The South African avocado value chain

March 2023

Executive Summary

The study analysed the avocado value chain over a period of 10 years. Whereas the avocado has gained much attention over the years, locally and globally, the value chain actors particularly smallholder farmers in South Africa are still faced with several challenges limiting their significant participation in the value chain. The interlinkages between production, agro-industry and markets are still a major concern for the participants in the avocado value chain in South Africa. In order to eradicate poverty and promote economic growth among horticulture farmers and traders, a well-defined value chain is required. The report unpacked some of these challenges and identified opportunities as well possible intervention measures to enhance market access and efficiencies in marketing the South Africa's avocado.

The report is organised as follows: the first four sections provides the background, objectives, motivation of the study and methodological approach utilised to achieve the objectives. Section 5 reviewed relevant literature on global performance of the value chain on key indicators, namely, production patterns, consumption patterns and trade performance. The findings of the study are presented in Section 6 while Section 7 outlines and discusses the factors that influence the functioning of the value chain. Conclusions and recommendations are presented in Section 8 while limitations of the study are highlighted in Section 9.

SOME KEY MESSAGES

On average, production of avocado worldwide suggests variation across countries due to various reasons, including changes in weather conditions. However, the global consumption of avocados has been increasing due to several factors, including rising demand and population growth, particularly in the North American region, which also holds the greatest market share globally.

Overall, global trade performance in avocado has increased over the years and Mexico continues to be the world's top exporter of avocados. South Africa's avocado production and exports have increased over the years. This trend is bound to continue due to increasing demand, driven by countries most involved in avocado markets.

About 45% of avocado production in South Africa is absorbed globally through exports, despite the strengthening of local market as evidenced by the increasing local demand. The European Union remains South Africa's primary market for avocados, with limited access to other markets like the United States America (USA) and Asia.

South Africa's avocado encounters competition from countries such as Mexico, the Netherlands, Kenya, and Peru, among others. For South Africa, Tanzania, New Zealand and Kenya, the EU market is likely to increasingly become more competitive, especially if avocado production increases from countries like Peru with minimal expansion in other markets. Spain is increasingly importing avocados mainly from Peru, Mexico, and re-export it, a prevalent trend in the Netherlands as well. Also, to note, is that over the past ten years, exports from countries that ship avocados during the same marketing window as South Africa have increased by an average of 12% annually.

Major Findings:

Basing on findings of the study, the avocado value chain comprises of producers, who either operate at commercial or small-scale basis. Small scale producers primarily supply the domestic market while commercial producers can supply both the local and international markets. Exporters are major values chain actors. To secure international markets, exporters leverage on other institutions including the Department of Agriculture, Land Reform and Rural Development (DALRRD), PPECB and logistics firms

which render supportive services. Other key value chain actors mapped out include National Fresh Produce Markets (NFPMs), packhouses, processors, wholesalers and retailers. The avocado value chain predominantly uses five marketing channels, including international export markets and NFPMs. Selling directly to retailers and informal sells account for equal proportions – 15% each while avocado used for processed into oil and guacamole accounts for a 9% share.

Basing on the DSM, the USA, Canada, Japan and China are some of the markets with large market opportunities for South Africa's avocados even when South Africa does not have SPS market access protocols in place now. Whereas the EU remains the major market for South Africa's avocado and many other competing countries, there is uncertainty and risks especially with the likelihood of imposing of new stricter SPS rules by the EU. Notwithstanding the risks, further development of the avocado value chain presents more benefits to South Africa, including increased opportunities for job creation as well as attracting more foreign direct investment into the industry, among others.

As recommendations, there is a need for the following:

- Further investment in the avocado industry in South Africa given the potential to increase farmer's revenue as well as making sure the healthy product is always available for consumers in all seasons. Investment should be used to improve upon the old infrastructure at NFPMs and to enhance efficiency at ports.
- The government through the DALLRD in partnership with their counterparts in the identified priority markets to expedite the process finalising new market access protocols. This will go a long way in ensuring that the industry diversifies its markets and harness the opportunities in the USA, Japan, China, India, South Korea and Taiwan.

Acknowledgement

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Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
Agbiz	Agricultural Business Chamber
BFAP	Bureau for Food and Agricultural Policy
CBI	Centre for the Promotion of Imports from developing countries
CPPI	Container Port Performance Index
DALRRD	Department of Agriculture Land Reform and Rural Development
DSM	Decisions Support Model
EFTA	Economic Free Trade Area
EPA	Economic Partnership Agreement
EU	European Union
FAOSTAT	United Nations Food and Agriculture Organization
Fruit SA	Fruit South Africa
Fruitrop	Frui Trop Magazine
GDP	Gross Domestic Product
GSP	General Systems of Preferences
Ha	Hectare
HS	Harmonized System
ITC	International Trade Center
kg	Kilogram
km	Kilometer
MT	Metric tons
mm	Millimetre
Mn	Million
MY	Marketing year
NAMC	National Agricultural Marketing Council
NFPM	National Fresh Produce Markets
p.a.	Per annum
PPECB	Perishable Products Export Control Board
R	South African Rand
RCA	Relative Comparative Advantage
RTA	Relative Trade Advantage
SA	South Africa
SAAGA	SA Avocado Growers Association
SADC	Southern African Development Community
SACU	Southern African Customs Union
SACUM-UK EPA	Southern African Customs Union (SACU) member States and Mozambique, and the United Kingdom of Great Britain and Northern Ireland Economic Partnership Agreement
SPS	Sanitary and Phytosanitary Protocol
Stats SA	Statistics South Africa
Subtrop	South African Subtropical Growers Association
UAE	United Arab Emirates
UN-ITC TRADEMAP	International Trade Center
UK	United Kingdom
USD	United States dollar
USDA	United States Department of Agriculture
USA	United State of America
WAO	World Avocado Organization

1. Introduction and Background

A value chain is a set of linked activities that work to add value to a commodity which consists of actors and actions that improve a commodity while linking all the participants in the value chain such as input suppliers, producers to processors and markets. Among small-scale farmers, this process may include information dissemination, infrastructure development, agricultural planning strategies, agricultural financing, and marketing, among others. Agriculture in South Africa (SA) is characterized by dual value chains operating in parallel for the same product, that is, the informal or traditional and the formal or modern value chains. This is eminent in the avocado industry in South Africa. Avocado is also known as the alligator pear due to its pear-like shape and green skin. Avocados primarily contain monosaturated fat, a key component of healthy diet. Unlike any frequently consumed fruit, avocado contains the most dietary fibre and it is regarded as one of the top superfoods in the world due to its health advantages as a food rich in vitamins, minerals, antioxidants, and other phytochemicals.

In South Africa, the avocado industry was established with the first plantings in the 1920s. According to SA Avocado Growers Association - SAAGA (2022), between the 1970s and 2003, the avocado industry was growing steadily at an average of 2 000 hectares (ha) per annum, until between 2003 and 2008 when it slightly declined. Due to the notable increase in local demand for avocado in 2009, the industry increased its avocado orchards which stood at approximately 15 439 ha in 2021. However, between 2020 and 2021 production period, total plantings increased by 747 ha. Although the South African avocado industry is export-orientated, the local market also plays a significant role since the demand has grown considerably over the past few years. Hence, effective efforts should be geared up to make sure that all activities, along the value chain (informal and formal), are well coordinated and monitored.

2. Motivation

Agriculture is a foundational sector of the economy, not just in South Africa but throughout the world. Most people rely on agriculture for their livelihood, and this is prevalent in developing countries across the continent of Africa. Agriculture related businesses create jobs and make a sizable contribution to the Gross Domestic Product (GDP). Horticultural farming has been recognized as one of the rapidly growing agricultural sub-sectors and it is a potential driver of poverty reduction among low-income smallholder households. According to Statistics South Africa (Stats SA, 2019), horticulture generated R86.3 billion. Horticultural farming i.e., growing and market horticultural crops primarily created many jobs compare with other sectors, whereby in 2019 alone, this sub-sector employed more than 450 000 people (Stats SA, 2019). Avocado is one of the horticultural crops with high economic value and it is an export-orientated crop.

In South Africa, avocado production is mainly concentrated in the warm subtropical areas of Limpopo and Mpumalanga Provinces in the North East of the country between latitudes 22˚S and 25˚S. However, the production of avocados has expanded in KwaZulu Natal, Eastern Cape and Western Cape Provinces due to the increased demand. Whereas annual rainfall received in most of these regions is high (i.e., more than 1 000 millimetres (mm) per annum (p.a)). some orchards in semi-arid regions receive about 400 mm of rainfall per annum. Due to climatic variability between the growing regions, most of the major cultivars are available over an extended period during the season. For example, 'Fuerte' is harvested from mid-March to May in the northern regions while in KwaZulu-Natal Province harvesting occurs from July until August (Subtrop, 2022). **Figure 1** illustrates avocado producing regions in South Africa. The Limpopo province is the largest avocado producing area, accounting for 60% of the total production, followed by Mpumalanga (30%), and Kwa Zulu Natal (9%). The Eastern Cape and Western Cape provinces account for only 1% of the total production. The total area planted in South Africa is 15 439 ha in 2021.

