TRENDS AND DETERMINANTS

OF COMPETITIVENESS IN THE SOUTH AFRICAN TABLE GRAPE INDUSTRY

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Thesis presented in fulfilment of the requirements for the Master of Science degree in Agricultural Economics in the Faculty of AgriSciences at Stellenbosch University

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March 2020

DECLARATION

By submitting this thesis, I, Ziyanda Lwanda Mtshiselwa, declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

ZL Mtshiselwa March 2020

ACKNOWLEDGEMENTS

I would like to dedicate this thesis to my forefathers and the future generation of o Bhele, Langa Lokulunga, Khuboni, Qunta, Mafu, Nontanda Kuphakanyiswa. This is a great achievement for me and for my family at large. I also dedicate this thesis to my grandmother, Ms Nobathini Mtshiselwa, who raised me and taught me valuable principles. I am who I am today because of her teachings – thank you MaHlabe, thank you MaShwawu, you have been a light in my life that no one can outshine.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my creator, “u Mfihlakalo, Qamata, Mvelingqangi”, the creator of Heaven and Earth; I would not have completed my studies without him.

My sincere appreciation to my supervisor, Professor Johan van Rooyen. Prof, thank you so much for being a supervisor who was always willing to help. Your knowledge, mentorship, guidance and inspiration are highly appreciated. I would not have completed this study without your invaluable knowledge.

I would like to thank Professor Nick Vink, for offering me an opportunity to become a student in the Faculty of AgriSciences.

A sincere appreciation to the Western Cape Department of Agriculture, for sponsoring my studies and granting me time to study.

I would also like to thank the South African Table Grape Industry team, for supporting this study and assisting with data collection. A special thanks to Ms Tarryn Wettergreen, for her time and effort in providing inputs to the questionnaire.

A huge thanks to Mr Mfusi Mjonono, for his enormous contribution to the completion of this study. His invaluable advice, input and encouragement are highly appreciated. May your creator bless you in abundance.

I would like to thank Mr Xolela Dlikilili, for his support and help throughout my studies – thank you so much Bhele. Mr Ayabonga Sibulali and Dr Sherperd Madavhu – thank you gentlemen, your help is much appreciated.

I would like to thank the experts in the table grape industry who made an effort to complete the questionnaires – this study would not have been completed without them.

I would also like to thank Mr Links Johannes, who was always willing to assist me during data collection.

Lastly, I would like to thank my family, friends and colleagues, who supported me for the duration of this study.

ABSTRACT

Global competitiveness has become relevant topic, especially for South Africa's export-driven agricultural industries like the table grape industry, which exports more than 90% of its product. In order for these industries to survive and maintain their economic relevancy in the international markets, they need to promote competitive, market-directed products and systems. The competitive performance of these industries is affected by both internal and external factors. At the farm level, producers are faced with uncertain and changing climate and weather conditions, rising input costs, fluctuating exchange rates, disruptive technology, water restrictions and policy related changes. Players in the table grape value chain have to adhere to stringent administrative and compliance regulations and certifications, related to safety, ethical, transformational, environmental and financial requirements, transportation costs (i.e. shipping), changing packaging and labelling regulations, etc. On the demand side, consumers are increasingly faced with choices from many regions and countries, and also concerns about ethics and environmental food safety standards and health; all this requires active, efficient, transparent, traceable, competitive and sustainable performance. These aforementioned factors trigger the importance to investigate the competitive performance of the South African table grape industry in global markets.

The main purpose of this research was to undertake a comprehensive enquiry into the competitive performance of the South African table grape industry and how it could be enhanced in an ever-competitive global environment. Competitiveness in the context of the South African table grape industry was defined – in terms of its strong export orientation – as 'The sustained ability of the South African table grape industry to attract investment by competitively trading its produce within the global marketplace, whilst continuously striving to earn returns at least greater that the opportunity cost of resources engaged'. This definition anchors competitiveness strongly in economic theory.

The economic concepts of comparative and competitive advantage were considered in terms of New Competitiveness Theory (Cho, 1994; ISMEA, 1999; Porter, 1990, 1998; Rugman & D'Cruz, 1993; Webber & Labaste, 2011), featuring the Porter competitive diamond model as the theoretical construct. The relative trade advantage (RTA) (Vollrath, 1991) and comparative trade advantage (RCA) (Balassa, 1965) were considered appropriate to measure the competitive performance trends in the industry. The secondary trade data obtained from the ITC was used together with trade data from the Food and Agriculture Organization (FAO).

The results of the analysis of both datasets (i.e. FAO and ITC) show positive figures for South Africa. For 1961, the FAO data reveal that South Africa had an RTA of 7.9, which increased over the years to a highpoint of 16.8 in 2004. The ITC data indicate an RTA value of 12.1 in 2001, with a

highpoint of 18 in 2004, after which a gradual increasing, albeit positive, trend has been witnessed over recent years, with FAO data showing 10.8 in 2013 and ITC data revealing a 12.9 RTA value in 2017. The fluctuations are due to many factors, such as political factors, i.e. regulation of the industry and economic hardships in Europe and United Kingdom, and were considered in this research in terms of the Porter competitive diamond model. The trends were categorised into five phases, revealing that there has been significant improvement in the industry since economic deregulation in 1997. Another observation made on the trends from both FAO and ITC data is that there is not much difference between them, as the ITC data disaggregates table grapes from dried grapes, while the FAO data that does not. It therefore is clear that the table grape values dominate the formula used.

From these measurements it can be concluded that the South African table grape industry has been competitive and, albeit fluctuating, has maintained this status since 1961, despite considerable structural changes and changing global trading regimes. South Africa (SA) is particularly challenged by countries in the Southern hemisphere, such as Peru and Chile, and outperforms countries like Argentina and Brazil.

One hundred and seven (107) factors that influence (positively or negatively) the competitiveness status of the local table grape industry were identified and analysed using the Porter competitive diamond. Industry expert opinions were mobilised through a two-round Delphi technique. In the first round, selected respondents – all experts and operating at different points in the value chain – were provided with a questionnaire (the Table Grape Industry survey), which was developed and tested through interactions with the South African Table Grape Industry (SATI). The questionnaire was designed to rate the impact of the factors identified – either enhancing or constraining the competitiveness of the table grape industry. Enhancing factors include well-developed infrastructure, innovation and advanced technology, and product traceability systems. Factors constraining competitiveness include access to water, the skills of qualified labour, and potential land expropriation without compensation, all of which constrain long-term investments.

These 107 factors were clustered and grouped into the six Porter competitive diamond determinants, viz. production factors, demand factors, firm strategy, structure and rivalry, related and supporting industries, government support and policies, and chance factors. Principal component analysis (PCA) was performed to identify highly correlated and uncorrelated factors under each determinant. Highly correlated factors refer to those that were rated similarly by the respondents (from different viewpoints in the industrial value chain), and uncorrelated factors were those that regarding which the respondents differed greatly in their ratings. Firm strategy, structure and rivalry was identified as the determinant that enhanced the performance of the table grape industry the most. Government support and policies, which includes land reform policies and

cumbersome administrative procedures, was identified as the determinant that constrains the industry the most.

From an industry consensus viewpoint, opinions on the Related and Supporting Industries determinant varied in terms of all factors. Firm Strategy, Structure and Rivalry is a determinant that was rated the highest among all the Porter's diamond determinants. It was also found to be the highest in other studies that have been conducted on the SA export fruits industry (Boonzaaier, 2015; Boonzaaier & Van Rooyen, 2017; Dlikilili, 2018; Esterhuizen, 2006; Jafta, 2014; Sibulali, 2018; Van Rooyen *et al.,* 2011). Abei (2017) and Angala (2015) found the same in the Cameroonian and Namibian fruit industries respectively. Almost all the ratings for factors under this determinant were rated above 3 out of 5 (60% plus impact). This indicates that, in a highly competitive trade environment as is the case for table grapes, firm-level strategy needs to be of the highest order to sustain their trade. This finding also confirms the stated definition of competitiveness used in this study related to the use of scarce factors of production. The views of the respondents also varied on factors such as labour/social unrest and strikes, crime, competitors' unfortunate events, health conditions and South Africa's economic development, which means that there could be discrepancies within the industry value chain that constrain co-ordinated decision-making related to government negotiation.

In total, 27 factors revealed high correlation. These correlated factors were further subjected to Cronbach's alpha analysis to assess their levels of internal reliability. These factors were then subjected to a round-two Delphi analysis. In this round, the respondents were requested to rate the relevance of these remaining factors as determinants of competitiveness. The results reveal that well-developed infrastructure, advanced technology and a product traceability system, improved access to water, labour skills and stable land reform policies are highly relevant to the overall competitive performance of the industry.

The prevalence of a socio-economic and transformation theme was strongly observed in some of the most constraining factors across all the Porter determinants. This led to a proposal that an additional or seventh determinant, namely socio-economic and political transformation, be added to the Porter competitive diamond to make provision for the South African situation as an economy in transition facing various socio-economic challenges. This new determinant identified and grouped socio-economic/political factors and highlighted the overall constraining impact of these factors on current competitive performance. The most enhancing factor was 'obtaining unskilled labour', and the most constraining was land reform policies, including 'without' compensation prospects. The addition of such a new determinant to the Porter competitive diamond needs to be looked at further in detail, but reflects the considered view of Michael Porter when he visited South

Africa in 2007. His view was that economic objectives need to complement social objectives in a developing country environment such as that experienced in South Africa. From this, it can be concluded that the explicit inclusion of socio-economic/political transformation interventions will improve the analysis of the competitiveness of agri-businesses in the South Africa. The results of this study were finally drafted into a set of strategic findings and recommendations that propose industry-level strategies to address factors that were identified as constraining yet relevant to the industry. These factors also need an industry-based “strategic plan” to interact with government in order to establish sustained collaboration between the industry and government agencies, in particular the Department of Agriculture, Land Reform and Rural Development and the Department of Human Settlements, Water and Sanitation, to address water- and land-related matters; and to interact on all trade-related matters.

OPSOMMING

Globale mededingendheid het ’n relevante onderwerp geword, veral vir Suid-Afrika se uitvoergedrewe landboubedrywe soos die tafeldruifbedryf, wat meer as 90% van sy produkte uitvoer. Vir hierdie bedrywe om te oorleef en hulle ekonomiese relevansie in die internasionale markte te behou, moet hulle mededingende, markgerigte produkte en stelsels bevorder. Die mededingende prestasie van hierdie bedrywe word beïnvloed deur beide interne en eksterne faktore. Op die plaasvlak word produsente gekonfronteer met onsekere en veranderende klimaats- en weerstoestande, stygende insetkoste, skommelende wisselkoerse, verdelende tegnologie, waterbeperkings en beleidsverwante veranderinge. Die spelers in die tafeldruifwaardeketting moet aan streng administratiewe en voldoeningsregulasies en sertifikasies voldoen wat verband hou met veiligheids-, etiese, transformasionele, omgewings- en finansiële vereistes, vervoerkostes (m.a.w. verskeping), veranderende verpakkings- en etiketteringsregulasies, ens. Aan die vraag kant word verbruikers toenemend gekonfronteer met keuses uit verskeie streke en lande, en ook bekommernisse oor etiese en omgewings- voedselveiligheidstandaarde en gesondheid; hierdie vereis alles aktiewe, doeltreffende, deursigtige, naspeurbare, mededingende en volhoubare prestasie. Voorgenoemde faktore gee aanleiding tot die belangrikheid daarvan om die mededingende prestasie van die Suid-Afrikaanse tafeldruifbedryf in globale markte te ondersoek.

Die hoofdoel van hierdie navorsing was om ’n omvattende ondersoek in te stel na die mededingende prestasie van die Suid-Afrikaanse tafeldruifbedryf en hoe dit in ’n steeds mededingende globale omgewing verhoog kan word. Mededingendheid in die konteks van die Suid-Afrikaanse tafeldruifbedryf is gedefinieer – in terme van sy sterk uitvoer-oriëntasie – as ‘die volgehoue vermoë van die Suid-Afrikaanse tafeldruifbedryf om belegging te lok deur mededingend sy produkte binne die globale mark te handel terwyl dit voortdurend daarna streef om opbrengste te verdien wat ten minste groter is as die geleentheidskoste van die hulpbronne gebruik’. Hierdie definisie anker mededingendheid sterk in ekonomiese teorie.

Die ekonomiese konsepte van vergelykende en mededingende voordeel is in terme van Nuwe Mededingendheidsteorie oorweeg (Cho, 1994; ISMEA, 1999; Porter, 1990, 1998; Rugman & D’Cruz, 1993; Webber & Labaste, 2011), met die Porter mededingende diamant- model as die teoretiese konstruk. Die relatiewe handelsvoordeel (*relative trade advantage (RTA)*) (Vollrath, 1991) en vergelykende handelsvoordeel (*comparative trade advantage (RCA)*) (Balassa, 1965) is beskou as gepas om die mededingende prestasietendense in die bedryf te meet. Sekondêre handelsdata vanaf die ITC is gebruik saam met handelsdata vanaf die *Food and Agriculture Organization* (FAO).

Die resultate van die analise van beide datastelle (m.a.w. FAO en ITC) toon positiewe syfers vir Suid-Afrika. Vir 1961 toon die FAO-data dat Suid-Afrika ’n RTA van 7.9 gehad het, wat oor die jare gegroei het tot ’n hoogtepunt van 16.8 in 2004. Die ITC-data dui op ’n RTA-waarde van 12.1 in 2001, met ’n hoogtepunt van 18 in 2004, waarna ’n geleidelik toenemende, tog positiewe, tendens oor die afgelope paar jaar gesien is, met FAO-data wat ’n waarde van 10.8 in 2013 getoon het en ITC-data met ’n RTA-waarde van 12.9 in 2017. Daar is verskeie faktore wat die skommelings veroorsaak, soos politieke faktore, m.a.w. regulering van die bedryf en ekonomiese swaarkry in Europa en die Verenigde Koninkryk, en hierdie is in die navorsing in ag geneem in terme van die Porter mededingende diamant-model. Die tendense is in vyf fases gekategoriseer, wat toon dat daar ’n beduidende verbetering in die bedryf was sedert ekonomiese deregulering in 1997. Nóg ’n waarneming op grond van die tendense in beide die FAO- en ITC-data is dat daar nie baie verskille tussen hulle is nie, aangesien die ITC-data tafeldruiwe van gedroogde druiwe disaggregeer (*disaggregate*), terwyl die FAO-data dit nie doen nie. Dis is dus duidelik dat die tafeldruifwaardes die formule wat gebruik word, oorheers.

Vanuit hierdie metings kan dit afgelei word dat die Suid-Afrikaanse tafeldruifbedryf mededingend was en hoewel dit gewissel het, het dit hierdie status sedert 1961 behou, ten spyte van aansienlike strukturele verandering en veranderende globale handelsregimes. Suid-Afrika (SA) word veral uitgedaag deur lande in die Suidelike halfrond, soos Peru en Chili, en presteer beter as lande soos Argentinië en Brasilië.

Een honderd en sewe (107) faktore wat die mededingendheidstatus van die plaaslike tafeldruifbedryf (positief of negatief) beïnvloed, is geïdentifiseer en geanaliseer deur gebruik te maak van die Porter mededingende diamant. Die opinies van bedryfskundiges is verkry deur gebruik te maak ’n twee-rondte Delphi-tegniek. In die eerste rondte het geselekteerde respondente – almal kundiges wat op verskillende plekke in die waardeketting werksaam is – ’n vraelys (die (Tafeldruifbedryf-opname (*Table Grape Industry survey*)) gekry wat deur interaksies met die Suid-Afrikaanse Tafeldruifbedryf (SATI) ontwikkel en getoets is. Die vraelys is ontwerp om die impak van die geïdentifiseerde faktore te evalueer as versterkend of beperkend van die mededingendheid van die tafeldruifbedryf. Versterkende faktore sluit in ’n goed ontwikkelende infrastruktuur, innovasie en gevorderde tegnologie en produk- naspeurbaarheidstelsels. Faktore wat mededingendheid beperk, sluit in toegang tot water, die vaardighede van gekwalifiseerde arbeid en die moontlikheid van grondonteiening sonder vergoeding, almal waarvan langtermyn beleggings beperk.

Hierdie 107 faktore is in ses Porter mededingende diamant-determinante gegroepeer, nl. produksiefaktore, vraagfaktore, ondernemingstrategie, struktuur en wedywering, verwante en ondersteunende bedrywe, regeringsondersteuning en -beleid, en kansfaktore. Hoofkomponentanalise (*Principal component analysis (PCA)*) is onderneem om hoogs

gekorreleerde en ongekorreleerde faktore onder elke determinant te identifiseer. Hoogs gekorreleerde faktore verwys na dié wat deur die respondente eenders geëvalueer is (vanuit verskillende gesigspunte in die bedryfswaardeketting), en ongekorreleerde faktore is dié waaroor die respondente noemenswaardig in hulle evaluerings verskil het. Ondernemingstrategie, -struktuur en -wedywering is geïdentifiseer as die determinante wat die prestasie van die tafeldruifbedryf die meeste versterk het. Regeringsondersteuning en -beleide, wat grondhervormingsbeleide en omslagtige administratiewe prosedures insluit, is geïdentifiseer as die determinant wat die bedryf die meeste beperk het.

Vanuit ’n bedryfskonsensus-oogpunt het opinies van die Verwante en Ondersteunende Bedrywe in terme van alle faktore verskil. Ondernemingstrategie, -struktuur en -wedywering is die determinant wat die hoogste geëvalueer is onder al die Porter diamant determinante. Dit is ook gevind om die hoogste te wees in ander studies wat op die SA uitvoervrugtebedryf onderneem is (Boonzaaier, 2015; Boonzaaier & Van Rooyen, 2017; Dlikilili, 2018; Esterhuizen, 2006; Jafta, 2014; Sibulali, 2018; Van Rooyen *et al.,* 2011). Abei (2017) en Angala (2015) het dieselfde gevind in die Kameroense en Namibiese vrugtebedrywe onderskeidelik. Amper al die evaluerings vir faktore onder hierdie determinant is hoër as 3 uit 5 geëvalueer (60% plus impak). Dit dui daarop dat, in ’n hoogs mededingende handelsomgewing soos wat die geval is met betrekking tot tafeldruiwe, moet ’n ondernemingsvlak-strategie van die hoogste orde wees om hulle handel in stand te hou. Hierdie bevinding bevestig ook die gestelde definisie van mededingendheid wat in hierdie studie gebruik word, wat verband hou met die gebruik van skaars produksiefaktore. Die sienings van die respondente het ook verskil oor faktore soos arbeids/sosiale onrus en stakings, misdaad, ongelukkige gebeure wat mededingers ervaar, gesondheidstoestande en Suid-Afrika se ekonomiese ontwikkeling, wat beteken dat daar verskille kan wees in die bedryf se waardeketting wat gekoördineerde besluitneming met betrekking tot onderhandeling met die regering kan beperk.

In totaal het 27 faktore hoë korrelasie getoon. Hierdie gekorreleerde faktore is verder onderwerp aan Cronbach se alfa-analise om hulle vlakke van interne betroubaarheid te assesseer. Hierdie faktore is toe onderwerp aan ’n twee-rondte Delphi analise. In hierdie rondte is die respondente gevra om die relevansie van hierdie oorblywende faktore as determinante van mededingendheid te evalueer. Die resultate toon dat goed ontwikkelde infrastruktuur, gevorderde tegnologie en ’n produk-naspeurbaarheidstelsel, verbeterde toegang tot water, arbeidsvaardighede en stabiele grondhervormingsbeleide baie relevant is vir die algehele mededingende prestasie van die bedryf.

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LIST OF ACRONYMS AND ABBREVIATIONS

AGOA	African Growth and Opportunity Act
ARC	Agricultural Research Council
BFAP	Bureau for Food and Agricultural Policy
BRICS	Brazil, Russia, India, China and South Africa
CMO	Common Market Organisation
CPI	Consumer Price Index
DAFF	Department of Agriculture Forestry and Fisheries
DFB	Deciduous Fruit Board
DFPT	Deciduous Fruit Producers' Trust
ECC	European Economic Community
EFTA	Economic Free Trade Association
EMS	Export Market Share
EPA	Economic Partnership Agreement
EPS	Entry Price System
EU	European Union
FAO	Food and Agriculture Organization
FPEF	Fresh Produce Exporters' Forum
FSA	Fruit South Africa
GDP	Gross Domestic Product
GSP	Generalised System of Preferences
ITC	International Trade Centre
MFN	Most Favoured Nation
NAMC	National Agricultural Marketing Council
NDP	National Development Plan
NEI	Net Export Index
OECD	Organization for Economic Co-operation and Development
PCA	Principal Component Analysis

PPECB	Perishable Products Export Control Board
RCA	Relative Comparative Advantage
RTA	Relative Trade Advantage
SA	South Africa
SADC	Southern African Development Community
SARS	South African Revenue Services
SATI	South African Table Grape Industry
SIZA	Sustainability Initiative of South Africa
TGES	Table Grape Executive Survey
UK	United Kingdom
USA	United States of America
USDA	United States Department of Agriculture

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

The table grape industry as one of the oldest industries in South Africa, shows a sustained positive contribution to the South African economy and is regarded as one of the industries that will positively contribute to achieve Vision 2030 of the National Development Plan (NDP). Currently, the South African table grape industry is one of the top ten exporters of table grapes in the world, with an average of 63.5 million 4.5 kg-equivalent cartons passed for exports (South African Table Grape Industry [SATI], 2019).

