

# 1A PROFILE OF THE SOUTH AFRICAN GRAIN SORGHUM MARKET VALUE CHAIN

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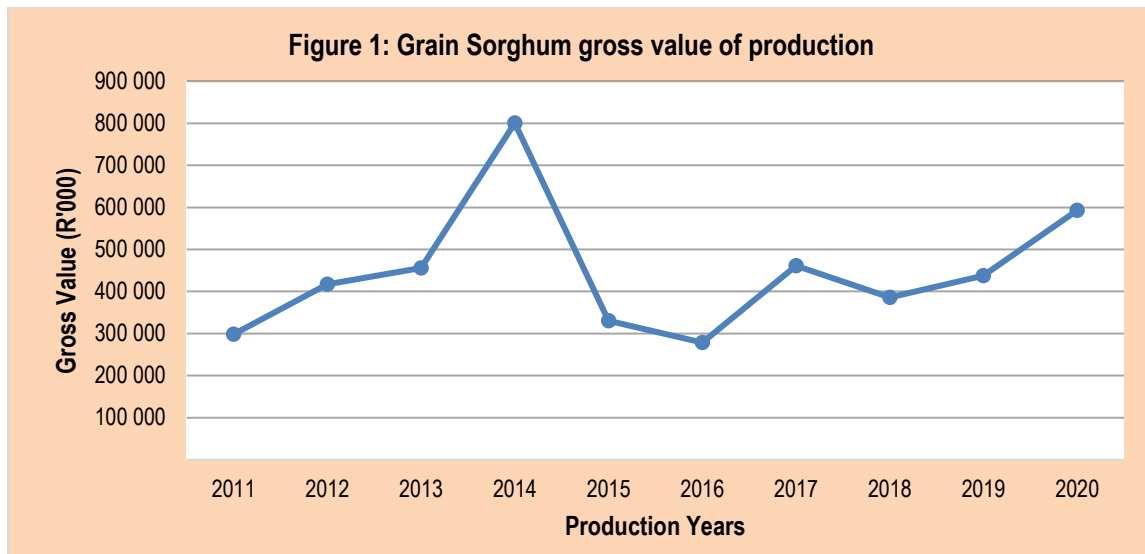
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## TABLE OF CONTENTS

1.	DESCRIPTION OF THE INDUSTRY .....	3
1.1	Production Areas.....	3
1.2	Production Trends .....	4
2.	MARKET STRUCTURE.....	5
2.1	Domestic Market and Prices.....	5
2.2.	Exports.....	6
2.3	Imports.....	11
3.	STORAGE OF SORGHUM.....	13
4.	MARKET VALUE CHAIN .....	14
5.	MARKET INTELLIGENCE .....	16
5.1.	Tariffs.....	16
5.2.	Performance of the South African grain sorghum industry .....	17
6.	ORGANIZATIONAL ANALYSIS.....	22
7.	ACKNOWLEDGEMENTS .....	25

# 1. DESCRIPTION OF THE INDUSTRY

Sorghum, like other grains, has two basic markets that it serves namely, the human component and the animal feed component. There are two types of sorghum, namely bitter and sweet sorghum cultivars. In most cases sweet sorghum varieties are given many preferences, while bitter sorghum is plated in areas where birds are a problem as it is considered unpalatable to bird. Some of the uses of grain sorghum are to perform ritual ceremonies mainly in African countries. The grain is mainly found in Nigeria, Ethiopia, and Sudan in the African region whereas in the rest of the world is produced mainly in United State of America and India.

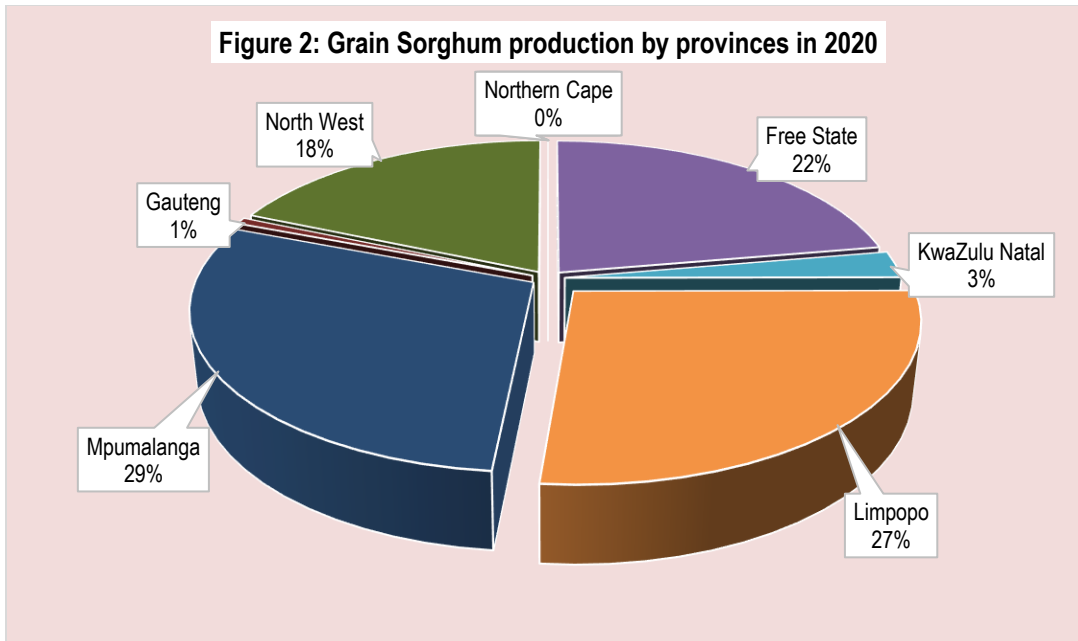


**Source: Statistics and Economic Analysis**

The figure 1 above indicate that the period under review opened with slightly higher gross value of sorghum grain production in 2010/11. The figure further shows that gross value of sorghum production has been fluctuating throughout the period under analysis (2010/11 to 2019/20). A sharp increase in gross value of production was experienced during the marketing year 2011/12. The grain sorghum value of production reached the highest in 2013/14 and later dropped drastically in 2014/15 and 2015/16, followed increase in 2016/17 season. The period under analysis closed with an increasing contribution to the gross value of production by the sorghum industry during 2019/20 with about 35.5% increase as compared to the previous production season.

## 1.1 Production Areas

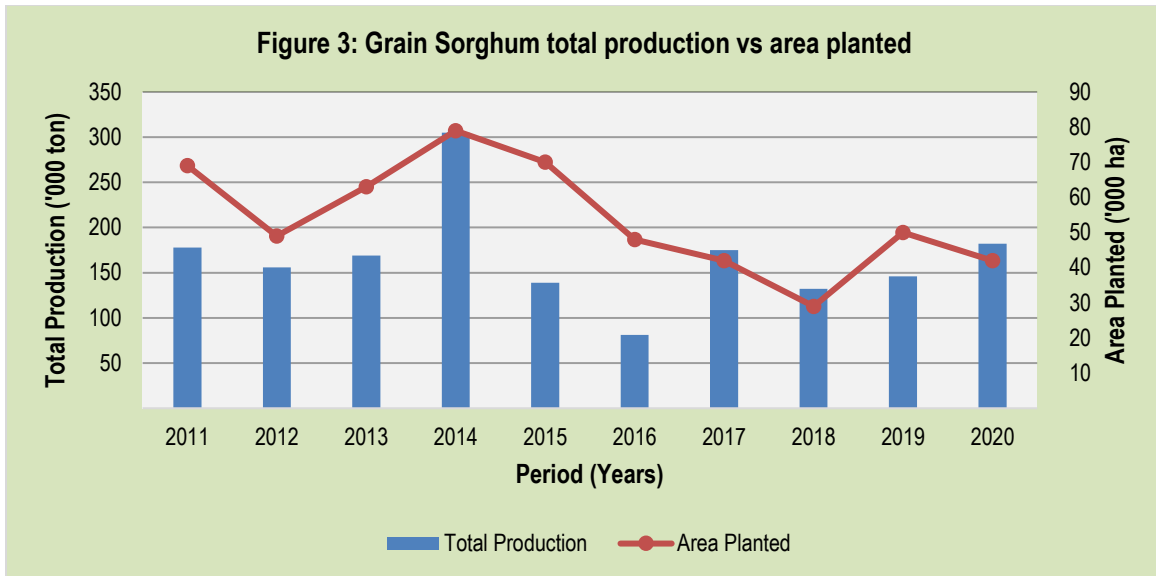
Figure 2 below shows that in South Africa grain sorghum is mainly produced in Mpumalanga (29%), Limpopo (27%), the Free State (22%) and North-West province with (18%). Other provinces that contribute small percentages to the total grain sorghum production in the country are the Gauteng and KwaZulu Natal with a respective contribution of 1% and 3% to South Africa's total sorghum production in 2019/20.