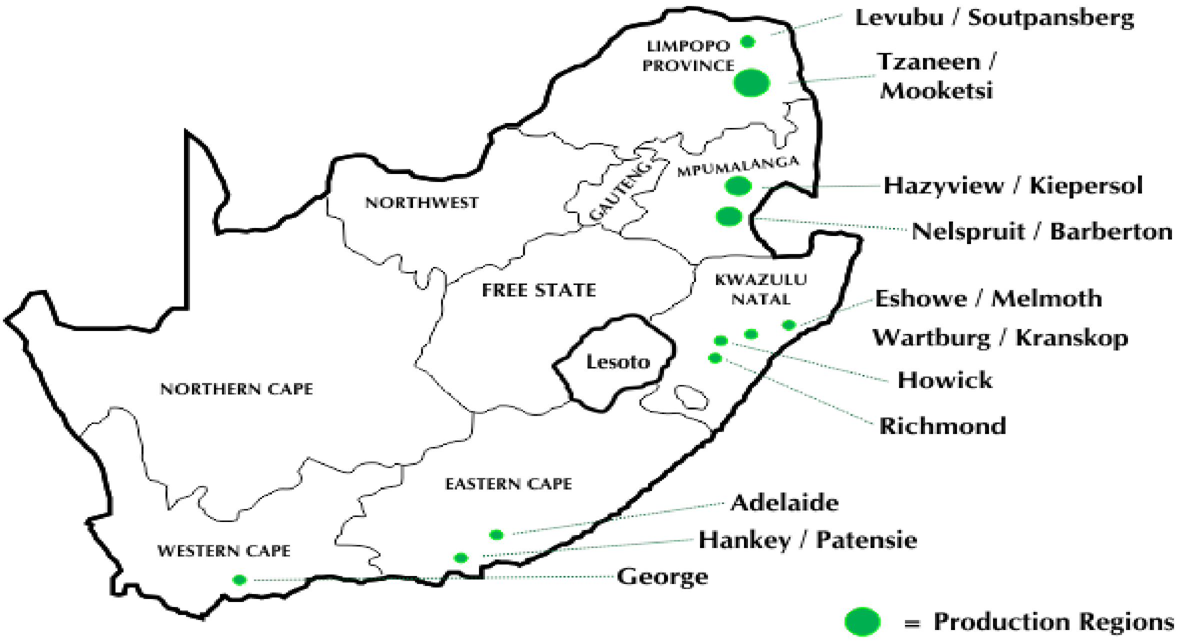

Figure 1: Avocado producing regions
Source: Subtrop (2022)

According to the Bureau for Food and Agricultural Policy (BFAP, 2023), it is possible to double the production area by 15 704 hectares by 2030, and much of the new avocado production may come from sugar cane areas that may go out of production in the next decade. However, a consideration of many resource factors including water availability must be taken into account. An estimated 141 853 hectares of potential land suitable for avocado is either currently under avocado production or could potentially be converted to avocado production in the future. Approximately 29% of the potential available land suitable for avocado is currently under sugarcane production. This shift will put a large demand on government to open new markets to sustain investments in production area expansion. For expansion to happen, significant additional irrigation infrastructure investment, as well as water rights would be required to switch these hectares to avocado production.

Whereas the avocado has gained much attention, locally and globally, most of the smallholder farmers in South Africa are still faced with several challenges limiting their significant participation in the value chain. The interlinkages between production, agro-industry and markets are still a major concern for the participants in the avocado value chain in South Africa. In order to eradicate poverty and promote economic growth among horticulture farmers and traders, a well-defined value chain is required.

3. Objectives and scope of the study

The study aimed to achieve the following objectives:

i. map out key actors along the avocado value chain
ii. determine the main marketing channels used.
iii. analyse the industry's trade performance as well as assess realistic market opportunities.
iv. identify policy issues influencing the function of the value chain.

3.1. Scope

This study was limited to South Africa and to using readily available secondary data and literature. Thus, both qualitative or quantitative approaches were used to perform comprehensive analysis such as value chain, and they form the basis for data collection. Value chain analysis overcomes several important weaknesses of traditional sectoral analysis, which tends to be static and suffers from the weakness of its own bounded parameters. For restricting itself to sectoral analysis, it struggles to deal with dynamic linkages between productive activities that go beyond that sector, whether they are of an inter-sectoral nature or between formal and informal sector activities. The value chain also goes beyond the firm-specific analysis. By its concentration on inter linkages, value chain analysis allows for an easy uncovering of the dynamic flow of economic, organisational, and coercive activities between producers within different sectors even on a global scale (Kaplinsky and Morris, 2000). Furthermore, value chain analysis is particularly useful for new producers, including poor producers and poor countries, who are trying to enter global markets in a manner that would provide for sustainable income growth. Finally, value chain analysis is also useful as an analytical tool in understanding the policy environment which provides for the efficient allocation of resources within the domestic economy, notwithstanding its primary use thus far as an analytic tool for understanding the way in which firms and countries participate in the global economy (Kaplinsky and Morris, 2000). This project used value chain analysis to understand the roles of the actors involved in the South African avocado industry.

4. Methodology

A combination of approaches was used to achieve the study objectives. To map out the key actors along the value chain, and to determine the main marketing channels used, a desktop review of relevant literature was done. To assess the trade performance of South Africa's avocado trade performance, TradeMap database of the international Trade Centre (ITC) was used to extract the data. Furthermore, to analyse the realistic market access opportunities, a Decision Support Model (DSM) was used. The DSM from Trade Advisory uses historical trade flows and trends as a basis of analysis. From all trade potential possibilities, filters allow the elimination of less favourable opportunities with the result the most favourable opportunities. The Model is based on trade theory.

The following filters were applied:

i. **Concentration** indicates how concentrated a market is and asses the diversification of supply to the market. A highly concentrated market with for example only one dominant supplier is less likely to present an opportunity due to the monopolistic nature of the supply.

ii. **Accessibility** indicates the extent to which tariffs and logistics routes present a barrier to trade. Low market accessibility is less likely to present an opportunity.

iii. **Import demand** shows the extent that the market allows imports in volumes and growth for any product. A large import demand presents a larger potential opportunity.

iv. **Export Maturity Proxy** – **Relative Comparative Advantage (RCA)** indicates the extent to which the South African industry has matured to be globally competitive, and also reflects the extend that South Africa has a prominent position in world trade in that particular product.

v. **Export Production Proxy – Relative Trade Advantage (RTA)** reveals the extent to which South Africa has a net surplus for exports, and therefore has the net production capacity to supply a market.

vi. **Size of the realistic export opportunity in Rands**: Once an opportunity was identified through the application of several filters, then the size of the opportunity is calculated by the average of the top seven (7) importers to that market (suppliers into that market) for any particular product. The opportunity therefore would assume that South Africa can gain the necessary regulatory market access and that it has the competitiveness to compete and scale to become one of the top suppliers of that market.

To identify policy issues influencing the functioning of the value chain, both industry experts' views and TradeMap database were used as proposed by Helin and Meijer (2006). These scholars note that Trade Map is useful when researchers want to identify policy issues that may be hindering or enhancing the functioning of a value chain, as well as identifying institutions and organizations that are required in providing services including quality standards and market information that different value chain actors need to make informed decisions.

5. Relevant literature review

5.1. Global perspective of the avocado industry

5.1.1. Global avocado production

Data from the United Nations Food and Agriculture Organization (FAOSTAT) indicates that global production of avocados increased by 106% from 4.2 million tons in 2012 to 8.7 million in 2021. This was mainly attributed to the increased area harvested, which grew by 87% from 460 thousand hectares in 2012 to 858 thousand hectares in 2021 as presented in **Figure 2**.

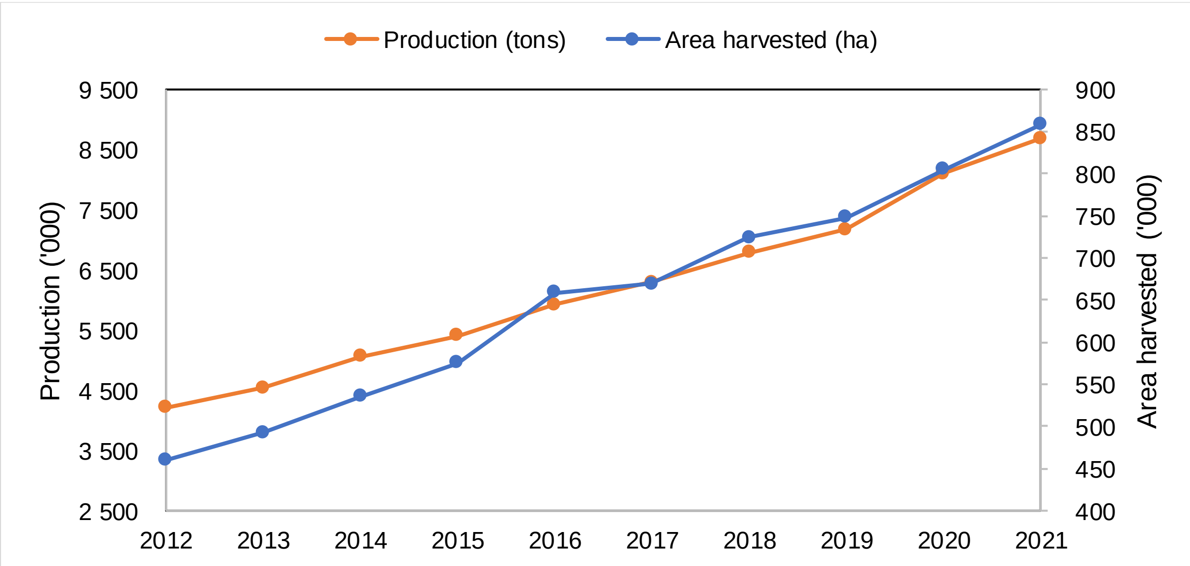

Figure 2: Global avocado production
Source: FAOSTAT, 2021

Figure 3 shows the share of production by region averaged between 2012 and 2021. Data shows that Americas is the leading avocado producing region with 72% share. Africa and Asia produce 12% share each, while Europe and Oceania produce 2% each. The main reason behind the dominance of the Americas is that the main avocado producing countries fall within this region as shown in **Figure 3**.