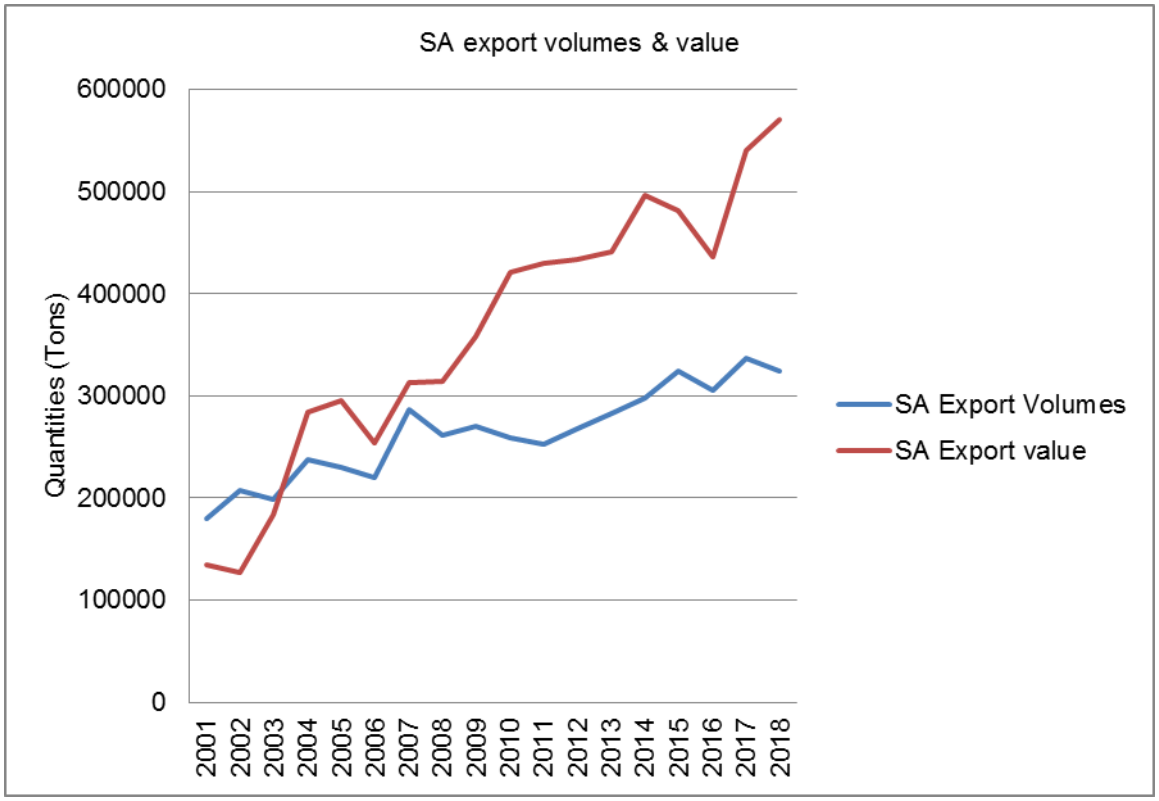

Figure 1.1: SA export volumes and value

Source: International Trade Centre ([ITC], 2019)

The country's main markets are in the European Union (EU), the United Kingdom (UK), Asia, the Middle East, North America, Russia and several African countries. The Fresh Produce Exporters' forum ([FPEF], 2016) notes that the industry is a foreign exchange earner contributing more than R3 billion annually to the South African economy. Furthermore, the industry contributes to employment creation, with the statistics released by SATI (2019)

revealing that table grape farming employed over 70 000 workers, either temporarily and permanently employed.

One objective of the National Development Plan ([NDP], 2011) is to have created one million jobs by 2030 and to grow the local gross domestic product at 5.4% annually. The horticultural industry in particular was targeted to facilitate such growth objectives. However, for the industry to be sustained, it must consistently improve its competitive performance. It is thus important to continuously assess its global competitive performance, since it exports more than 90% of its product (National Agricultural Marketing Council [NAMC], 2019). There are many changes that occur that the industry needs to stay abreast of, which include, but are not limited to, technical, environmental, social, economic and political changes. For example, the United Kingdom is currently facing Brexit, and therefore the South African table grape industry might be affected, since the UK is one of the nations importing SA table grapes. Furthermore, Edmonds (2016) and the Bureau for Food and Agricultural Policy ([BFAP], 2018) have noted that the increase in local production costs and international supply of competing food products is also increasingly pressuring the South African export-oriented industries to be more competitive.

From this, it can be accepted that the strategic assessment of the competitive performance of the South African table grape industry, and the factors enhancing and constraining such performance, will add to the business intelligence for industry-based strategic planning. The World Competitiveness Report (2019) provides macro-indicators of countries in terms of performance, which assist with country-level comparisons. No such rankings are available on an industry and, in particular, an agri-industry level. However, such industry- and firm-level information, i.e. industry-level business intelligence, is relevant to stakeholders and investors to position the industry. This realisation motivated this project to situate the South African table grape industry in a competitiveness framework and to measure and analyse the factors affecting the competitive performance of the industry.

1.2 PROBLEM STATEMENT

The South African table grape industry is strongly driven by international trade opportunities and constraints. The intensification of global trade in industries, such as the South African fruit-based industry, not only focuses on local competition today, but primarily on foreign markets (Barr, 2019; Boonzaaier, 2015; Dlikilili; 2018; Jafta, 2014; Van Rooyen & Boonzaaier, 2018). This implies that global competitive advantage positions, in particular in a market-directed global environment, need to be explored, fully exploited and sustained. This compels industry value chains, producers, processors, traders and service providers to

position themselves strategically to face such increasing competition in global markets (Webber and Lambaste, 2011; Van Rooyen & Boonzaaier, 2018).

For the reasons mentioned above, the concept of global competitiveness has become a relevant topic, especially for South Africa's export-driven agricultural industries like the table grape industry, which exports more than 90% of its product (NAMC, 2019; SATI, 2016). In order for these industries to survive and maintain their market position and financial income relevancy in the international markets, they need to promote competitive market-directed products and systems. In this context, it is worth noting that there are various forms of market regulations, policies and trade negotiations between countries, as well as innovations and local practices that affect the competitive performance of a particular industry. At farm level, producers are faced with uncertain climate and weather conditions, particularly with reference to the recent drought in the Western Cape province of South Africa, which has affected the table grape industry. In addition, the industry is also affected by rising input costs, inter alia due to the decreasing and volatile value of the Rand and also administrative cost items such as labour and energy, innovation and disruptive technology advances, and water restrictions (BFAP, 2017, 2018, 2019). External factors also affect competitive performance, as players in the table grape value chain have to adhere to stringent administrative and compliance regulations and certifications related to safety, ethical, environmental and financial requirements, along with transportation costs (viz. shipping), changing packaging and labelling regulations, etc. On the demand side, consumers are also increasingly concerned about food safety standards and health, and this requires an active, efficient, competitive and sustainable economy. These aforementioned factors trigger various impacts on the competitiveness performance of the South African table grape industry in global markets.

In a study on the competitiveness of deciduous fruit, Mashabela (2007) looked at the competitive performance of South African table grapes in comparison to the case in Chile. A second study was carried out by Symington (2008), who focused on the creation of a sustainable competitive advantage in the marketing of South African table grapes. The study focused on one market for South African table grapes, namely the United Kingdom. Symington's (2008) approach was aimed at investigating the export sector through structure, strategy and rivalry, particularly the business models employed by South African grape exporters focused on quality product from producers.

To date, however, no comprehensive analysis of the competitive performance trends and factors causing these have been conducted in the South African table grape industry,

specifically looking at the trends, status quo, factors that enhance and constrain competitiveness, and the prospects for the future. The studies conducted by Mashabela (2007) and Symington (2008) will however be used as important reference points in a more comprehensive approach measuring and analysing factors affecting such performance.

The problem statement directing this study therefore focuses on finding a theoretical construct to: firstly, developing and applying an appropriate analytical economic framework, grounded in the most relevant competitive theories and applied to the agri-industry under investigation and defining competitive performance in this context; and secondly, finding an appropriate, reliable and relevant database at the primary and secondary levels to measure performance and identify and analyse factors determining enhancing and constraining competitive performance. This construct will also be applied to determine the impact of the economic deregulation of the industry as well as whether the current economic transformation measures, as stipulated in the NDP, needs to be accommodated explicitly in the analytical framework of this study.

From all this, a comprehensive statement on the competitive performance trends of the South African table grape industry will be established, including 'business intelligence based' recommendations to sustain and improve such competitive performance are provided.

1.3 GOAL AND OBJECTIVES AND RESEARCH QUESTIONS

The above problem statement frames the goal, objectives and research questions of this study. The primary goal of this study was to select and, where so required, to develop appropriate theoretical construct to enquiry and analyse trends in the competitive performance of the South African table grape industry and propose new strategies that can be used to improve the level of competitiveness of the industry. The following sub-objectives are applicable:

- To define competitiveness in the South African table grape industry
- To measure the competitive performance of the South African table grape industry over time, including the impact of the deregulation in the mid-1990s
- To determine factors that influence the competitiveness of the South African table grape industry
- To analyse such factors in order to establish clusters or major determinants that affect (positively or negatively) the competitiveness of the South African table grape industry

- To propose industry-level strategies to improve the competitiveness of the South African table grape industry

The study therefore explores the following questions:

- How can 'competitiveness' be defined and analysed in terms of economic performance in the context of the SA table grape industry as it relates to the evolving global trade environment?
- How competitive has this industry been over time, i.e. trends in competitive performance?
- Which factors enhance and constrain competitive performance, and how can such factors be analysed, that is, what framework of analysis will apply?
- Is socio-economic transformation an important issue in the South African agribusiness landscape?

1.4 HYPOTHESES

Given the above problem statement and goals, the study is driven by the following two hypotheses:

- International trade-based on New Competitiveness Theory provides a useful conceptual and analytical framework for a competitiveness analysis of the South African table grape industry as it is determined by a number of factors: fluctuations in the rand, financial support systems, quality of technology, innovation, labour factors, industry collaboration and firm-level strategies, value chain interactions, regulatory arrangements and the related government policies.
- Some adaptations to this analytical framework will be required to appropriately accommodate the current socio-economic transformation agenda of the National Development Plan.

1.5 RESEARCH METHODOLOGY AND FRAMEWORK

This study adopted a step-wise enquiry process that was informed by New Competitiveness Theory and the Porter competitive diamond model. It was derived and adapted from recent processes used to analyse agri-competitiveness (Abei, 2017; Angala, 2015; Barr, 2019; Boonzaaier, 2015; Dlikilili, 2018; ISMEA, 1999; Jafta, 2014; Sibulali, 2018). The steps are as follows:

Step 1: Describe the trade context and define competitiveness in the context of the South African table grape industry.

Step 2: Collect secondary data and empirically measure the competitive performance trends of the South African table grape industry; also include the pre- and post-deregulation period.

Step 3: Collect primary data and identify and analyse major factors affecting the competitive performance of the SA table grape industry by conducting interviews with industry experts and knowledgeable stakeholders.

Step 4: Establish the major clusters/determinants of the competitiveness of the SA table grape industry value chain.

Step 5: Propose industry-level strategies and make recommendations that can improve the competitive performance of the South African table grape value chain through the use of the information that was obtained during data collection.

1.6 JUSTIFICATION FOR THE STUDY

The table grape industry is an important, export-driven activity, since almost 90% of its product get exported to European, Asian and Middle-Eastern countries (FPEF, 2016). It is a foreign exchange earner, contributing more than R3 billion annually to the South African economy. Furthermore, the industry contributes to employment creation; the statistics released by SATI (2017) reveal that the farming industry employed more 70 000 temporarily and permanently employed workers. Since the table grape industry is export driven, it therefore is affected by many factors, such as globalisation, trade liberalisation, increasing competition, stringent new labour laws, turmoil from political influence, the land reform question, and changes in consumer tastes and preferences. Thus, there is a need to constantly evaluate and/or measure and understand the factors that enhance or constrain the competitiveness status of the table grape industry. This will help in providing trade-based strategies that will be critical for the long-term sustained competitiveness of the industry. To date, no such comprehensive analysis had been conducted.

1.7 DELIMITATION OF THE STUDY

This study focuses on an analysis of the competitive performance of the South African table grape industry. The analysis was carried out on the industry value chain and global level, but did not focus on detailed government policy analysis, and also not on micro or firm/enterprise strategies and performance. Moreover, the study did not attempt to predict the future of the industry; rather, it suggests certain industry-level strategies based on the

findings obtained from analysing trends and interpreting factors influencing recent historical and current performance.

1.8 ORGANISATION OF THE CHAPTERS

This study is divided into six chapters. The first chapter focus the study through a problem statement and the objectives of the study, the research questions and hypotheses. The second chapter gives an overview of the South African table grape industry by discussing relevant trade trends, volumes and production aspects and the value chain of the industry. The third chapter looks at the theoretical constructs framing the study, i.e. appropriate competitiveness theories to analyse and measure the table grape industry in South Africa. The fourth chapter proposes an analytical framework and outlines the methodologies and data that were used in the study. Chapter 5 provides a description and interpretation of the research findings and results. The last chapter provides conclusions, summarises the key findings, pronounces on the stated research hypotheses and makes recommendations to improve the competitiveness of the South African table grape industry.

CHAPTER 2

OVERVIEW OF THE SOUTH AFRICAN TABLE GRAPE INDUSTRY

2.1 INTRODUCTION

The main objective of this chapter is to provide an overview of the South African table grape industry. This will be achieved by noting and analysing production and trade trends and the market performance of table grapes. The institutional structure of the industry and value chain are also discussed.

2.2 GLOBAL OVERVIEW OF THE PRODUCTION OF TABLE GRAPES

Table grapes are one of the crops that are cultivated worldwide, with the exception of in Antarctica (FPEF, 2016). The production of table grapes has become increasingly global, as producers from developing countries have been required to adopt new technologies to support production. This is done in respect of variety development and adaptation to specific locations and soil types, integrated pest management, and the use of appropriate cold chain techniques to ensure the quality of the grapes is not adversely affected during shipping (Fernandez-Stark, Bamper & Gereffi, 2016).

2.2.1 World table grape plantations

According to Fernandez-Stark *et al.* (2016), the total area under production from the 1980s to 2016 has decreased slightly. This decrease is shown by the average total area under production, which was estimated at 113 million hectares from the 1980s to 1990s, with the average total area dropping to 111 million hectares from 2000 to 2016. The Food and Agriculture Organization ([FAO], 2016) notes that this decline was a result of the implementation of the new Common Market Organization (CMO) in the European Union (EU) in countries such as France, Spain and Italy in the 1980s. The CMO provided abandonment subsidies, encouraging producers to reduce overall plantations. Production therefore shifted from developed to developing countries (Fernandez-Stark *et al*., 2016).

The decline of the area under table grape production in the EU has been partly compensated for by the increase in the total area under production in the rest of the world, and the improved productivity of new and existing vineyards (FAO, 2016). From 2007 to 2012, the total area of global table grape production increased by 11% (FAO, 2016). This increase took place particularly in developing countries. For example, during the above period, there was an expansion of 17% and 27% in vineyard sizes in China and Peru respectively (Fernandez-Stark *et al*., 2016). Despite the above, Fernandez-Stark *et al*.

(2016) postulate that European producers still account for approximately 60% of the world's vine surface. Figure 2.1 below illustrates a vivid trend on the world table grape production and harvested area.

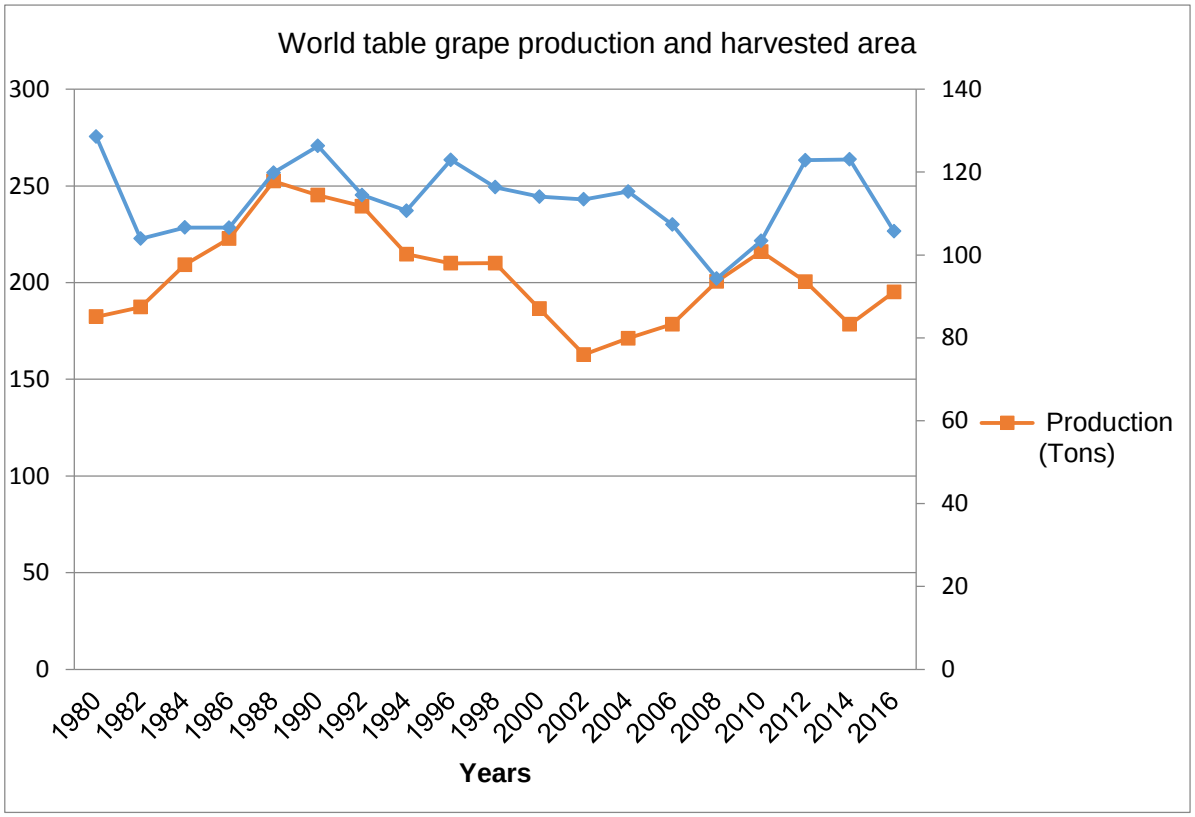

Figure 2.1: World table grape production and harvested area

Source: Own calculations based on FAO (2019) data
Note: The figures include all grapes, whether for fresh consumption or dried.
This is the most recent data available from the FAO.

With regard to the production trends, the FPEF (2016) notes that the production trends of table grapes were on the surge until the mid-2000s, when a slight decline was witnessed. Ever since, table grapes production trends are growing at a rate at 10% annually (FPEF, 2016). In 2016, global annual table grape production was estimated at 200 million tons, which is 7% more than the total production in 1980. The leading countries in the production of table grapes are China, producing 12% of global production, followed by Italy (9.1%), the USA (8.7%), France (7.6%), Spain (7.4%), Turkey (5.5%) and Chile (4%) (FAO, 2016).

2.2.2 Brief description of key table grape-producing countries

Figure 2.2 below depicts the ten leading world table grape producers. The National Agricultural Marketing Council ([NAMC], 2018) highlights that the leading producing nation of the world's table grapes is China, given that its harvest was estimated at nine million tons, which in percentage terms can be regarded as 45% of global production.

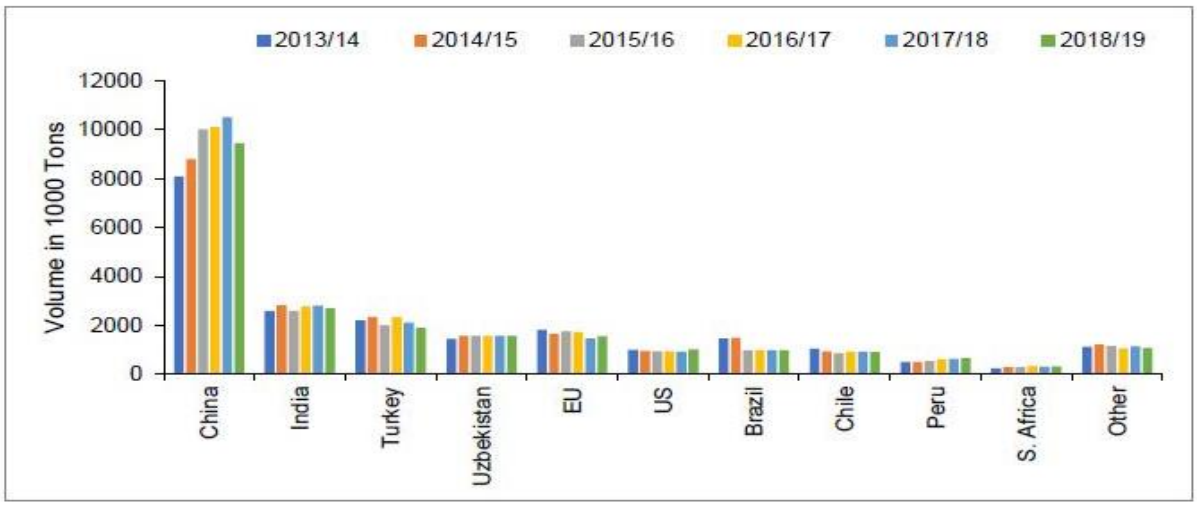

Figure 2.2: World's leading producers of table grapes over the past six seasons

Source: NAMC (2018)

Due to the significant contribution that China makes towards the world total production, the United States Department of Agriculture ([USDA], 2019) postulates that the world production for 2018/19 will decrease by 5.7 million metric tons from the previous year to 68.7 million tons. The USDA (2019) highlights that this is the world's lowest production level in eight years. The decline is attributed to substantial losses from unfavourable weather conditions experienced in China.