Source: Statistics and Economic Analysis

## 1.2 Production Trends

Figure 3 below shows that the period under review opened with the record higher volumes of sorghum production in the local market to levels above 178 000 tons during the year 2010/11. This can be attributed to an increase in the total area of production during the same period. This was followed by a drastic decrease in the total area of grain sorghum production at 49 000 hectares in 2011/12. The total production declined sharply during the same period. The figure further shows that volumes of sorghum production continued to decline to levels below 160 000 tons between 2010/11 and 2011/12 production years mainly due to reduced area of production and lower market prices. However, the production patterns of sorghum grain started to increase until about 305 000 tons were attained in the period 2013/14. During the marketing year 2014/15 the production for sorghum declined drastically in both area planted and volumes until the lowest production volumes of 81 000 tons was reached in 2015/16. The period under review in 2019/20 season closed with a sharp increase in production and a decrease in area planted as compared to the 2018/19 season.

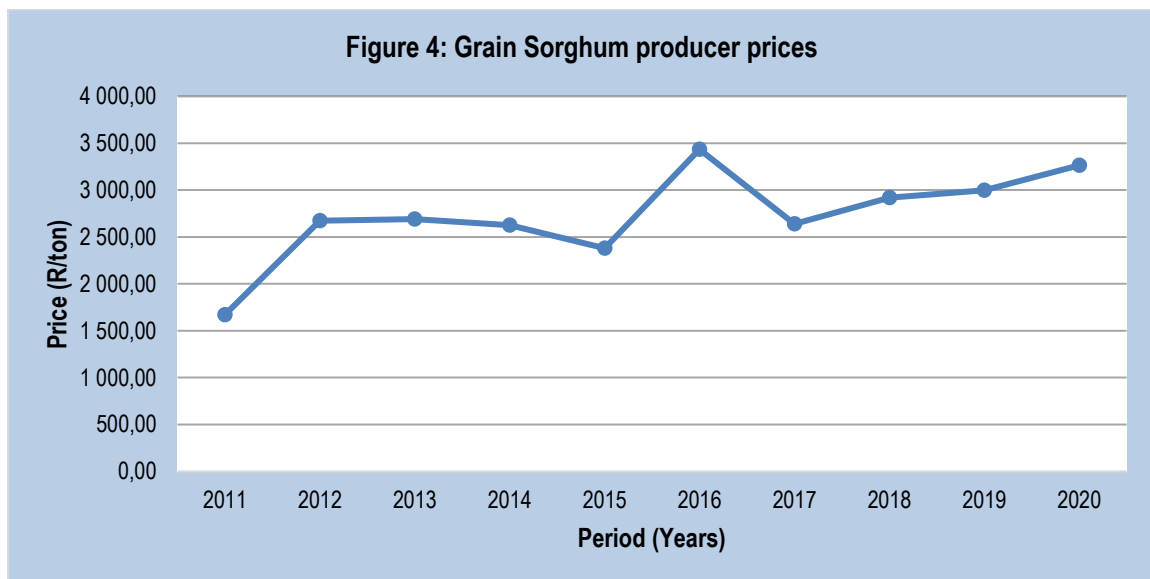


Source: Statistics and Economic Analysis

## 2. MARKET STRUCTURE

### 2.1 Domestic Market and Prices

Producer price trends for sorghum for the period 2010/11 to 2019/20 are shown in Figure 6 below. Grain sorghum prices are highly volatile in nature depending on the demand and supply forces.

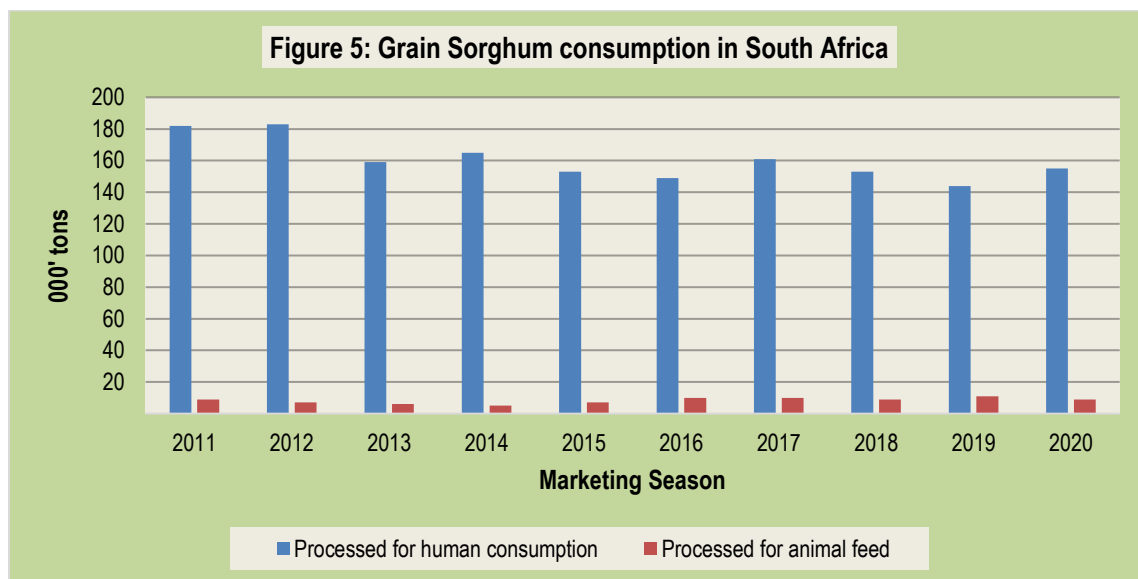


Source: Statistics and Economic Analysis

Presently the sorghum price is discounted against the cheapest white and yellow maize. As shown in Figure 4 above, the period under analysis opened with relatively lower producer prices for grain sorghum during the 2010/11 marketing season and this was followed by an increase in producer prices during the year 2010/11. The lowest producer price for grain sorghum was experienced during

2010/11 marketing season and this can be attributed to higher stock levels during the same period and the preceding marketing seasons. The period under analysis reached the highest average producer price for sorghum in 2015/16 marketing season when the production volumes were at the lowest due to unfavourable weather conditions that affected production during the same period. This was followed by a decrease in producer prices in 2016/17 season. The period under review closed with increasing producer prices for sorghum during the year 2019/20, given a further increase in volumes during the same period.