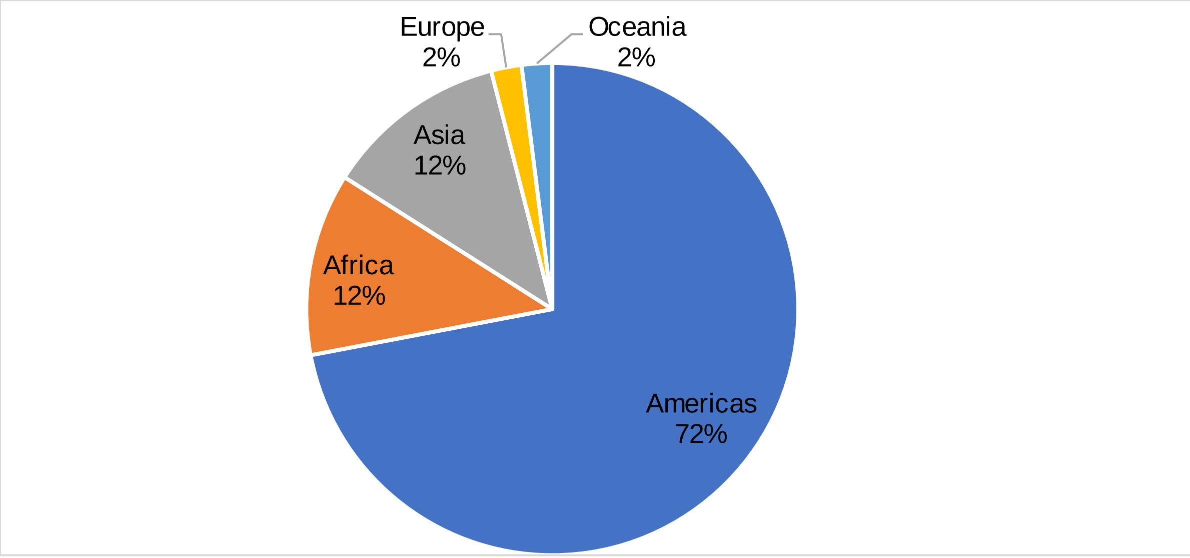

Figure 3: Production share (%) by region
Source: FAOSTAT, 2021

Figure 4 presents the top 10 producing countries based on a 10-year average from 2012 to 2021. Mexico is the leading producer of avocados with a 31% share of the global production on average, followed by the Dominican Republic, Peru and Colombia, in that order. On average, the top 10 countries produce over two-thirds (77%) of the global avocado production. Kenya is the largest producer of avocados in Africa, and it produced 3.7% of the global production on average between 2012 and 2021. However, Kenya alone contributed 4.9% among the top 10 over the same period.

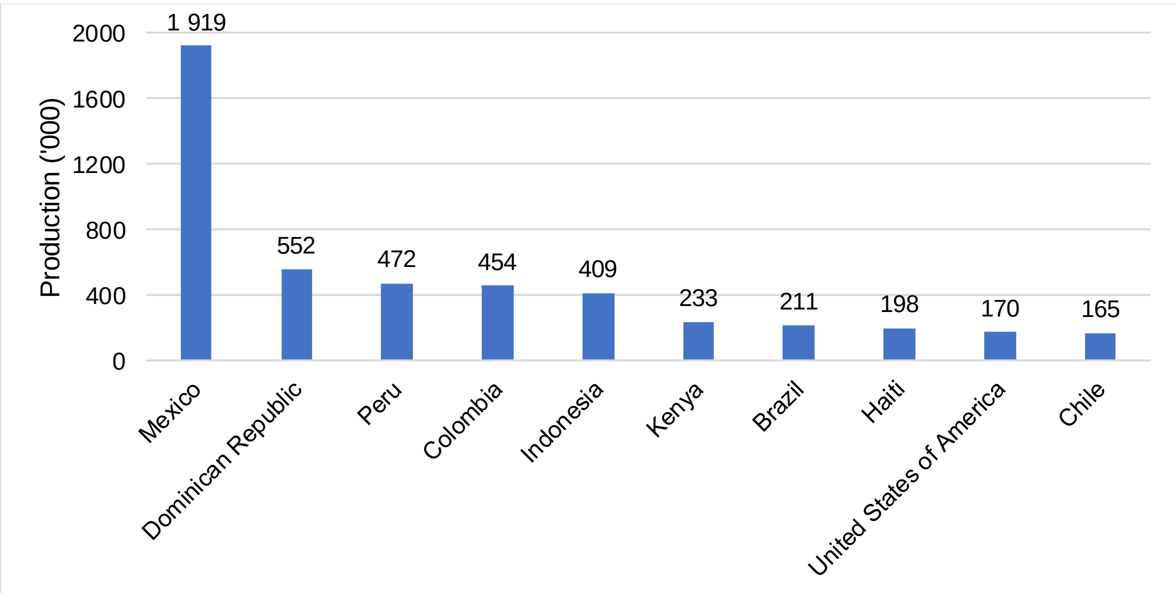

Figure 4: Top 10 avocado producing countries based on the average between 2012 and 2021
Source: FAOSTAT, 2021

5.1.2. Global trade performance

The predicted size of the avocado global market for 2022 is valued at 14.85 billion United Stated dollars ((US$ 14.85 billion), an increase from US$ 13.97 billion in 2021 (Grand View Research,2021). Over the previous ten years, both avocado exports and imports have seen substantial increase, with imports growing more quickly than exports. According to the ITC data, exports to the global market rose by 57.6% (from 2012 to 2021) with an average R90.686 billion per year over the preceding five (5) years (2017-2021). Avocado imports also increased by 57.8% (from 2012 to 2021), averaging at R100.86 billion annually during a five (5) years' period (2017-2021). The rapid increase in imports is attributed to increasing demand, for which the supply is unable to sufficiently meet (**See Figure 5**). Even though imports and exports of avocados have both increased over the previous ten years, there was a decline in 2018 that was mostly caused by the United State of America (USA), which is the world's top importer of avocados and the second-largest consumer after Mexico. By value, the USA's imports were 11% less when compared to what was imported in 2017.The decline in global exports in 2018 was driven by Mexico and Chile for which exports dropped by 10% and 31%, respectively.

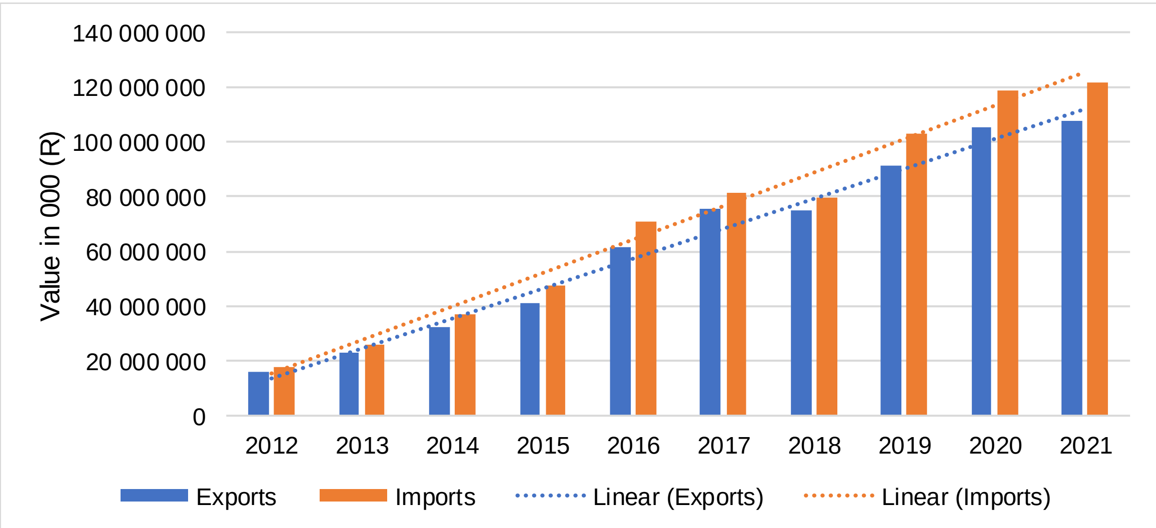

Figure 5: Global Avocado Trade in Value Terms (R) between 2012 – 2021
Source: UN-ITC TRADEMAP, 2023

5.1.2.1. Exports by country

The top exporting countries of avocados from 2012 to 2021 are shown in **Figure 6** in South African Rands. Over the observed period, Peru, the Netherlands, Mexico, and Spain were the top exporters, annual export growth rate of about 129%, 99%, 51% and 47%, respectively. Even if they are still modest when compared to countries such as Mexico, Peru or the Netherlands, Kenya's avocado exports by value increased by 73% annually between 2012 and 2021, from R247.79 million to R2.067 billion. France and South Africa also saw an increase of 34% (from R308.92 million in 2012 to 1.38 billion in 2021) and 22% (from 504.09 million in 2012 to 1.63 billion in 2021), respectively, annually over the same period. With a 41% export share in 2021, Mexico is by far the largest avocado exporter in the world, followed by the Netherlands (16%), Peru (14%), Spain (6%) and Chile and Colombia, each with 3%.