2.2.2.1 China

Table grapes are the most commonly grown fruit in China, with an estimated allocation of 730 000 hectares under cultivation (FPEF, 2016). There are four main cultivars that are widely grown in China, namely Red Globe, Kyoho, Thompson and Muscat. Various reasons have contributed to this growth, including increased size of land under cultivation, increased greenhouse production, producing cultivars with better yields, advanced production methods, better management and favourable weather conditions (FPEF, 2016). Most of the table grapes grown in China are consumed domestically due to the country's large population. Only about 120 000 tons of Chinese table grapes are allocated to exports, and

280 000 tons is imported in order to meet the demand of its domestic consumers (FPEF, 2016).

2.2.2.2 India

According to the FPEF (2016), the production of table grapes in India is approximately 2.5 million tonnes per annum, with only 2% being exported; the rest is sold to domestic consumers**.** The importing nations of Indian table grapes are Europe, the Middle East and Far Eastern countries. The most popular varieties grown in India are Flame seedless, Crimson seedless, Red Globe, Thompson seedless and Autumn Royal. Agriculture is amongst the priorities of the Indian government, and therefore plans to increase the size of land under table grape production are being implemented.

2.2.2.3 Turkey

This country is the world's third largest producer, accounting for approximately 2.2 million tonnes per annum. The FPEF (2016) highlights that only 170 000 tonnes are exported and 750 tonnes are imported in order to cater for the domestic demand when table grapes are off-season in Turkey.

2.2.2.4 European Union (EU)

This region produces approximately two million tonnes of table grapes per annum. Three countries that contribute almost 93% of table grape production are Italy, Spain and Greece, while the rest is spread amongst Bulgaria, Romania, Portugal and France. A surge in costs and competition over the past years has resulted in a drop in the size of land under cultivated table grapes, which contributed to a decline in volumes harvested. The FPEF (2016) notes that table grapes produced in the EU are mostly for domestic consumption, and 540 000 tonnes are imported. The most preferred cultivars in the EU are seedless table grapes, which include Flame seedless, Crimson seedless, Sugroane, Thompson, Victoria, Italia en Aledo.

2.2.2.5 Brazil

Brazil is popular for the excellent quality of table grapes it produces. It falls in the Southern Hemisphere and is ranked the fifth largest world producer of table grapes. This country is

said to have an estimated population of 300 million and an average consumption of table grapes per person of 3.5 kg per annum. This can be translated into 1.4 million tonnes of consumption per year. However, Brazil produces 1.3 million tonnes, therefore the shortfall is mostly supplied by imports from Chile and Argentina. Brazil continues to invest in the development of new table grape cultivars. The cultivars that have recently been developed are Sweet Globe, Crispy sugar, Sweet Jubilee and Sweet celebration.

2.2.2.6 United States of America (USA)

According to the FPEF (2016), the United States of America (USA) is labelled as the second largest exporter of table grapes. Over 90% of table grapes in the USA are grown in California. The other state that grows a significant volume of table grapes is Arizona. Over eighty cultivars are grown the USA. According to the FPEF (2016), the second largest crop in California was in 2014/2015, with 1 045 00 tonnes of table grapes that were exported to more than 65 countries across the world.

2.2.2.7 Chile

This country is located on the West coast of South America and is home to seven climatic zones, which include desert, alpine tundra and glaciers, subtropical and Mediterranean regions (FPEF, 2016). This variety places Chile in a competitive advantage, as it allows the country to supply table grapes to its markets for a longer period of time. A total amount of 732 million tonnes of table grapes was recorded for the 2014/2015 season in Chile. The commonly produced cultivars, which account for 90% of total production, include Flame seedless, Crimson seedless, Thompson seedless, Sugraone and Autumn Royal. However, it should be noted that, in total, there are more than 36 table grape cultivars produced in Chile.

2.2.2.8 Peru

Peru is one of the countries that are significantly increasing their table grape production. The statistics reveal that, between 2001 and 2015, overall production in the country rose by 30%, to 540 000 tonnes. The country competes directly with South African table grapes, since they share the same season and markets. The advantage of this country is spending less on inputs costs, and its location and climate are favourable. The current challenges that Peruvians are experiencing are in relation to infrastructure vis-à-vis ports and roads, and high transport costs since farms are far away from the markets.

2.2.2.9 Ukraine

There has been an increasing demand for different types of both vegetables and fruit, including table grapes, due to social and economic changes in Ukraine. However, the total area under table grape production has declined by 40% since 2012, which resulted in a 30% decline in exports in 2014. This can be attributed to the Russian occupation of Crimea, which included most parts where the vineyards were situated.

2.3 GLOBAL TABLE GRAPE TRADE PERFORMANCE

According to United Nations (2016), the global table grape industry has grown over the past ten years, as shown by an increase from US$4.6 billion in 2003 to US$11.2 billion in 2013. This growth can be attributed to fresh grape exports from developing countries, including the expansion and upgrading of Chilean production, and new entrants, viz. India, Peru and Turkey (Fernandez-Stark *et al*., 2016).

2.3.1 World table grape exports and imports

Figure 2.3 below reveals that the world table grape exports were on the rise from 2001 until 2009, when a slight decline was observed which could be attributed to post-effects of the world economic crisis in 2008. Since then, exports have been increasing, with a slight decline in 2015. The export value in the 2017 season amounted to US$ 9.9 billion, which was 2.6% higher than in the 2016 season.

Figure 2.3: World trade value of table grapes

Source: Own calculations, based on ITC (2019)

According to the data obtained from the International Trade Centre ([ITC], 2019), the top five countries leading in exports are Chile, with 14%, the United States of America with 10.7%, Italy with 9.2%, the Netherlands with 9% and Peru with 8.8% of total global exports. Amongst the top five leading countries in value, the Netherlands and Peru showed an annual increase of 19% and 17% respectively in the 2016/2017 season. Chile and the United States of America, on the other hand, showed an annual decrease of 12% and 1% respectively (ITC, 2019).

Since Chile is a leading table grape exporter in the world, its exports are mostly concentrated in the United States of America, China and the United Kingdom (ITC, 2019). It holds a market share of 51% in the USA, 45% in China and 10% in the UK. Also, Chile enjoys a relative advantage over its competitors, for example in the Chinese market, as it faces a zero preferential tariff. On the other hand, the USA faces a 26.4% preferential tariff in the same market as Chile.

South Africa, Australia and Brazil are amongst the top twenty countries in the world exporting table grapes. They hold a market share of 6.6%, 3% and 1% respectively. Australia mostly supplies its table grapes to Asian markets such as China, Japan and Hong Kong, and it faces a preferential tariff of 0%. On the other hand, Brazil supplies some of its table grapes to the biggest markets supplied by South Africa, viz. the Netherlands, the UK and Germany. However, South Africa has a relative advantage in the Netherlands as it faces

a 0% preferential tariff, while Brazil does not have a preferential tariff and faces an *ad valorem* of 11.50%.

On the demand side, the world value of table grapes has been on the rise, as shown in Figure 2.3 above. The ITC (2018) reveals that the value of imports grew from US$2.8 billion in 2001 to more than US$9 billion in 2017. This rise was largely driven by the increased demand for table grapes in the relatively larger markets, such as the EU, the USA and the UK. Seccia, Santeramo and Nardone (2015) note that factors such as consumer preferences, technological innovations in production, storage and transportation, trade agreements and institutional characteristics have played a major role in enhancing access to markets for many countries to enter the global market. Seccia *et al*. (2015) add that changes in consumer tastes and preferences have contributed to a rise in imports by different countries through their demand for fresh fruit year-round, and their willingness to pay more for imported, out-of-season fresh products. For example, Seccia *et al*. (2015) highlight that table grapes in the USA are considered a staple in food retailers, and their availability throughout the year has accounted for the increase in consumer demand.

The top five leading importers of table grapes in the world are the USA, the Netherlands, Germany, the UK and China (ITC, 2019). The USA is the leading importer of table grapes in the world, with an absorption of 18%. Its leading suppliers are Chile, Mexico, Peru, Brazil and South Africa. The Netherlands is the second biggest importer of table grapes, accounting for 8.5%. It mostly imports table grapes from South Africa, Peru, India, Chile and Brazil. Germany is the third leading importer of table grapes, absorbing 7.7% of the world table grapes – mostly from Italy, South Africa, India, Spain and the Netherlands. The UK absorbs 7% of the world's table grapes, and its top five suppliers are South Africa, Spain, Chile, Peru and Egypt. The last country that completes the top five world importers of table grapes is China, with an absorption of 6% (ITC, 2019). The main suppliers of table grapes to China are Chile, Australia, Peru, the USA and South Africa. It should be noted that South Africa is among the countries that supply the top five major importing countries of table grapes in the world.

2.4 OVERVIEW OF THE SOUTH AFRICAN TABLE GRAPE INDUSTRY

The table grape industry is one of the oldest industries in South Africa. According to the FPEF (2016), grapes arrived in South Africa in 1652 due to a misunderstanding. After Jan van Riebeeck had established a food and drinking water supply chain point at the Cape of Good Hope to serve merchant ships of the Dutch East India Company, he was tasked to

plant vineyards to produce grapes and wine in order to ward off scurvy among sailors who spent long months at sea (FPEF, 2016). It is however not clear when the scurvy fallacy was discovered, but fortunately both the table grape and wine industry did not suffer as a result. Trial and error marked the early years of the table grape trade. The first success of table grape exports was achieved in 1892, when 1 900 cases of table grapes arrived at their destination in excellent condition (FPEF, 2016; Mashabela, 2007).

This section aims to give an overview of the South African table grape industry. A brief description of the industry structure, production, i.e. producing regions and cultivars produced, employment statistics, importing nations of South African table grapes and imports of South African table grapes is provided. In addition, tariffs and barriers to trade faced by the South African table grape industry are explored.

2.4.1 Structure of the South African table grape industry

The table grape producers in South Africa are represented by the South African Table Grape Industry (SATI), which was established in 2004. SATI represents approximately 450 producers and is funded through a grower levy. Its aim is to ensure that South Africa maintains its position as the preferred country of origin in terms of table grape taste, and it strives to ensure that the industry remains progressive, equitable and sustainable (FPEF, 2016). Various services are offered by SATI to the table grape industry, such as market access and development, information and knowledge management, transformation and training, and research and technical transfer. According to the FPEF (2016), the table grape industry has close links with other organisations and collaborates with them in different aspects of operations, as follows:

- Research: individuals and advisory entities such as the Agricultural Research Council, universities, viz. Stellenbosch University, export agents and private consultants assist in the production process and provision of inputs.
- The Pack House Action Group assists in matters pertaining to pack houses, while SATI formulates fruit-handling protocols.
- Private consultants inspect the produce to ensure compliance with the required standards. The Perishable Products Export Control Board (PPECB) and the Department of Agriculture Forestry and Fisheries (DAFF) are also important stakeholders to the South African table grape industry, as they inspect and certify the quality of the fruit and the latter check compliance with specified importing country

requirements, such as phytosanitary requirements, and issues an official stamp thereafter.

- Other stakeholders involved in the table grape industry include Fruit South Africa (FSA) for Sustainability Initiative of South Africa (SIZA) standard which aims at providing a platform for agricultural stakeholders to ensure ethical and environmentally sustainable trade. South African Revenue Services (SARS) also plays a role in providing a comprehensive paper trail (from Customs). Transnet provides paper trail in the form of National Ports Authority, Transnet Port Terminals and the South African Port Operations. Fresh Produce Exporter's Forum (FPEF) is also another important stakeholder that serves as a catalyst between government and industry in market access related matters and also facilitates the export process.

2.4.2 South African table grape producing regions

South Africa is a good location to grow fruit, as the country is able to produce different types of fruit such as deciduous fruit, which includes table grapes, apricots, peaches, nectarines, plums, apples and pears. It also produces citrus fruit, viz. oranges, grapefruit and lemons; subtropical fruit, such as avocados, guavas, mangoes, pineapples and bananas; while the exotic fruits include pomegranates, dragon fruit and figs. The FPEF (2016) notes that deciduous fruit in South Africa is produced throughout the year. South Africa has approximately 80 000 hectares of deciduous trees and vines that yield approximately 2.5 million tonnes of fruit each year. In total, South Africa has 2 450 deciduous fruit producers (FPEF, 2016).

Major table grape-producing regions in South Africa are the Hex River, Berg River, Olifants River, Orange River and Northern Cape. SATI (2018) notes that the Hex River, Berg River and Olifants River account for 62% of total table grapes produced in South Africa. The Northern Cape, Eastern Cape, Limpopo, Free State and Mpumalanga account for less than 38% of total production of table grapes in South Africa. Due to the differences in the nature of soils and climate of the aforementioned regions, it allows them to supply table grapes from November to May. The FPEF (2016) points out that, on average, one hectare produces an average of 17 tonnes, but this varies from cultivar to cultivar. For example, on average, the Crimson cultivar produces 3 000 to 5 000 4.5 kg boxes per hectare, while Dauphine produces around 9 000 4.5 kg boxes per hectare.

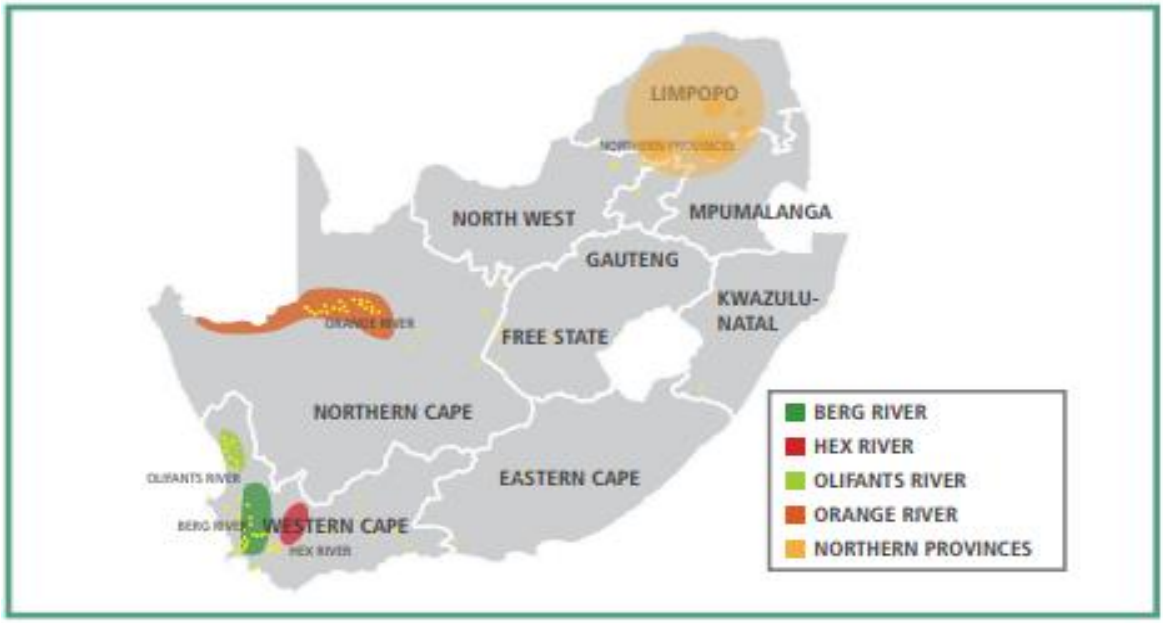

Figure 2.4: Map of SA table grape-producing regions

Source: SATI (2017)

2.4.2.1 Hex River Valley

This region is the biggest and also the oldest area for table grape production. It stretches from Worcester to De Doorns. The Hex River Valley comprises smaller growing zones, such as De Wet, Brandwag, Nonna and Nuy. The average minimum and maximum temperatures in this region are 16.4°C and 23.4°C respectively. There are approximately 223 farms with about 6 419 hectares of land planted (Department of Forestry and Fisheries [DAFF], 2016). Leading cultivars include Crimson seedless, Red globe, Dauphine and Autumn royal. The harvesting period normally commences from week 51 and runs to week 20.

2.4.2.2 Orange River

This is the second largest table grape-exporting region and stretches from west of Pofadder to east of Groblershoop. The harvesting period in this region starts early from week 44 to week 10. The minimum and maximum temperatures are 2.3°C and 33°C respectively. The region has about 139 farms, with 5 081 hectares planted with table grapes (DAFF, 2015). The top produced cultivars include Prime, Thompson seedless, Sugraone, Flame seedless and Sugrathirteen.

2.4.2.3 Northern Province

Mostly, table grapes in this region are planted in Groblershoop and Marble Hall, Brits, Lephalale and Mokopane. Average high and low temperatures are estimated at 29.4°C and 4.1°C respectively. The region has 78 farms with approximately 1 449 ha planted with table grapes (FPEF, 2016). Leading produced cultivars include Flame seedless, Crimson seedless, Prime and Red Globe. The harvesting period starts in week 43 and ends in week 8.

2.4.2.4 Berg River Valley

This region is the third largest producing area in South Africa. It covers Paarl, Piketberg, Saron, Riebeeck-Kasteel and Porterville. Average minimum and maximum temperatures are 4°C and 30°C respectively. In this region there are about 154 farms occupying 4 053 ha of land (FPEF, 2016). Top produced cultivars include Red Globe, Crimson seedless, Thompson seedless, Regal seedless and Dan-ben-Hannah. The harvesting period runs from week 50 to week 15.

2.4.2.5 Olifants River

This is the smallest producing region and stretches from Citrusdal to Lutzville. The minimum and maximum temperatures in this region are 13.5°C and 24.2°C respectively. Annual rainfall is estimated at 280 mm. It has 33 farms with 1 210 ha planted with table grapes. Top produced cultivars are Crimson seedless, Flame seedless, Red Globe, Autumn Royal and Thompson seedless. The harvesting period starts from week 50 and ends in week 12.

2.4.3 Top cultivars produced in South Africa

Different cultivars are grown by South African producers. The top twenty cultivars produced are depicted in Table 2.1 below. As depicted in Table 2.1, Crimson seedless is the most-produced cultivar, followed by Prime, Thompson seedless, Flame seedless and Sugranineteen. It is evident that most of the table grapes produced by South African producers are seedless grapes. The FPEF (2016) says that consumers across the world increasingly prefer seedless grapes and therefore producers have changed their cultivar profile to meet this demand. The cultivars preferred the most by consumers are white, followed by red and then black seedless grapes.

Table 2.1: Most-produced South African table grape cultivars (4.5 kg equivalent cartons)

CULTIVAR	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Crimson Seedless	8 948 985	10 480 704	10 935 948	12 457 844	13 089 359
Prime	5 670 998	7 048 640	7 321 330	7 368 474	6 277 968
Thomson Seedless	4 845 413	5 685 990	4 584 681	4 719 094	3 988 364
Flame Seedless	3 357 505	4 319 214	4 243 418	3 479 040	2 793 219
Sugranineteen (Scarlotta Seedless®)	621 134	1 385 297	1 533 604	2 612 051	2 850 640
Sugraone (Superior Seedless®)	3 137 593	4 203 884	3 615 032	3 137 782	3 668 364
Tawny Seedless	1 467	25 502	407 241	1 538 776	2 421 082
Redglobe	5 512 613	4 621 778	3 241 393	4 792 971	2 259 028
Sugrathirteen (Midnight Beauty ®)	1 576 922	2 098 524	2 183 407	2 738 668	2 304 725
Blagratwo (Melody™)	198 307	381 008	949 245	1 435 154	1 667 582
Starlight	369 368	787 167	1 007 489	1 312 434	1 497 766
Autumn Royal	1 718 446	3 021 918	2 385 630	2 668 194	1 486 378
IFG 68-175 (Sweet Celebration®)	53 867	170 094	522 363	1 200 990	1 147 354
Sheegene 20 (Allison™)	80 229	186 698	404 855	875 376	1 147 354
Sugrasixteen (Sable Seedless®)	740 841	831 788	928 622	1 191 078	1 194 103
Regal Seedless	1 661 152	1 620 184	1 473 833	1 173 045	927 737
Grapaes (Early Sweet®)	782 563	1 1196 241	1 523 530	2 406 677	1 050 525
Ralli Seedless	629 625	803 536	811 595	933 351	903 018
Sugrathirtyfour (Adora Seedless®)	5 534	19 666	87 746	390 814	697 910
Dan Ben Hannah	1 078 567	1 063 558	869 959	756 332	551 484
Other	9 320 179	8 593 601	7 628 960	8 260 304	7 162 592
GRAND TOTAL	**50 311 308**	**58 544 992**	**56 659 880**	**65 448 438**	**59 132 945**

Source: SATI (2018)

2.4.4 Production quantities for South African producing regions

As indicated earlier, South Africa has five major regions producing table grapes. Figure 2.5 and Table 2.2 reveal the quantities that have been produced by these regions over a ten-year period. They also provide detailed statistics on quantities produced by each of the top producing regions.

