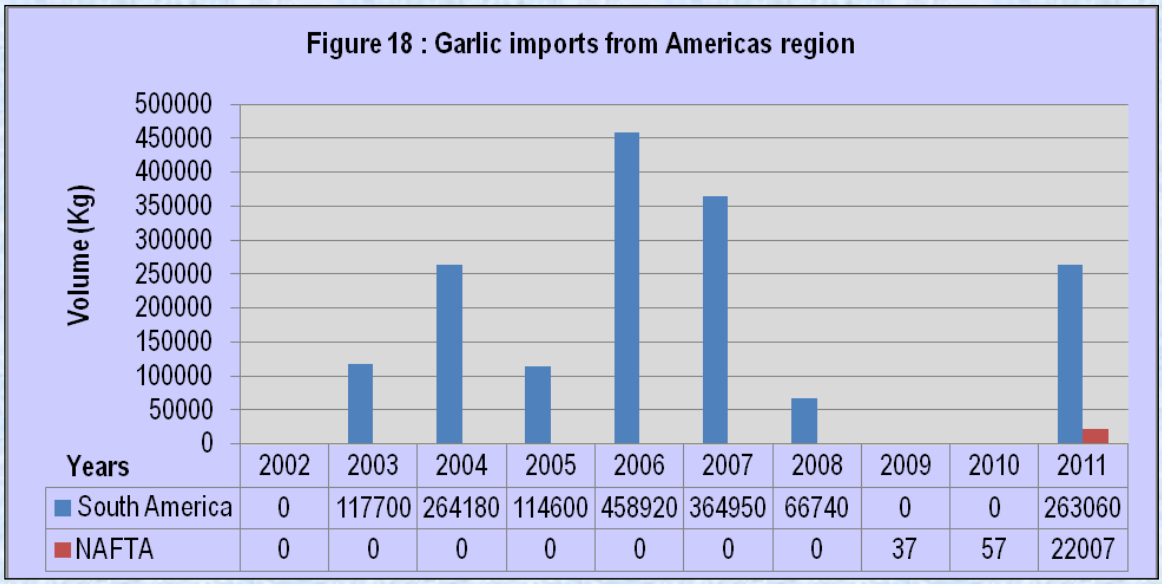
Figure 17 below illustrates South African garlic imports from the African region in a 10 year period. In 2003, 2005 to 2006 and 2011, South Africa imported high quantities of garlic from Northern Africa (Egypt). In 2008, 2010 and 2011 South African garlic imports were sourced from SADC countries (Zimbabwe and Mozambique) and in 2009 there were no garlic imports from African region. Garlic imports from Middle Africa and Western Africa were insignificant.



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Middle Africa	0	0	0	0	30	0	0	0	0	0
Northern Africa	0	39665	0	35735	20220	9	0	0	1585	20809
Western Africa	0	0	0	40	0	0	10	0	0	0
SADC	6	0	989	1400	0	0	22000	0	8747	5000

Source: Quantec Easydata

Figure 18 below shows that in Americas region South Africa imports garlic from South America (Argentina) and NAFTA (United States and Mexico). In 2002, 2009 and 2010 there were no imports from South America. Garlic imports from NAFTA were insignificant except in 2011.



Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
South America	0	117700	264180	114600	458920	364950	66740	0	0	263060
NAFTA	0	0	0	0	0	0	0	37	57	22007

