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MARKET INTELLIGENCE REPORT CARROT

ISSUE 4 OF 2021

1. INTRODUCTION

Carrot (*Daucus carota*), is a rich source of carotene, which can also be used as a functional ingredient in several applications (Bolton *et al.*, 2020). Vegetables provide a variety of nutrients that are essential for human development, maintenance, and repair such as vitamins, minerals, dietary fiber, protein, and fat (Bolton *et al.*, 2020). Carrot is among the top 10 vegetables grown globally. The consumption of vegetables and fruits plays a positive role in the prevention of various health complications. Most of the vegetable species that are used by rural households play not only a nutritive role but also in income generation and subsistence uses (Bolton *et al.*, 2020).

This market intelligence report, thus analyses carrot production trends versus consumption demand with the possibility of examining Namibia's participation in a global market chain for both domestic and export markets.

This report also highlights the production trends and market of carrots at domestic, regional, and global levels. The analysis results reveal to Namibian farmers, policymakers, and managers the challenges and opportunities that are linked with the production and marketing of this commodity as well as the need for public, private, and farmer investments to increase production for both domestic and export markets.



2. GLOBAL PERSPECTIVE

This section covers the carrots global overview, focusing on the performance of carrots in most recent years on average annual production, market (export and import), and consumption.

PRODUCTION: An average carrots world production of about 42,158,403 tonnes of carrots and turnips are produced on an area of 1,137,738 ha on a yearly basis, with an average yield of 37 tonnes/ha (Figure 1) (FAOSTAT, 2021). World carrots production has increased from 40 265 109 tonnes in 2015 to 44 762 859 tonnes in 2019, with further upward predictions.

China is the largest producer of carrots in the world, whereas Europe is reported to be the fastest growing market for carrots, whilst North America namely Canada and the United States of America hold the largest carrot markets. In 2020, 46.3 million metric tonnes of carrots and turnips were consumed globally (FAOSTAT, 2021). Figure 1 shows the world carrots production trend from 2015 to 2019.

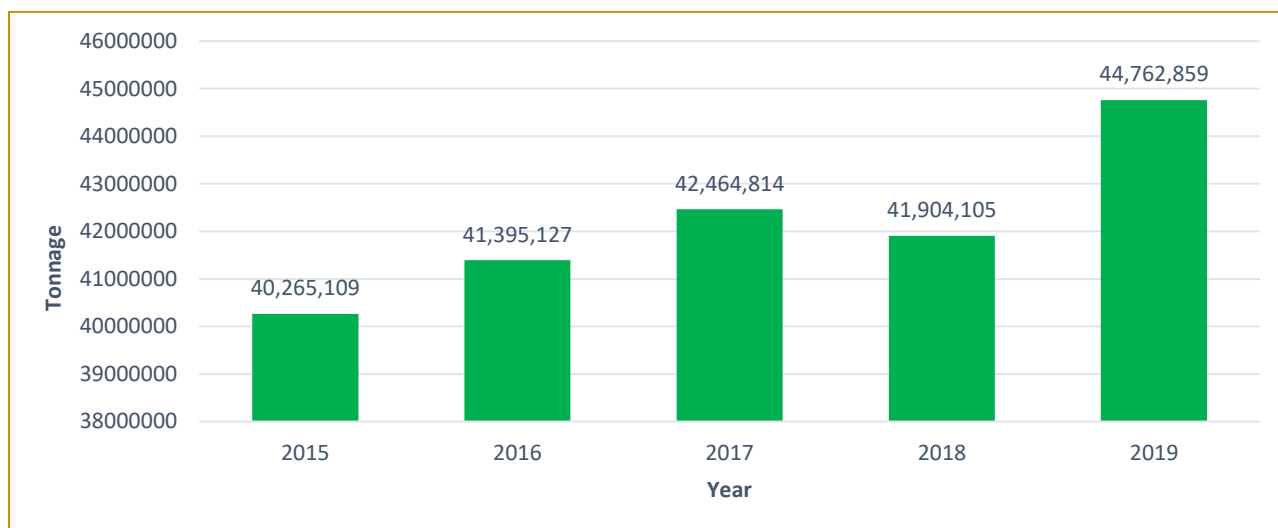


Figure 1: Global carrots production, 2015 – 2019 (FAOSTAT, 2021)

Figure 1 indicates an increase in carrots production from 40 265 109 tonnes produced in 2015 to 44 762 859 tonnes produced in 2019 (FAOSTAT, 2020).

Figure 2 presents carrots production share by region expressed in percentages. The regions included are Asia, Europe, America, Africa, and Oceania.

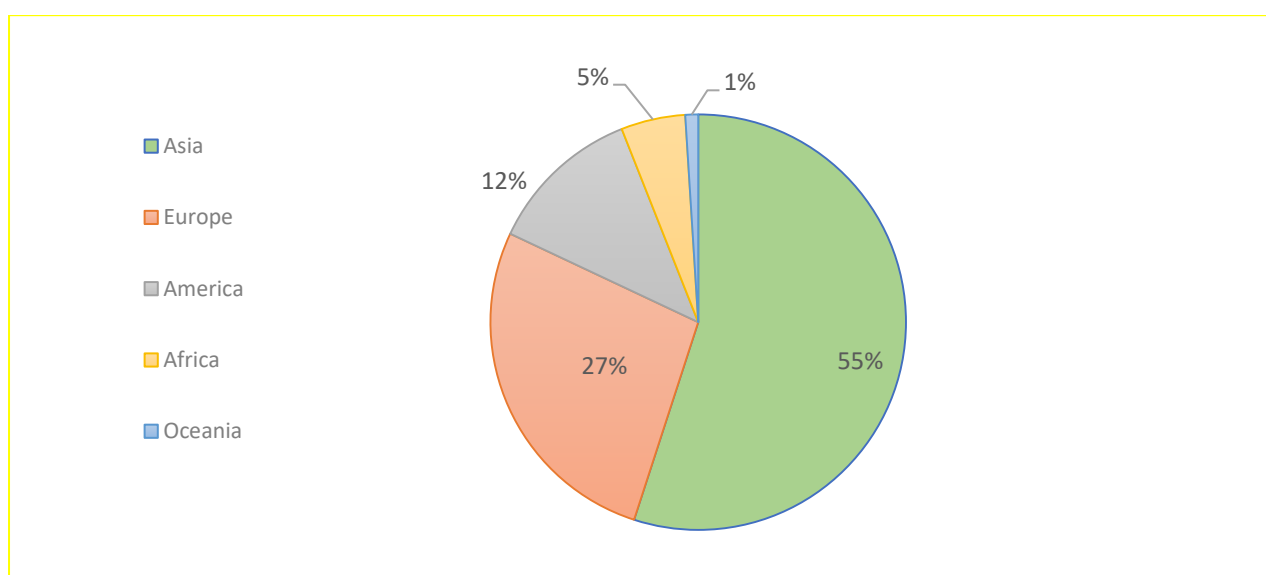


Figure 2: Global carrots production share by region, leading producers from 2016 - 2020 (FAOSTAT, 2021)

Figure 2 above shows that Asia occupies the largest share of over 55%, followed by Europe with 27% while Africa and Oceania occupy only 5% and 1% of carrots production share, respectively.

Table 1 presents the Top 6 carrot-producing countries, using averages for 5 years (2016 - 2020). China leads in the world carrots production with an over 55% production share followed by Uzbekistan with 7% and the United States of America being the least with a 2.1%.

Table 1: World top 6 carrot producing countries, 5 years average (2016-2020)

Country	Production tonnage	World production share (%)
1. China	21,400,000	55%
2. Uzbekistan	2,769,000	7%
3. United States of America	2,259,000	6%
4. Russian Federation	1,558,866	4%
5. Ukraine	869,450	2.2%
6. United Kingdom	824,731	2.1%

Source: FAOSTAT, 2021

IMPORTS: Data from FAOSTAT (2021) shows that the global carrots importation tonnage has been rising, with an average import tonnage of 2,579,404 per annum from 2015 to 2019. Figure 3 hereunder presents world carrot import tonnages from 2015 to 2019.