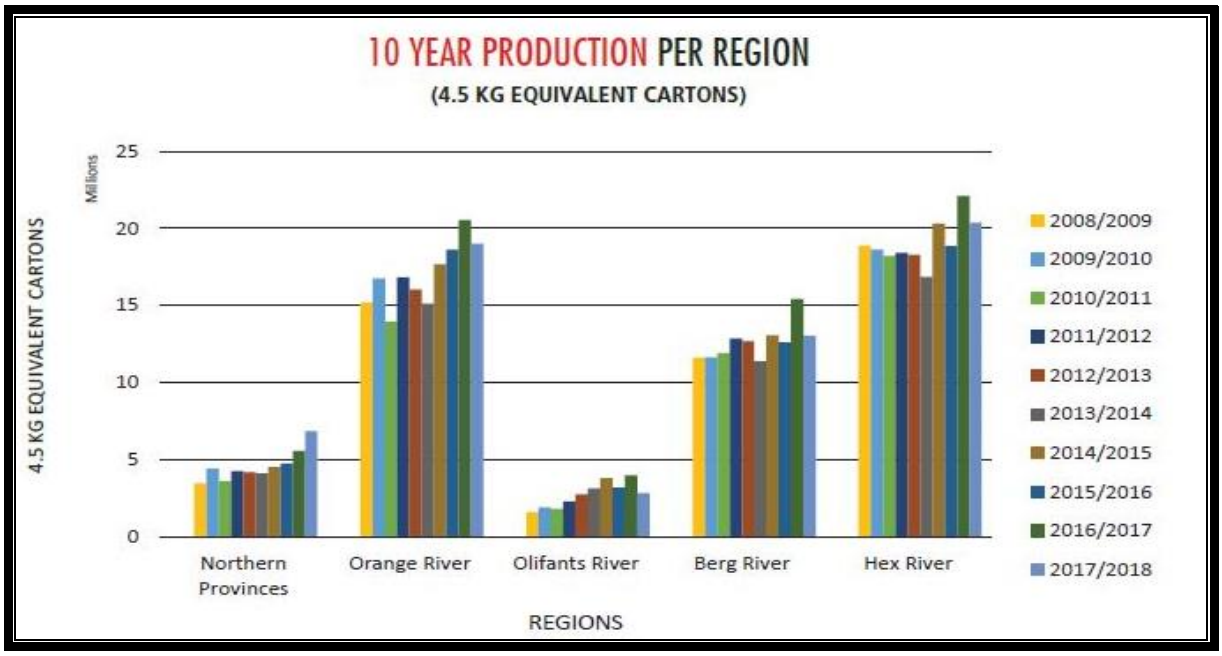

Figure 2.5: Production quantities per SA top table grape producing regions

Source: SATI (2018)

Figure 2.5 shows that the Hex River is the largest producing region, with an average production of 19 095 million 4.5 kg cartons, followed by the Orange River (16 976 million 4.5 kg cartons) and the Berg River (12 732 million 4.5 kg cartons). The lowest producing regions are Olifants River, followed by the Northern Cape, with averages of 4 550 and 2 707 million (4.5 kg) cartons respectively.

Table 2.2: Production values per region over the ten-year period

YEAR	NORTHERN PROVINCE	ORANGE RIVER	OLIFANTS RIVER	BERG RIVER	HEX RIVER	TOTAL
2008/2009	3 438 559	15 192 418	1 574 661	11 596 689	18 869 156	50 671 483
2009/2010	4 390 078	16 765 935	1 887 890	11 611 827	18 637 409	53 293 139
2010/2011	3 577 691	13 942 163	1 778 351	11 926 291	18 226 227	49 450 723
2011/2012	4 254 172	16 825 150	2 271 622	12 874 316	18 431 899	54 657 159
2012/2013	4 155 648	16 039 382	2 725 942	12 672 168	18 286 725	53 879 865
2013/2014	4 083 599	15 118 961	3 121 056	11 379 002	16 846 196	50 548 814
2014/2015	4 510 726	17 686 726	3 788 287	13 062 449	20 331 091	59 379 279

2015/2016	4 730 931	18 642 606	3 157 059	12 599 726	18 849 217	57 979 539
2016/2017	5 537 784	20 532 515	3 968 073	15 426 175	22 110 612	67 575 160
2017/2018	6 828 762	19 015 641	2 802 436	13 052 616	20 635 295	62 064 749

Source: SATI (2018)

Taking into account the production volumes of the five regions, their average production over the ten-year period is estimated at 55 949 million 4.5 kg cartons. Table 2.2 reveals that the 2016/2017 season had the highest production value recorded over the ten-year period, as shown by an amount of 67 575 million (4.5 kg) cartons. A significant decline in the total harvest for the 2017/2018 season was observed, since the crop ended at 62.06 million (4.5 kg equivalent) cartons, which is 8.15% less than the record crop of 2016/2017 (SATI, 2018). This decline is attributed to the severe drought that was experienced in the Western Cape province. Also, the Orange River region did not yield the expected results, as the harvest decreased by 7% compared to 2016/2017 season. SATI (2018) highlights that this was a surprising result, as the harvest was anticipated to be good, but smaller berry size and light bunch weights were realised, despite the favourable harvest weather conditions experienced.

2.5 MARKET STRUCTURE OF SOUTH AFRICAN TABLE GRAPES

The South African table grape industry is an export-oriented industry, as it exports over 90% of its product to different countries. Figure 2.6 below depicts the distribution trends measured in tonnes. It is evident that the total tonnage of table grapes exported is almost equal to the total amount of table grapes produced. This shows that table grapes are not produced specifically for the domestic market (FPEF, 2016). It has been indicated that, in the past, table grapes used to reach domestic outlets when they did not meet the required standards of the export market. However, the picture is slowly changing due to a South African retail sector that is well developed and sophisticated (FPEF, 2016). Furthermore, there is growth in the new South African middle class, which has disposable income to spend on fruit.

The domestic market is categorised into different segments, viz. retail, wholesale, municipal and informal markets. It is estimated that, of the produce supplied to the domestic market, 65% is distributed to the National Fresh Produce market, 34% is supplied to the retailers, and only 1% goes to the informal market. It is clear that the South African domestic market is not the same and therefore prices differ based on the market sector, outlet location and consumer profile. For example, when producers supply retailers, they need to adhere to

specified standards and packaging requirements. On the other hand, the informal market has no specifications; hawkers purchase fruit and sell it to individual consumers.

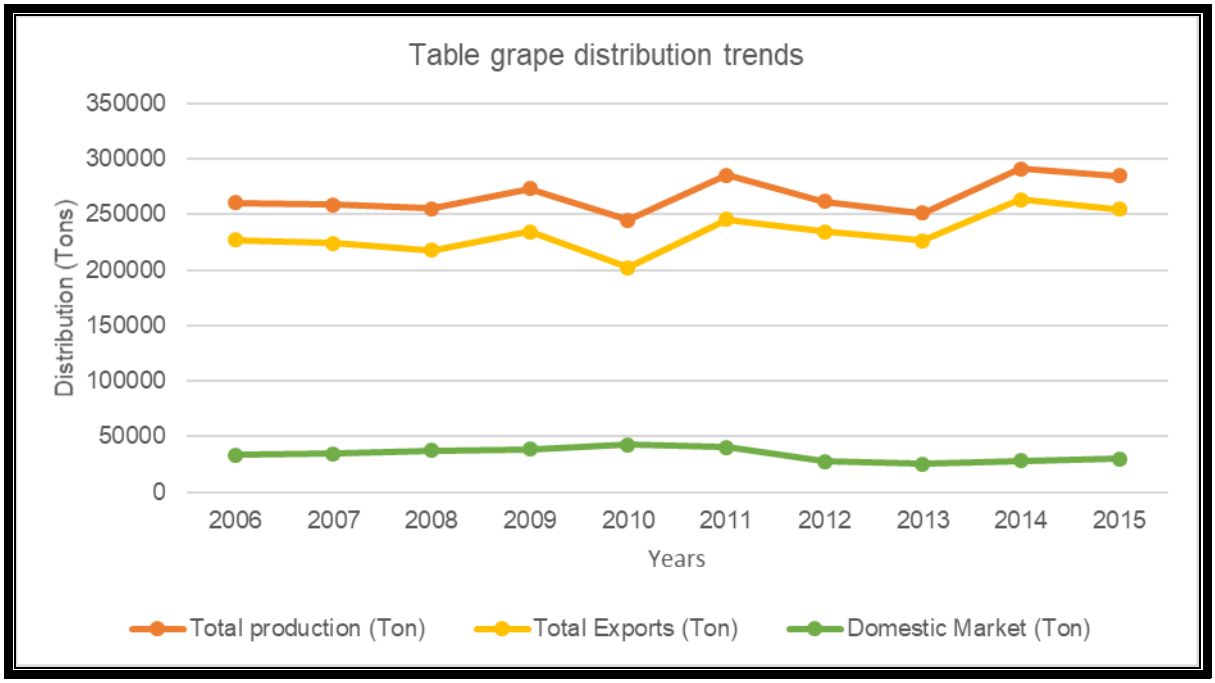

Figure 2.6: SA table grape distribution trends

Source: Own calculations, from SATI (2016)

As depicted in Figure 2.6 above, there has been growth in the amount of table grapes distributed domestically, although it is at a gradual pace. The FPEF (2016) postulates that domestic consumers are willing to pay good prices, especially for seedless grapes, even though the majority of them are not very knowledgeable about the features of different table grape cultivars. Furthermore, the FPEF (2016) highlights that discerning consumers demand greater and more predictable quality and are prepared to pay for it. This has sometimes resulted in table grapes earmarked for the UK market being supplied to domestic retailers, such as Fruit & Veg City, Pick n Pay and Woolworths. The FPEF (2016) notes that, between the 2005/2006 and 2014/2015 seasons, the average increase in domestic prices was more than 8% per year. It is assumed that this trend will continue over the next decade, at an estimated 7.4% per year. Moreover, it is predicted that the domestic market could become increasingly important for producers if the prices in the export market continue being under pressure. However, due to large quantities of table grapes produced in South Africa, which outweigh domestic demand, the strong relationships established with international markets and the big impact of the exchange rate will lead to domestic producers continuing to export large quantities of their produce.

2.5.1 South African table grape exports

As indicated earlier, the majority of South African table grapes are exported to different countries around the globe. Figure 2.7 below depicts the top ten countries that import South African table grapes. The majority of table grapes are exported to the Netherlands, the UK, Germany, Hong Kong, China and Canada (ITC, 2019). These results are supported by the NAMC (2019), which reported that the EU absorbs about 57% of South African table grapes, followed by the UK, with 22%, Canada 7%, the Middle East, with 5%, South East Asia (4%), the Far East, with 3% and Russia (2%). The FPEF (2016) notes that, although these markets are different in terms of their specifications and requirements, they have common attributes. For example, consumers in these markets are health conscious, educated and earning high incomes; therefore, they are willing to pay high prices for a quality product and attractive to South Africa. It is important to note, however, that South Africa faces great competition in the Southern Hemisphere from countries such Chile, Peru, Brazil and Australia.

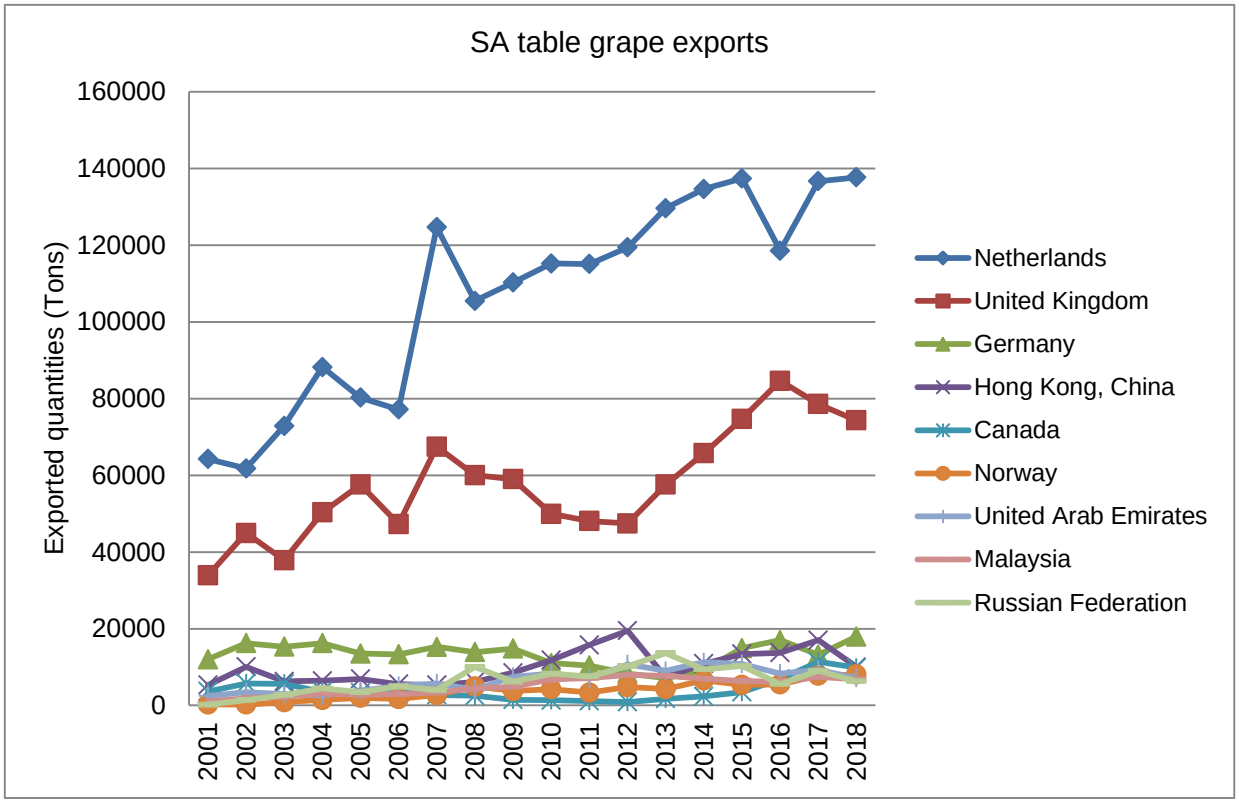

Figure 2.7: SA table grape-importing countries

Source: ITC (2019)

Figure 2.7 also reveals that, during the early 2000s, South African trade with the above countries was low. The picture began to change after 2004, when an upward trend was observed in the amount of table grapes exported to these countries. Wesgro (2014)

postulated that this increase can be attributed to the Trade, Development and Co-operation Agreement that was concluded with the EU in 1999. However, it only entered fully into force on 1 May 2004, after ratification by all signatory parties. The Trade, Development and Co-operation Agreement established preferential trade arrangements between the EU and South Africa, along with a free trade area that covers 90% of bilateral trade.

Exports to these countries surged until 2008, when there as a decline in South African exports, especially to the Netherlands, the UK and Germany. This decline can be associated with the world economic crisis of 2008. It is evident that, after 2008, countries like the UK had not fully recovered from the economic crisis, as shown by the continuous decline in quantities exported by South Africa. However, Wesgro (2014) notes that the Netherlands had successive years of recovery after the economic meltdown, and this is supported by an observed increase in exports quantities supplied by South Africa to the Netherlands from 2009 onwards.

The Netherlands has been consistent in importing South African table grapes, although there was a decline in the quantities exported by South Africa in the 2015/2016 season. SATI (2016) reports that exports to Europe decreased by 9.7%, while exports to the UK increased by 13.7% in this period. The UK and Europe wholesale markets witnessed an overall decline in price, down by 7% and 4% respectively compared to the 2014/2015 season. The year-on-year prices were down through to the end of January 2016, and traded higher until week 15.

2.5.2 South African table grape imports

Figure 2.8 below depicts the quantities of table grapes imported by South Africa from different countries. It is vital to note that South Africa is a net exporter of table grapes, and therefore limited quantities of table grapes are imported (USDA, 2019). As depicted in Figure 2.8, it is evident that, from the early 2000s, South Africa was importing very small quantities of table grapes, especially in 2001, when less than 100 tons were imported (ITC, 2018). This is true because, in this time, South Africa had just embraced democracy and the middle class had not yet fully taken off, and the income levels of consumers were still too low to spend on fruit such as table grapes. However, over the years there was an increase in the quantities of table grapes imported by South Africa. This can be associated with the rising middle class with higher education levels, who also have disposable income to spend on fruit. Therefore, even though, according to the FPEF (2016), consumers are not yet well-informed about the different cultivars available in the market, they are aware that there are health benefits associated with the consumption of table grapes.

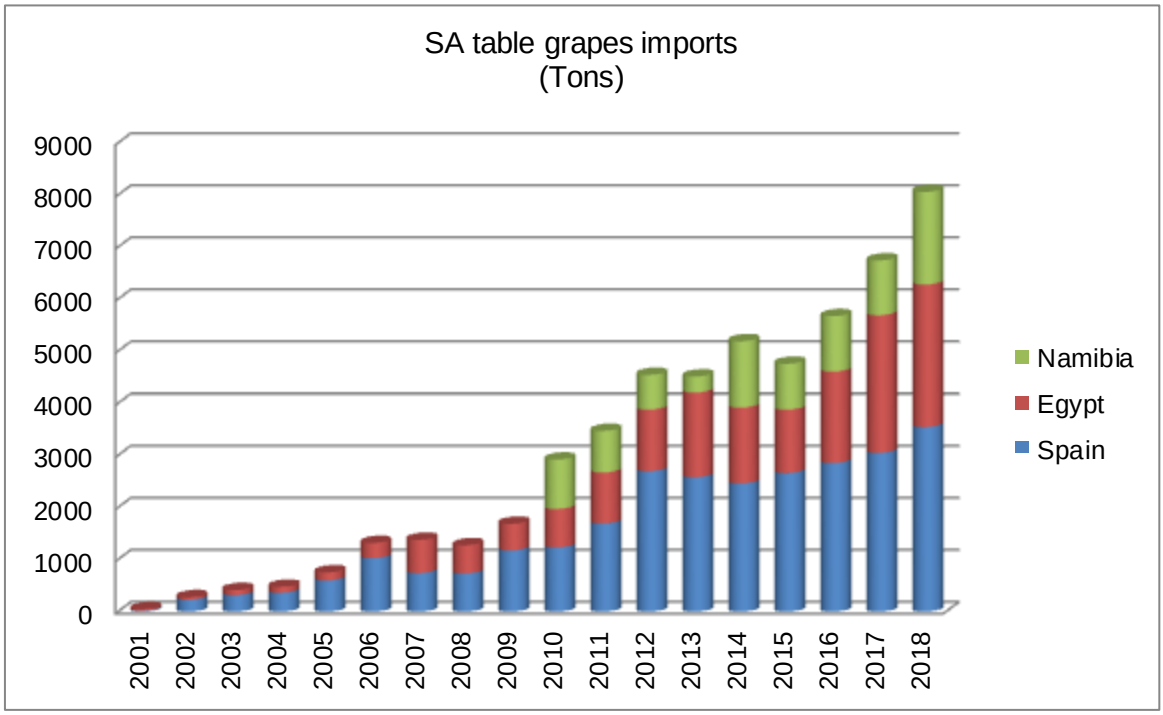

Figure 2.8: SA table grape imports

Source: ITC (2018)

Due to the aforementioned reasons, which resulted in an increase in table grape consumption in South Africa, retailers had to meet consumers' demands throughout the year, hence the observed increase in imports. Table grape production in South Africa is seasonal and its harvesting season commences in November and ends in May (FPEF, 2016). Therefore, table grape imports from countries like Spain, Egypt and Namibia are needed to bridge the gap in the South African local market (USDA, 2019). Spain is by far the biggest supplier of table grapes to South Africa, with a record of over 3 000 tons in 2017, followed by Egypt and Namibia, with 2 000 tons and 1 000 tons respectively (ITC, 2018).

2.5.3 Summarised tariffs applicable to South African table grapes

In any exporting country, there are various barriers to trade that can be imposed, and therefore it is vital that the industry concerned be aware of them. When South African table grapes are being exported, tariffs and non-tariff barriers are exercised. According to the FPEF (2016), tariffs can be described as a tax added to the total cost of imported goods. Non-tariff barriers, on the other hand, include sanitary and phytosanitary measures, labels etc. (DAFF, 2016). There are various reasons for the employment of tariffs:

- They are normally imposed by government to protect its developing domestic industries from competition by increasing the prices of imported products through tariffs.