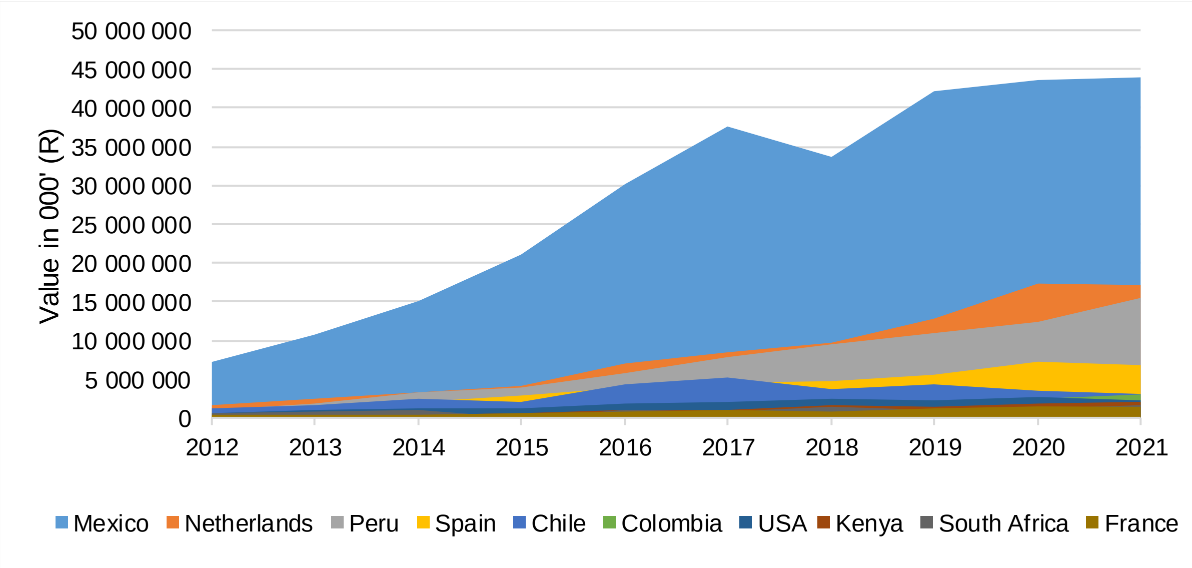

Figure 6: Top 10 avocado exporting countries in value-terms (R) between 2012 and 2021
Source: UN-ITC TRADEMAP, 2023

5.1.2.2. Imports by country

North America and the European Union (EU) continue to dominate the global avocado imports. The Middle East and Asia combined, follow and are a promising market due to rising population and fast growing middle-class in those regions. By value, the top 10 avocado importing countries from 2012 through 2021 include the USA, Netherlands, and France (**See Figure 7)**. The value of all avocado imported globally in 2021 was R121.596 billion. The USA accounted for around R46.325 billion with an annual increase of 52%, followed by the Netherlands (R15.043 billion, 88% rise), France (R7.963 billion, 38% rise), Spain (R7.191 billion, 120% increase), Germany (R5.816 billion, 87% rise) and the United Kingdom (UK) (R4.608 billion), equivalent to a 65% increase. The value of imports for Canada, Japan and Russia were R3.716 billion, R3.281 billion and R1.958 billion, respectively. From 2012 through 2021, imports into each of these countries rose annually by double digits. According to BFAP (2022), between 2017 and 2021, the EU accounted for 72% of South Africa's global avocado exports, followed by the UK (19%), while Africa, Russia, and the Middle East/Asia each receiving 3%.

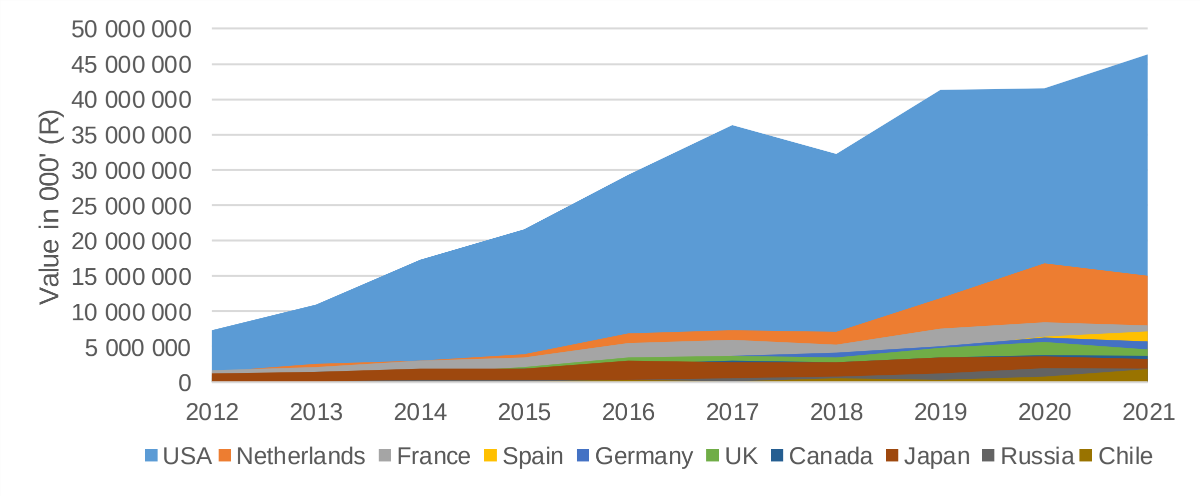

Figure 7: Top 10 avocado-importing countries in value-terms (R) between 2012 and 2021
Source: UN-ITC TRADEMAP, 2022

5.1.3. Consumption patterns

World avocado consumption has increased significantly in past years, anticipated higher growth. The popularity of fresh avocados among consumers is attributed to the growing consumption of fresh foods and easy product availability (Grand View Research, 2021). The demand for avocados also keeps on growing influenced by income, diversifying trends in dietary patterns, rising urbanization, online shopping consumer preferences, world population growth and versatile uses (Centre for the Promotion of Imports from developing countries (CBI), 2021). Rodriguez (2020) revealed that the consumption of avocados has been increasing due to the increasing Latin American population in both the United States and Europe. However, in 2020, world avocado consumption was lower than anticipated and this could be attributed to COVID-19 which led to decreased restaurant orders, food service segment and reduced exports. In 2021, Statistica data showed that Mexico remained as the leading global consumer of avocados. The Centre for the Promotion of Imports from developing countries (CBI) (2021) estimates Mexico's avocado per capita consumption at around 7kg, followed by the USA (4kg) and Canada (2.5kg). The World Avocado Organization (WAO) estimated that avocado consumption in Europe can reach the same level as in the USA in the coming 8 years. The Freshplaza (2022) reported that Australia has seen noticeable rise in avocado production due to favourable weather conditions for the 2022 season and avocado consumption per person reached 4.7kg.

The USA market has been absorbing high avocado volumes, importing at least 1.21 million tons in 2021 (ITC, 2023). Grand View Research (2021) indicated the high volumes have been fuelled by healthy lifestyles, consumers looking for healthy and versatile options, global economic recovery in 2021 and increasing food service activity. In 2021, 93% of Hispanic households in the USA reported purchasing avocados, as compared to 70% of the rest of the population. In Chile avocado consumption reached

100 000 metric tons (MT) during the 2021/22 marketing year (MY). Consumption in Chile is estimated to reach 105 000 MT during the 2022/23 MY due to higher demand for avocados because Chileans use it in most of their daily meal (USDA, 2021). Advanced markets for processed avocados are also estimated to drive global industry growth in the coming years. The increased demand for healthy food products will continue to determine the consumption of ready-to-eat avocados in the coming years (CBI, 2021). In addition, the rising trend of snacking is also expected to boost the global market in the coming years. With countries facing time constraints due to large working age, consumers are going for avocado-based snacks. India, China, Brazil, Turkey, South Africa, Italy, Germany, the USA and Russia are among the leading consumers of such snacks (Grand View Research, 2021).

5.1.4. Summary

Global avocado production based on a 10-year period average masks a lot of vital information that happened in the various countries due to several reasons. For example, when looking at 2021 alone, the share of avocados production from the American region is 70%, while that of Asia is 14%. The countries that made up the top 10 in 2021 were Mexico (2.4 million tons), Colombia (979 000 tons), Peru (777 000 tons), Indonesia (669 000 tons), Dominican Republic (634 000 tons), Kenya (416 000 tons), Brazil (300 000 tons), Haiti (248 000 tons), Viet Nam (212 000 tons) and Chile (169 000 tons). Whereas the United States Department of Agriculture (USDA) (2021) forecasted an 8% decline in Mexico’s production of avocados in the 2021/22 marketing year, production is generally expected to remain strong due to high international demand and attractive global prices. The global market for the 2022 season is predicted to further increase to US$ 14.85 billion and Mexico continues to be the world's top exporter of avocados. However, this is mostly counter seasonal to the Southern Hemisphere exporters, led by Peru, Chile, Kenya and South Africa. The EU is South Africa’s primary market, with limited access to other continents like the USA or Asia. Even in the EU market, South Africa’s avocado face competition from supplied by American countries and the Netherlands. Spain is increasingly importing avocados mainly from Peru and Mexico, and re-exporting, a prevalent trend in the Netherland. Also, to note, is that over the past ten years, exports from countries that ship avocados during the same marketing window as South Africa have increased by an average of 12% annually.

For South Africa, Tanzania, New Zealand and Kenya, the EU market is likely to increasingly become more competitive, especially if avocado production increases from countries like Peru with minimal expansion in other markets. Exporting country’s market share growth over time will increasingly become influenced by factors such as policy initiatives, country production efficiency and general production practices. The consumption of avocados globally is increasing due to several factors, including rising demand and population growth, particularly in the North American region, which also holds the greatest market share globally. The Asia Pacific region avocado consumption is anticipated to increase at an average annual rate of 10.4% from 2022 to 2030. The spread of Western cuisine throughout Asia and major Chinese cities has contributed to the expansion of the Asia-Pacific market. The continued growth of the middle-class populations in China and India is expected to further increase demand for avocados in the Asia Pacific region.

6. Findings for South Africa's avocado industry

This section provides study findings per objective in the subsequent subsections.

6.1. Mapping out key actors along the avocado value chain

Figure 8 represents the value chain for avocados in South Africa. The main role-players in the chain are producers, processors, National Fresh Produce Markets (NFPMs), exporters, retailers, wholesalers, and consumers.