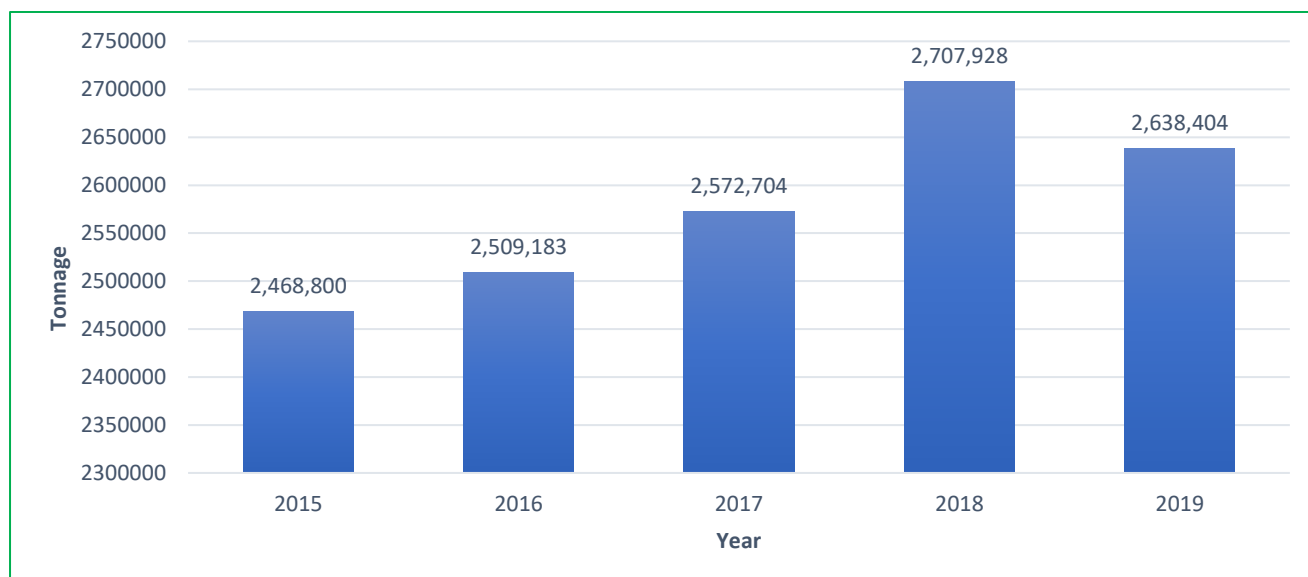


Figure 3: Global carrot imports (FAOSTAT, 2021)

Figure 3 above shows that since 2015, global carrots imported tonnage has been rising from 2,468,800 tonnes to 2,688,404 tonnes in 2019. In the year 2018, the highest import tonnage was recorded with over 2,707,928 tonnes. A similar increasing trend was also observed with the global

carrots import value (Figure 4). Figure 4 hereunder presents the value of globally imported carrots in US dollars, from the year 2015 to 2019.

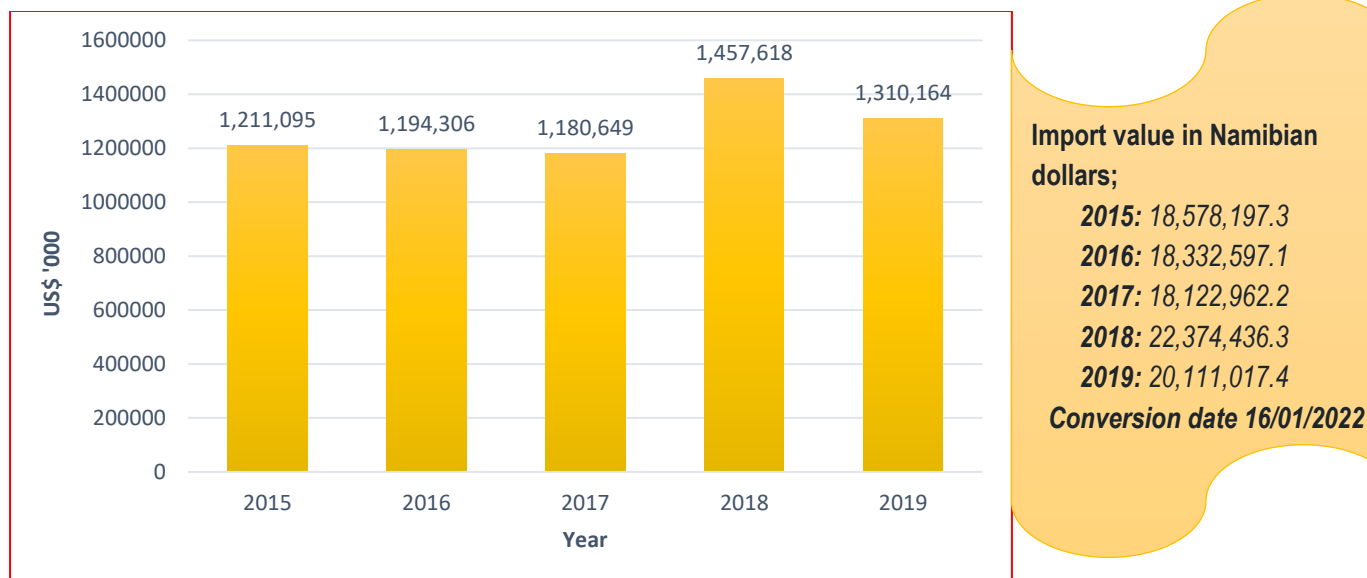


Figure 4: Global carrots import value (FAOSTAT, 2021)

Figure 4 depicts that since 2015, the import value increased from US\$1,211,095 (N\$18,590,308.25) to the value of US\$1,310,164 (N\$20,111,017.4). The highest import value was recorded in 2018 at US\$1,457,618 (N\$22,374,436.30). Furthermore, figure 5 below shows the value (US\$) of imported carrots by country in 2020.

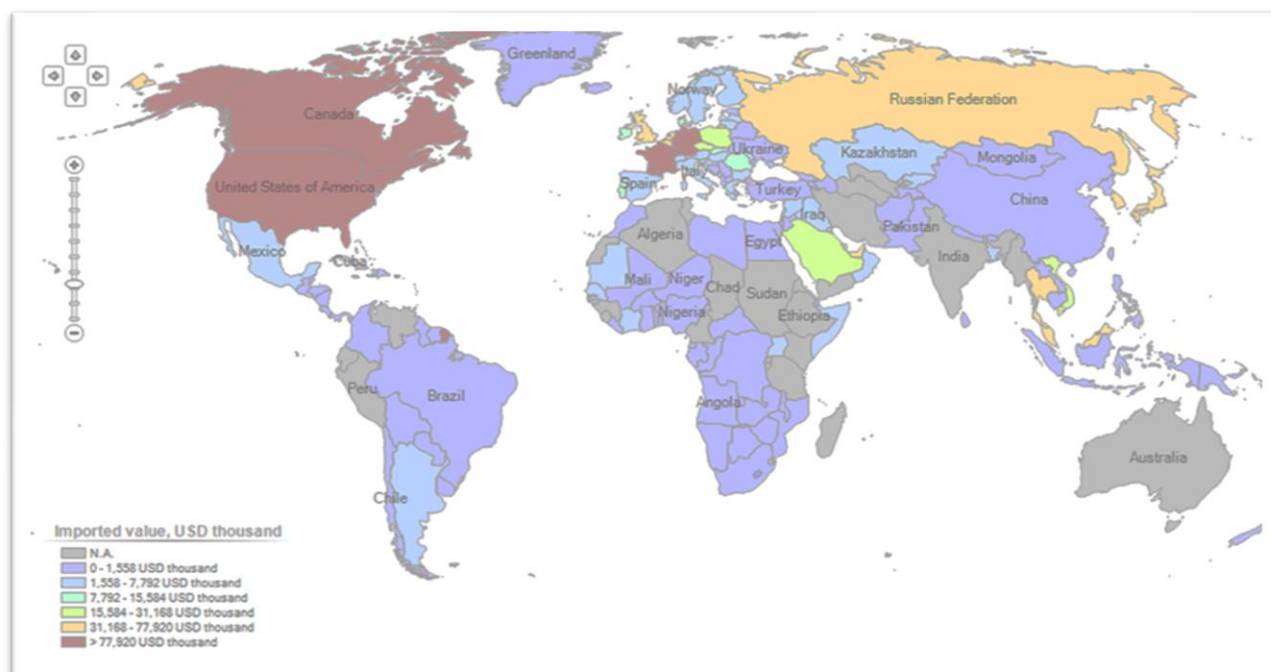


Figure 5: Value (US Dollar) of imported carrots by country in 2020 (Intracen, 2021)

Figure 5 indicates that North America imported the highest carrots valued at over US\$77,920 followed by Russia with import values ranging from US\$31,168 – US\$77 920. In the year 2020, Germany was recorded as the world's largest importer of carrots, at a value of US\$158 million, most of which were imported from the EU member states (Figure 6).