- The protection of citizens from harmful products.
- Tariffs may be applied to the exporting nations as a form of punishment when they have not obeyed the rules or policies of the importing nation.
- Protecting domestic employment.

2.5.3.1 Tariffs

The DAFF (2016) explains that tariffs are imposed on exporting countries by importing countries to increase government earnings and to ensure that the price of imported products is high. This is done in order to protect local producers from competition. The tariffs imposed on the exporting nation depend on the relationship it has with the importing nation in terms of the preferential trade agreements, bilateral free agreements, etc. Also, tariffs imposed vary according to seasons; if the goods are imported at the same time as the product is produced domestically, the tariffs are likely to be higher in order for domestic producers to remain competitive.

2.5.3.2 Import quotas

A quota limits the number, or monetary value, of goods that can be imported or exported during a particular time period. A quota is sometimes imposed on specific goods to reduce imports, thereby increasing domestic production. In theory, this helps protect domestic production by restricting foreign competition. The DAFF (2016) says that tariff-rate quotas allow a certain quantity of a particular good to be brought into the country at a reduced duty rate. Once the tariff-rate quota is met, all subsequent goods brought in will be charged at a higher duty rate. The government receives no revenue when a quota is imposed, as opposed to a tariff. As an alternative, the revenue that is received from selling imports at high prices goes to quota licence holders, whether to domestic firms or foreign governments. These extra revenues can be referred to as quota rents.

2.5.3.3 Entry price system (EPS)

According to Goetza and Grethe (2009), the entry price system (EPS) is a system that aims to provide protection for fifteen fruits and vegetables produced in the Northern Hemisphere countries against international competition. EPS can also serve as a means of market price determination because, according to the DAFF (2016), when a product is exported at a lower price that might exert greater competition on local producers of the import product, a higher tariff rate is normally applied to that product. The *ad valorem* of the EPS is up to 20%.

2.5.3.4 Non-tariff barriers

Even though the tariff measures can be expensive, in many cases it is usually non-tariff barriers that inhibit plenty of exporting countries from accessing certain markets due to their inability to meet the required standards of importing nations (FPEF, 2016). For example**,** **s**anitary and phytosanitary measures are applicable to the South African table grape industry and need to be taken seriously by those involved in the value chain. They can be referred to as all the rules and regulations set to protect the life and health of humans, animals and plants from various diseases that may be harmful and spread into the importing country. Some of the examples of these sanitary and phytosanitary measures include regulations on fertilisers that must be used during the production of food, as well as food labels in relation to health warnings.

In the case of South Africa, there are specified pests that, if found on its products, all the products may be rejected by most of the country's export destinations. These pests include fruit fly, pear leafroller, the Argentine ant, the banded fruit weevil and false codling moth (FPEF, 2016). Due to strict phytosanitary requirements in Japan, South Africa can only export Barlinka, which is an 'old' seeded variety. The FPEF (2016) notes that this has been challenged by the World Trade Organisation for lack of scientific justification.

Another important market for South Africa is the USA; South Africa has duty-free access for a list of products including table grapes because it is one of the 39 sub-Saharan African countries that benefit from the African Growth and Opportunity Act (AGOA). The AGOA legislation was extended for 10 years in 2015 to allow beneficiary countries enough time to develop their economies. However, the FPEF (2016) highlights that South Africa's continued inclusion can be reviewed during this 10-year period. Lastly, South Africa also benefits from the preferential trade agreement with the European Free Trade Association (EFTA), since it is a member of the South African Customs Union. The member states under EFTA are Switzerland, Iceland, Norway and Liechtenstein (Department of Trade and Industry, 2016). South African table grapes are then subject to tariffs as per the agreement between the SACU and EFTA. The benefits that can be noted from this agreement are that South African table grapes face no duties in Norway; however, a 5% tariff is faced in Russia, Indonesia and Malaysia. China protects its agricultural sector through an extensive range of subsidies, tax cuts, high tariffs and trade restrictions. Due to this, South Africa faces a tariff of 20% in Chinese Taipei (ITC, 2019).

Table 2.3: Tariffs applied by various export markets on fresh grapes originating from South Africa

Country	HS code	Product description	Trade regime	Applied tariff	Total *ad valorem* equivalent tariff
European Union	0806101005	Fresh table grapes: Of the variety Emperor (*Vitis vinifera* c.v.), from 1 January to 31 January and from 1 December to 31 December	MFN duties (applied)	0.00%	0.00%
	0806101091	Fresh table grapes: Other: Seedless	Preferential tariff for South Africa	0.00%	0.00%
	0806101099	Fresh table grapes: Other	Preferential tariff for South Africa	0.00%	0.00%
Hong Kong	08061000	Grapes, fresh or dried: Fresh	MFN duties (applied)	0.00%	0.00%
Malaysia	08061000	Fresh grapes	MFN duties (applied)	5.00%	5.00%
Russia	0806101000	Fresh grapes: Table	Preferential tariff for	3.75%	3.75%

Country	HS code	Product description	Trade regime	Applied tariff	Total *ad valorem* equivalent tariff
		grapes	GSP countries		
	0806101000	Fresh grapes: Table grapes	MFN duties (applied)	5.00%	5.00%
United Arab Emirates	08061000	Grapes, fresh or dried: Fresh	MFN duties (applied)	0.00%	0.00%
Singapore	08061000	Grapes fresh	MFN duties (applied)	0.00%	0.00%
Saudi Arabia	08061000	Grapes, fresh or dried: Fresh	General tariff	0.00%	0.00%
Indonesia	0806100000	Grapes, fresh or dried: Fresh	MFN duties (applied)	5.00%	5.00%
Norway	08061011	Grapes, fresh or dried: Fresh from 1 August to 28/29 February: Table grapes	MFN duties (applied)	0.00%	0.00%
	08061019	Grapes, fresh or dried: Fresh From 1	MFN duties (applied)	0.00%	0.00%

Country	HS code	Product description	Trade regime	Applied tariff	Total *ad valorem* equivalent tariff
		August to 28/29 February Other			
	08061091	Grapes, fresh or dried: Fresh from 1 March to 31 July: Table grapes	MFN duties (applied)	0.00%	0.00%
	08061099	Grapes, fresh or dried: Fresh from 1 March to 31 July: Other	MFN duties (applied)	0.00%	0.00%
Taipei, Chinese	08061000	Fresh grapes	General tariff	20.00%	20.00%

Source: DAFF (2016), ITC (2019)

2.6 SOUTH AFRICAN TABLE GRAPE VALUE CHAIN

The role and nature of the table grape value chain is one of the important aspects that need to be considered in order to fully understand the table grape industry. Boonzaaier (2015), Sibulali (2018), Van Rooyen, Esterhuizen and Stroebel (2011) and Webber and Labaste (2011) say that value chain interaction can be regarded as the institutional arrangement that aims to link all stakeholders, such as producers, processors, marketers and distributors, in the supply chain that add value to a product as it moves along the chain. Porter (1990) postulates that each firm has its own value chain that is embedded in value networks. Zamora (2016) adds that, within an industry, there are different functions that influence actors in the network. In other words, the factors relating to related and supporting industries have an impact on an industry's ability to compete in the international market. This is supported by Min and Zhou (2002) and Webber and Labaste (2011), who say that the objective of a value chain is to enhance the operational efficiency, profitability and competitive position of industries and their supply chain partners. This means that any comprehensive statements relating to competitiveness should consider the relationships within the value chain (Zamora, 2016).

The value chain of the table grape industry is illustrated in Figure 2.9 below. The local table grape value chain and supply value chain consist of suppliers of farming input producers, fresh produce markets, retailers, processors, cold storage and packhouse operators, transporters, exporters, quality control and certification agents, and terminal and port operators (Gloy, 2005). When the South African table grapes reach the international markets, the importing agents, distributors, market agents and retailers then supply the table grapes to consumers. It is worth noting that the tastes and preferences of consumers are ever changing, and consumers have become more health conscious as they demand healthy and natural products (Symington, 2008). Consumers are interested in low-fat foods and foods with a low sugar content. This presents an opportunity to educate consumers about the different table grape varieties and their health benefits. Given the above, it is clear that, in order to gain more understanding of the key factors affecting the competitive performance of the table grape industry, it is important to study the value chain, as it guides the inclusion of relevant experts' perceptions across various disciplines on matters surrounding competitiveness.

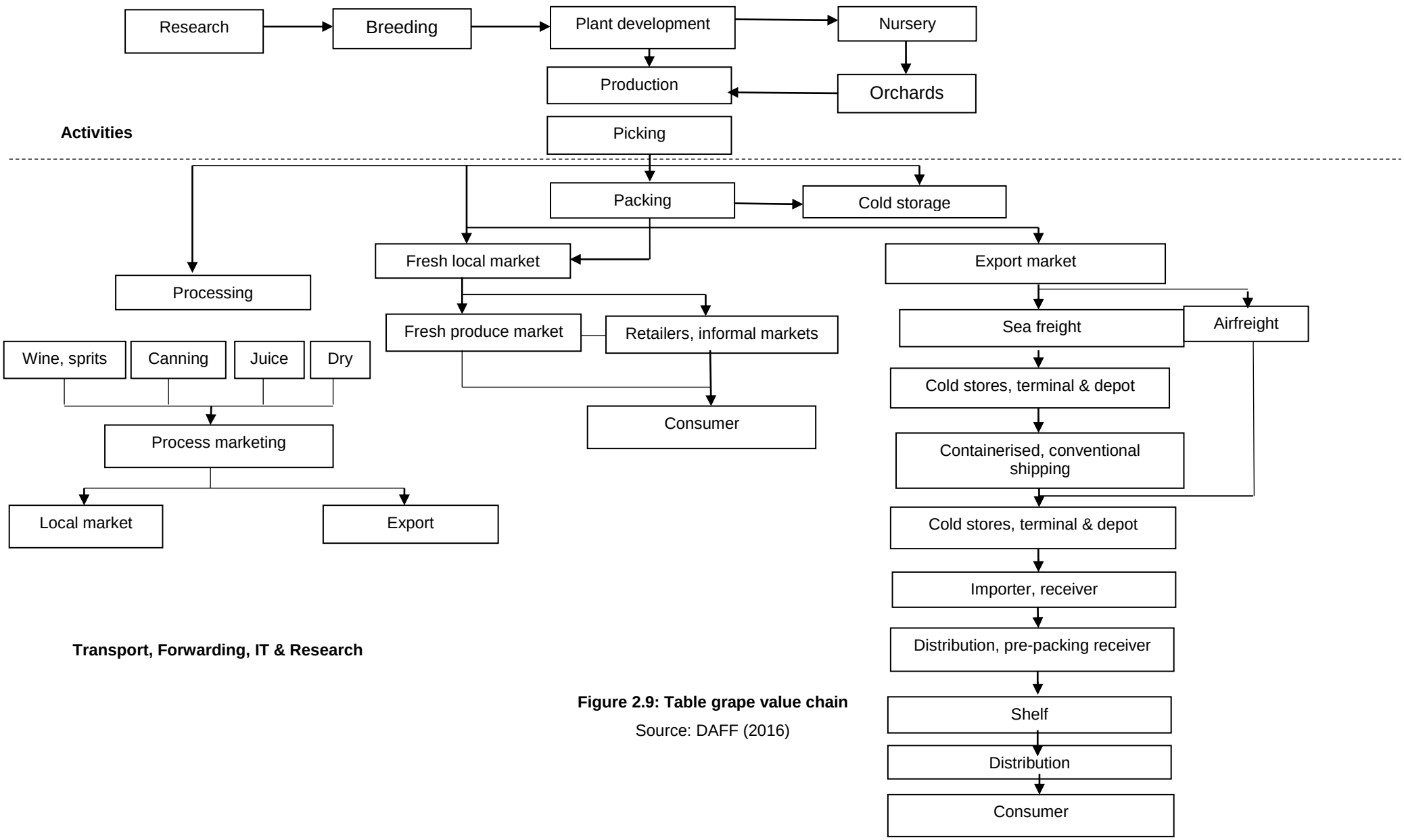

Figure 2.9: Table grape value chain

Source: DAFF (2016)

2.7 CONTRIBUTION OF THE TABLE GRAPE INDUSTRY TO THE SOUTH AFRICAN ECONOMY

As indicated earlier, the South African table grape industry is one of the industries in the horticultural sector that were identified as vital for achieving Vision 2030 of the NDP. One of the objectives of the NDP is to reduce unemployment from 24.9% in 2012 to 6% by 2030. Therefore, this section looks in detail at the contribution of the table grape industry to the economy of South Africa. Figure 2.10 below reveals the number of jobs that have been created by the table grape industry over the past five years.

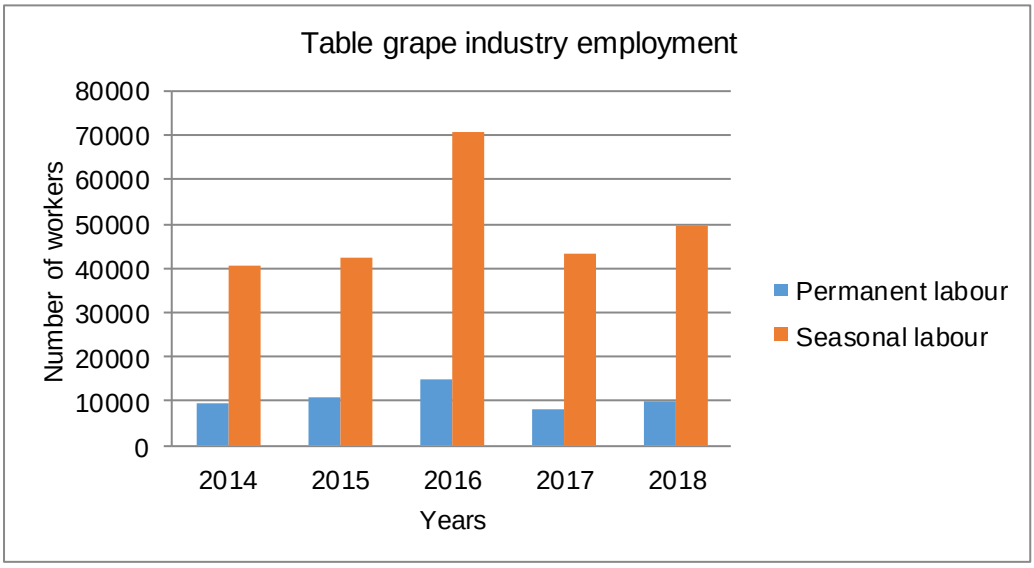

Figure 2.10: Number of farm workers in the table grape industry

Source: Adapted from SATI (2014, 2015, 2016, 2017, 2018) statistical booklets

Based on Figure 2.10 above, which was derived from the statistics provided by SATI (2018), it is clear that the table grape industry makes a significant contribution towards employment creation in South Africa. The total number of farm workers that were employed in the South African table grape industry in the 2018 season is 59 200 (9 700 permanent and 49 500 seasonal workers). The figure for permanent workers was 14% higher than in the 2017 season, but 29% lower than in the 2016 season. The 2016 season had the highest number of workers employed over the five-year period. This showed an overall increase of 67% when compared to the 2015 season. The increase can be attributed to the high production levels that were obtained in the 2016/2017 season, as indicated earlier in Table 2.2.

Figure 2.10 above also reveals that the number of seasonal workers employed during a particular production season varies from year to year. The DAFF (2016) says that the number of seasonal workers employed depends largely on the amount of fruit to be harvested during that season. Therefore, seasonal workers are employed for a fixed period

of time, with the main purpose of harvesting and packing fruit. Labourers employed on a full-time basis are often responsible for carrying out tasks such as the pruning and training of trees. Other tasks include harvesting supervision, operational duties in the packhouse, irrigation management, scouting for insects and diseases on a seasonal basis, tractor or forklift driving and grafting.

The table grape industry does not only contribute to the South African economy through employment creation, but also though other measures. Fin24 (2016) reports that the industry also makes a significant contribution to downstream production income, viz. R3.2 billion to other product input providers, R720 million to packaging material suppliers, and R250 million to logistics suppliers. Moreover, the South African table grape industry contributed more than R3 billion towards South African the gross domestic product (GDP) in 2016 (Fin24, 2016). The industry also invests in skills development through the table grape academy, which aims at addressing various challenges facing the industry. It provides training and mentorship programmes for emerging producers and middle managers, and provides bursaries for research on themes such as post-harvest quality management, pest management, and disease management. SATI (2017) notes that approximately R13.6 million was spent on research during the 2012/2013 to 2015/2016 levy cycle. Furthermore, a total of 26 postgraduate students received their postgraduate qualifications in the 2012 to 2016 levy cycle.

2.8 CHALLENGES FACING THE SOUTH AFRICAN TABLE GRAPE INDUSTRY

Although the success of the table grape industry has been reported on in the recent past, there are still challenges that the industry is faced with that can be associated with an ever-changing business environment (FPEF, 2016). Some of these challenges are stated as the following:

- Climate change
- Invading pests
- Competition from other Southern Hemisphere table grape producers
- Costs rising faster than prices
- Problematic new cultivars
- Limiting government policies that hamper growth
- Local labour and political instability

From this it is clear that a competitiveness enquiry into this industry should not relate only to matters such as ‘high production costs’ and fluctuating exchange rates; a more comprehensive approach is required.

2.9 CONCLUSION

This chapter has focused on providing a comprehensive overview of the table grape industry. It started by demonstrating the global overview, looking at the world’s leading producers, exporters and importers. This was followed by a descriptive overview of the South African table grape industry by looking at its historical background, structure, production trends and information on distribution trends in terms of both the domestic and the international market. It was observed that more than 90% of the industry’s produce is being exported to different market destinations, such as the EU, UK, USA, etc. Moreover, trade barriers were also discussed, since South Africa faces both tariff and non-tariff barriers in different international markets. Therefore, it is imperative that the industry is aware of them in order to induce performance.

CHAPTER 3

LITERATURE SURVEY AND THEORETICAL CONCEPTS

3.1 INTRODUCTION

The objective of this chapter is to provide a literature survey on theoretical concepts and structures to describe and analyse trends in competitive performance, applied to the South African table grape industry.

3.2 EVOLUTION OF COMPETITIVENESS THEORY

The theory of competitiveness developed over the past 250 years. A brief evolution is presented in Figure 3.1, and adaptations are explained below.

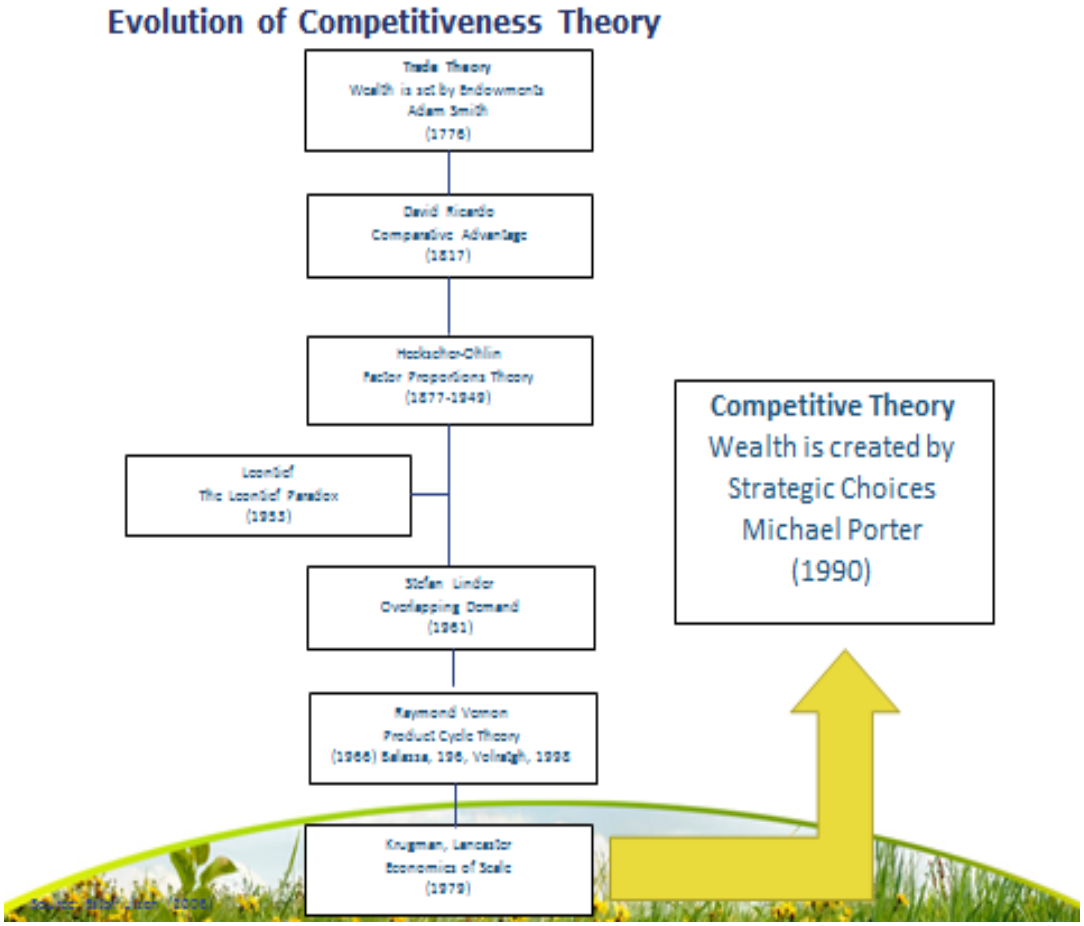

Figure 3.1: Evolution of competitiveness theory

Source: BFAP (2015) and Boonzaaier (2015)

3.2.1 The concept of 'absolute advantage' – Adam Smith

The theory of absolute advantage was published by Adam Smith in 1776. The main aim of this theory was to enquire about the nature and causes of the wealth of nations, and trade was noted as an important driver. It criticised the mercantilism theory, which states that their policies were discouraging trade between nations and therefore favoured producers over the interests of consumers (Pugel, 2012). Smith believed that trade should be naturally determined by market forces. In addition, the theory of absolute advantage advocated for trade as the basis of competitiveness, as it articulates that, if a nation is absolutely more efficient at producing a particular good than another nation, then it should produce according to its absolute advantage and engage in trade. Anderson (2008) says that nations would become more efficient through such specialisation, because if there was division of labour it would encourage labour to become more skilled and efficient in performing the same tasks given to them. Smith (1776) furthermore postulates that a nation's wealth should be defined according to its production and the living standards of its people, as opposed to the view of the mercantilists, who believed that a nation's wealth is determined by the amount of precious metals, i.e. gold and silver, it possesses.