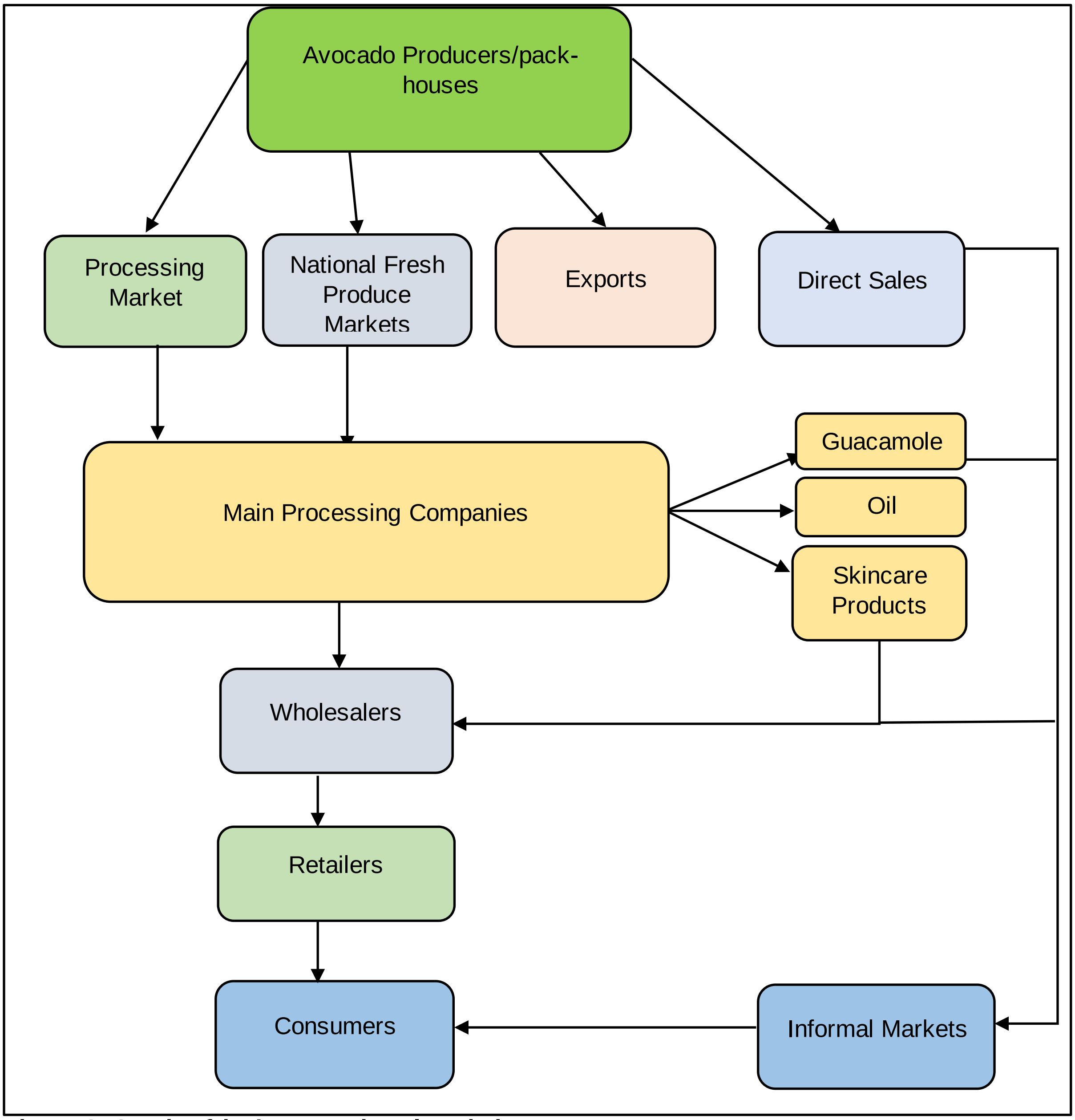

Figure 8: South Africa's Avocado value chain
Source: DALRRD (2019) & SAAGA (2023)

Producers comprise of both large/commercial and smallholder producers. Smallholder producers primarily supply the local market, as opposed to large/commercial producers, who provide for both the local and export markets. **Packhouses** handle the grading, packaging, cold storage, and delivery of avocados for export, local, retail, processing, and informal marketing. Packaging is crucial for assuring the safe and effective conveyance of a product as well as for confirming handling requirements, uniformity, recyclable material standards, phytosanitary requirements, appropriate storage needs and even attractiveness for marketing purposes (DALRRD, 2019). **Processing market** primarily consists of processing firms which ripen, process and pack avocados to retail, wholesale and export markets. The volume of avocados available for processing depends to a larger extent on the total quantity of production in each production season (DALRRD, 2019).

National Fresh Produce Markets (NFPMs) are synonymously referred to as municipal markets. They are an essential component of fresh produce pricing, distribution, and marketing in South Africa (NAMC, 2017a). Wholesalers, wholesaler-retailers, and retailers make up the key players in this fresh produce retail market. NFPMs are made up of various agencies which manage the sale of avocados for domestic and international export on behalf of South Africa's avocado producers. **Exporters'** primary business is to market and sell the fruit of primary producers at the best market price that they can negotiate beyond the borders of South Africa. To achieve this, the exporters must communicate with many of the participants in the logistics chain (cold stores, transporters, shipping lines, port terminals, clearing and forwarding agents, Perishable Products Export Control Board (PPECB), regional producers associations and special market inspectors, etc. The exporters are in the position of overseeing the cold chain, handling the fruit in an appropriate manner, and being accountable for the quality of the fruit that reaches the destination market (DALRRD, 2019). **Wholesalers** make bulk purchases directly from farmers and/or packhouses. Because it focuses on large-scale buying and selling, wholesaling is different from retailing. Conversely, **retailers** oversee the distributing of a significant amount of avocado produce to local consumers throughout the avocado value chain. They buy avocados directly from farmers, NFPMs, and/or wholesalers along the value chain. After the product is in their possession, they are in the position of marketing it to consumers.

6.2. Marketing channels along the avocado value chain in South Africa

Avocado production in South Africa is an export orientated. Over the years, most of South Africa's avocado is sold on the international market (exported) as shown in **Figure 9**. Following the export marketing channels is what is sold through National Fresh Produce Markets (NFPM). The informal market channel ranks the third (3rd) in absorbing South Africa's avocados. Other marketing channels include selling through informal markets as well as processing to extract oil and guacamole.

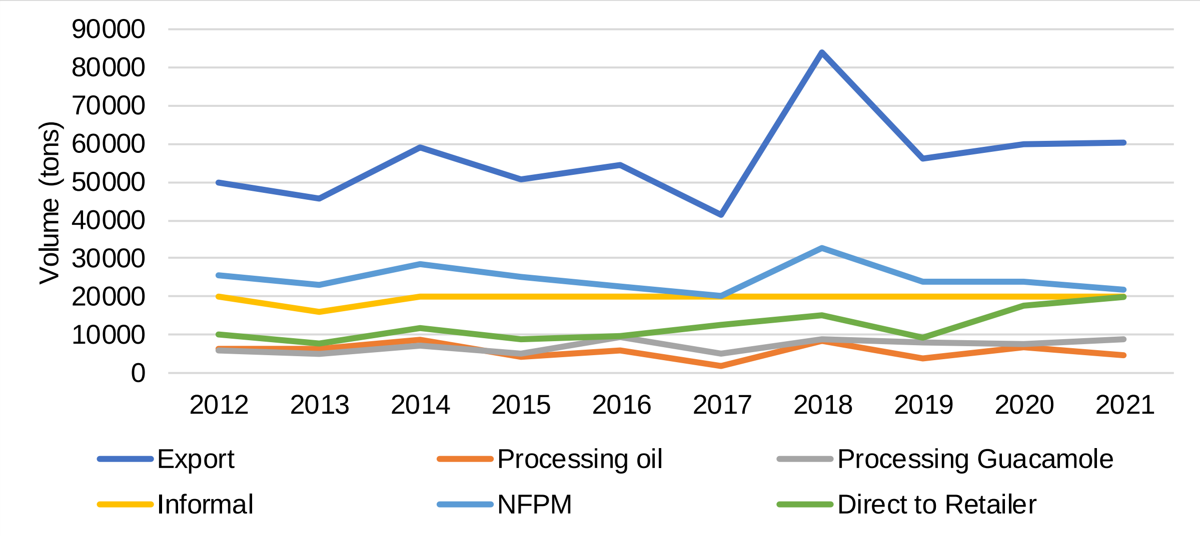

Figure 9: South Africa's avocado marketing channels
Source: SAAGA (2022)

Figure 10 shows that 45% of South Africa's avocados were exported in 2021. This was followed by the NFPMs which accounted for about 16% of the avocados produced domestically. Selling directly to retailers and through informal markets are also important channels through which fresh avocados are sold in South Africa. The direct selling to retailers accounts for 15% of all avocados produced in South Africa, a proportion equal to what is sold through informal markets. Some of the avocado in South Africa was also processed. The quantity delivered to processors in 2021 accounted for about 9% of locally produced avocados, of which 6% went into processing Guacamole while the 3% was used to process oil.