Figure 6 below shows that Germany mainly imported carrots from European Union (EU) countries and it occupies a 10 - 20% import share in the world carrot imports, whilst North America, Russia, and France occupy a 5 - 10% world import share.

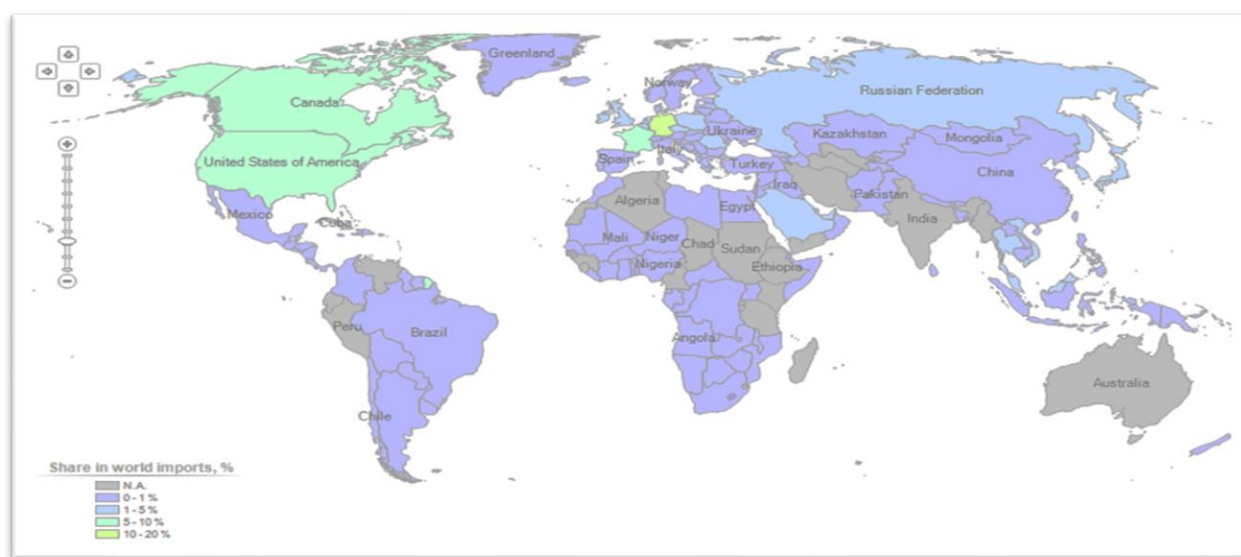


Figure 6: Countries share in worlds carrot imports value (Intracen, 2021)

EXPORT: Figure 7 presents world carrots export tonnage over a five year period from 2015 to 2019. There was a continuous increase in global carrots export volume from the year 2015 to 2019, with an annual average export quantity of 2,795,340 tonnes. The exported carrot tonnage increased from 2 556 036 tonnes in 2015 to 3 034 644 tonnes in 2019.

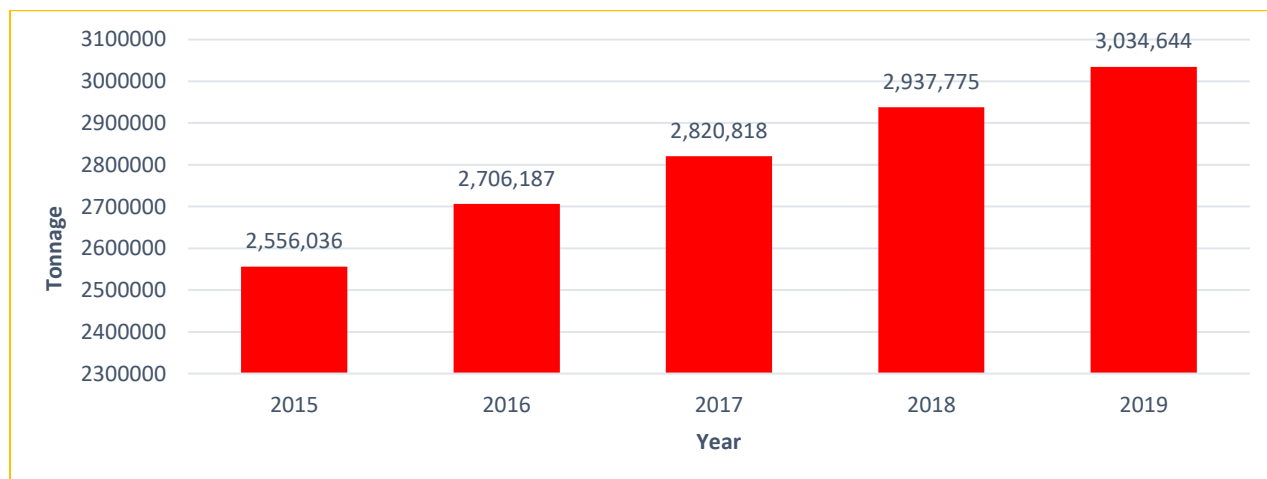
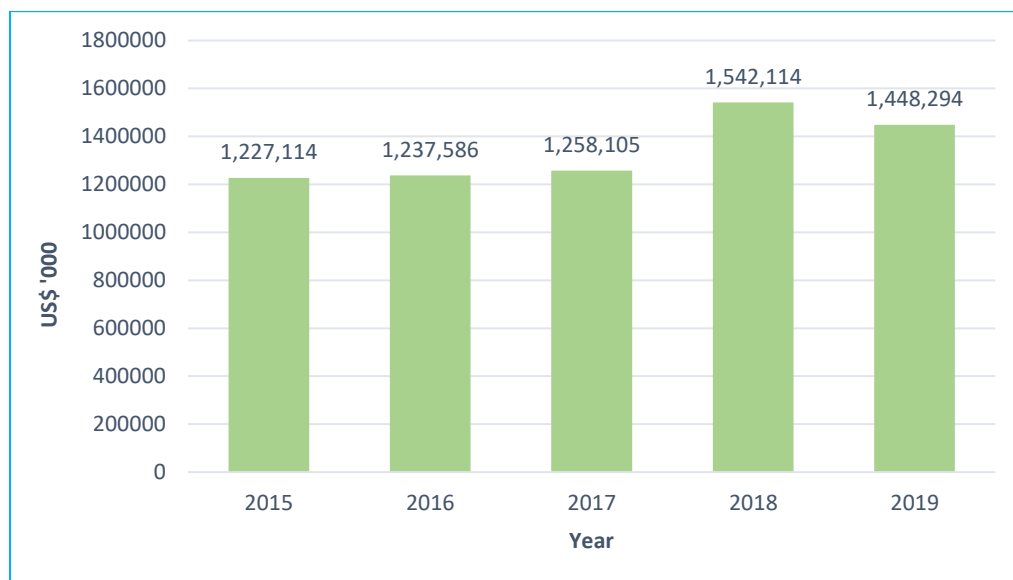


Figure 7: Global carrots export volume (FAOSTAT, 2021)

Figure 8 displays the global carrots export value in US dollars from 2015 to 2019. The annual global carrots export value has been on an increasing trend since 2015. The export value increased from US\$1,227,114 (N\$18 836 199.90) in 2015 to US\$1,448,264 (N\$22 231 312.90) in 2019, recording the highest global carrots value of US\$1 542 144 (N\$23 671 449.90) in 2018.