3.2.2 Theory of comparative advantage

The theory of comparative advantage was developed in 1817 by David Ricardo and was published in a book entitled *Principles of Political Economy*. This book was written after a gap was identified in the theory of absolute advantage. The question that emanated from this theory was what would happen to a nation that had absolute advantage in the production of many products; or no absolute advantage in the production of any products. This led to Ricardo introducing his book, which states that, even if a nation does not have an absolute advantage in the production of any product, that nation can still engage in trade (Esterhuizen, 2006). The main concept underpinning the theory of comparative advantage is opportunity cost. To advance his theory, Ricardo stated that each nation has limited natural resources, and therefore specialisation is crucial. According to him, a nation should specialise in producing the product in which it has the lower opportunity cost. This view led competitiveness thinking for many decades (see the Freebairn, 1987 definition below), and is also supported by Porter (1990, 1998), who states that, if two nations have different opportunity costs at producing the same product, such nations can engage in trade. Furthermore, Porter says that, through specialisation, the output of these nations will increase, leading to both gaining from trade.

3.2.3 Hecksher Ohlin theory

Pugel (2012) notes that, after the classical theories were developed, neo-classical economists developed the Hecksher Ohlin (H-O) theory in the 20th century. To be precise, this theory was first developed by Elin Hecksher in 1919, and was later expanded by his former graduate student, Bertil Ohlin, in 1933. The H-O model is regarded as the neoclassical theory of international trade, because the classical theory did not provide assistance in identifying commodities that would give nations advantage, based on the argument that nations would be directed by free and open markets to identify which products they should produce (Carpenter & Dunung, 2011). The H-O theory focuses on how a nation could obtain a comparative advantage by making products that use relatively abundant factors. It states that nations will engage in trade based on their factors of production. In essence, H-O theory follows the logic that the more abundant the factor, the lower the production cost. Pugel (2012), who says that differences in the factor endowments of various nations explain the differences in factor costs, which result in different comparative advantages, supports this. For example, a wealthy nation that has relatively more capital would tend to specialise in capital-intensive goods and import goods from nations that are labour intensive; and a natural resource-endowed country will focus on related production – minerals, farming, fishing, etc. (Pugel, 2012).

3.2.4 The Leontief paradox

Leontief (1953) conducted the famous empirical study of the H-O model to analyse an input-output matrix for the USA in comparison with the rest of the world. During that period, the USA was viewed as the most capital-abundant nation in the world. On this basis, Pugel (2012) notes that Leontief expected the results to confirm that the USA exported capital-intensive commodities and imported labour-intensive commodities. However, Leontief's (1953) findings contradicted his expectations, as they revealed that the USA was also exporting labour-intensive goods and importing capital-intensive goods. This has become known as the Leontief Paradox. Reekie (1989) mentions that the results posed a paradox to Leontief and others too. Ever since, many scholars, such as Krugman (1979), Lancaster (1979), Linder (1961) and Vernon (1966) have challenged the theory of comparative advantage. Linder (1961) emphasises that, even though the supply-oriented Heckscher-Ohlin theory, which depends on factor endowments, was enough to explain international trade in primary products, explaining trade in manufactured goods was important. The

demand-oriented theory, which states that there is a strong relationship between customers' tastes and income levels, was developed by Linder (1961). He says that a nation's income per capita level determines the kinds of goods that would be demanded by consumers. His views were supported by Hitt, Ireland and Hoskisson (2001), who say that an industry will produce goods to meet consumer demand, and the type of products manufactured will reflect the country's income per capita. Eventually, goods produced for domestic consumption will be exported.

3.2.5 New trade theories and competitiveness (from the late 1970s)

According to traditional theories, trade occurs due to comparative advantages that exist between countries. It was later revealed by trade patterns that there is a significant amount of trade between countries that possess identical factor endowments and technology – an event that could not be clarified by the early trade theories (Rangasamy, 2003; Smit, 2010). New trade theories were then developed during the late 1970s by Krugman in an attempt to address these shortcomings of the traditional theories. The new trade theories advocate for product differentiation and increasing returns to scale. This is contrary to the assumption of homogenous products and constant returns to scale that were assumed under the H-O model. Furthermore, the new trade theories accommodate imperfect competition (oligopoly, monopoly) instead of the perfect competition that was assumed under traditional theories. Porter (1990, 1998) made a major contribution to these theories with the 'competitiveness diamond' model, which recognises options of strategic direction and decision-making affecting a number of factors affecting competitiveness (Dlikilili, 2018; Esterhuizen, 2006; Van Rooyen & Boonzaaier, 2018). Porter in his 1990 and 1998 works on competitiveness of nations and by analysing a large number of cases established the benchmark construct for the application of the new competitive theory. The Michael Porter competitiveness diamond model is expanded on below:

Porter's competitive diamond model

Esterhuizen and Van Rooyen (2006) mention that significant work has been done by the classical, neoclassical and new trade theories in giving a comprehensive overview of production and trade patterns and their effect on economic welfare. The only challenge of these theories is that there are commonly asked questions pertaining to economy that are not addressed by them, such as "Why are some countries more successful in particular industries than others?" To address this, Porter (1990, 1998) analysed competitiveness patterns through a large number of case studies and developed the 'competitive diamond'

model, which aims to give a comprehensive view of national competitive advantage. He identified four main country-based attributes that detail the underpinning conditions in order to determine the national competitive advantage of a country, viz. production factor conditions, demand conditions, related and supporting industries, and strategy, structure and rivalry. In addition to these, Porter (1998) later also suggested two exogenous factors, which are government policy and the role of chance. Smith (2010) notes that these form part of the national competitiveness system, even though they do not create lasting competitive advantages. The competitiveness diamond also allows for strategic choice decisions to create competitive advantage, i.e. not only naturally based resource endowments, as is argued in classical and neo-classical theory (Porter, 1990, 1998).

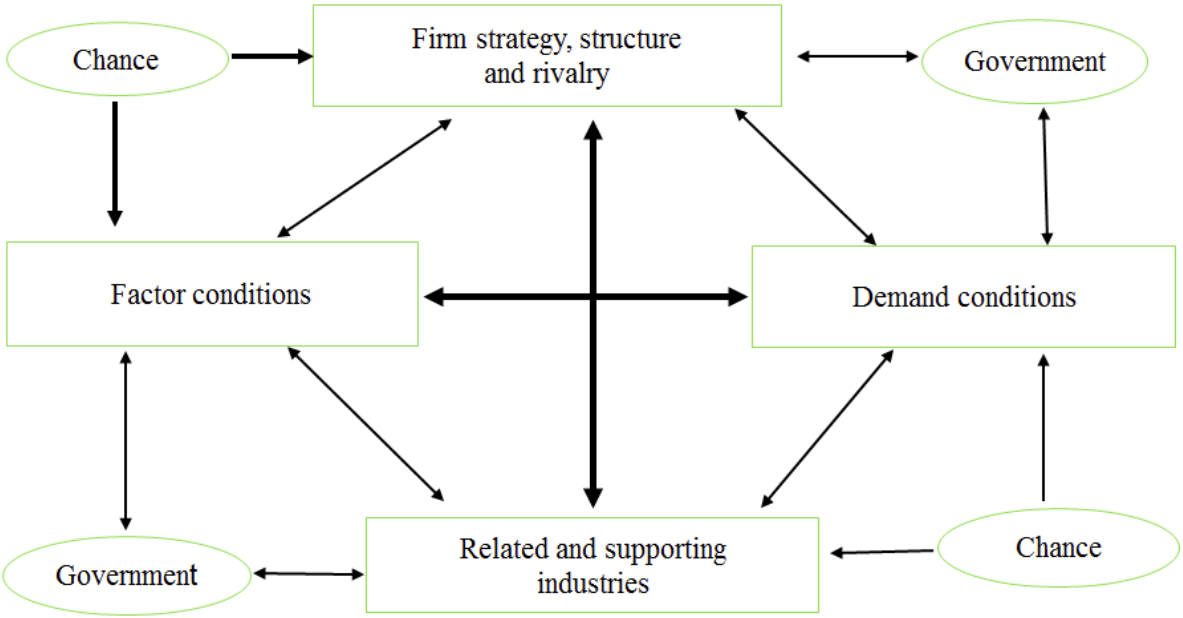

Figure 3.2: Porter's diamond model

Source: Porter (1998)

3.2.5.1 Factor conditions

Factor conditions refer to a country's position on the factors of production needed to compete in a specific industry. These include prices of production costs, such as machinery and labour costs, and natural resources, such as land. Knowledge and infrastructure are some of key factors needed for an industry to compete. A country with factors such as unskilled labour and raw materials that cost less does not necessarily have a competitive advantage, since these can easily be obtained by any related industry. Porter (1990) says, however, that factors such as skilled labour, good infrastructure, technology and capital can place an industry at a competitive advantage, since these are not easily obtainable.

3.2.5.2 Demand conditions

Demand conditions refer to the nature of the demand for a particular product or service of a particular industry, and the ability to have this demand recorded. This may include the recording of demand composition for the local market, the size of the local market, and the size and volume of the international market buying the product. Porter (1990) believes that demand conditions help firms to become competitive. Furthermore, if the local demand is of high quality, it forces firms, industries or nations to produce products that are of a high quality. This ultimately contributes positively to the performance of firms, as they will be able to provide international markets with sophisticated products.

3.2.5.3 Related and supporting industries

According to Porter (1990), related and supporting industries share activities along the value chain. The absence or presence of these institutions, such as the availability of national and private research institutions, the availability of input and service providers, transport, storage and packing facilities, plays an important role in the competitive performance of a specific firm (Porter, 1990). Nehme and Nehme (2014) say that the rate of upgrade and innovation across these industries is hastened by information flow and technical exchange that occurs.

3.2.5.4 Industry strategy, structure and rivalry

Porter (1990) says that industry strategy, structure and rivalry is concerned with the competitive advantage of a country by looking at the nature of how firms are created, organised and managed, and also by assessing domestic competition. He further notes that there is a great difference in the objectives they set, the strategies they employ and the manner in which firms in industries are organised. There are many factors that are social and historical that have led to differences in management practices and individual attitudes towards risk and international competition between countries. These factors influence the way firms are organised and operated. Porter (1990) explains that countries that have a short-term view are likely to be competitive in industries in which there is short-term investment. Furthermore, countries that have a long-term view are likely to be competitive in industries in which there is long-term investment. The management style determines the structure of firms, and this varies from one industry to another (Porter, 1990). If a particular management style suits a country, that country is likely to be more competitive in industries where that management style dominates. Moreover, local competition is good, as it encourages innovation, which may lead to sustainable competition.

3.2.5.5 Role of government

The role of government is a factor that plays a significant role in an industry's global competitive performance, as it influences demand conditions, factor conditions, rivalry, strategy and structure, and related and supporting industries in either a negative or positive manner. The aforementioned factors can be influenced by government through policy in the form of tax codes imposed on firms, educational policies that directly affect the level of skill of workers, subsidies, etc. It is worth noting, however, that Porter (1990) strongly opposes trade intervention, as he believes that it acts as a guarantee for firms that are inefficient. Porter (1990) also believes that government's role is like a catalyst to exert pressure on firms to perform at their best in order to be competitive locally and internationally. The policies of government that tend to succeed are those that create an enabling environment for firms, rather than those where government becomes directly involved.

3.2.5.6 Chance factors

Chance factors are events that often are beyond the control of firms or nations (Porter, 1998). These may include factors such as, but not limited to, wars, exchange rates, energy crisis, diseases such as HIV/AIDS, discontinuity in technology, etc. The manner in which an industry responds to the abovementioned factors often depends on the status of other Porter determinants.

3.2.6 Extending Porter's diamond

The Porter's diamond model has widely been adapted and extended by many scholars. Rugman and D'Cruz (1993) challenged Porter's diamond, noting that it is lacking in countries with small, open trading economies. To address this challenge, they developed a double diamond model (DDM) to accommodate these economies (Rugman & D'Cruz, 1993). DDM is a model that covers the same four groups of attributes of competitiveness as the diamond model; however, the difference is that it considers the activities of multinational enterprises, which have to rely on both home-based and foreign determinants to sustain their competitive advantage. This model also suggests that managers should build upon domestic and foreign diamonds in order to be globally competitive with regard to survival, profitability and growth (Vu & Pham, 2016).

Even though the DDM is able to explain the cases of countries like Canada and New Zealand quite well, and perhaps also South Africa with its "small' open economy, Son and Kenji (2013) note that it faces some challenges, as it fails to analyse the competitiveness of

all other small open countries, such as Korea and Singapore. Vu and Pham (2016) add that multinational firms from these small countries are not only dependent on domestic determinants, but also on the resources and international markets, and most of the time these firms are likely to link more to the global industrial structure than the domestic one. To address this challenge, Moon *et al*. (1998) developed the generalised double diamond model (GDDM). According to Son and Kenji (2013), GDDM is ideal for all small open economies. It consists of two main diamonds, namely a domestic diamond and an international diamond. Vu and Pham (2016) explain that the domestic diamond is comparable to Porter's diamond, and the international diamond represents all four attributes in the international context.

In both diamonds, chance is included and treated as an exogenous variable. On the other hand, government influence is regarded as an endogenous variable that directly influences all four determinants. Figure 3.3 below reveals the influence of Porter's diamond on recent competitiveness research.

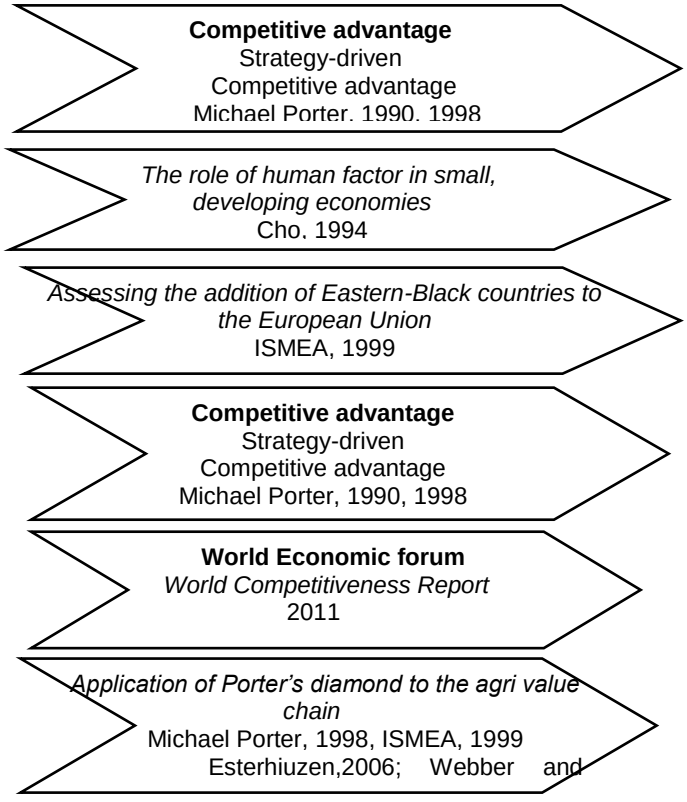

Figure 3.3: Influence of Porter's diamond on recent competitiveness research Source: Cho (1994); ISMEA (1999); Rugman and D'Cruz (1993); Webber and Labaste (2011)

ISMEA (1999) adapted Porter's diamond model to consider the economic implications of adding several Eastern European countries to the EU. Porter's diamond model was also used by the World Economic Forum during its annual *World Competitiveness Report*, in

which it ranks and tracks competitiveness against economic factors. The Porter's diamond model was also used by Webber and Labaste (2011) to establish a competitiveness orientation to study the African perspective. They used Porter's model in a value-chain analysis of agribusiness, using factors that are specific to agribusiness to analyse the business environment.

The South African context was also rated as unique. Studies included (Van Rooyen, 1998; Esterhuizen and Van Rooyen, 2006; Esterhuizen and Botha, 2011), where local aspects were integrated in to the Porter competitive diamond model. In recent studies (Jafta, 2014; Boonzaaier, 2015; Dlikilili, 2018; Sibulali, 2018), socio-economic and political factors, accommodated in the conventional Porter determinants, showed up as 'constraining' factors. In a recent study on wine competitiveness, Barr (2019) explored the application of a 'socio-economic transformation' determinant and suggested further research on this matter. This "local extension" of the Porter model was partly inspired by the provisions of the NDP and by Porter (2007) himself, when he delivered a speech on creating competitiveness in South Africa. He noted that, if these "transformational issues" could be addressed effectively, they could raise the potential of the labour force, which would contribute positively to the economic performance of economy. However, it can be questioned if socio-economic transformation factors have been incorporated into Porter's diamond model to accommodate the South African context' interalia as it impacts on government policies such as land reform, redistribution and Broad Based Black Economic Empowerment (BBBEE).

This aspect is considered in Chapter 6 by exploring whether adding a socio-economic determinant to Porter's competitive diamond model can account more comprehensively for the complex competitive landscape in South Africa, with its transitional economy.

3.3 AGRI-COMPETITIVENESS

According to Van Rooyen *et al*. (1998) and Esterhuizen (2006), many studies have been conducted on competitiveness, particularly in economics and business studies. However, no generic definition is used, since the different studies examine different contexts, hence offering different definitions and methods of analysis. Agricultural based studies focus mostly on country-level comparisons, policy impacts and firm-level analysis (Barr, 2019). This makes it difficult to draw comparisons. However, it remains important to derive a useful concept to contextualise, define and analyse agricultural industry competitiveness. ISMEA

(1999) created a strongly based agribusiness framework of analysis, applied to the extension of the European Union agricultural community.

Clarifying the differences between the classical/neo-classical theory of comparative advantage and the new, competitive theory focusing on competitive advantages, is a good starting point for deriving a sound and applicable economic analytical construct.

3.2.6 Comparative advantage vs. competitive advantage

It is important that a clear distinction is provided between the concepts comparative and competitive advantage, as they play a pivotal role in understanding the significance of international trade and providing clarity on the underlying factors responsible for competitiveness and the current trade patterns. Clarification of the meaning of these two terms is also vital when one endeavours to utilise different techniques that are available to measure an industry's competitiveness. Esterhuizen (2006) postulates that comparative advantage is an important source of competitiveness, and that competitive performance is derived from comparative advantage as it applies in the operational business environment.

Lipsey, Courant, Pruvis and Steiner (1993) and Serin and Civan (2008) say that comparative advantage exists when a country can produce a particular agricultural good at a lower opportunity cost than another country. Also, Du Toit (2009) and Lipsey *et al*. (1993) state that comparative advantage explains how nations could benefit from trade through the efficient use of the resources such as land, labour and capital in a free market environment. Therefore, comparative advantage serves as a guideline on whether or not it is economically advantageous to increase the production and trade of a certain commodity (Pugel, 2004). Some scholars, however, have argued that comparative advantage is not suitable for inter-country comparisons, but only relevant to inter- and intra-firm comparison inside a nation.

On the other hand, based on the views of Balassa (1965), Esterhuizen (2006), ISMEA (1999), Porter (1990, 1998) and Van Rooyen *et al.* (1998), competitive advantage is defined as the concept that explains and creates existing agricultural trading patterns as they occur in the real world, including all distortions and barriers to free trade, which are ignored by comparative advantage principles. These include price effects, policy effects, product quality differences and marketing skills of the industry, innovation, and technological change based on strategic interventions. Therefore, competitive advantage mirrors real business opportunities within current policy and price distortions, as well as strategic opportunities created, for example, by technical innovations, strategic planning, etc. Porter (1990) says that competitive advantage is thus created and earned through a highly localised process affecting the local business system and climate. In summary, the main distinction between

comparative and competitive advantage is that the former assumes Ricardian trade based on a free-market allocative economy (i.e. no market distortions) with natural endowments, while the latter, Porter's competitive advantage, takes into account market distortions, natural endowment-based solutions, and also strategic interventions and innovation, i.e. operation in the 'real-world' business trade environment. In this study, the analysis follows such new competitive theory directions and considers competitiveness as the outcomes of real-world trade situations.