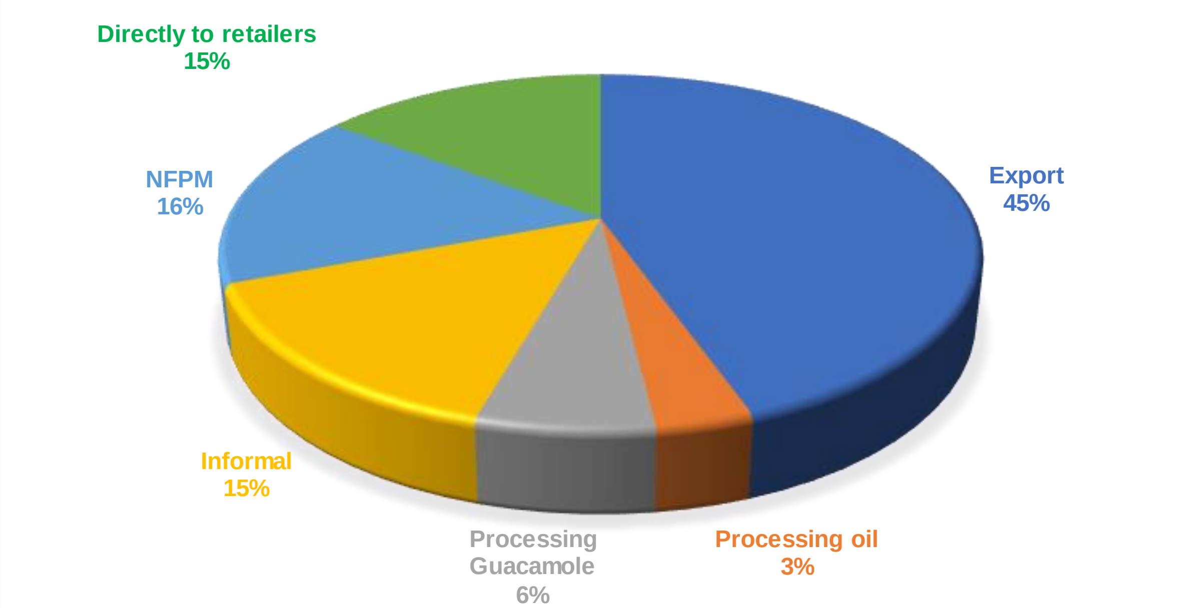

Figure 10: South Africa's avocado marketing channels by percentage share, 2021
Source: South African Subtropical Growers Association, & South African Avocado Growers Association

6.3. South Africa's trade performance

The market share of South Africa's avocado exports is 1.5% of world exports and ranked nineth (9th) among the top suppliers in the world. The trend of a healthier lifestyle has led to increasing demand for fresh avocados, not only in South Africa but also globally. This is because the avocado is considered a high-value crop, of great economic importance for all countries involved in its trade. This section presents the trade performance of South Africa's avocado. Figure 11 illustrates growth in export volumes (tons) and export values (Rand) of avocados between 2012 and 2021. Short-term fluctuations in exports are mainly due to the cyclical production of avocados, and quality issues in some seasons. Despite Cape Town's long distance from some avocado growing regions such as Limpopo province which is about 1 800 kilometres (km) away, South Africa mainly uses Cape Town as the major export port for avocados. The value of exports has grown significantly from R506 million in 2012 to R1 631 million in 2021, at an average annual growth rate of 20.94% (ITC, 2022).

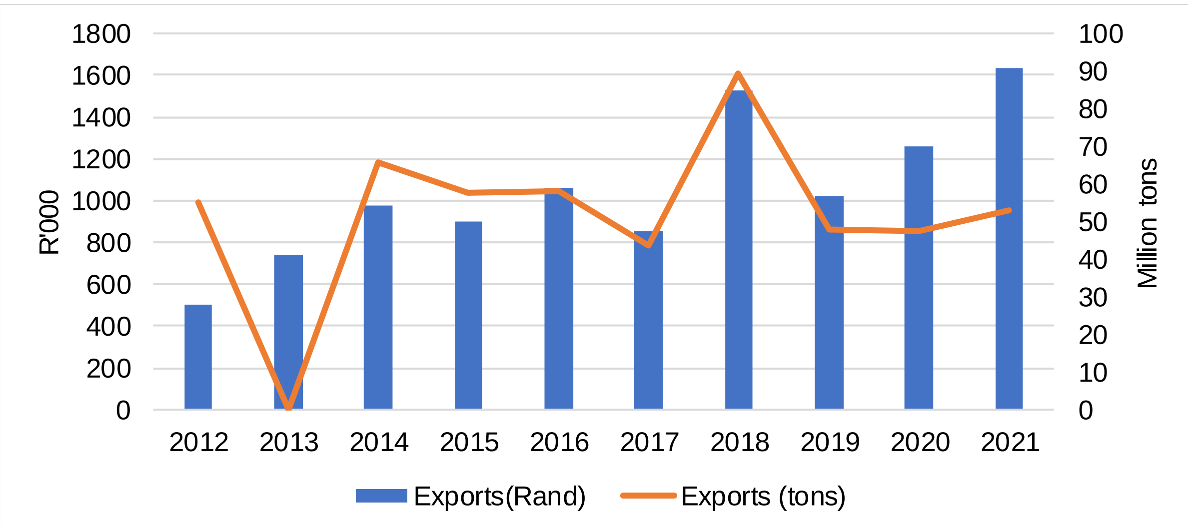

Figure 11: South Africa's avocado exports
Source: ITC Trade Map, 2022

Table 1 illustrates the top ten destinations for South Africa's avocado exports. In 2021, the Netherlands, United Kingdom (UK) and the Russian Federation were the leading importers of South Africa's avocados accounting for 3 3000 tons, 9 571 tons and 2 747 tons, respectively. Namibia and Botswana were the only African countries among the top ten importers of South Africa's avocados with 895 tons and 488 of avocados imported, respectively. In 2021, 60% of South Africa's avocadoes by value was exported to the EU mostly entering through ports of the Netherlands then re-exported to other EU countries. South Africa has an Economic Partnership Agreement (EPA) Free Trade Agreement with the EU as well as a Free Trade Agreement with the Economic Free Trade Area (EFTA) states, i.e., Iceland, Norway and Switzerland. These trade agreements have contributed to the large sustained avocado exports to Europe. The trade agreements provide for zero import tariffs which give South Africa a competitive advantage in these markets. The United Kingdom (UK) also has a substantial share (19%) of South Africa's avocado exports. The preferential tariff is zero under the Economic Partnership Agreement (EPA) between the Southern African Customs Union (SACU) member States and Mozambique, and the United Kingdom of Great Britain and Northern Ireland (SACUM-UK EPA).

Table 1: Top 10 export destinations for South Africa's avocado in 2021

Countries	Exports (Tons)	Percentage
Netherlands	33 000	62,5%
United Kingdom	9 571	18,1%
Russian Federation	2 747	5,2%
Spain	1 565	3,0%
Germany	1 385	1,1%
Namibia	895	1,7%
Portugal	729	1,4%
United Arab Emirates	575	1,1%
France	511	1,0%
Botswana	488	0,9%
Total	**51466**	**96,00%**

Source: ITC TradeMap (2021)

South Africa also exports to Russia and the United Arab Emirates (UAE), normally for avocadoes of a lower grade/class not suitable for the European markets. Normally South Africa enjoy General Systems of Preferences (GSP) – a preferential tariff rate access to developed markets like Russia. As a result, tariffs are very low at 3.75% for Russia. Russia and the UAE are good alternative markets for products that do not go to Europe. Should geopolitics cease in Eastern Europe, then Russia and Ukraine remain good markets for expansion. South Africa also enjoys duty-free trade with the Africa region, specifically to countries within the South African Customs Union (e.g., Namibia) and the rest of Southern African Development Community (SADC).

Despite South Africa's good trade performance in international markets, the avocado industry also faces stiff competition. Mexico, Peru and Spain are the largest exporters in the world and are the main competitors for South Africa (See **Table 2**). South Africa has a seasonal advantage to Mexico and Spain but overlaps with Peru in the same seasonal distribution in volumes to the world market. The Netherlands is among the top two suppliers but may not be considered a competitor because it re-exports avocados to other parts of Europe and does not produce avocadoes. The USA is a notable competitor but has a huge trade deficit and therefore could be a very large opportunity target market for South Africa to pursue. Spain may seem like a competitor but the differences in harvesting seasons between South Africa and Spain may present an opportunity to fill the gap during Spain's offseason. Recently there is a revival in volumes coming from the Mediterranean area including Spain that competes with South American supplies in the European market. The avocado harvest season in Spain is from December to May, whereas South Africa harvest from March to September. African countries like Kenya and recently Rwanda have become competitors for South Africa and the former already has SPS access to the Chinese market, which is an advantage that South Africa does not yet have.

Table 2: South Africa's competitors in global avocado markets

	Value exported in 2021 (USD thousand)	Trade balance in 2021 (USD thousand)	Quantity exported in 2021	Quantity Unit	Unit value (USD/unit)	Annual growth in value between 2017-2021 (%)	Annual growth in quantity between 2017-2021 (%)	Annual growth in value between 2020-2021 (%)	Share in world exports (%)	Average distance of importing countries (km)	Concentration of importing countries
World	**7 273 632**	**965 223**	**3 013 880**	**Tons**	**2 413**	**6**	**15**	**13**	**100**	**3 722**	**0.16**
Mexico	2 975 960	2 975 960	1 227 070	Tons	2 425	1	5	12	40.9	2 637	0.65
Netherlands	1 163 222	143 930	368 258	Tons	3 159	17	18	10	16	797	0.12
Peru	1 048 300	1 048 299	541 520	Tons	1 936	13	19	38	14.4	9 229	0.18
Spain	462 013	25 247	139 925	Tons	3 302	8	8	4	6.4	1 239	0.24
Chile	214 187	87 694	98 183	Tons	2 182	-13	-14	-2	2.9	10 509	0.21
Colombia	204 590	204 548	96 904	Tons	2 111	43	40	40	2.8	8 468	0.32
USA	157 490	2 981 296	61 630	Tons	2 555	0	4	-4	2.2	2 808	0.67
Kenya	140 117	140 021	95 036	Tons	1 474	12	14	21	1.9	5 576	0.13
S. Africa	110 489	105 111	52 795	Tons	2 093	7	-2	44	1.5	9 069	0.39
France	93 808	445 754	32 327	Tons	2 902	10	10	4	1.3	584	0.22
Morocco	89 444	82 716	27 332	Tons	3 273	22	20	-17	1.2	1 289	0.41
Belgium	85 677	36 205	32 984	Tons	2 598	20	25	8	1.2	937	0.24
Dominican Republic	77 986	77 752	56 456	Tons	1 381	13	13	15	1.1	4 219	0.43
New Zealand	77 728	77 728	25 800	Tons	3 013	3	10	-33	1.1	4 584	0.52
Germany	58 919	335 193	16 113	Tons	3 657	6	3	13	0.8	656	0.11
Israel	54 520	54 515	-	No quantity		-4		-13	0.7	3 016	0.23
Hong Kong	38 867	37 371	17 990	Tons	2 160	-3	-4	115	0.5	939	0.97
Australia	29 624	32 517	8 364	Tons	3 542	28	36	131	0.4	6 477	0.33
Portugal	23 585	300	7 200	Tons	3 276	57	45	94	0.3	822	0.6
UK	18 036	294 183	6 611	Tons	2 728	14	16	-30	0.2	454	0.45

Source: ITC Trade Map, 2022

Figure 12 shows the trends of South Africa's avocado imports between 2012 and 2021. South Africa's avocado imports have grown significantly from 1 805 tons in 2012 to 4 222 tons in 2021. The reasons for this increase are attributed to the rising demand from the domestic market and the inadequate supply by local producers during when South Africa is off-season.