Export value in Namibian dollars;

2015: 18,836,199.9

2016: 18,996,945.1

2017: 19,311,911.8

2018: 23,671,449.9

2019: 22,231,312.9

Conversion date 16/01/2022 @

Figure 8: Global carrots export value, 2015 - 2019 (FAOSTAT, 2021)

Figure 9 displays the carrot export percentage (%) shared by leading countries or largest exporters. China is the largest carrots exporter occupying 20 - 50% of the world's carrot export share, followed by the United States of America, Canada, Spain, and Turkey, occupying 10 - 20%.

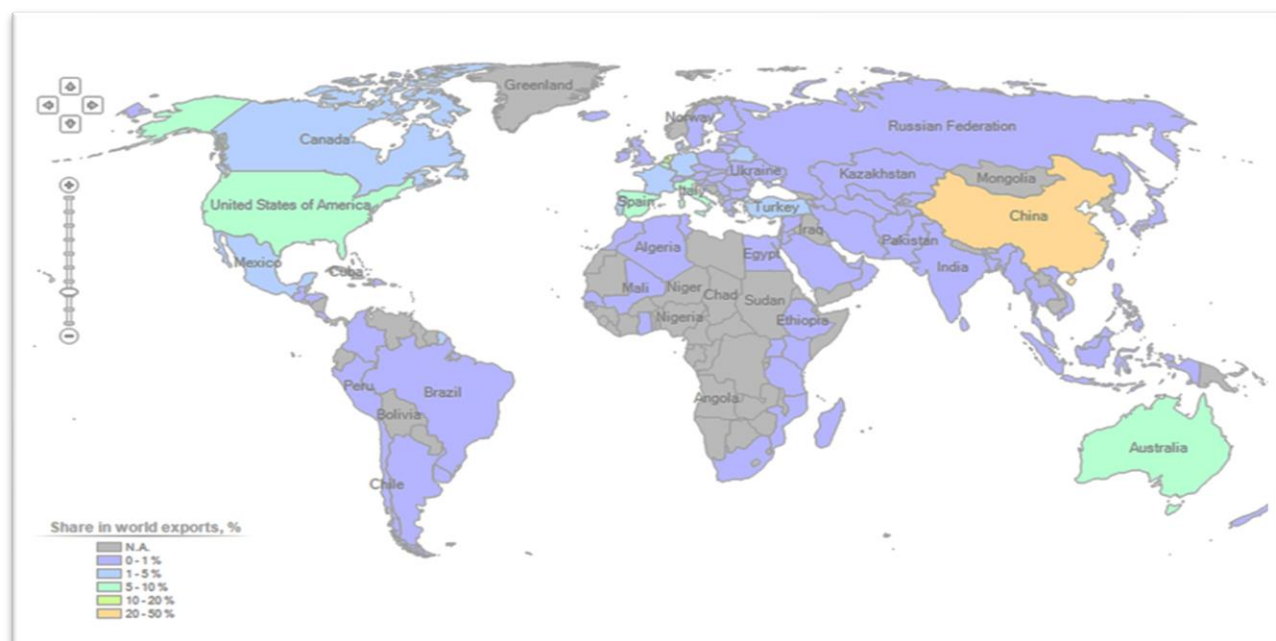


Figure 9: Countries share in global carrots exports (Intracen, 2021)

Figure 10 hereunder displays the value of exported carrots by the leading countries in 2020. China recorded the highest export value in 2020, of over US\$175 697 (N\$2 696 948.95). While North America, Australia, Spain, and Italy recorded between US\$70,297 and 175,697 (N\$1 091 712.41 – N\$2 728 574.41) export values.

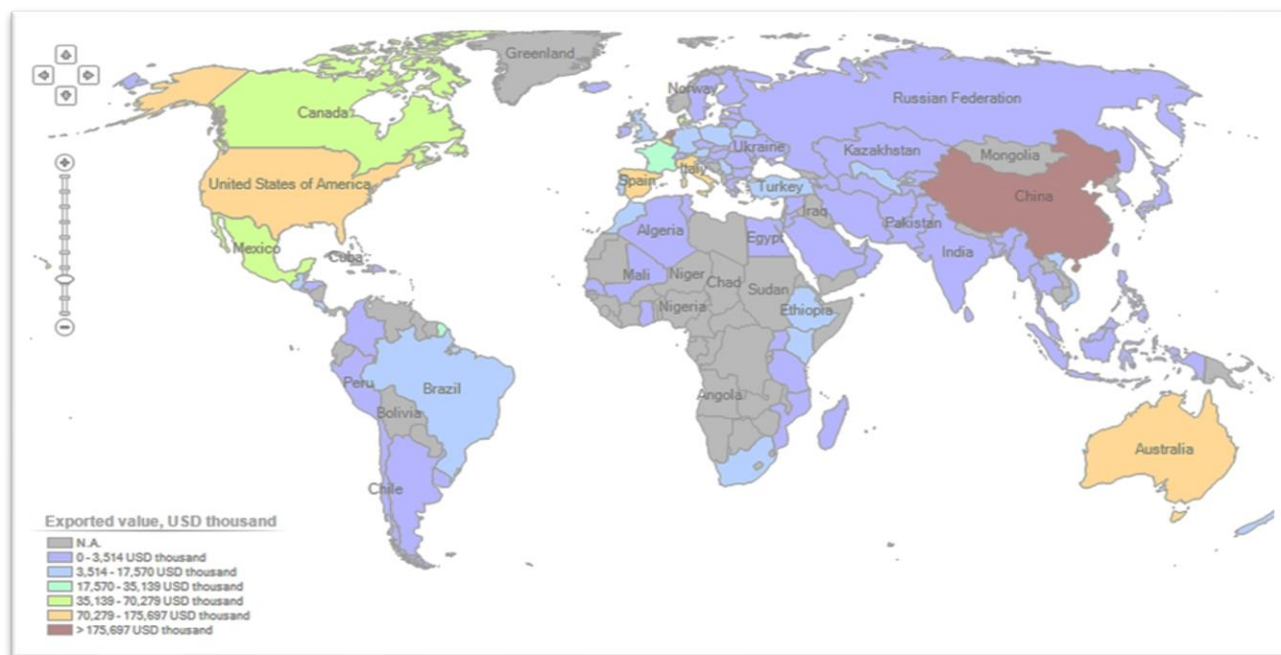
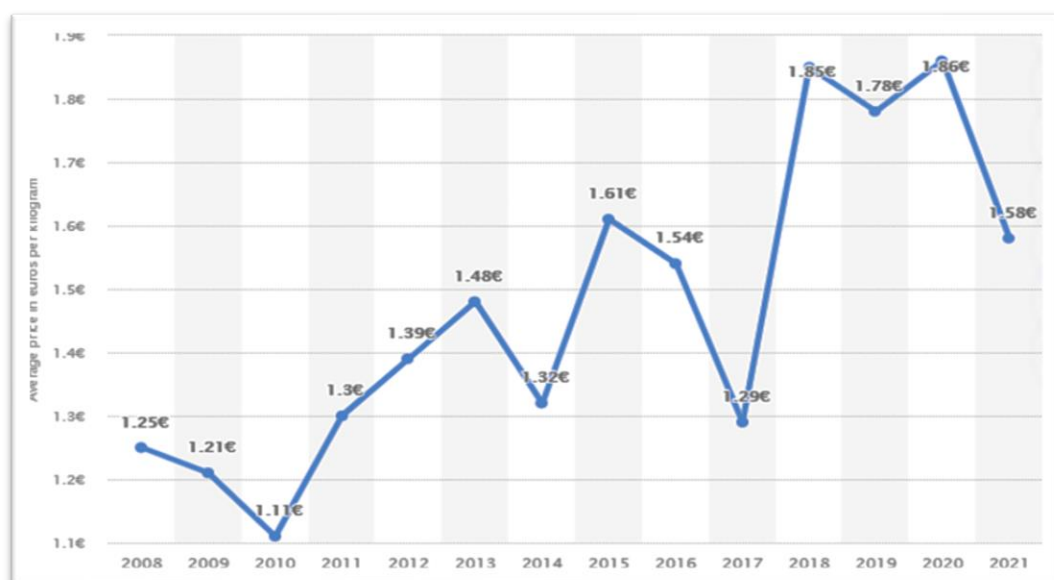


Figure 10: Exported carrot values by country in 2020, US dollars (Intracen, 2021)

Another upward trend in global carrots trade was observed in the unit price that has been averagely increasing globally since 2008 (Figure 11). Figure 11 presents carrot price trends per kilogramme in Europe with values expressed in Euros (€).