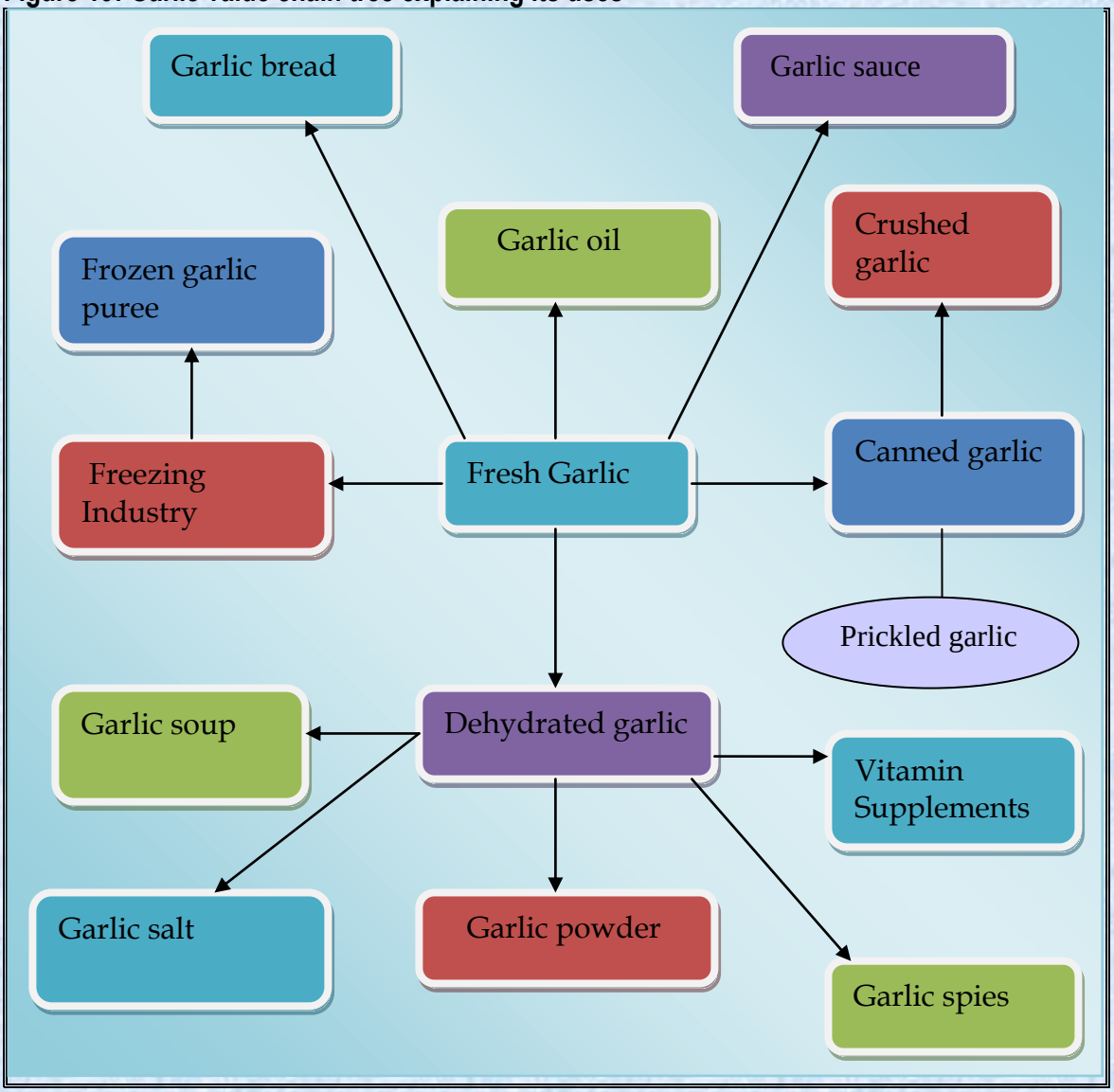
Source: Quantec Easydata

2.5 Processing

Garlic is a high value crop that can be marketed being fresh, dehydrated or as certified seeds. 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