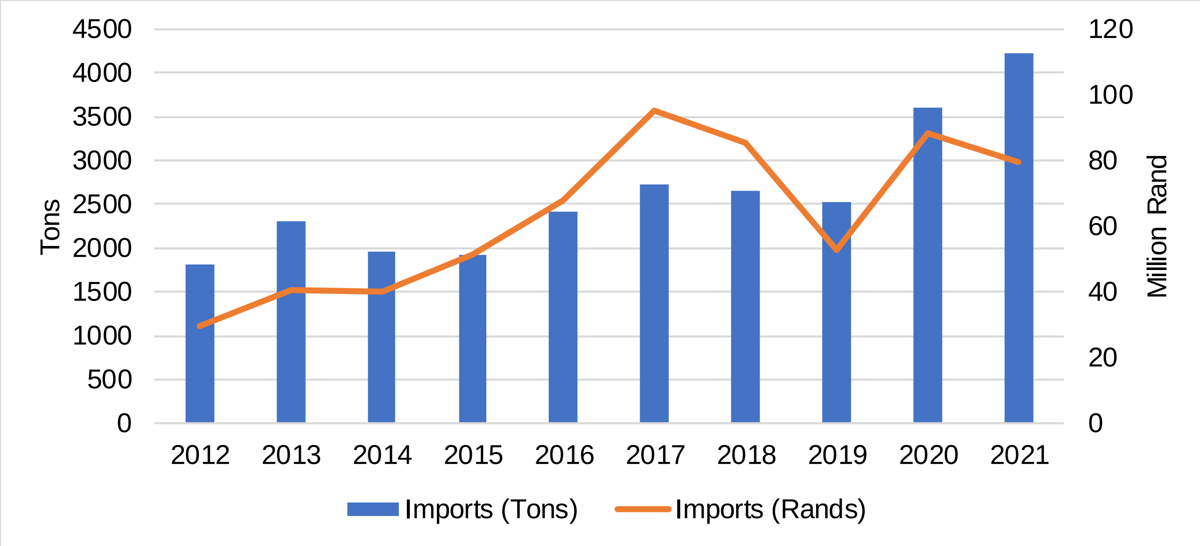

Figure 12: South Africa's avocado imports
Source: ITC Trade Map, 2022

Table 3 shows the top ten countries that supplied South Africa with avocados in 2021. Zimbabwe and Spain were the leading suppliers of avocados to South Africa, responsible for 1 712 tons and 917 tons, respectively. They were followed by Mozambique (639 tons) and Tanzania (396 tons).

Table 3: Top 10 suppliers of avocados to South Africa in 2021

Countries	Imports (Tons)	Percentage share of all imports
Zimbabwe	1 712	41%
Spain	917	22%
Mozambique	639	15%
Tanzania	396	9%
Eswatini	237	6%
Kenya	164	4%
Israel	87	2%
Area Nes	50	1%
Portugal	22	1%
Netherlands	0	0%
Total	**4224**	**100%**

Source: ITC Trade Map, 2021

6.4. South Africa's realistic export market opportunities for avocados (HS 080440)

Currently, **Table 4** shows the largest export market for South Africa's avocados is the European Union (EU). South Africa is over reliant on the EU, although consumption is still growing in the EU that provided space for sustained exports from South Africa.

Table 4: Realistic export opportunities for South African avocados in the World (DSM with NO FILTERS applied)

Country	Tariff (%)	Total Realistic Export Potential to Target Market(s) (Mn) [Rand]:	Total Exports from ZAF to Target Market(s) (Mn) [Rand]:	Total Exports from South Africa / Target Market(s)Total Imports%	Target Market(s)Total Imports (Mn) [Rand]:
Total all countries	**-**	**15 584.13**	**2 039.45**	**2.0%**	**100 848.20**
United States of America	0.00	6 508.48	0.25	0.0%	39 054.59
Netherlands	0.00	1 524.17	880.42	7.6%	11 580.61
France	0.00	981.35	88.09	1.3%	6 698.91
Canada	0.00	869.87	1.25	0.0%	5 224.81
Spain	0.00	700.85	52.35	1.1%	4 875.94
United Kingdom	0.00	566.02	364.52	7.7%	4 711.21
Japan	0.00	555.71	1.45	0.0%	3 337.51
Germany	0.00	473.54	106.10	3.2%	3 288.58
Norway	0.00	268.13	41.38	2.3%	1 770.46
China	25.00	237.54	0.00	0.0%	1 429.65
Russian Federation	3.75	218.79	87.11	5.8%	1 501.61
Australia	0.00	215.25	6.45	0.5%	1 298.01
Italy	0.00	177.00	4.04	0.4%	1 118.83
Belgium-Luxembourg	0.00	163.21	3.12	0.3%	1 031.89
Sweden	0.00	161.00	0.00	0.0%	999.76
Denmark	0.00	157.02	0.00	0.0%	957.70
Switzerland	0.00	116.67	30.35	3.6%	847.72
Poland	0.00	107.99	81.77	8.7%	937.78

Note: Mn denotes million

Source: Analysis of the Decision Support Model, 2023

However, basing on the DSM criteria described in the methodology, findings presented in **Table 5** indicate that South Africa's largest realistic export potential market is still the European Union (EU), the United Kingdom and EFTA states where South Africa enjoys preferential tariff rates. The largest new potential markets would be the USA, Canada, Japan, and China where South Africa currently does not have sanitary and phytosanitary (SPS) market access protocols in place. The USA market is heavily concentrated, with Mexico dominating the leading supplier of avocadoes onto the market. Therefore, the USA does not appear as a potential market should the concentration criterion be put into consideration. But by considering other factors such as seasonality and distances between the East and West of the USA, then the USA remains as the largest potential market for South Africa's avocado in the world, if SPS market access can be obtained. However, it requires that the industry deals with the dominance of Mexico in the USA market. Canada is also a large potential market not yet explored by South Africa's avocado industry. Whereas South Africa has access to the Russian market at Generalised Scheme of Preferences (GSP) preferential tariffs rates, a large potential still exist for expanding into this market with R218 million of additional export potential should the geo-political tension cease. The most promising future market in in terms of size remains the USA, Canada, Japan, and China, in that order.

Table 5: Realistic export opportunities for South Africa's avocados in the World (DSM with ALL FILTERS applied)

Country	Tariff (%)	[A]Total Realistic Export Potential toTarget Market(s) (Mn) [Rand]:	[B]Total Exports from South Africa to Target Market(s) (Mn) [Rand]:	[C] = [B] / [G]Total Exports from South Africa / Target Market(s)Total Imports%	[G]Target Market(s)Total Imports (Mn) [Rand]:
	-	**5 809.10**	**1 866.41**	**4.5%**	**41 921.58**
Netherlands	0.00	1 524.17	880.42	7.6%	11 580.61
United Kingdom	0.00	566.02	364.52	7.7%	4 711.21
Germany	0.00	473.54	106.10	3.2%	3 288.58
France	0.00	981.35	88.09	1.3%	6 698.91
Russian Federation	3.75	218.79	87.11	5.8%	1 501.61
Poland	0.00	107.99	81.77	8.7%	937.78
Spain	0.00	700.85	52.35	1.1%	4 875.94
Ukraine	3.00	49.33	31.19	8.3%	377.63
Switzerland	0.00	116.67	30.35	3.6%	847.72

Country	Tariff (%)	[A]Total Realistic Export Potential toTarget Market(s) (Mn) [Rand]:	[B]Total Exports from South Africa to Target Market(s) (Mn) [Rand]:	[C] = [B] / [G]Total Exports from South Africa / Target Market(s)Total Imports%	[G]Target Market(s)Total Imports (Mn) [Rand]:
Portugal	0.00	40.60	28.77	10.4%	276.68
Austria	0.00	105.85	27.90	3.7%	760.57
Finland	0.00	74.25	27.33	4.5%	611.80
United Arab Emirates	0.00	67.42	16.83	3.5%	477.90
Botswana	0.00	0.00	11.51	100.0%	11.52
Hong Kong	0.00	74.53	7.62	1.6%	481.67
Serbia	10.00	11.54	5.34	6.6%	80.68
Italy	0.00	177.00	4.04	0.4%	1 118.83
Slovakia	0.00	21.06	3.92	2.4%	161.37

Note: mn denotes million

Source: Analysis of the Decision Support Model, 2023

With respect to SPS market access priorities, South Africa's regulatory authorities are in the process for new market access protocols to priority destinations for the agricultural sector. The USA, Japan, China, India, South Korea and Taiwan are on the list. However, these may still be reviewed by Government and industry in the Value Chain Round. **Table 6** presents results of an assessment of the South Africa's export potential for avocado in the Sanitary and Phytosanitary (SPS) Protocol market access priority markets.

Table 6: Value of realistic export opportunities for South Africa's avocados to new priority markets identified by the avocado industry.