3.3.2 Defining competitiveness

Siggel (2006) notes that relatively little attention was paid to the concept of competitiveness in the early economic theories. However, in recent years, some definitions have been proposed in the agribusiness economics literature. According to Tweeten (1992), competitiveness occurs when a country is able to maintain or gain position in the market by exhausting the competitive advantage available in the world markets. This can be achieved if productivity is increased by making use of resources such as technological innovation and advancement. Petit and Gnaegy (1994) explain that competitiveness occurs when a country is able to produce a product and supply it internationally, while ensuring that there is an increase in both real income and investment. Culver and Schoney (1990) note that a firm can be regarded as competitive if it is able to tackle competition and succeed in doing so. This, however, implies that competitiveness is created by being competitive. At a national/country level, the Organisation for Economic Co-operation and Development ([OECD], 1992) considers competitiveness as a degree to which a country can, under free trade, produce goods and services that meet the test of foreign competition, while simultaneously maintaining and expanding domestic real income. This is a comparative advantage-based view and may not sufficiently take real business situations into account. Porter considered productivity as the basis of competitiveness (Porter, 1998).

Freebairn (1987) defines competitiveness as the ability to deliver goods and services at the time space and form sought by buyers in both the domestic and international market, while earning at least the opportunity cost of resources employed. In this definition, Freebairn (1987) iterates that a competitive agricultural export industry is mainly about marketing and production costs. He elaborates that it is about all farm and off-farm costs of delivering products to international customers, beating alternative suppliers, and it is also embedded in a dynamic world of changing consumer preferences, advancing technology, and changing relative input costs. His emphasis on 'opportunity cost' resonates with the Ricardian view,

but situates that in a real business situation context i.e. not based on shadow pricing calculations but rather business prospects, as is argued by Porter.

Bearing the aforementioned definition in mind, and bridging Riccardo's and Porter's concepts of competitiveness, Boonzaaier and Van Rooyen (2017), Esterhuizen (2006) and Van Rooyen *et al*. (1998) conceptualise the term 'competitiveness' in an agribusiness trade context and orientation, underpinned by the definition of Freebairn (1987:79), and identify three stages of competitiveness in agriculture, viz.:

***Surviving*:** The lowest level of competing, which refers to the ability to adapt passively or reactively to 'changes in the approach of the game that is being played'.

***Competing*:** The intermediate level of competing, which refers to the ability to respond proactively to 'changes in the approach in which the game is being played' by improving the qualities and activities of the business by being more efficient and flexible.

***Winning*:** The ability to successfully defeat your competitors in order to achieve sustainable profits and growth.

From this, competitiveness is defined as "the sustained ability (of an industry) to attract investment by (globally) trading its produce competitively within the global marketplace, whilst continuously striving to earn returns greater than the opportunity cost of scarce resources engaged". It is argued that this definition puts more emphasis on competing in the highly contested and uneven global trade setting, focusing on the 'competitiveness advantage' rather than 'comparative advantage' analytical viewpoint (also refer to Boonzaaier, 2015; Esterhuizen, 2006; Porter, 1998). Therefore, since table grapes are indeed a highly contested product globally, this definition will be applied to direct the study of the competitiveness of the table grape industry in South Africa.

The definition of competitiveness directing this study thus is: Competitiveness is the sustained ability of the South African table grape industry to attract investment by competitively trading its produce within the global marketplace, whilst continuously striving to earn returns at least greater than the opportunity cost of resources engaged.

3.4 MEASURING COMPETITIVENESS

The above definition implies that trade-based measures and records will be required to empirically measure competitive performance. Some of these are discussed below.

3.4.1 Revealed comparative advantage (RCA)

Revealed comparative advantage (RCA) was first used in 1958 by Liesner. The main objective of utilising RCA was to establish the level of impact the entry of Britain could have on the EU markets. This was later refined and mostly used by Balassa. It is commonly known as the 'Balassa index', since it was refined and popularised by him in 1965. It aims to address complications encountered when testing H-O theory. Balassa (1965) notes that, when trade patterns that reveal relative costs and variations in non-price factors are analysed, it results in RCA. The OECD (2004) says that the Balassa index aims at comparing the share of a particular country in the world market in a specific commodity relative to its share in all goods exported. Also, the Balassa index seeks to identify industries within a country that are doing well in export trade and those that are lagging behind. The RCA can be calculated, and its formula can be mathematically represented as follows:

$$RCA = \left(\frac{\frac{Xzj}{Xz}}{\frac{Xrefj}{Xref}} \right) \quad \text{..... (1)}$$

Based on the above formula, X_{zj} represents the export value of country Z's commodity j, X_{ef} represents commodity j's export value relative to a set of referenced countries other than Z, while X_{ref} is the total exports of a set of nations other than Z. It is argued that a country has a revealed comparative advantage if the results show a number that is more than one. In contrast to this, if a country shows a number that is less than one, it indicates comparative disadvantage. In simple terms, this means that, if the value of RCA_{zj} is more than one, country Z has a comparative advantage in commodity j. If the index value is below one, country Z is regarded as having a comparative disadvantage, since this commodity clearly does not add much value to country Z's exports compared to the exports of other referenced countries. Esterhuizen (2006) highlights the advantage of using Balassa's relative RCA model by noting that, in order for it to properly measure success in exporting, it only requires trade data – it does not depend on theory regarding factor endowments and perfect competition.

According to Havrila and Gunawardana (2018), there are three ways that can be used to interpret RCA, namely ordinal, dichotomous and cardinal, and they can be explained as follows:

Ordinal interpretation: This is an index that is utilised when industries or nations are ranked according to comparative advantage.

Dichotomous interpretation: This is an index that is normally used to compare whether there is a comparative advantage that exist between nations.

Cardinal interpretation: This is an index used to determine the dimension of comparative advantage.

Some of the shortcomings related to RCA are the following:

- RCA can be explained in terms of autarkic price relations that are not visible, which indicates that the real pattern of comparative advantage can be identified from post-trade data.
- RCA does not distinguish between developments in production factors and the search for suitable trade policies by a country.
- The existence of government intervention, such as subsidies, import and export restrictions, etc., especially in agriculture, pose a threat to the values of RCA.
- The RCA does not take imports into account in its formula. Competitiveness is thus based on export performance only.

The abovementioned RCA shortcomings are the reasons why it is not considered as a preferred measurement of competitiveness. However, it can be useful as a relative comparison of export-dominated situations, such as in the case of South African table grapes with relatively little/no imports.

3.4.2 Relative trade advantage (RTA)

The concept of RCA has long been studied and many improvements have been made. As a result, there are a lot of similar indexes. Vollrath (1991) improved Balassa's original version of revealed comparative advantage by introducing a method called relative trade advantage (RTA). He explains that this method takes into account both exports and imports in order to better manifest global trade performance (Porter, 1990). Scholars such as Bahta and Jooste (2004) note that this improved method by Vollrath is a better tool to measure competitive advantage, and anticipate that a collection of nations or industries will have a big impact globally as compared to a single nation. RTA is calculated as the difference between relative

export advantage (RXA) and relative import advantage (RMA), which can be expressed as follows:

RTA = $RXA - RMA$ ..... (2)

$$RMA_{zj} = \left(\frac{Mzj}{Mz} \Big/ \frac{Mrefj}{Mref} \right) \text{.....} (3)$$

$$RTA = \left[\frac{X_{zj}}{X_z} \Big/ \frac{X_{refj}}{X_{ref}} \right] - \left[\frac{M_{zj}}{M_z} \Big/ \frac{M_{refj}}{M_{ref}} \right] \text{.....} (4)$$

To interpret the above formula, any value of RTA that is above one indicates that a nation has a competitive advantage in the considered commodity or service. If the RTA value is below zero (0), it suggests a nation has a competitive disadvantage in the commodity or service in question. Additionally, if an index value is between zero (0) and one (1), it means that a nation is marginally competitive in that particular product.

The numerators in the equation above reveal a nation's exports or imports in a particular commodity, e.g. table grapes, or services relative to the exports or imports of the commodity or service by all other nations. The dominators reveal the exports or imports of all commodities or services by reflecting the product in terms of the percentage of all other nations' exports or imports of all commodities or services (Vollrath, 1991).

Bender and Li (2002) note that, when RTA is being calculated, both export and import activities are taken into account, as opposed to the RXA and RMA indexes, which are calculated exclusively using either export or import data. Frohberg and Hartmann (1997) say that this is perceived as an advantage when looking at it from the trade theory perspective, mostly due to the increase in intra-industry trade. Scholars such as Bahta and Jooste (2004) and Pitts, Viaene, Traill and Gellynck (1995) have argued that considering the value of imports and exports is of paramount importance, because if only export values (RXA) are taken into account, some countries act as a transit and the RXA values might reveal high levels of competitive advantage that would be completely misleading. Hence, Vollrath's RTA gives a complete measure of competitiveness, as it caters for both exports and imports. RTA allows for the assessment of competitive performance under current global economic conditions, i.e. export subsidies, tariffs and other trade regimes (Esterhuizen & Van Rooyen, 2006). However, the limitation of this tool is that it does not reveal how a sector obtained its competitiveness, since some may be due to government intervention. This denotes that this

technique is unable to explicitly point out why certain countries or industries are competitive and others are not. Furthermore, it is unable to suggest new solutions that could assist industries to maintain/gain a competitive edge. To address these shortcomings, studies by Esterhuizen (2006), ISMEA (1999) and Van Rooyen *et al*. (1998) explain trends and identify enhancing and constraining factors.

3.4.3 Net export index

The net export index (NEI) is a method introduced by Vollrath (1991) to solve the challenge posed by the revealed comparative advantage (RCA) being export oriented, and ignores the effects of imports in a sector's total competitiveness. Vollrath (1991) argues that intra-industry trade should be taken into account when there is an exchange of products. NEI is calculated in order to determine whether competitiveness is affected when products are bought in foreign markets. The formula takes into account exports of a particular commodity, and subtracts its imports divided by its exports plus imports. The NEI formula is:

$$NEIAJ = \frac{(X_{AJ} - M_{AJ})}{(XAJ + MAJ)} \dots\dots\dots\dots\dots\dots\dots (6)$$

X_{AJ} denotes the exports of industry A from country J, and M_{AJ} represents the imports of industry A from country J. The index values vary from negative one (-1) for imports to positive one (+1) for exports. It is important to note that, should a value of zero be obtained, it simply means that imports and exports are the same. A challenge with NEI is also observed, namely that the total level of trade in a certain product is not taken into account by NEI (Galetto, 2003). This suggests that a nation that is somewhat self-dependent, with little tradable surplus and without any imports, would have a positive value, and thus would look as if it has a competitive edge, even though it barely exports. Because of the aforementioned reasons, Galetto (2003) recommends that both the RCA and NXi should be used together in assessing and analysing the comparative advantage and competitiveness of a specific industry or commodity.

3.4.4 Export market share (EMS)

The export market share (EMS) is used to measure competitiveness by measuring quantity or value. The aim of the EMS is to highlight the competitive ranking of a nation in the global markets for an export commodity or service (Banterle, 2005). A nation's export share is measured by the index in percentages in relation to the exports of a set of nations for a certain industry (Banterle, 2005). In order to calculate the export market share, the formula below can be used:

$$EMSAJ = \frac{X_{Aj}}{\sum_{j=1}^{n} X_{Aj}} \quad \text{(7)}$$

XAJ represents the exports of industry A by nation J, and *n* represents the number of nations studied. The value of the index varies between 0 and 100. When the value obtained is zero, it means that the nation or industry does not have exports of that commodity or service. When the value obtained is 100, it indicates that the nation or industry is the only exporter of that commodity or service. This measure only ranks competitiveness in a particular market, and does not give global comparisons.

3.4.5 Grubel-Lloyd measure (GL) Herb Grubel and Peter Lloyd introduced the GL index in 1971. It is used to measure intra- industry trade in a certain commodity. The mathematical representation of GL is shown below:

$$GLij = 1 - \left| \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \right| \quad \text{(8)}$$

To interpret the above formula, *i* represents the country, and *j* denotes the sector or product, while exports are represented by *X* and imports represented by *M*. If *GLi* = 0, there is no intra-industry trade, meaning that the trade that takes place is either in imports or exports (inter-industry trade). If the GL value is equal to 1, this means that there is intra-industry trade that takes place – exports are equal to imports (Banterle & Carraresi, 2007).

3.5 CREATING AN ANALYTICAL FRAMEWORK: ASSESSING COMPETITIVE PERFORMANCE IN AGRIBUSINESS

Studies on agribusiness competitiveness started gaining traction in the 1990s, after the global economic market liberalisation (ISMEA, 1999), and in South Africa after economic trade sanctions were removed and marketing was deregulated. Many researchers started to realise the importance of assessing the competitive performance of different industries in order to determine factors that enhance and constrain different industries. The table below depicts a number of studies that have been conducted in South Africa since the late 1990s to analyse competitiveness.

Title of the research/paper	Authors	Measurements	Findings/conclusions
International			
Revealed comparative advantage and competitiveness in Hungarian agri-food sectors	Fertő and Hubbard (2002)	RCA	Hungary is competitive in 11 of the 22 aggregated products. The country also enjoys comparative advantage in animal and meat products.
Competitiveness and agri-food trade: An empirical analysis in the European Union	Banterle (2005)	EMS RCA Net export index	The three indices were found to be high in the Netherlands, France, Belgium and Spain.
Improving agricultural competitiveness by setting priorities for investments in crop research: Lessons From Zambia	Haankuku and Kirsten (2012)	Dynamic research evaluation for management model	The results reveal that sorghum, soya beans, maize, groundnuts, sunflower and cotton are the crops that should be prioritised in receiving funding for research under the efficiency objective.
Analysing the competitiveness of the agribusiness sector in Swaziland	Dlamini (2012)	Porter diamond	The results reveal that the competitive environment in which the sector operates is unfavourable and does not

			enhance competitiveness.
Competitiveness analysis of the tobacco sub-sector in the Republic of Macedonia	Tuna *et al*. (2013)	RCA Porter diamond	The sub-sector has favourable conditions and a competitive advantage for producing tobacco.
Determining Rwanda's comparative advantage in rice: Eastern Province case study	Nkurunziza (2015)	Policy analysis matrix (PAM)	The Eastern Province has a comparative advantage in rice.
An analysis of the competitive performance of the Namibian date industry - 2001 to 2013	Angala (2015)	RTA Porter diamond	The Namibian date industry is generally competitive.
The competitiveness of Western Cape wheat production: An international comparison	Vink *et al*. (1998)	Agricultural costs of production	Total variable cost per ha of producing wheat differs greatly between SA and internationally. Lack of competitiveness of wheat from the Western Cape is due to low yields rather than high costs.
Analysis of the competitive nature of the Southern African sheep-meat value chain	Venter and Horsthemke (1999)	Porter diamond	Southern African sheep meat was competitive. Determinants of meat

			consumption change from economic to non-economic (in both the EU and SA).
Analysing competitive advantage in the South African dairy industry: An integrated approach	Blignaut (1999)	Low cost and differentiation comparisons RCA Porter diamond	Local milk producers are effective. Secondary dairy producers are not globally competitive.
How competitive is agribusiness in the South African food commodity chain?	Esterhuizen and Van Rooyen (1999)	RTA	The selected food chains were marginally competitive, except for pineapple, maize, apple and wheat. Competitiveness index decreases as one moves down the value chain.
The effects of a free trade agreement on South African agriculture: Competitiveness of fruits in the EU market	Kalaba and Henneberry (2001)	Import demand models - Source-differentiated AIDS model - Restricted SDAIDS models	Chile and the USA have a strong competitive advantage over SA in some fruits. Complementary relationships between SA and USA apples.

The competitiveness of the South African and Australian flower industries	Van Rooyen *et al*. (1998)	Domestic resource cost (DRC) RCA Private cost ratio (PRC) Policy analysis matrix (PAM) Porter diamond	In all three approaches, SA has a competitive advantage in the production of flowers. The Porter diamond indicates a more competitive advantage for Australian flowers. Both SA and Australia have revealed comparative disadvantages in the flower industries.
Comparative advantage of the primary oilseeds industry in South Africa	Jooste and Van Schalkwyk (2001)	Domestic resource cost	Results indicate that the extent of developing new cultivars with improved yield potential will largely determine the comparative advantage of oilseeds in areas where agro-ecological conditions are poor.
The competitiveness of the agricultural input industry in South Africa	Esterhuizen *et al*. (2001)	RTA	The fertiliser industry is competitive. The pesticide industry shows

			decreasing competitive performance. The machinery industry is not competitive. The agro-food and fibre industries have shown increasing trends of competitiveness.
Comparative advantage of organic wheat production in the Western Cape	Mahlanza *et al*. (2003)	Social cost benefit (SCB) DRC Policy analysis matrix (PAM)	The findings show a comparative advantage for wheat grown under organic practices. The findings further show the existence of distortions in the market, even if wheat is grown under organic practices.
Agricultural competitiveness and supply chain integration: South Africa, Argentina and Australia	Mosoma (2004)	RTA	SA agricultural commodity chains are marginally competitive. Argentinean and Australian food chains are internationally competitive. Competitiveness index decreases

			in all countries as one moves down the value chain.
Relative competitiveness of the South African oilseed industry	Hallat (2005)	RCA RTA Net index exports (NXi)	SA primary industry is more competitive compared to that of Argentina. In the secondary industry, Argentina enjoys a competitive advantage over South Africa.
An inquiry into factors impacting on the competitiveness of the South African wine industry	Esterhuizen and Van Rooyen (2006)	RTA	SA wine has improving competitiveness. Size of domestic market, strong rand, crime are some of the factors identified to be constraining the industry. Efficient supporting system and intense competition in the market are some of the identified enhancing factors.

Competitive performance of global deciduous fruit supply chains: South Africa versus Chile	Mashabela and Vink (2008)	RTA	Findings show that the SA deciduous fruit supply chains are internationally competitive. Chile supply chains for deciduous fruit are strongly competitive internationally. SA deciduous supply chain loses its competitiveness status as one move from primary to processed products.
Staying ahead of the global pack [Creating sustainable competitive advantage in the marketing of South African table grapes to the United Kingdom in the deregulated era]	Symington (2008)	Porter diamond	Improving supplier performance, post-harvest research and innovation are some drivers that should be amplified to improve the table grape industry's international competitiveness.
An evaluation of the competitiveness of the agribusiness sector in South Africa	Esterhuizen *et al*. (2008)	RTA Porter diamond	SA business sector is marginally competitive, but with an increasing trend. Crime and labour policy are some of the factors identified to be

			constraining the industry, whereas for high-quality products, continuous innovation was found to be enhancing the industry.
Competitiveness of the South African deciduous fruit canning industry	Madima (2009)	RTA Porter diamond	EU subsidies negatively affect the competitiveness of the SA fruit canning industry in that market. The industry is globally competitive in product quality and labour costs.
The business environment and international competitiveness of the South African citrus industry	Ndou and Obi (2011)	Constant market share	Industry is competitive, particularly in oranges and lemons.
Analysing the competitive performance of the South African wine industry	Van Rooyen *et al*. (2011)	RTA Porter diamond	SA wines are internationally competitive (with increasing trend). Fluctuating exchange rate and changing market trends play a negative role in the competitive performance of the industry.

Measurement and analysis of the trends in competitive performance: South African agribusiness during the 2000's	Van Rooyen and Esterhuizen (2012)	RTA Porter diamond	Findings reveal that the business environment of the sector is constrained, marginally positive but with an increasingly negative trend since 2004.
Competitiveness of the South African citrus fruit industry relative to its Southern Hemisphere competitors	Sinngu (2014)	Revealed comparative advantage (RCA) RTA NXi Porter diamond	SA citrus is globally more competitive than its SH rivals. However, its competitiveness decreases as one moves down the value chain. BEE policy, labour policy and tax system were found to be some of the factors constraining the industry.
An inquiry into the competitiveness of the South African stone fruit industry	Boonzaaier (2015)	RTA Porter diamond	The industry's competitiveness falls behind Chile in the SH, whilst in the Northern Hemisphere it is more competitive than France. Strategy, structure and rivalry factors were identified as enhancing factors.