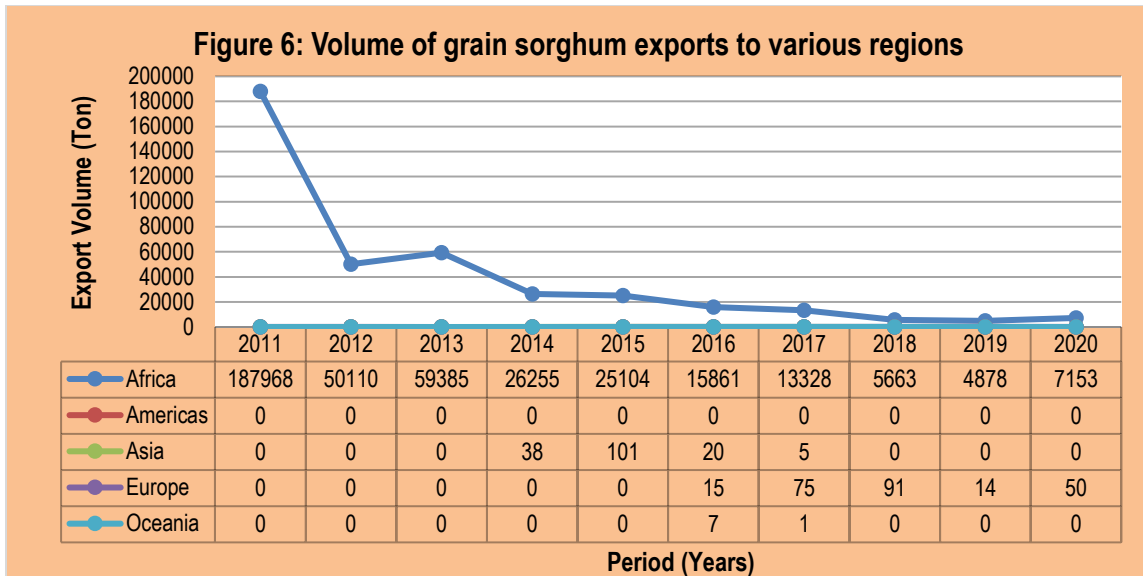
Figure 5 below shows the domestic sorghum utilization/processing from 2010/11 to 2019/20 marketing season. Sorghum in South Africa is mainly used for human consumption such as malt and sorghum meal (also known as *mabele*). Malt is used mainly for the manufacture of traditional African beer commonly known as *umqombothi*. About 95% of the total domestic commercial sorghum processing is used for human consumption, of which about 47% is used for malting while 49% is used to make sorghum meal and rice. Sorghum meal competes directly with maize meal and is served as a breakfast cereal or as soured porridge “*Ting*”. There is also a culture in the African tradition to cook raw sorghum grain mixed with legumes and use it as a substitute for rice. Only 5% of the total commercial processing volume is used for animal feeds. It is also clear from Figure 5 that sorghum processing volumes in the malting and feed industries has been on a declining trend in recent years while sorghum remained popular and stable as raw material for food production.



Source: Statistics and Economic Analysis

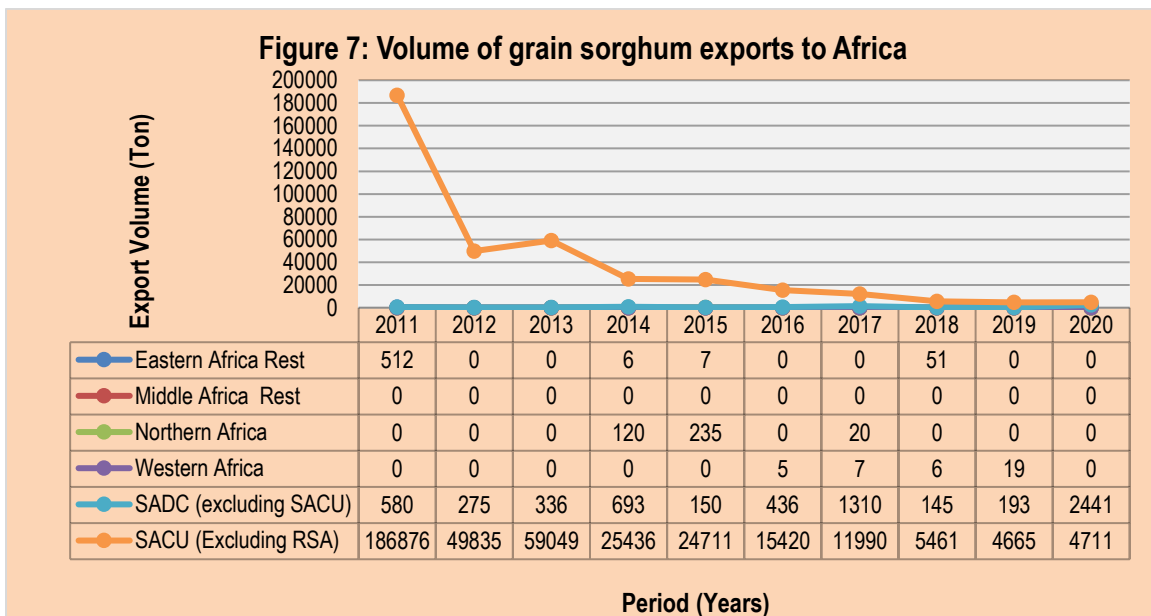
## 2.2. Exports

Exports of sorghum are handled by means of contracts between buyers and sellers subject to the requirements of the Agricultural Product Standards Act no 119 of 1990. The volume of grain sorghum exports to the world from 2011 to 2020 are presented in Figure 6 below.



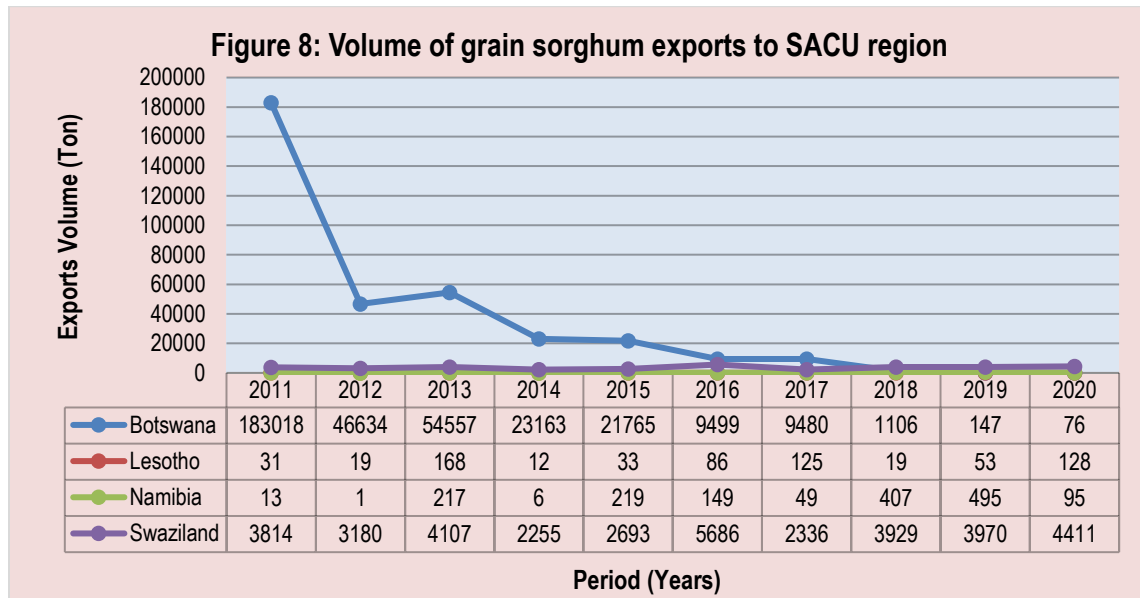
Source: Quantec Easy Data

Figure 6 shows that the African continent has been the major recipient of grain sorghum exports originating from South Africa throughout the period under review. The South African exports of grain sorghum were at record high at the opening of the season in 2011. Grain sorghum exports from South Africa to the African continent decreased drastically during the year 2012. However, grain sorghum exports volumes to Africa continued to dominate until the end of the season in 2020. This reflects greater export volumes to SACU countries, which were not part of trade statistics before the year 2011. South Africa also exported sorghum to the Americas, Asia, and Europe although in very small quantities. The volume of sorghum exports to Africa are shown in Figure 7 below.