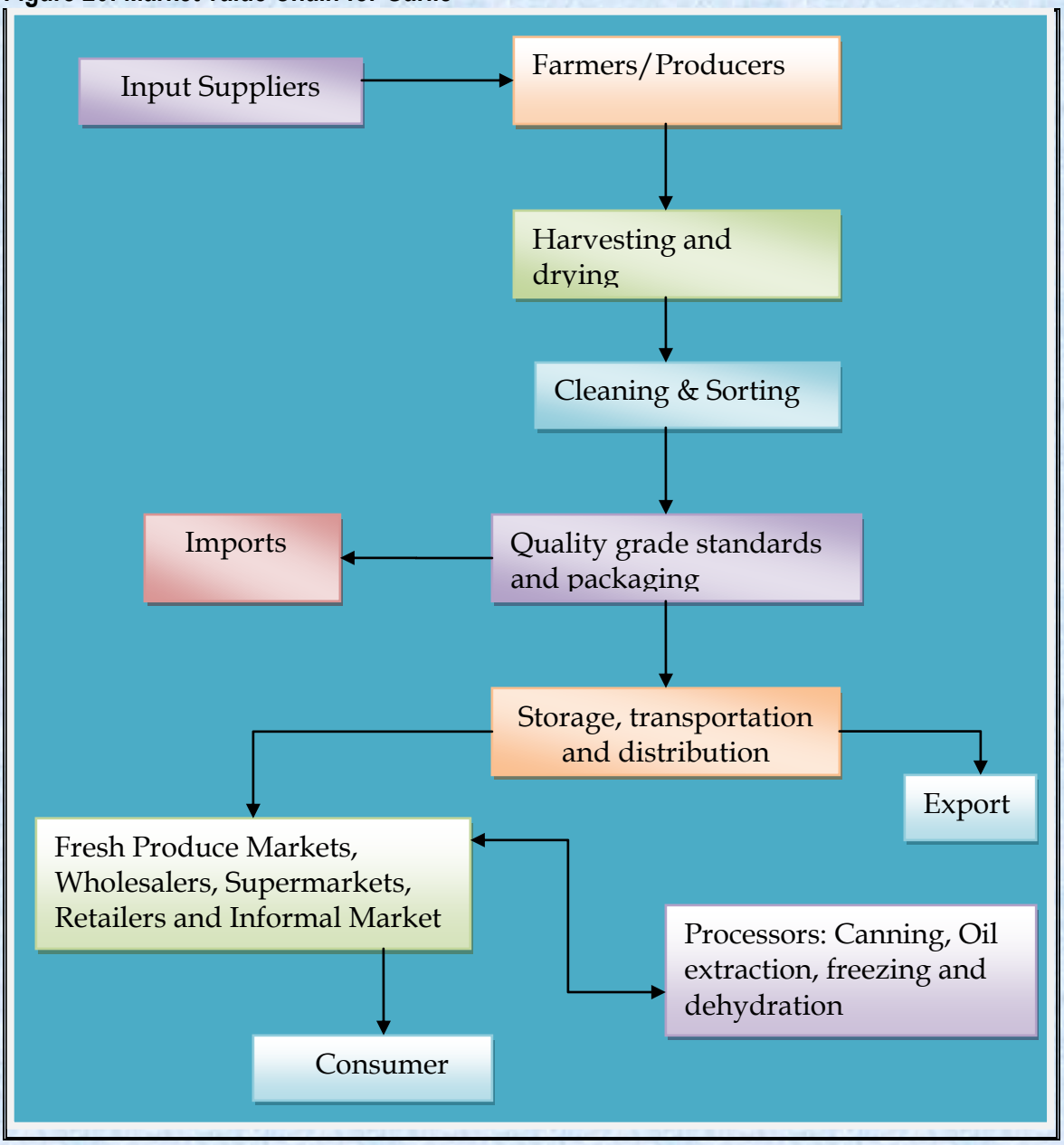
prevent heart disease (including atherosclerosis, high cholesterol, and high_blood_pressure) and cancer. Garlic is used to prevent certain types of cancer, including stomach and colon cancers. It is also used as insect repellent. Garlic is also alleged to help regulate blood sugar levels. Figure 19 below shows different end products after value adding and processing.