Average carrot unit price per kg in Europe from 2008 to 2021

➤ 1.488€ = N\$25.9

Conversion date 17/01/2022 @ 17.53

Figure 11: Carrots unit price per kilogramme in Europe, Euros (Intracen, 2021)

Figure 11 indicates that carrots' unit price per kilogramme in Europe increased from 1.25€ in 2008 to 1.86€ in 2020 (N\$21.90 – N\$32.60), with a slight price decrease in 2020 and 2021.

CONSUMPTION: Carrots are among the top 10 vegetables grown and consumed globally (*Intracen, 2021*). The global consumption of carrots and turnips was 46.3 million metric tonnes, in terms of volume, in 2020, and this is projected to register a compound annual growth rate (CAGR) of 4.1% during the 2021 - 2026 forecast period (*Intracen, 2021*).

Figure 12 shows carrot usage popularity in comparison to onion and butternut in 2020. Onion was the most popular consumed vegetable among the three vegetables in 2020, while carrots and butternuts had minimal significant gaps in consumption volumes.

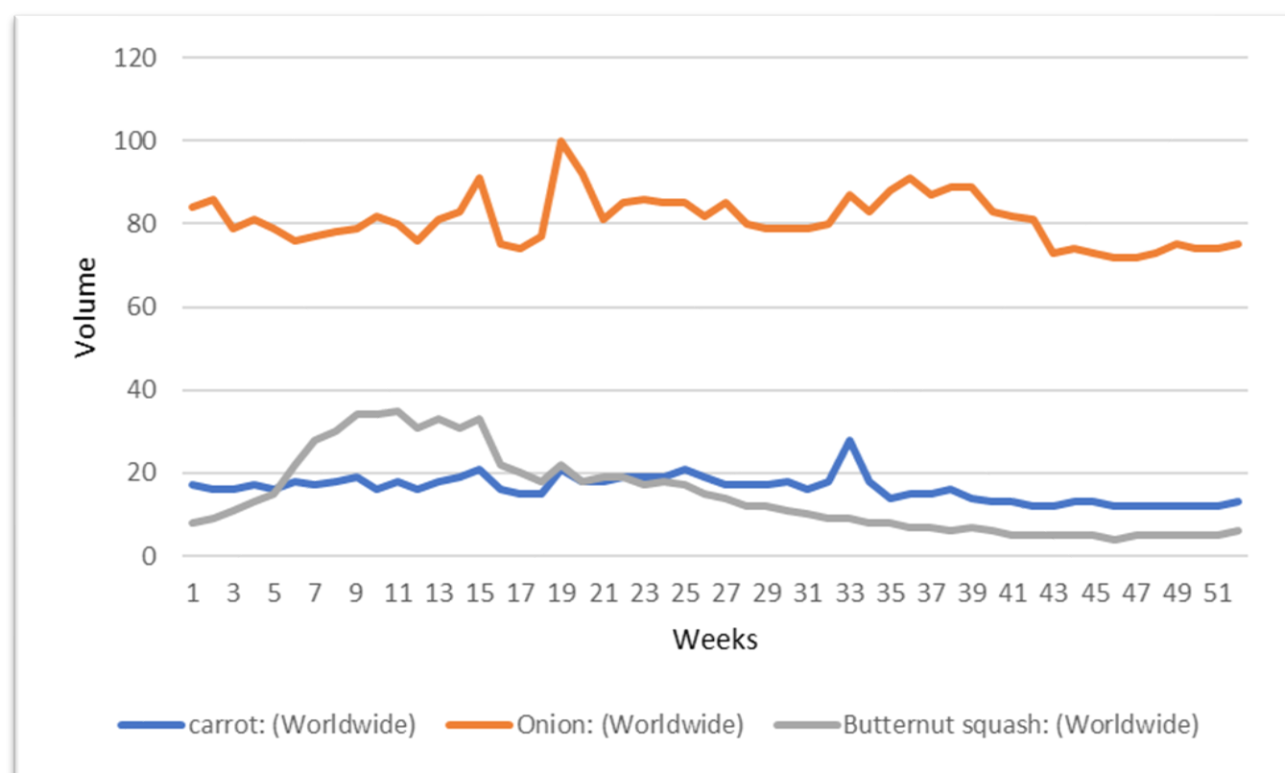


Figure 12: Worldwide popularity comparison of onions/butternuts/carrots, (*Intracen, 2021*)

3. AFRICA AND SADC REGION PERSPECTIVE

This section provides information on carrots production, market (import and export), and consumption through an overview of Southern Africa and other African regions.

PRODUCTION: There is an increasing trend in both carrots production and the area harvested in Southern Africa and Africa at large (FAOSTAT, 2021). Africa on average produces 2,213,001 tonnes of carrots per annum, on an average acreage of 128,239 ha, with an average yield of 17 tonnes/ha

(FAOSTAT, 2021). The figure below shows carrots production tonnage in Southern Africa from 2015 to 2019 (FAOSTAT, 2021).

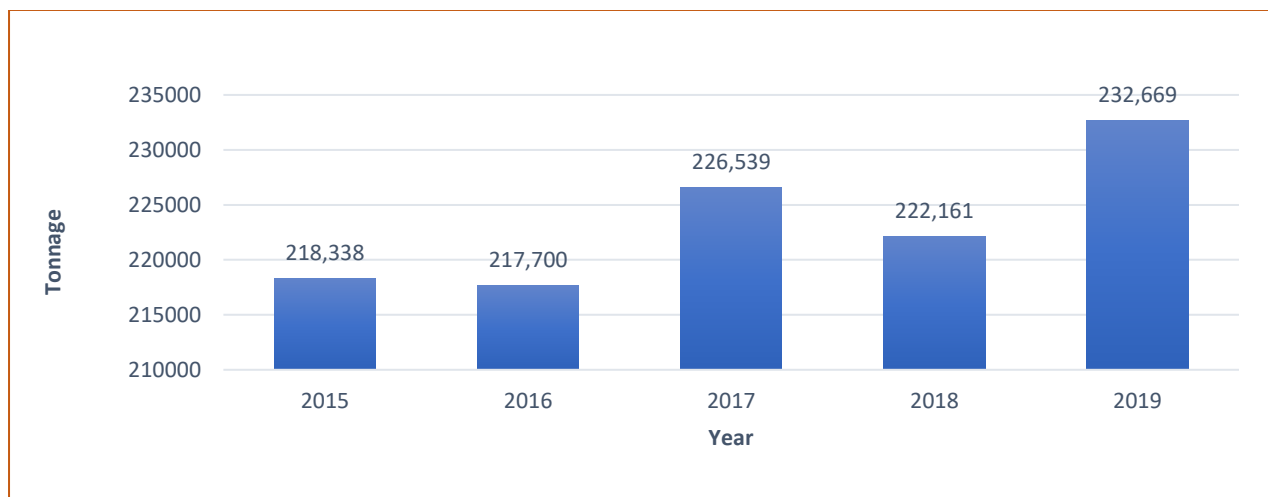


Figure 13: Carrots production trends in Southern Africa, 2015 – 2019 (FAOSTAT, 2021)

Figure 13 above depicts that in Southern Africa from 2015 to 2019, which is five year period, regional carrots production tonnage increased from 218 338 tonnes in 2015 to 232 669 tonnes in 2019 on an average acreage of 7,709 ha (FAOSTAT, 2021). The lowest regional carrots production was recorded in 2016 with 217 700 tonnes. The area harvested for carrots increased from 7,437 ha in 2015 to 7,981 ha in 2019 (FAOSTAT, 2021).