Source: Quantec Easy Data

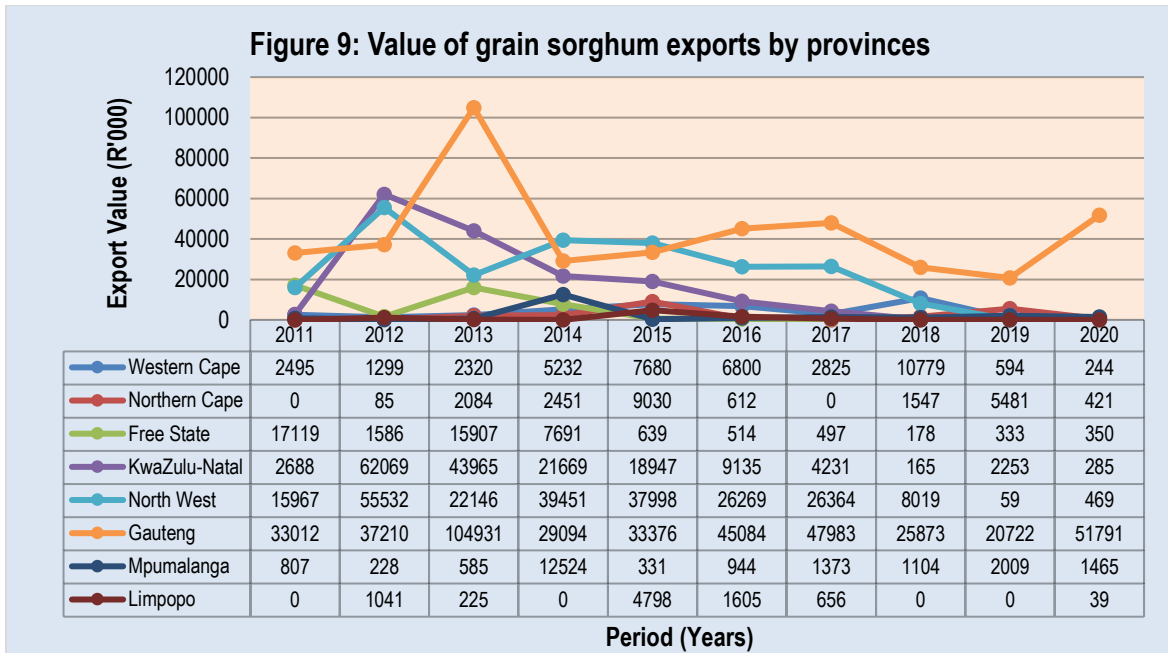
Figure 7 above indicates South Africa's grain sorghum exports to the African continent. It is clear from the figure that on the African continent larger volumes of grain sorghum are exported mostly to SADC and the SACU regions. This situation can be attributed to the fact that there is Free Trade Agreement that allows free flow of goods and services within the SADC region. The shorter distance that exists between South Africa, SACU countries and most SADC member states also serves as an advantage for free flow of goods and services within the region. South Africa also exports some reasonable volume of sorghum exports to East Africa and the Northern African regions respectively. The period under review closed with increasing trend in exports of grain sorghum to the African continent during the year 2020.



Source: Quantec Easy Data

Figure 8 above shows that the major export market for South African sorghum in the SACU region is Botswana and this has been going over the past eight years. The South African volumes of grain sorghum exports to Botswana continued to increase from 2010 until a peak in exports was reached during the marketing year 2011. However, grain sorghum exports from South Africa to this country have been on the decline from 2012 until 2020. Very minimal volumes were also exported to Swaziland, Lesotho, and Namibia over the past ten years. The values of grain sorghum exports from various provinces of South Africa are presented in Figure 9 below.



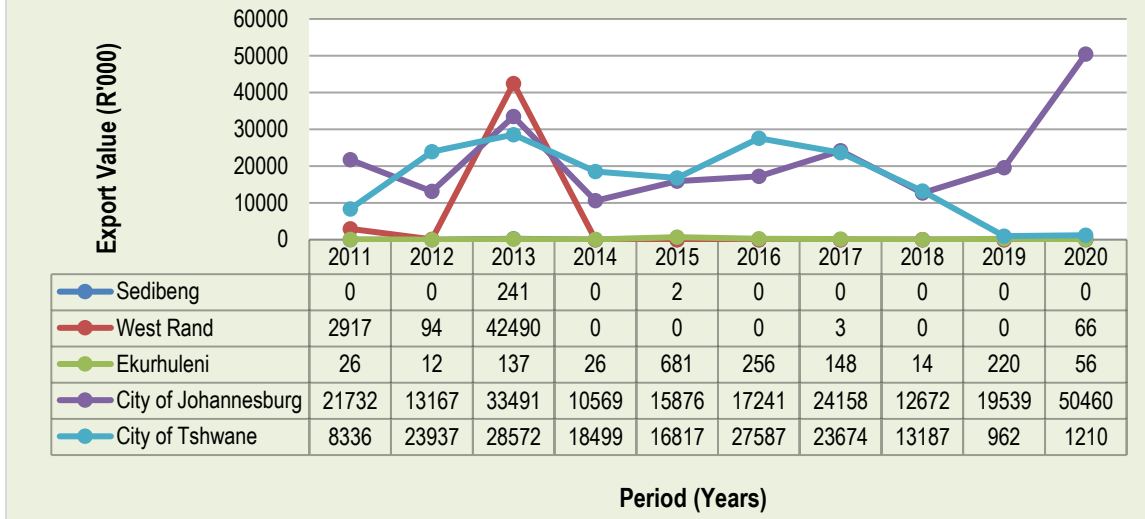


Source: Quantec Easy Data

Figure 9 indicates that sorghum is exported mainly from Gauteng, KwaZulu Natal and North-West provinces. Although some of these provinces do not form part of major sorghum-producing regions in South Africa, Gauteng Province and KwaZulu-Natal are the main exporters of grain sorghum implying that the main sorghum producers export their products via these provinces because of availability of suitable infrastructure and favourable logistics for exportation and the location of traders in these provinces. Grain sorghum exports from other provinces were minimal and scattered during the period between 2011 and 2020.

Figure 10 below shows the value of grain sorghum exports from Gauteng province between the years 2011 and 2020. It is clear from the figure that both City of Johannesburg and City of Tshwane Districts were dominant in terms of sorghum exports from Gauteng throughout the period under analysis. However, West Rand District municipality emerged to be the highest exporter of grain sorghum from Gauteng Province during the year 2013, slightly above the City of Johannesburg. West Rand and Ekurhuleni District Municipalities recorded intermittent exports between the periods 2011 and 2020.

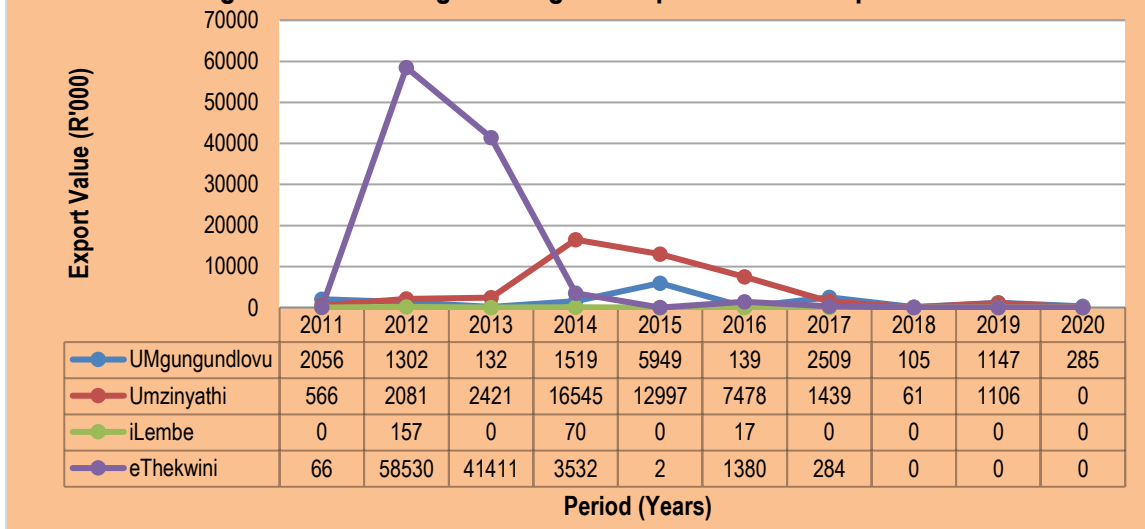
**Figure 10: Value of grain sorghum exports from Gauteng province**



Source: Quantec Easy Data

Figure 11 below shows value of sorghum exports from KwaZulu-Natal province between the years 2011 and 2020. The figure indicates that the period under analysis opened with lower value of sorghum exports during the year 2011, originating mainly from uMgungundlovu District. From the KwaZulu-Natal Province, grain sorghum was exported mainly from uMzinyathi, eThekwini, and uMgungundlovu District Municipalities in recent years between 2011 and 2017. Exports from uMgungundlovu and eThekwini have been very low and erratic over the period under analysis. The availability of Durban harbour in the province, which serves as an overpass for exportation of various commodities, might be the reason behind the exports recorded from this province. The period under review closed with declining exports of grain sorghum from the KwaZulu Natal province, originating only from uMgungundlovu in 2020.