Figure 19: Garlic value chain tree explaining its uses



The market value chain for garlic is illustrated in Figure 20 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 20: 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 advalorem equivalent tariff	Applied tariff	Estimated total advalorem equivalent tariff
			2010		2011	
Angola	Garlic fresh or chilled	MFN duties (Applied)	15.00%	15.00%	15.00%	15.00%
Brazil	Garlic fresh or chilled	MFN duties (Applied)	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%
DRC	Garlic fresh or chilled	MFN duties (Applied)	10.00%	10.00%	10.00%	10.00%
Egypt	Garlic fresh or chilled	MFN duties (Applied)	5.00%	5.00%	5.00%	5.00%
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%
Germany	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
India	Garlic fresh or chilled	MFN duties (Applied)	100%	100%	100%	100%
Italy	Garlic fresh or	Preferential tariff for	0.00%	0.00%	0.00%	0.00%

Country	Product description (H070320)	Trade regime description	Applied tariff	Estimated total advalorem equivalent tariff	Applied tariff	Estimated total advalorem equivalent tariff
			2010		2011	
	chilled	South Africa				
Malawi	Garlic fresh or chilled	MFN duties (Applied)	10.00%	10.00%	10.00%	10.00%
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	15.00%	15.00%	15.00%	15.00%
Netherlands	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
United Kingdom	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00%	0.00%
United States of America	Garlic fresh or chilled	MFN duties (Applied)	0.34%	0.34%	$4.30/ton	0.29%
Viet Nam	Garlic, onion and shallot	General tariff	0.00%	0.00%	0.00%	0.00%
Zambia	Garlic fresh or chilled	Preferential tariff for South Africa	0.00%	0.00%	0.00	0.00
Uganda	Garlic fresh or chilled	MFN duties (Applied)	25.00%	25.00%	25.00%	25.00%
Zimbabwe	Garlic fresh or chilled	MFN duties (Applied)	4.00%	40.00%	40.00%	40.00%

Source: Market Access Map, ITC

As illustrated in the Table 7 above, South Africa can look up to garlic export opportunities in countries such as United Kingdom, Netherlands, France, Germany and Italy as these countries apply a 0.00% tariff to exports of garlic originating from South Africa due to EU-SA Free Trade Agreement (TDCA). In African markets, Zambia applies 0.00% preferential tariff to garlic exports originating from South Africa due to SADC-FTA agreement. Other African markets such as the Democratic Republic of Congo, Mozambique and Zimbabwe apply 10.00%, 15.00% and 40.00% tariffs respectively, in spite of the existence of the SADC- Free Trade Agreement. China and India are the top garlic producers in the world and their domestic producers are protected by 13% and 100% tariff respectively.

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 labeling 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 downs 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 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 successful. 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 and 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 labeling 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 lead 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^{o}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