Table 2 shows the annual production average for the Top 6 leading carrot-producing countries in Africa, from 2016 to 2020. Algeria leads the list with an annual average of 426 985 tonnes per annum followed by Morocco with 398 552 tonnes per annum.

Table 2: Top 6 leading carrot producers in Africa, 2016 - 2020

Country	Average tonnage: 2016-2020
1. Algeria	426,985
2. Morocco	398,552
3. Egypt	242,086
4. Kenya	237,095
5. Nigeria	236,309
6. South Africa	222,124

Source: FAOSTAT, 2021

IMPORT: Southern Africa relies on imports to meet the regional carrots consumption demand. However, with the increasing production trend and area harvested, the importation of carrots into the Southern Africa market has been decreasing recently for the past five years (FAOSTAT, 2021). On

average, over 9,197 tonnes of carrots are imported annually (FAOSTAT, 2021). The figure below shows the carrots imports quantities from 2015 to 2019.

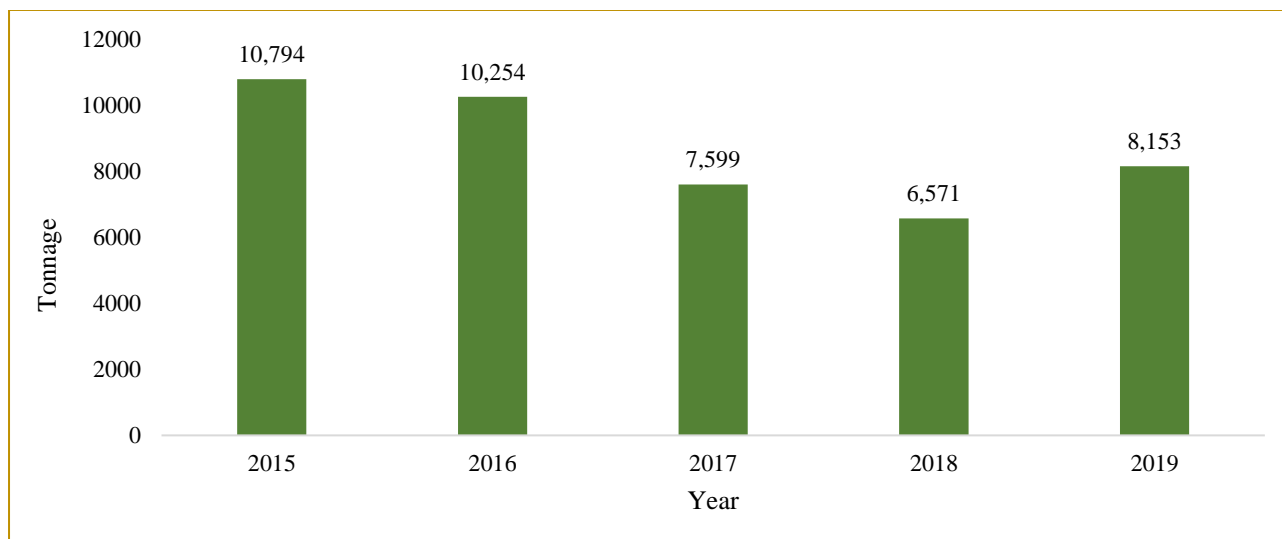


Figure 144: Southern Africa carrot import tonnages, 2015 – 2019 (FAOSTAT, 2021)

Figure 14 depicts that the carrot imports quantity decreased from 10 794 tonnes recorded in 2015 to 8 153 tonnes recorded in 2019.

Figure 15 presents Southern Africa's annual average carrot import values (US\$) from 2015 to 2019. From 2015 to 2019, Southern Africa's annual carrot imports value averaged US\$3 094 000 (N\$47 492 900). The highest import value was recorded in 2016 at US\$3 500 000 (N\$54 355 000) and the lowest was in 2018 at US\$ 2 481 000 (N\$38 529 930).

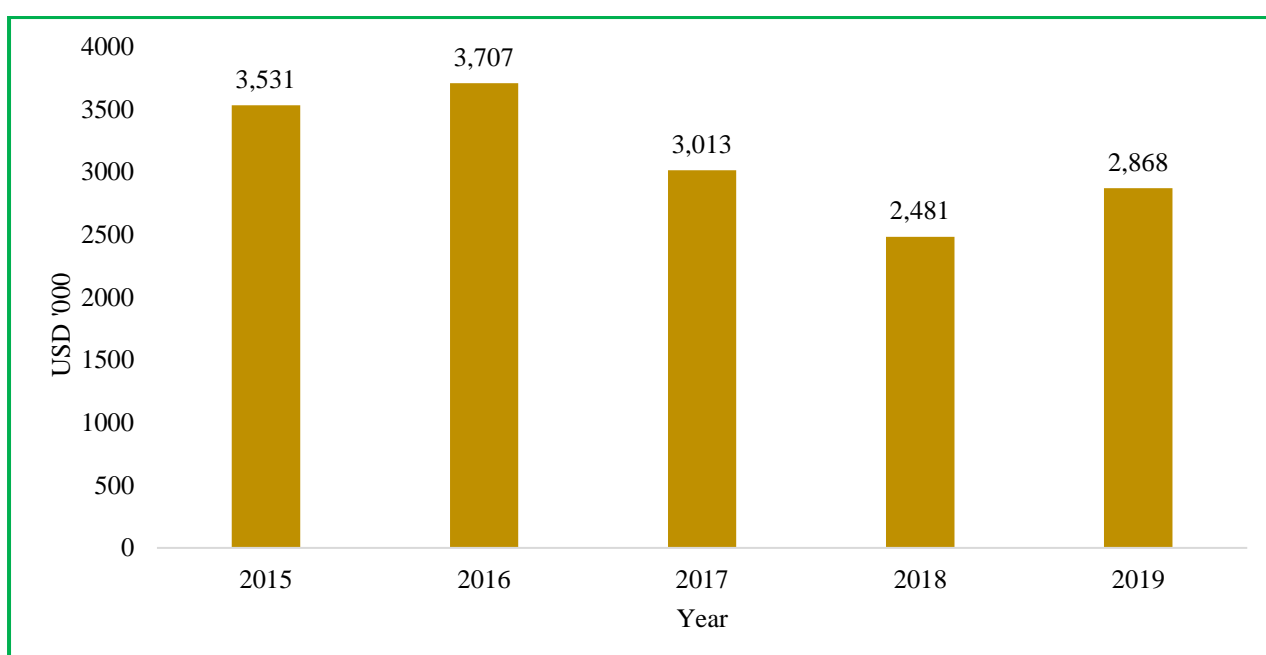


Figure 15: Southern Africa carrots import value, 2015 – 2019 (FAOSTAT, 2021)

EXPORT: From 2015 to 2019, Southern Africa exported carrots at an annual average of 18 913 tonnes/annum (Figure 16), depicting a slight increase in the carrot export market, increasing from 17 947 tonnes in 2015 to 21 183 tonnes in 2019. However, further carrot export market expansion can be explored. Figure 16 hereunder presents Southern Africa's carrots export annual average tonnage from 2015 to 2019.