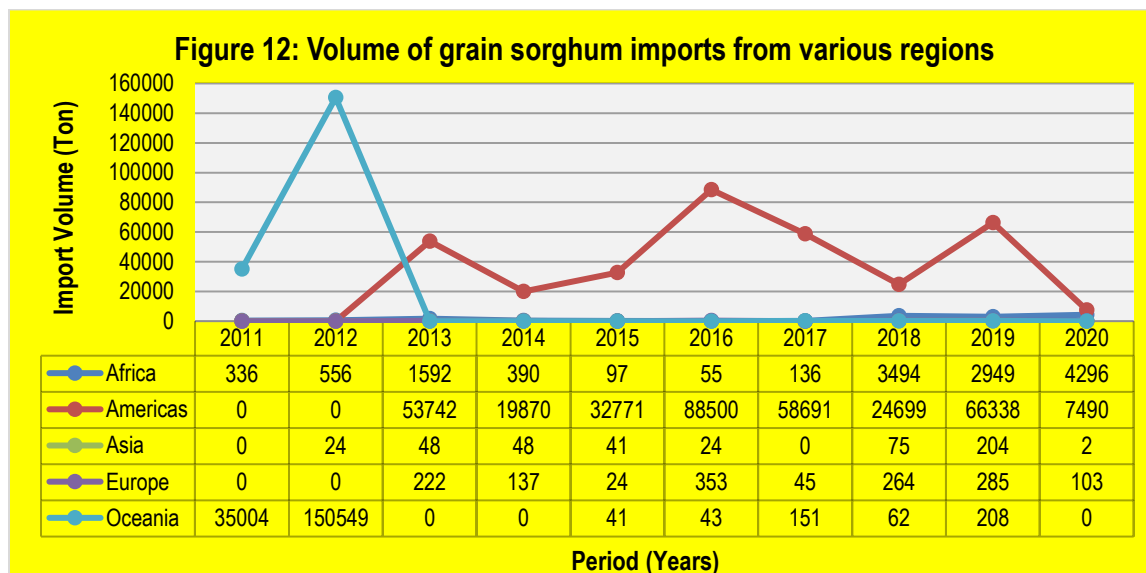
**Figure 11: Value of grain sorghum exports from KZN province**



Source: Quantec Easy Data

## 2.3 Imports

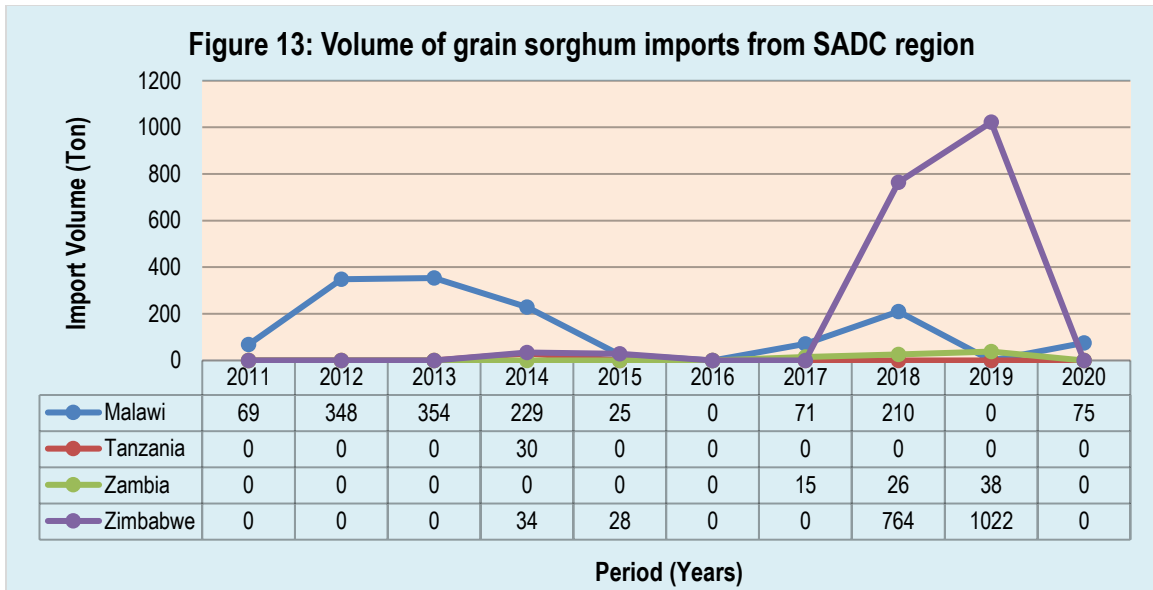
The volumes of grain sorghum imported from 2011 to 2020 pursue the pattern shown in Figure 13 below.



**Source: Quantec Easy Data**

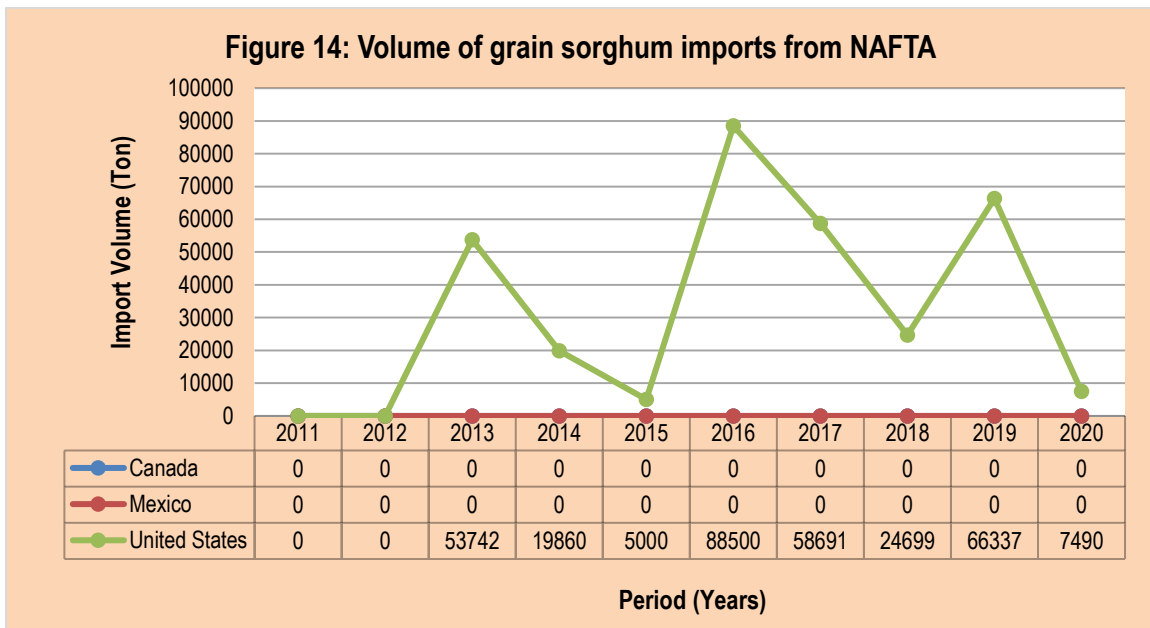
Figure 12 shows that South Africa imports sorghum mainly from the Americas and Oceania. The figure further illustrates that sorghum imports from the world were lower during the opening of the season in 2011 and further fluctuated considerably throughout the period until 2020. The largest import volume for the product was attained during the year 2012. Low volume of imports was attained at the beginning of the marketing year in 2011. There is also an indication of relatively lower volumes of grain sorghum imports during the year 2011 due to higher production volumes experienced in the country during 2010/11 production season. Also observable from the figure is the fact that the volume of grain sorghum imports from Oceania increased to relatively higher levels during the year 2011 and 2012 while imports from other regions were relatively lower during the same period. The period under analysis closed with very low levels of imports from all regions, although the imports from the Americas appeared to be higher than the rest in 2020.

The volumes of grain sorghum imports from the SADC region are presented in Figure 13 below. Figure 13 shows that on the African continent and specifically in the SADC region, grain sorghum imports were acquired mainly from Malawi, Zimbabwe, Zambia, and Mozambique, although imports from these countries have been lower and fluctuating throughout the period under analysis. The period under review closed with extremely low exports destined only to Malawi in 2020.



Source: Quantec Easy Data

In the North American Free Trade Area (NAFTA) sorghum imports originate mainly from the United States of America as depicted in Figure 15 below. There were no imports of grain sorghum originating from the NAFTA from the year 2011 until 2012. However, during the year 2013 volumes of grain sorghum imports from NAFTA begin to appear until the highest peak in imports was attained in 2016. The period under review closed with declining volumes of sorghum imports from NAFTA in 2020.