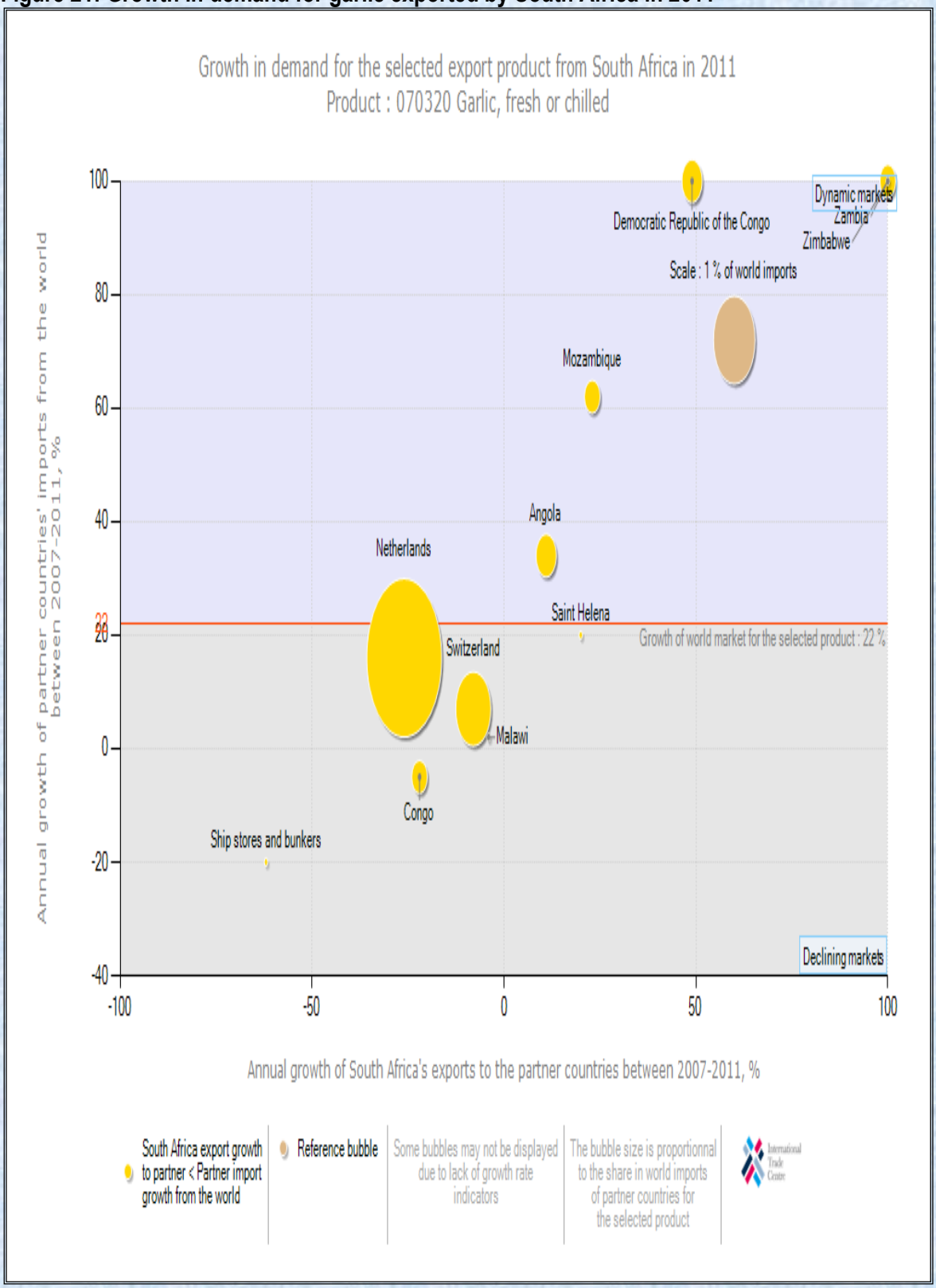
Packaging also plays a vital role in ensuring safe and efficient transport of a product and conforming to handling requirements, uniformity, recyclable materials specifications, phytosanitary requirements, proper storage needs and even attractiveness (for marketing purposes).

6. COMPETITIVENESS OF SOUTH AFRICAN GARLIC EXPORTS

Figure 21 below, shows that South Africa garlic exports are growing slower than the world garlic imports into Mozambique, Democratic Republic of the Congo, Angola, Zimbabwe, Saint Helena and Zambia. South Africa's performance in those countries can be regarded as a loss in the dynamic markets. South Africa garlic exports are declining while the world imports are growing into Netherlands, Switzerland and Malawi. South Africa garlic exports are declining faster than the world imports into Congo.

Figure 22 below, shows that the main markets for South Africa garlic exports are Zimbabwe and Belgium. Prospective markets for garlic exports exist in Angola, Mauritius Mozambique, Brazil and Uganda. Other small prospective markets exist in Netherlands, Germany, Saint Helena and Italy. However, if South Africa is to diversify its garlic exports, the most lucrative markets exist in Zambia and Democratic Republic of the Congo which have increased their garlic imports from the world by 638% and 121% respectively between the period 2007 and 2011.

Figure 21: Growth in demand for garlic exported by South Africa in 2011



Source: Trade Map, ITC

Figure 22: Prospects for market diversification for garlic exported by South Africa in 2011

Source: Trade Map, ITC

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 for garlic production.

7.2 Challenges

Garlic is high risk, labour intensive crop to grow successfully**.** 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.

8. ACKNOWLEDGEMENTS

The following industries are acknowledged

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Quantec Easy Data
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Market Access Map
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