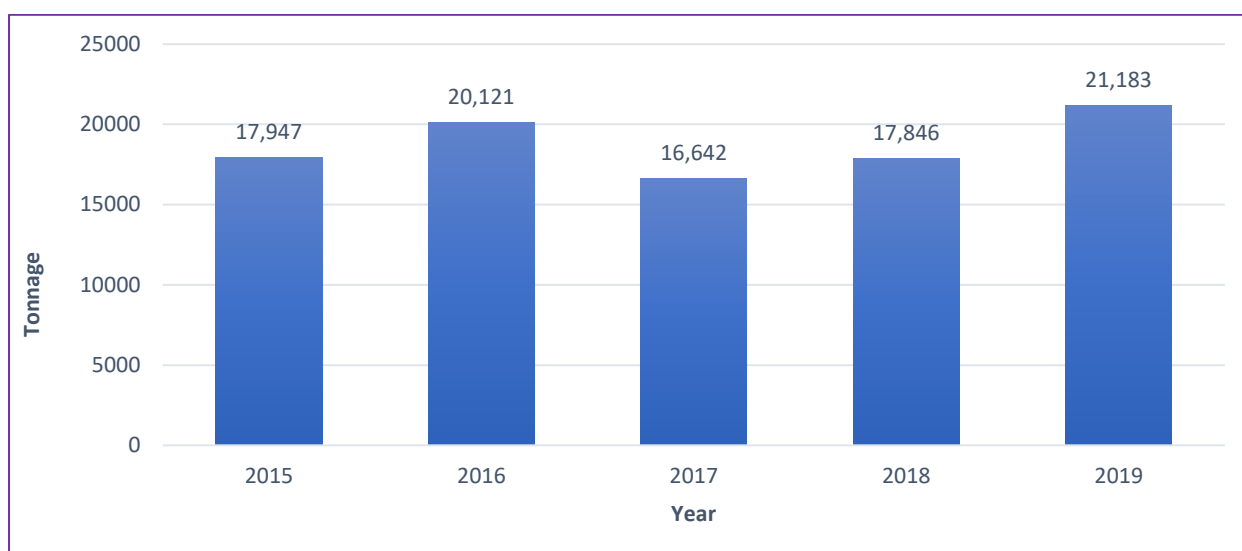


Figure 16: Southern Africa carrots export tonnage trends, 2015 – 2019 (FAOSTAT, 2021)

Figure 17 presents Southern Africa's annual average carrot export values from 2015 to 2019. A million-value export market with a positive upward trend is displayed in Southern Africa, whereby an income between US\$6 000 000 to US\$10 000 000 (N\$93 180 000 to N\$153 300 000) was accumulated annually from carrot exports from the 2015 to 2019 period. Moreover, the annual carrot average export value increased from US\$6 726 (N\$104 454.78) in 2015 to US\$9 419 (N\$14 277.07) in 2019.

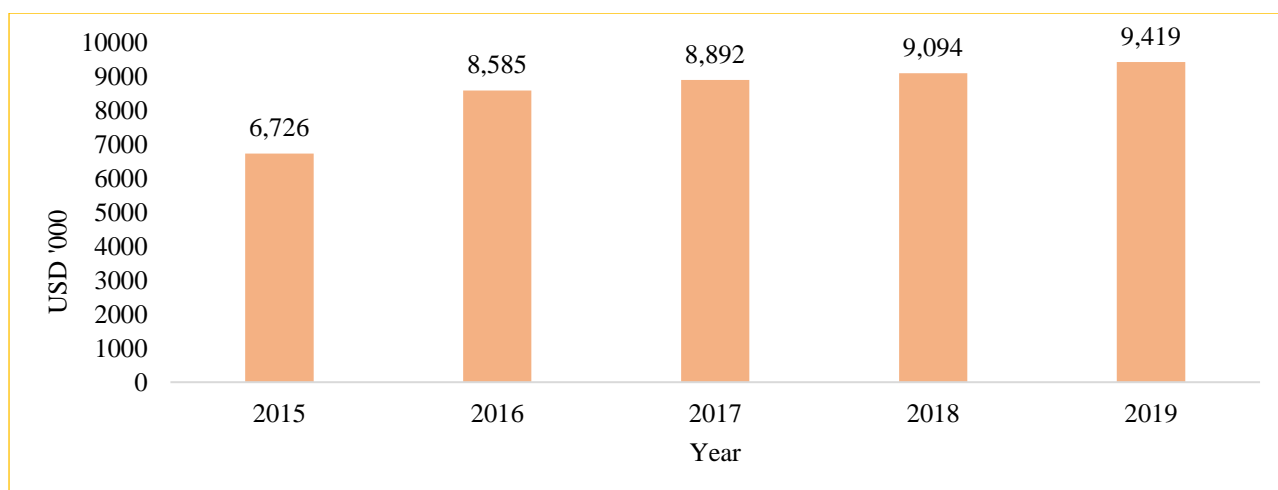


Figure 17: Southern Africa carrots export value from 2015 - 2019 (FAOSTAT, 2021)

CONSUMPTION: From 2015 to 2019, Southern Africa consumed an average of 234 388 tonnes of carrots per annum, with an increasing consumption trend from 229 132 tonnes/annum in 2015 to 240 822 tonnes/annum in 2019 (FAOSTAT, 2021).

Table 3 hereunder presents the carrot average unit prices per tonne for a few selected African countries from 2015 to 2020. In Africa, carrot prices differ from country to country, for instance, from 2016 to 2020, Tunisia recorded the lowest average unit price of US\$176.5/tonne (N\$2,732.22/tonne) while Cape Verde recorded the highest average unit price of US\$2 361.5/tonne (N\$36 556/tonne).

Table 3: Carrot average unit prices in different African countries, 2015-2020

Country	Price in US dollars/tonne	Price in Namibia dollars/tonne
Tunisia	176.5	2,732.2
Morocco	192	2,972.2
South Africa	215	3,328.2
Kenya	218	3,374.6
Egypt	232	3,591.3
Algeria	373.5	5,781.8
Cape Verde	2,362	36,563.8

Source: FAOSTAT, 2021

4. DOMESTIC PERSPECTIVE

This section covers domestic production, market (import and export), and consumption for Namibia.

PRODUCTION: Statistics from the NAB (2020) report attests that Namibia's local carrots production and yield levels have risen over the past decade. The Namibian Agronomic Board (NAB) has made efforts to promote the local consumption of carrots, and one of these methods is by regulating the importation of horticultural products during surplus local production periods to avoid market saturation, and consequently promoting local trading (NAB, 2020).

From 2011/2012 to 2018/2019, Namibia produced 1 899 tonnes of carrots per annum on average, recording the highest local production of 3 121 tonnes in 2018/2019 (NAB, 2020).

Figure 18 presents Namibia's annual average carrot production over an 8 year period, from 2011/2012 to 2018/2019. During those eight (8) years, Namibia experienced a constant increase in local production, increasing from 1 841 tonnes/annum in 2011/2012 to 3 121 tonnes/annum in 2018/2019.

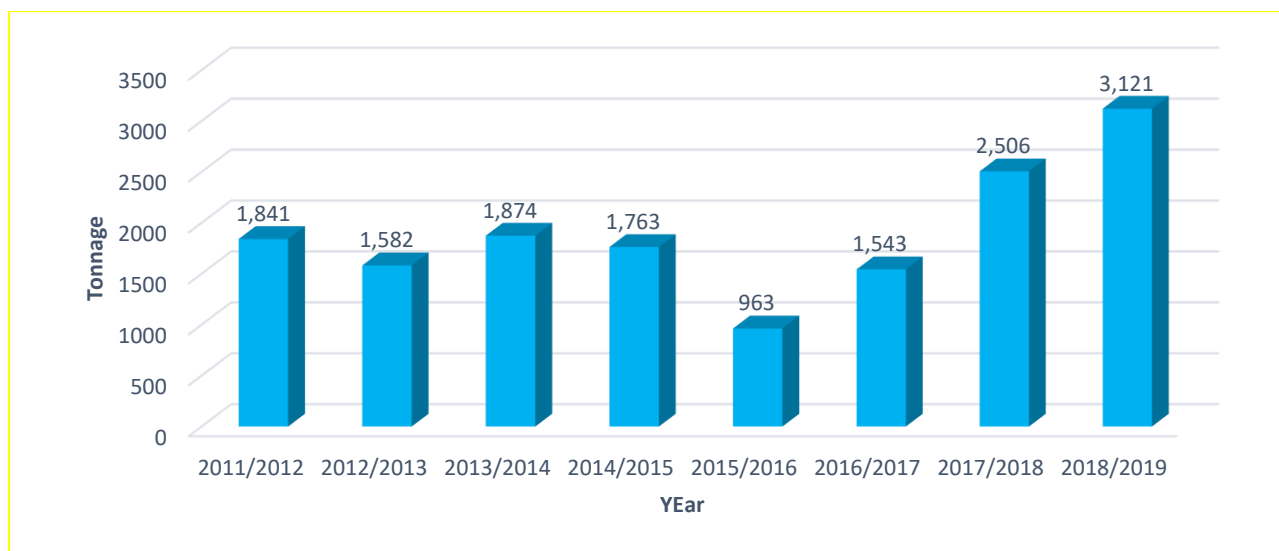


Figure 18: Namibia carrots production trend, 2011/12 – 2018/19. Source: NAB, 2020

IMPORTS: Figure 19 presents Namibia's carrot annual import tonnage. Namibia's carrot importation from 2011/2012 to 2019/2020 reduced drastically, which can be as a result of Namibia's increased local production over the same period (Figure 18). In 2011/2012, Namibia imported 1460 tonnes of carrots which drastically decreased to as low as 519.74 tonnes in 2019/2020 (Figure 19).