Source: Quantec Easy Data

### 3. STORAGE OF SORGHUM

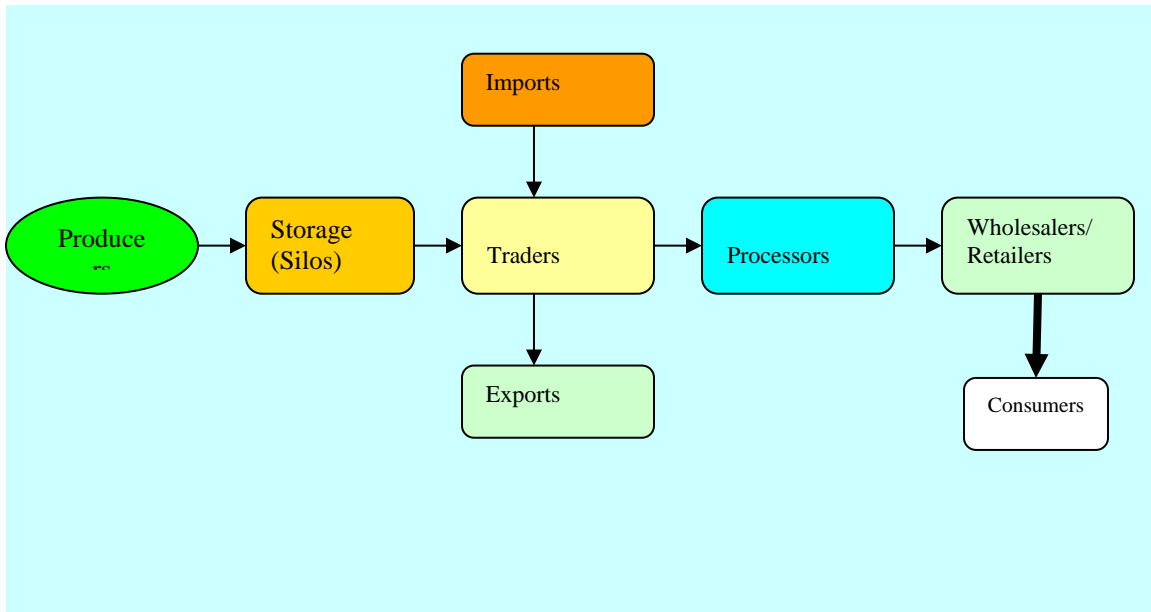
Commercial storage providers of sorghum operate according to the following framework:

- Storage and handling services like grading and cleaning are managed in such a way as to add value to the product of the owner of sorghum.
- Effective grain silo services are rendered at market-related costs and on sound business principles and are available to similar users of grain silo facilities on an equal basis.
- Sorghum is graded according to the grading regulations of the Department of Agriculture, Forestry and Fisheries.
- Any quantity of sorghum that complies with the requirements of the national department of health will be handled and stored subject to practical arrangements.
- The quality and quantity of sorghum is guaranteed during storage and agreed arrangements are adhered to.
- The market mechanisms that enhance the trading of sorghum are supported and used, and their requirements adhered to.
- Silo certificates are made available to the owners of sorghum for trading purposes.
- The sorghum specified on a silo certificate will, on presentation of the silo certificate, be supplied to the holder after all relevant costs have been paid.
- Grain silo service tariffs are available at the beginning of a marketing period at head offices and grain silos.

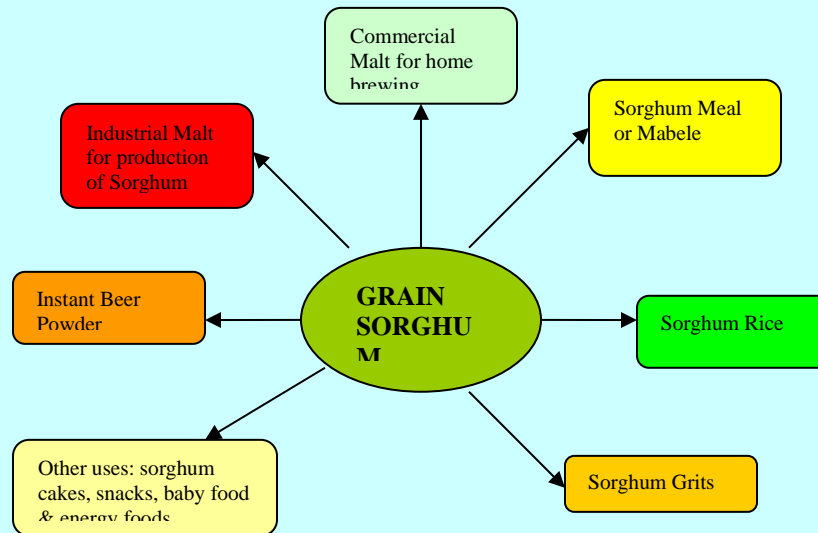
In addition to these services, storage facilities to previously disadvantaged individuals include the following:

- The storers of sorghum provide a means whereby previously disadvantaged individuals get access to mainstream marketing opportunities.
- Any quantity of sorghum delivered in bags or bulk will be received and stored in silos and/or marketed through silos as long as it complies with the sanitary and phyto-sanitary requirements.
- A full range of marketing possibilities is available from silo owners.
- Storers inform emerging producers on an ad hoc basis of quality regulations, prices, price structures, marketing opportunities and storage services available.
- Extension services are generally available to assist farmers with advice.

#### 4. MARKET VALUE CHAIN



**Figure 15: Grain Sorghum value chain**



**Figure 16: Sorghum Value Chain Tree: explaining its various uses.**

Sorghum products for the consumer market include the following:

- Commercial malt: sorghum is saturated and left to germinate, and after germination it is then dried to a certain level and the malt is then packaged and sold for the home brewing of beer. Equal amounts of maize meal and commercial malt are then mixed with water and yeast to brew beer with an alcohol content of between 1 – 2%.
- Industrial malt: sorghum is soaked in water and given time to germinate after which it is dried. The malt is used to produce sorghum beer with an alcohol content of about 3%.
- Instant beer powder: due to urbanization of the traditional users of home brewed sorghum beer.
- Sorghum meal: also known as *mabele* is a very popular breakfast cereal. It is processed in the same way as maize meal during the dry milling process.
- Sorghum rice: which compete with samp and wheat rice.
- Sorghum grits: used in the industrial brewing process to produce sorghum beer.
- Sorghum as animal feed: used as a component in the production of poultry, pet, pigeon and ostrich feeds.
- Other uses such as sorghum cakes, energy foods, snacks, and baby food.
- There are also possibilities of producing ethanol from sorghum, even though according to SASOL it is currently not economically viable to produce ethanol from sorghum; however, investigations into this matter continue.

## 5. MARKET INTELLIGENCE

### 5.1. Tariffs

The following table indicates the tariffs that are applied by South Africa on imports of all types of sorghum originating from various countries in 2020.

**Table 1: Tariffs applied by South Africa on imports of all types of sorghum originating from various countries in 2020**

TARIFF REGIME DESCRIPTION	APPLIED TARIFFS 2020	TOTAL AD VALOREM EQUIVALENT TARIFF 2020
MFN duties (Applied)	3.0%	3.0%
Intra SACU rate	0%	0%
Preferential tariff for SADC countries	0%	0%
Preferential Tariff for European Union countries	0%	0%

**Source: ITC Market Access Map**

South Africa levies a 3.00% *ad valorem* tariff on imported sorghum originating from all import markets. However, sorghum imports from Southern African Customs Union (SACU), Southern African Development Community (SADC) and the European Union member countries may enter South Africa duty free due to the existence of trade agreements between South Africa and the abovementioned regional structures.