Country	Tariff (%)	Total Realistic Export Potential to Target Market(s)(Mn) [Rand]:	Total Exports from South Africa to Target Market(s)(Mn) [Rand]:	Target Market(s)Total Imports (Mn) from the World [Rand]:
	-	**7 415**		**44 498**
USA	0	6 508	0	39 055
Japan	0	556	1	3 338
China	25	238	0	1 430

Country	Tariff (%)	Total Realistic Export Potential to Target Market(s)(Mn) [Rand]:	Total Exports from South Africa to Target Market(s)(Mn) [Rand]:	Target Market(s)Total Imports (Mn) from the World [Rand]:
South Korea	30	94	0	566
Taipei - Taiwan	15	14	0	83
India	30	3	0	19
Mexico	20	2	0	9

Source: Analysis of the Decision Support Model, 2023

The USA is by far the largest potential export market for South African avocadoes. Currently, South Africa has preferential tariff market access to the USA under the Agricultural Growth and Opportunities Act (AGOA). This is a unilateral Act of the USA that replaced GSP preferences and import tariffs are zero. However, the USA remains closed from a regulatory viewpoint, even after a decade of application review for market access to get a Sanitary and Phytosanitary (SPS) Protocol in place for the mitigation of disease risks. Also, considering that the USA market is very concentrated with almost only Mexico that supply that market. This maybe because of the Free Trade Agreement between Mexico, the USA and Canada and USA investors in Mexico. South Africa is hopeful that a breakthrough could be made to access the USA market in future with closer USA cooperation and investment ties. Besides the USA, Japan and China are the most promising new markets for South Africa's avocado exports as identified and pursued by the industry and government.

7. Factors influencing the function of the value chain

The growth in South Africa's avocado industry is evident for a fact that the avocado crop increased by 58.4%, from 85 645 tons produced in 2001 to 135 742 tons produced in 2021.This section provides an overview of the several challenges and risks identified as potential hurdles to the functioning and competitiveness of the industry.

Limited market diversification

Lack of market diversification has become a significant obstacle for the avocado industry, since the main avocado importing destination, the European Union (EU) is becoming saturated. In 2021, South Africa exported over 95% of avocados to the EU and United Kingdom (UK) (Fruit SA, 2023). The overlap of the traditional window with significant Peruvian volumes in this market is one of the key obstacles facing the South Africa's avocado industry. In addition, Central Africa and Kenya compete severely with South Africa for the European market. Central Africa has an advantage over South Africa since they can produce avocados throughout the entire year, making it challenging for South Africa to maintain its competitiveness. As much as opportunities persist, a potential oversupply situation could arise soon with many countries having a narrow scope of markets available. The limited market diversification is further compounded by the uncertainty about the future of SPS rules to the EU market. Whereas it is not currently a problem, potential new stricter SPS rules imposed by the EU market might create problems for the industry. South Africa's production expansion could potentially outpace governments' capacity in opening new markets in accordance with SPS requirements, but much of the speed and progress in protocol negotiations are in the hands of partner countries. The slow progress in opening new large markets like the USA could be due to protectionism and vested interests. Although the European market is still growing, as is the USA market, there will probably be an oversupply in the next few years during the peak Peruvian season, which coincides with South Africa's peak season.

Crime (Theft)

This is major impediment facing the avocado industry that has a detrimental effect on the South Africa's value chain functionality and overall competitiveness. This is because of a certain quantity of avocados in South Africa is lost due to criminal activity (theft). Farmers have had to incur additional costs by advancing security on their farms to avoid crop loss caused by theft.

Port inefficiencies

South Africa's fruit industry is largely export-orientated, with approximately 65% of fresh fruit exported (Fruit SA, 2021). Poorly maintained ports are another challenge harbouring the fruit industry in general. This results in delays which negatively impact on the quality of avocados which could lead to the shipments being turned back for not meeting quality standards set by the importing countries. Port facilities in South Africa were among the worst ranked in the 2021 Container Port Performance Index (CPPI) published by the World Bank and S&P Global Market Intelligence. There were 370 port facilities evaluated in total, and the ports of Durban and Cape Town came in at positions 364 and 365, respectively. The poor rankings just serve as an indication that resources must be made available to improve on the efficiency and turnaround times of South Africa's ports. Additionally, inefficient ports impede economic growth and the competitiveness of the country.

Infrastructure

The outdated infrastructure of local municipal markets (Tshwane, Durban, Cape Town, Johannesburg fresh produce markets, etc.), which serve both local and Southern African Development Community (SADC) markets, presents a challenge to get avocados ready for the market. These markets cannot provide efficient and commercially viable services to farmers or buyers due to the deteriorated infrastructures. Moreover, the markets' outdated facilities, particularly cold rooms, ripening facilities, trading platforms and ablution facilities contribute to non-conformance with food safety and health standards.

Climate change challenges

Evidence-based research shows that climate change will continue to impair agricultural productivity. In 2019, avocado production fell by 28% from the 169 243 tons realised in 2018 due to extreme heat conditions. South Africa's avocado crop for 2020 reached 135 315 tons, equivalent to a 11.6% increase from the 121 156 tons produced in 2019. The observed increase was owing to favourable weather conditions. Scientists at Columbia University's International Research Institute for Climate and Society predict a potential El Niño later in the year (2023), which might result in lower agricultural production (Agbiz, 2023).

Given the increasing growth of the avocado industry in South Africa, **Table 7** presents that identified risks and benefits.

Table 7: Risk and benefit assessment

Risks	Benefits
• Fast global expansion in avocado production in competitor countries like Mexico, the Mediterranean, Peru and Kenya competing for the same markets. • Over concentration on the EU market. • Potential new stricter SPS rules to the EU market – especially on environmental and green issues. • Production expansion outpacing government's capacity to open new markets into SPS. • Slow progress in opening large new markets like the USA due to protectionism and vested interests.	• Increased production capacity – production in South Africa is still growing and creating jobs. • Increased possibilities to attract foreign direct investments (FDI) into the industry. • Enhanced market access and therefore foreign earnings through exports. • With the African Continental Free Trade Area (AfCFTA) coming into effect, South Africa may command a higher portion of the market share in countries like Egypt. Products are also exported via South Africa's retail chains and supermarkets present in Africa.

Risks	Benefits
	• With the enactment of more market access protocols, South Africa may take advantage of the differences in avocado production seasons with its competitors. • The growing demand for fruit especially in China raises the prospect of increased imports from the world and South Africa to look at supplying the market. Kenya already has market access to China for avocados. .

8. Conclusions and recommendations

Basing the world avocado production analysed over the years, 10-year averages suggest that there has been variation across countries due to various reasons, including changes in weather conditions. However, the global consumption of avocados has been increasing due to several factors, including rising demand and population growth, particularly in the North American region, which also holds the greatest market share globally. Overall, global trade performance in avocado has increased over the years and Mexico continues to be the world's top exporter of avocados. Over time, South Africa's avocado production and exports have increased. This trend is bound to continue for at least a couple of years due to its increasing demand, driven by countries most involved in its trade. South Africa's avocado industry remains mainly focused on the international market, which absorbs approximately 45% of what is produced, despite the strengthening local market as seen by the increasing local demand. The EU remains South Africa's primary market avocados, with limited access to other markets like the USA and Asia. South Africa's avocado encounters competition from countries such as Mexico, the Netherlands Kenya, and Peru, among others. For South Africa, Tanzania, New Zealand and Kenya, the EU market is likely to increasingly become more competitive, especially if avocado production increases from countries like Peru with minimal expansion in other markets. Spain is increasingly importing avocados mainly from Peru, Mexico, and re-export it, a prevalent trend in the Netherlands as well. Also, to note, is that over the past ten years, exports from countries that ship avocados during the same marketing window as South Africa have increased by an average of 12% annually.

Basing on findings of the study, the avocado value chain comprises of producer, who either operate at commercial or small-scale basis. Large scale producers primarily supply the domestic market while commercial producers can supply both the local and international markets. Exporters are major values chain actors, most especially that the industry is export-oriented with more the 40% of the produce being exported. To secure international markers, exporters leverage on other institutions including the Department of Agriculture, Land Reform and Rural Development (DALRRD), PPECB and logistics firms which render supportive services. Other key value chain actors mapped out include national fresh produce markets, packhouses, processors, wholesalers, and retailers. The avocado value chain predominantly uses five marketing channels. Most of the avocado is sold through international markets (by exporting), followed by the National Fresh Produce markets (NFPMs) which account for 61% in total. Selling directly to retailers and informal sells account for equal proportions – 15% each while avocado used for processed into oil and guacamole accounts for a 9% share.

Basing on the DSM, the USA, Canada, Japan, and China are some of the markets with large market opportunities for South Africa's avocados even when South Africa does not have SPS market access protocols in place now. Whereas the EU remains the major market for South Africa's avocado and many other competing countries, there is uncertainty and risks especially with the likelihood of imposing of new stricter SPS rules by the EU. Notwithstanding the risks, further development of the avocado value chain presents more benefits to South Africa, including increased opportunities for job creation as well as attracting more foreign direct investment into the industry, among others. As recommendations, there is a need for the following:

- Further investment in the avocado industry in South Africa given the potential to increase farmer's revenue as well as making sure the healthy product is always available for consumers in all seasons. Investment should be used to improve upon the old infrastructure at NFPMs and to enhance efficiency at ports.
- The government through the DALLRD in partnership with their counterparts in the identified priority markets to expedite the process finalising new market access protocols. This will go a long way in ensuring that the industry diversifies its markets and harness the opportunities in the USA, Japan, China, India, South Korea and Taiwan.

9. Limitations of the study and future areas of research

The study relied on existing literature and secondary data sought from TradeMap database of the ITC. A more comprehensive study entail engagements with representatives of actors along the value chain should be done in the near future. Other studies should consider assessing the following:

i. A comparison of the production systems and technology used by commercial and small scale farmers.
ii. Determining the profitability of various value chain actors (e.g., informal traders, small scale producers, traders, …etc)

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