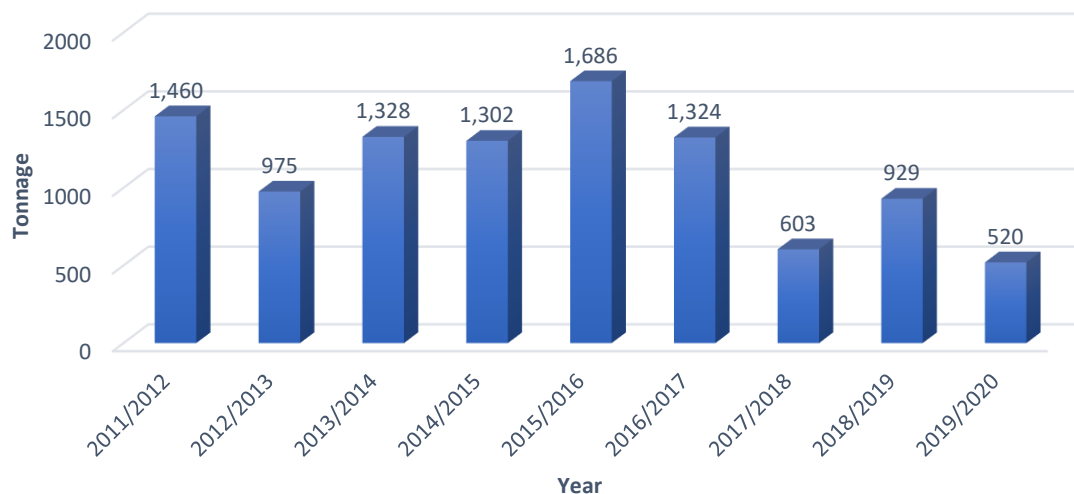


Figure 1915: Carrots import tonnage in Namibia from 2011/2012 – 2019/2020 (NAB, 2020)

According to FAOSTAT (2021), a similar decreasing trend was observed in carrots import value, whereby over US\$1 075 000 (N\$16 641 000) recorded in 2015 drastically reduced to US\$302 000 (N\$4 674 960) in 2019. Moreover, Namibia recorded the highest carrot imports value in 2015 and the lowest was in 2019 (Figure 20).



Figure 2016: Carrot average import value in Namibia, 2015 – 2019 (FAOSTAT, 2021)

Figure 20 shows that Namibia's carrot import value over the five year period from 2015 to 2019 has been decreasing and this could be attributed to the import tonnage reduction over the same period (Figure 19). Most of the imported carrots into Namibia originate from South Africa, Germany, Botswana, Japan, and Norway (*Intracern*, 2021).

EXPORT: As a result of Namibia's rising production tonnage of carrots, Namibia exported 5 tonnes to Germany in 2016 and 1 tonne to South Africa in 2017 and 26 tonnes of carrots to Angola in 2019 (*Intracern.org*, 2021). Therefore, Namibia's carrots export market share is of insignificant value (FAOSTAT, 2020).

CONSUMPTION: Figure 22 presents Namibia's annual average carrot consumption during a five (5) year period from 2014 to 2018. Over this five (5) year period, Namibia recorded the highest carrot average consumption of 5 018 tonnes/annum in 2015 and the lowest was 2 897 tonnes/annum in 2018.

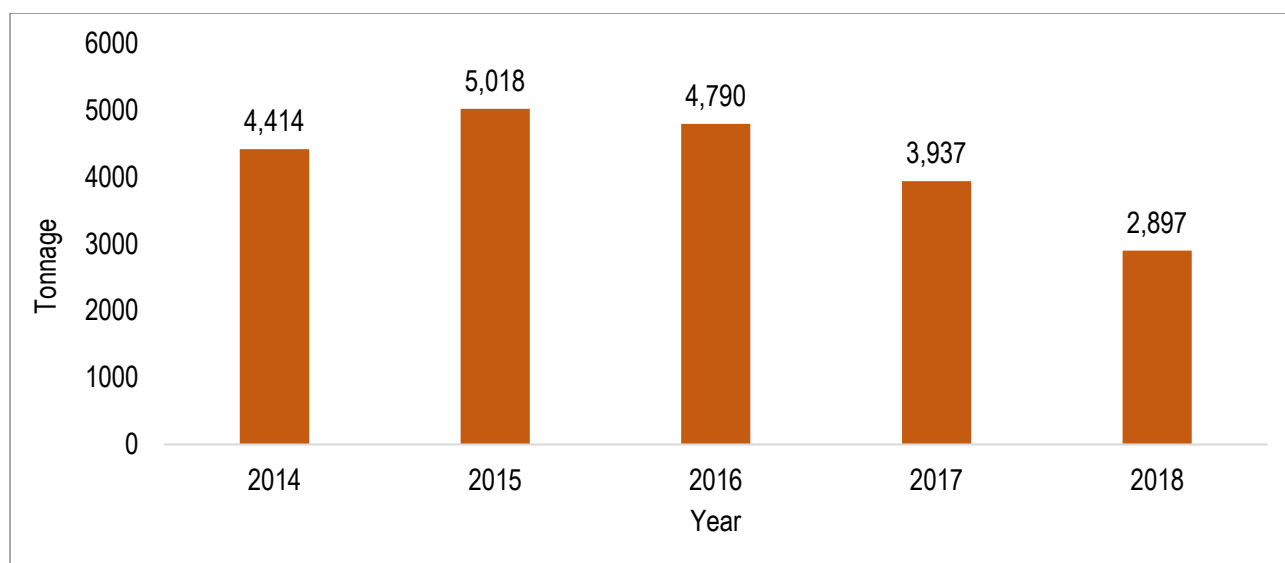


Figure 22: Carrot annual average consumption trend in Namibia, 2014 – 2018 (FAOSTAT, 2021)

Table 4 presents the carrot average prices in the Namibian market and import parity prices from South Africa.

Table 4: Carrot average prices in Namibia

Carrots	Average farmgate price	Average retail price	Average import parity price
1kg (N\$/kg)	8.00	16.50	3.00
3kg (N\$/kg)	7.50	12.20	5.30
5kg (N\$/kg)	10.00	14.50	6.50
10 (N\$/kg)	10.00	16.50	6.30

Source: NAB, 2021

The Namibian producer price at farm gate of N\$8.00/kg (NAB, 2020) is slightly higher compared to other African countries such as Tunisia which is only N\$2.70/kg, Morocco at N\$2.90/kg, while South Africa's and Kenya's prices are N\$3.30/kg (FAOSTAT, 2021).

5. KEY POTENTIALS TO UNLOCK GROWTH IN CARROTS PRODUCTION AND MARKET

The present issue is indicative of the fact that there is an increase in local carrots production and a decrease in carrots import reliance into the Namibian market. However, a low export tonnage of insignificant value is also observed. The global carrots market is projected to register a CAGR of 4.1% increase in 2020 - 2026, and this is another gesture for a business opportunity.

Therefore, international and regional markets should be explored further for the possible creation of an export market for Namibian carrot producers. There is a high import value and increase in carrots consumption trend in Southern Africa which could also be explored for the possible future export market for Namibian carrot traders.

Promotion and awareness directed towards the importance of carrots consumption and their health benefits will be of significant impact on the carrots market in Namibia. Local farmers should take advantage of the favourable market schemes which promote conducive local trading to expand on local and international market opportunities.

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