The following tariffs (during 2020) are applied by other countries to the exports of grain sorghum originating from South Africa:

**Table 2: Tariffs applied by other countries to the exports of grain sorghum originating from South Africa**

IMPORTING COUNTRIES	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2020	ESTIMATED TOTAL AD VALOREM EQUIVALENT TARIFF 2020
Botswana	Grain sorghum	Intra SACU rate	0.00%	0.00%
Eswatini	Grain sorghum	Intra SACU rate	0.00%	0.00%



IMPORTING COUNTRIES	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2020	ESTIMATED TOTAL AD VALOREM EQUIVALENT TARIFF 2020
Zimbabwe	Grain sorghum	Preferential tariff for South Africa	0.00%	0.00%
Lesotho	Grain sorghum	Intra SACU rate	0.00%	0.00%
Namibia	Grain sorghum	Intra SACU rate	0.00%	0.00%

Source: ITC Market Access Map

Table 2 indicates that countries such as Botswana, Swaziland, Zimbabwe, and Lesotho impose import duties on imports of grain sorghum from the rest of the world. However, South Africa is allowed to export sorghum to these countries free of duty due to the SADC Free Trade Agreement, which is currently in place.

## 5.2. Performance of the South African grain sorghum industry

Table 3: List of importers of grain sorghum exported by South Africa in 2020

Importers	Exported value 2020 (USD thousand)	Share in South Africa's exports (%)	Exported quantity 2020 (Ton)	Unit value (USD/Ton)	Exported growth in value between 2016-2020 (% p.a.)	Exported growth in quantity between 2016-2020 (% p.a.)	Exported growth in value between 2019-2020 (% p.a.)
World	3366	100	7203	467	-21	-24	54
Zimbabwe	1886	56	2265	833	52	57	643
Eswatini	1110	33	4411	252	-1	0	10
Mozambique	162	4.8	173	936	105	108	96
Namibia	63	1.9	95	663	11	15	-78
Botswana	58	1.7	76	763	-66	-75	-87
Lesotho	56	1.7	128	438	-6	-1	50
United Kingdom	24	0.7	50	480	0	8	225

Source: ITC Trade Map

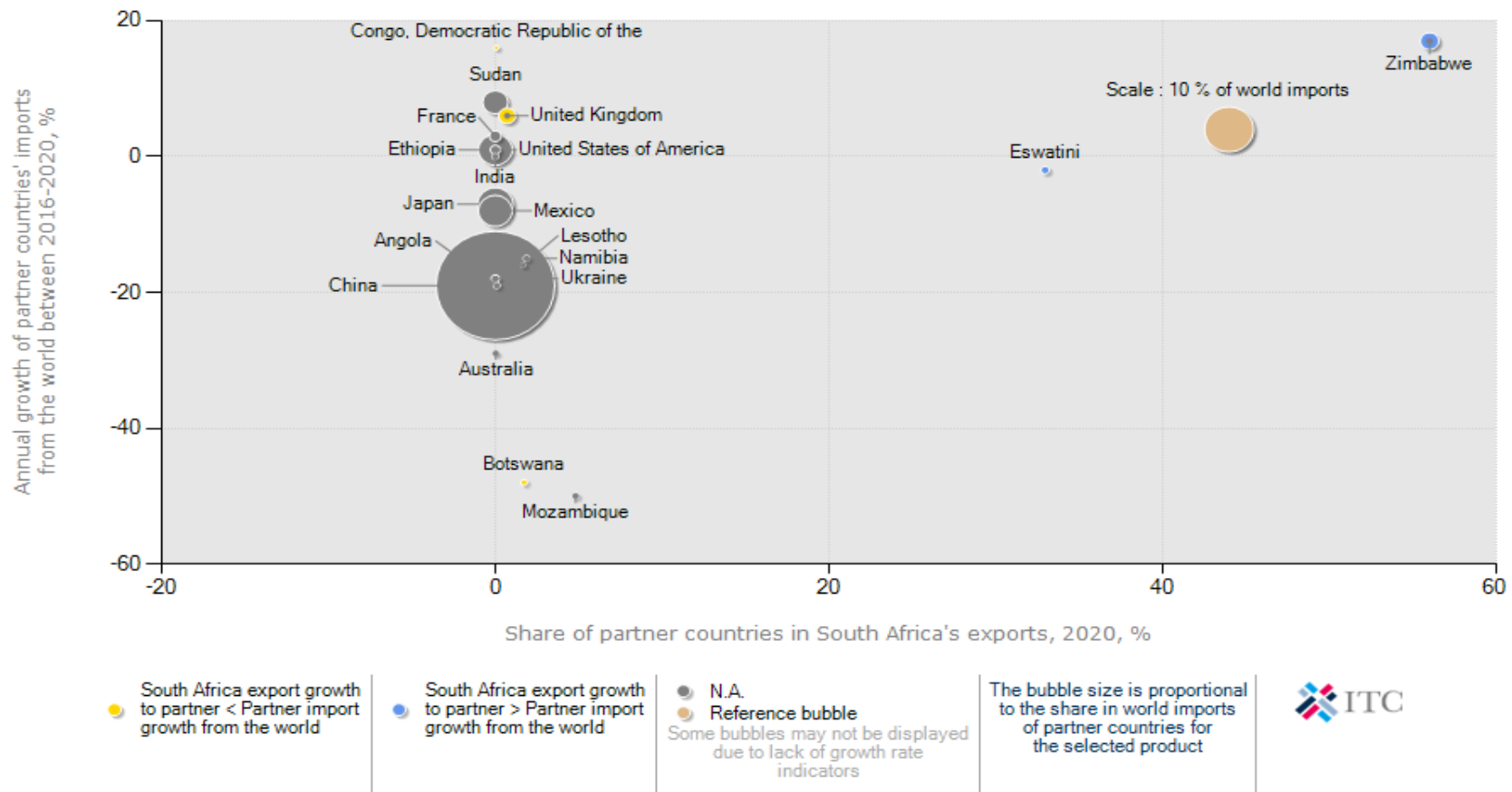
South Africa exported a total of 7 203 tons of sorghum to the world during the year 2020. Table 3 and Figure 17 indicate that the greatest quantities of grain sorghum were exported to Zimbabwe and

Eswatini during the year 2020. These two major export destinations commanded the greatest share of South Africa's grain sorghum exports during the year 2020 as stated in the table above. It is also clear from the table (Table 3) and the figure (Figure 18) that grain sorghum exports from South Africa to the world declined by 24% (in volume terms) between the years 2016 and 2020.

Figure 17 also illustrate the prospects for market diversification for the sorghum exported by South Africa in 2020. As demonstrated in the figure, Zimbabwe is a destination for the largest proportion of South Africa's total grain sorghum exports, followed by Eswatini. Figure 17 further shows that if South Africa wishes to diversify its exports of grain sorghum, potential markets exist in United Kingdom and Mozambique as these countries have significantly increased their imports of grain sorghum from world between the years 2016 and 2020, but South Africa is not sufficiently exporting to these countries.

**Figure 17: Prospects for market diversification for Grain Sorghum (1007) exported by South Africa in 2020**

Prospects for market diversification for a product exported by South Africa in 2020  
 Product : 1007 Grain sorghum



Source: ITC Trade Map

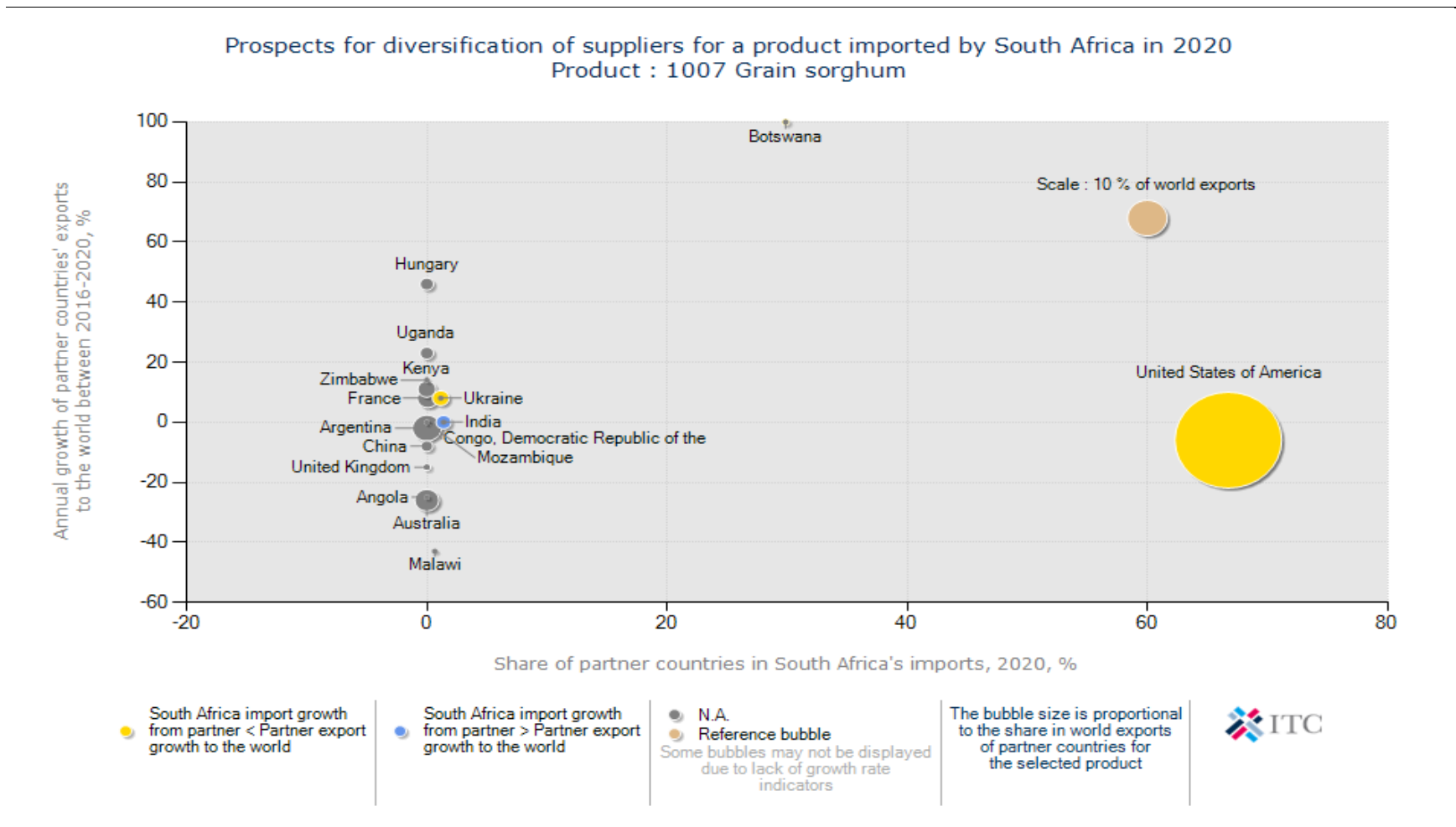
**Table 4: List of suppliers of sorghum imported by South Africa in 2020**

Exporters	Imported value in 2020 (Thousand US\$)	Share in SA's imports (% p.a.)	Imported quantity in 2020 (tons)	Unit value (US\$/unit)	Imported growth in value between 2016 and 2020 (% p.a.)	Imported growth in quantity between 2016 and 2020 (% p.a.)	Imported growth in value between 2019-2020, %, p.a.
World	2580	100	11926	216	-29	-32	-81
United States of America	1722	66.7	7490	230	-35	-38	-85
Botswana	771	29.9	4255	181	93	255	115
India	36	1.4	2	18000	104	-46	17
Ukraine	30	1.2	101	297	1	-6	-55
Malawi	17	0.7	75	227	102	0	0
France	2	0.1	3	667	0	0	0

**Source: ITC Trade Map**

Table 4 and Figure 18 show the level of grain sorghum imported by South Africa during the year 2018. The table demonstrates that United States of America was the major exporter of grain sorghum to South Africa during the year 2020 followed by Botswana and India. South Africa imported 7 490 tons of sorghum from USA and 4 255 tons from Botswana during the year 2020. Imports of grain sorghum from the world to South Africa decreased by 29% and 32% in value and volume respectively between the years 2016 and 2020. Figure 18 also shows that, if South Africa wished to diversify its grain sorghum import base the prospective markets exist in Malawi and France.

Figure 18: Prospects for diversification of suppliers for Grain Sorghum imported by South Africa in 2020



Source: ITC Trade Map

## 6. ORGANIZATIONAL ANALYSIS

Table 5: SWOT Analysis – Industrial malt and commercial malt

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Sorghum beer is a well-established product as a traditional drink closely associated with culture and heritage of many South Africans,</li> <li>• Industrially brewed sorghum beer has a low alcohol content,</li> <li>• When sorghum beer is used in moderation, it can make a substantial contribution to a consumer's diet.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a shrinking market for sorghum beer as consumers move towards drinking clear beer when their incomes increase,</li> <li>• The promotion drive is low; not much is spent on promotion of malt,</li> <li>• The distribution system must be very reliable and flexible in order to make drinkable sorghum beer available to consumers within the shortest time to avoid spoilage,</li> <li>• Image: unless perceptions can be changed, declining consumption could continue,</li> <li>• Quality can sometimes be poor. The poor quality of sorghum malt has resulted in traditional African beer brewers partially substituting industrial enzymes for sorghum malt, thereby reducing the demand for the malt.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Capacity in the market – sorghum is the best alternative to barley for lager beer brewing,</li> <li>• A marketing campaign could promote consumption,</li> <li>• New entrants ensure more exposure, to the benefit of the entire market,</li> <li>• Dietary features are considerably better than in other alcoholic drinks,</li> <li>• Lager beer brewing where the starch component is sorghum may boost demand,</li> </ul>	<ul style="list-style-type: none"> <li>• Enzymes: industrial enzymes used in the place of sorghum malt</li> <li>• Price</li> <li>• Substitutes</li> <li>• Image</li> </ul>

Source: NAMC

**Table 6: SWOT analysis – Sorghum meal**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Familiar African product,</li> <li>• Nutritious and healthy product: sorghum is processed into a variety of attractive and nutritious traditional foods,</li> <li>• Capacity for market expansion,</li> <li>• Growing market as consumption is increasing,</li> <li>• Not genetically modified,</li> <li>• Non-allergenic and gluten free.</li> </ul>	<ul style="list-style-type: none"> <li>• VAT on sorghum meal,</li> <li>• Unknown by some consumers,</li> <li>• Price fluctuations: generally high processing costs,</li> <li>• Promotional drive: it is difficult to change into a symbol of prosperity while being associated with poor and marginal areas.</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Government and institutional markets: feeding schemes; research is essential to unleash sorghum’s capacity to be the cornerstone of food security,</li> <li>• Requests for the removal of VAT continue to be made,</li> <li>• Promotion: sorghum’s antioxidant benefits are currently being investigated,</li> <li>• Exports: a dependable supply and good quality of sorghum can gain export markets,</li> <li>• Gluten free,</li> <li>• Fortification: research is undergoing to develop a ‘super sorghum’ with improved nutritional traits,</li> <li>• Value added products such as Morvite are attractive to both manufacturers and consumers.</li> </ul>	<ul style="list-style-type: none"> <li>• Substitutes,</li> <li>• Excluded from school feeding schemes in some provinces,</li> </ul>

**Source: NAMC**

**Table 7: SWOT analysis – Sorghum in animal feed**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Attractive in mixed fowl feeds,</li> <li>• Non-GM: non-GM animal feed will possibly be important in the future,</li> <li>• Non-allergenic and gluten free</li> </ul>	<ul style="list-style-type: none"> <li>• VAT on sorghum,</li> <li>• Large differential in price between food and feed value,</li> <li>• Lower energy value than maize.</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Multigrain animal feeds for niche market animal products,</li> <li>• Continued requests for the removal of VAT.</li> </ul>	<ul style="list-style-type: none"> <li>• Erratic supply of sorghum,</li> <li>• Lack of additional silo bins at feed mills to handle sorghum,</li> <li>• Animal producers' perceptions of feeding value of sorghum.</li> </ul>

Source: NAMC



## 7. ACKNOWLEDGEMENTS

The following organizations are acknowledged:

Grain South Africa  
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[www.grainsa.co.za](http://www.grainsa.co.za)

Directorate Statistics and Economic Analysis: Department of Agriculture.  
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[www.nda.agric.za](http://www.nda.agric.za)

Quantec Easy Data  
[www.quantec.co.za](http://www.quantec.co.za)

ITC Market Access Map  
[www.macmap.org/SouthAfrica](http://www.macmap.org/SouthAfrica)

ITC Trade Map  
[www.trademap.org](http://www.trademap.org)

National Agricultural Marketing Council  
[www.namc.co.za](http://www.namc.co.za)

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