Trade competitiveness in table grapes: A global view	Antonio *et al*. (2015)	Market share	
An evaluation of competitiveness of South African maize exports	Sihlobo (2016)	RCA Agri-benchmark production model Growth share matrix Indicative trade potential index Market attractiveness index (MAI) Relative indicative trade potential index	SA maize exports are competitive. Competitive advantage falls behind Brazil, Argentina and the USA in the production costs analysis. United Arab Emirates, Japan and Mexico were identified as high-potential export markets for SA maize.
Factors influencing the competitiveness of the South African wheat industry: A hedonic price model	Van der Merwe *et al*. (2016)	Hedonic price model	Findings show that changes in price are mainly a function of colour, P/L, defects and fall.
Price formation and competitiveness of the South African broiler industry in the global context	Davids and Meyer (2017)	Univariate time-series analysis Qualitative approach	Technical efficiency of South African producers is on par with international standards. Domestic price of chicken is more

			elastic to variations in the import parity price than changes in feed costs.
South Africa's competitiveness against its main competitors in the market of pears imported by EU28	Valenciano *et al*. (2017)	Constant market share	SA pears were competitive in the EU market before the global financial crisis. After the crisis, exports of pears from SA to EU grew at a slower rate.
The competitiveness of halal food industry in Malaysia: A SWOT-ICT analysis.	Bohari *et al*. (2017)	SWOT analysis	The Malaysian halal food industry is characterised by a rather balanced spread of strength, weakness, opportunities and threat factors.
Agri-value chain competitiveness analysis report	Van Rooyen and Boonzaaier (2017)	RTA Porter diamond model	SA deciduous fruit industry and wine industries are competitive.
Analysis on the international competitiveness of Beijing's cultural creative industries	Cao and Niu (2017)	Market share RCA Trade competitiveness index	Competitiveness shows a rising trend. The comparison of RCA and TC shows that the conclusions from these two

		(TCI)	indexes are strongly consistent.
An analysis of the competitive performance of the South African citrus industry.	Dlikilili (2018)	RTA Porter diamond model Two-step Delphi	SA citrus industry is competitive and has maintained positive figures since the early 1960s. When compared with global competitors, it is being challenged by the most powerful nations in both the Southern and Northern Hemisphere.
Measuring the competitive trends of the South African citrus industry	Dlikilili and Van Rooyen (2018)	RTA	SA citrus industry is competitive and has maintained positive figures since the early 1960s. When compared with global competitors, it is being challenged by the most powerful nations in both the Southern and Northern Hemisphere.
Analysing the competitive performance of the South African subtropical fruit industry	Sibulali (2018)	RTA Porter diamond model Two-step Delphi	The South African subtropical fruit industry is losing its competitive performance status, including that

			of macadamia nuts.
Analysing the competitive performance of the South African subtropical fruit industry	Barr (2019)	RTA Porter diamond model.	The wine industry is competitive within the context of the South African economy.
Production, growth and international competitiveness of Mexican honey	Avila, Sandoval, Velázquez and Fernández (2019)	The rate of comparative and revealed advantage (VRE)	Mexican honey exports are competitive in relation to the other competitor countries.
The measurement of competitiveness of Hong Kong International Shipping Center and its promotion strategies	Fan (2019)	Entropy weight TOPSIS Porter's diamond model	The relative advantages of the centre have declined, and the competitiveness of the standards of the shipping centres has also changed.

Source: Own information and adapted from Barr (2019) and Dlikilili (2018)

From the table above, the method considered suitable for this study was the Vollrath-Porter approach – the RTA measurement and Porter diamond model for analysis .

3.6 CONCLUSION

The main purpose of this chapter was to review competitiveness theories embedded in economic and trade theories with the aim of understanding their relevance by looking at them from the perspective of the competitiveness of South African agricultural exports, in particular the export-orientated table grape industry. Recent studies that have been conducted on agribusiness competitiveness were also highlighted. The following chapter creates an operational analytical framework for this study in order to determine how the competitiveness of the table grape industry can be measured and analysed.

CHAPTER 4

ANALYTICAL FRAMEWORK AND METHODS

4.1 INTRODUCTION

The purpose of this chapter is to describe the analytical framework and explain the methodology used in the competitive analysis of the South African table grape industry. A stepwise framework, implementing the relevant theoretical concepts discussed in the previous chapter, was used to enquire about the research questions and hypotheses that were stated in the first chapter.

4.2 A STEPWISE ANALYTICAL FRAMEWORK

A five-step analytical framework has been used in recent agricultural competitiveness studies (Angala, 2015; Boonzaaier, 2015; Boonzaaier & Van Rooyen, 2017; Jafta, 2014; Van Rooyen & Esterhuizen, 2012). This study follow the same approach, but will extend the enquiry through the use of Delphi analysis methods, which have been used in studies by Barr (2019), Dlikilili (2018) and Sibulali (2018). Drawing on these approaches, and also on the findings on appropriate theoretical constructs reached in Chapter 3, Figure 4.1 provides a detailed explanation of how the five-step analytical framework operates.

4.2.1 Step 1 - Defining competitiveness in the context of the South African table grape industry

As mentioned in the previous chapter, there are a plethora definitions of competitiveness. However, the definition that was found to best describe competitiveness in the context of the table grape industry was derived from Boonzaaier and Van Rooyen (2017), Freebairn (1987) and Van Rooyen (2008). It is described in Section 3.3.2 as “The sustained ability of the South African table grape industry to attract investment by competitively trading its produce within the global marketplace, whilst continuously striving to earn returns at least greater than the opportunity cost of resources engaged”.

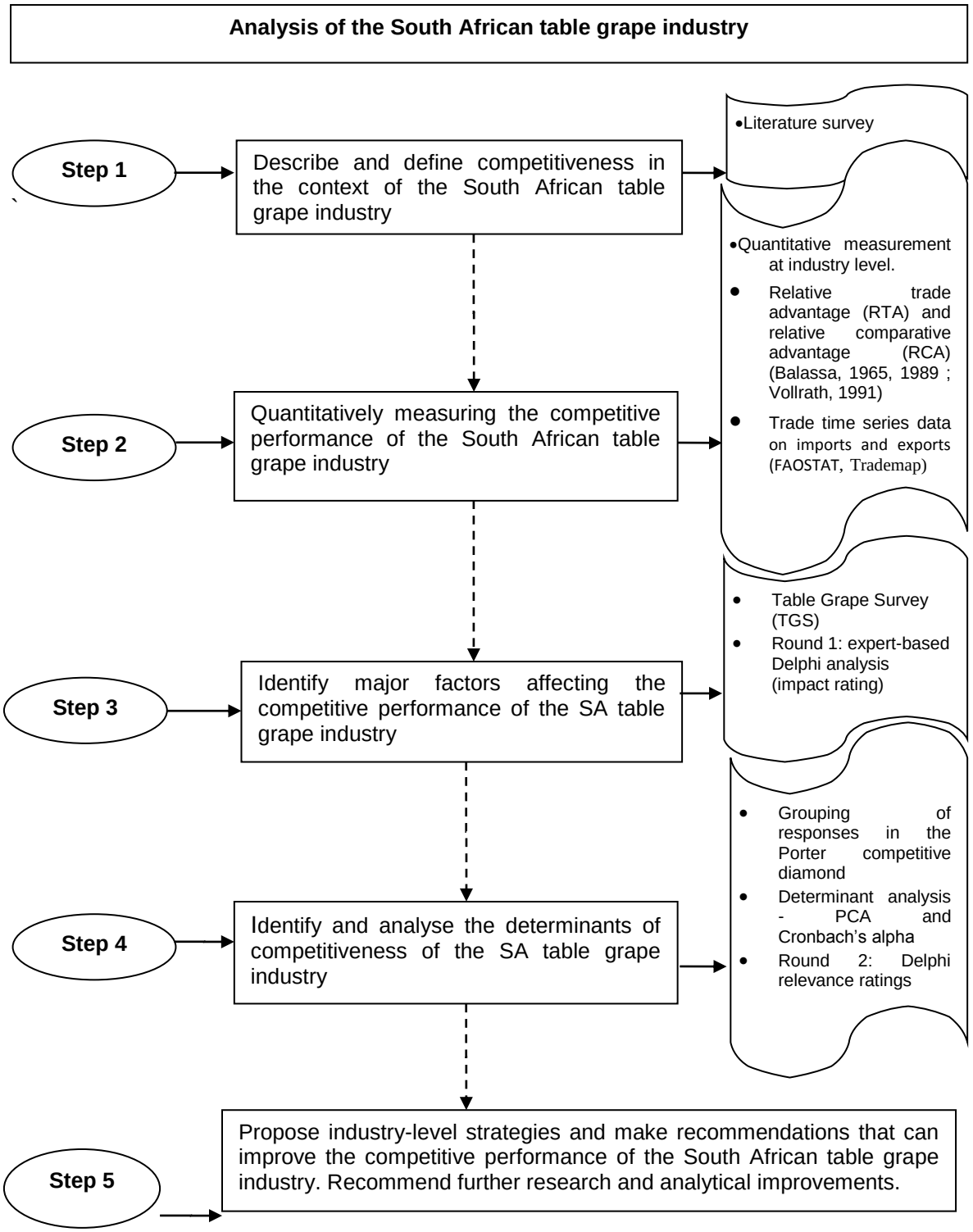

Figure 4.1: Framework to measure and analyse the competitiveness of the South African table grape industry

4.2.2 Step 2 - Measuring competitive performance of table grape industry over time

4.2.2.1 Measurement instrument

In this study, as argued in Chapter 3, the RTA (Vollrath, 1991) and the RCA (Balassa, 1965) methods was chosen because it takes into account imports and exports and it provides a true reflection of bi-directional trade flow through the South African table grape market. The equation discussed in Chapter 3 for RTA calculation was used in this study.

4.2.2.2 The dataset: Food and Agriculture Organisation and International Trade Centre data

Data to calculate RTA and RCA values for South African table grapes since 1961 was obtained from the FAO database (Food and Agriculture Organization [FAO], 2018). The FAO database contains data for 245 countries. Although the FAO offers data across a greater date range than the ITC (FAO, 2018), its significant limitation is that table grape trade data can only be compared with other traded agricultural products. Furthermore, the FAO data does not disaggregate table (fresh) grapes data from dried grapes – they are combined.

The ITC database covers the trade of 220 countries (ITC, 2018). This is a more recent and comprehensive dataset for the import and export trade of South African table grape products. Therefore, data obtained from the ITC database since 2001 will be given preference for all calculations in this study, unless otherwise stated.[1]

4.2.3 Step 3 - Identification of key factors influencing the competitiveness of the South African table grape industry

In Step 3, is the Porter competitive diamond model is used as a theory to explain and analyse competitiveness. It was used to identify factors that enhance and constrain the competitiveness of the South African table grape industry. Primary data based on expert opinions of executives and leaders in the industry was gathered to identify and rate factors. The detailed method employed in gathering and analysing such information is explained in the next section.

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[1] The data from the FAO and ITC can be obtained from the following websites respectively: http://www.fao.org/faostat/en/data and https://www.trademap.org

4.2.3.1 Delphi method

The Delphi technique is a method that is globally accepted and utilised for primary data gathering from participants in a certain area of expertise. Dalkey and Helmer (1963) developed this technique at the Rand Corporation in the 1950s. Hsu and Stanford (2007) note that many fields of study, such as policy determination, resource utilisation and programme planning utilise the Delphi technique to explore or uncover underlying assumptions, as well as to correlate judgments on a topic spanning a wide range of disciplines. Dalkey and Helmer (1963) add that the Delphi technique is also used to help different industries in enhancing effective decision-making. The Delphi method is repeated many times until the research questions are answered by the participants. Usually, two or three iterations of the Delphi method are sufficient for most research (Mamaqi, Miguel & Olave, 2010).

As noted above, the Delphi technique has the ability to generate consensus on policy options that allow complicated problems to be solved in a certain industry of study. This technique will thus applied to the table grape competitiveness survey. The aim was to generate consensus among the experts across the table grape value chain in South Africa on factors that enhance and constrain the performance of the industry. In this study, the two-round Delphi analysis was deemed sufficient to obtain the results and was therefore employed. This step, however, focuses on round one.

4.2.3.2 Conducting the Table Grape Executive Survey (TGES) - Round one

4.2.3.2.1 Selection of experts

The focus group in this study comprised experts taking executive decisions across the table grape value chain, namely producers, packhouse and exporters. Experts may be selected based on funding available, logistics and exclusion criteria, since there is no prescribed procedure to be followed when selecting experts in Delphi studies (Hsu & Sandford, 2007). Hsu and Sandford (2007) mention that the usual predicament in Delphi studies is non-response due to the time involved, which may result in participants dropping out of the study. The experts were selected with the assistance of the South African Table Grape Industry (SATI). It was agreed that a questionnaire, piloted in collaboration with SATI, would be circulated to selected experts based on their executive positions, expert knowledge and leadership contributions. Therefore, a small size sample would be sufficient to draw a meaningful consensus on the opinions expressed, viz. factors affecting the competitive performance of SA table grape industry, in the first round.

The questionnaire was sent out in August 2018, along with a participation letter that explained the purpose of the survey and demonstrated graphs with RTA values obtained from Trade Map data. August was selected because it was viewed as an appropriate time for all experts to be available after the winter break. These questionnaires were sent to respondents in the major producing regions to ensure fair representation. The deadline for completing the questionnaires was set as October 2018.

4.2.3.2.2 Questionnaire design and data collection

The questionnaire was designed using Porter's competitive diamond model. During the pilot period, SATI members provided valuable inputs that were incorporated into the questionnaire. The first section of the questionnaire required basic demographic information, such as the name of the respondent and the farm, geographical area, position in the value chain, total number of hectares producing table grapes, and volume exported.

The second section of the questionnaire focused on Porter's determinants, namely production factors; demand factors; related and supporting industries; firm strategy, rivalry and structure; government support and policies; and chance factors. A Likert scale was chosen for this study, since it is widely accepted and has been used in a number of studies that aim to establish opinions or attitudes through a fixed response rate (Coughlan *et al*., 2007). A copy of this questionnaire is provided in Appendix A.

SATI then distributed the questionnaire to the selected experts in the table grape value chain via e-mail in August 2018. Participants were requested to give their opinions on the competitive performance of the table grape industry by rating the current impact of each question on a Likert scale from 1, denoting less competitive or 'constraining', to 5, denoting highly competitive or 'enhancing'. The total number of factors that the experts rated amounted to 107. The experts who were selected to participate in this study are shown in Table 4.1 below.

Table 4.1: List of participants in the Table Grape Executive Survey

District/ Municipality	Position in the value chain	Land (ha)	Exported volume (4.5 kg cartons)
Drakenstein	Producer, Packhouse and Exporter	> 40	500 000 - 1 000 000
Hex River Valley	Producer/Exporter	> 40	> 1 000 000
Drakenstein	Producer/Packhouse	20 – 40	< 100 000
Northern Cape (District/Municipality not specified)	Producer, Packhouse and Exporter	> 40	> 1000 000
Saron/Porteville	Producer and Exporter	> 40	> 1 000 000
Hex River Valley	Producer/Exporter	> 40	> 1 000 000
Mokopane	Producer/Packhouse	> 40	
Groblersdal	Producer/Packhouse and Exporter	20 – 40	500 000 - 1 000 000
Orange River	Producer/Packhouse and Exporter	> 40	> 1 000 000
Onseepkans	Producer/Exporter	> 40	100 000 - 500 000
Kakamas	Producer/Packhouse	20 – 40	100 000 - 500 000
Kakamas	Producer/Packhouse	01- 20	< 100 000
Potgietersrus	Producer/Packhouse	01- 20	< 100 000
Hex River Valley	Producer/Packhouse and Exporter	> 40	> 500 000 - 1 000 000

Source: Based on Table Grape Expert Survey (2018)

From Table 4.1 above, it is evident that the experts who responded were involved in more than one position in the value chain; some were producer/exporters, producers, packers and exporters. Also, ‘producer’ is a common factor in all of the respondents, meaning that the experts also possess knowledge of primary production. Regarding the total number of hectares, 57% of the respondents were producing on more than 40 hectares of land, 29% on 20 to 40 hectares of land, and 14% were producing on less than 20 hectares of land. Furthermore, it was observed that the majority of those who were producing on 40 hectares and more were mostly exporting quantities more than 500 000 cartons. Based on Table 4.1 above, it can confidently be argued that there was a fair representation of experts, as they all differed in terms of their scale of operation and met the requirements of the study based on

the questionnaire. Therefore, the responses received could be used to draw meaningful results for this study.

4.2.4 Step 4: Clustering factors into the main determinants using the Porter competitive diamond model

The responses obtained from round 1 were grouped into the six main determinants of Porter's competitive diamond model, namely production factors, demand factors, firm strategy, structure and rivalry, related and supporting industries, government support and policies, and chance factors. The responses to these determinants were analysed through the use of principal component analysis (PCA) and Cronbach's alpha, as indicated below.

4.2.4.1 Principal component analysis (PCA)

According to Atchley (2007), PCA is a dimension-reduction tool that can be utilised in decreasing a large set of variables to a small set that still contains most of the information contained in the large set. PCA aims at extracting maximum variance from variables by seeking a linear combination of variables. It then removes this variance and looks for a second linear combination, which expounds the maximum proportion of variance remaining. This principal axis method results in orthogonal (uncorrelated) factors (Abdi & Williams, 2010).

The PCA method was used in this study to determine factors that were highly correlated and also uncorrelated, based on the responses received from the respondents. Statistically, if data is sufficiently available, uncorrelated factors could be analysed further using cluster analysis to establish opinions from respondents that are similar. Through PCA, highly correlated factors related to the Porter's diamond determinants were identified. Responses to the impact of determinants within the various sets were subjected to PCA using a value of 1 as prior communality estimate. The principal axis method was used to extract the components, and this was followed by a varimax rotation. Meaningful components had Eigen values larger than 1 and were retained for rotation. Following the approach of Angala (2015) and Dlikilili (2018), an item was interpreted as loading on a given component if the factor loading was 0.40 or greater for that component, and less than 0.40 for the other.

4.2.4.2 Cronbach's alpha

According to Tavakol and Dennick (2011), Cronbach's alpha was developed by Lee Cronbach in 1951 with the aim of determining the internal consistency of a test or scale. It is normally expressed in values varying between 0 and 1. The internal consistency seeks to

clearly define the level at which all the items in question measure the same concept or construct, and hence it is connected to the inter-relatedness of the items within the test (Tavakol & Dennick, 2011). To ensure validity, it is highly recommended that internal consistency should be established before a test can be done for research or examination purposes. Furthermore, reliability estimates reveal the amount of measurement error in a test. To make the above statement clearer, Tavakol and Dennick (2011) explain that the interpretation of reliability is the correlation of the test with itself. For example, if a test has a reliability of 0.90, there is 0.19 error variance (random error) in the scores (0.90 × 0.90 = 0.81; 1.00 – 0.64 = 0.19). It is vital to note that, as the estimate of reliability increases, the fraction of a test score that is attributable to error will decrease. Additionally, it should be noted that, when items are closely correlated with each other, the value of alpha increases. It is important, however, to be cognisant of the fact that a high coefficient alpha does not always indicate a high degree of internal consistency (Gliem & Gliem, 2003). This is because the length of the test has a significant effect on alpha, meaning that if the test length is too short, the value of alpha is reduced (Tavakol & Dennick, 2011).

Since the questionnaire for this study was designed using Porter's determinants, it was re-structured to accommodate the aforementioned models and substantiated with Cronbach's alpha. This measure enabled the establishment of the extent to which questions asked exhibited validity when all grouped according to Porter's six determinants. Furthermore, Cronbach's alpha was utilised to determine the internal reliability of the factors that were identified to be highly correlated in the PCA analysis.

4.2.4.3 The Table Grape Executive Survey – Delphi round two

The second round of the Delphi technique was conducted via e-mails. In this round, the PCA results were used to identify highly correlated factors (i.e. the high-consensus factors with a high degree of internal consistency). The highly correlated factors were allocated to their determinants of Porter's competitive diamond model, and were communicated to the participating experts through the questionnaire. The experts were then asked to rate the factors in terms of 'relevance' to the competitiveness of the table grape industry.

In essence, round two aimed at understanding the relevance of factors that were highly correlated in the PCA, whilst round one provided factor ratings based on the current perceptions in the industry. The ratings provided insight into strategic focus areas for a maximum impact on the competitive performance of the table grape industry. The response

rate in round two was 71% of the sample size used in round one. Numerous e-mails were sent out as a reminder, but with no luck.

4.2.5 Step 5 - Proposing strategies to enhance the South African table grape industry's global competitive performance

The steps that were discussed above provided a perspective on the issues of competitiveness and contributed to a greater understanding of the competitiveness of the local table grape industry. Based on the Porter competitive diamond construct and data analysis process in the previous steps (viz. matrix, PCA, Cronbach's alpha, scatterplot), this step suggests industry-level strategies to be considered to increase the industry's global competitive performance. In principle, such proposals should be developed as a response to the findings in steps 3 and 4, and in collaboration with the relevant industry role players. However, there was no such participation in this study and the proposed strategies can be viewed as recommendations to be considered by the industry.

4.3 CONCLUSION

The main aim of this chapter was to describe the analytical framework and methods used in this study in order to determine competitive performance. The next chapter provides the findings from the methods discussed above.

CHAPTER 5

RESEARCH FINDINGS AND DISCUSSION

5.1 INTRODUCTION

This chapter discusses the main research findings following the steps of the analytical framework explained in Chapter 4. The definition of competitiveness selected in **step 1** of Chapter 4 will serve as a starting point, viz. “the sustained ability of the South African table grape industry to attract investment by competitively trading its produce within the global marketplace, whilst continuously striving to earn returns at least greater than the opportunity cost of resources engaged”.

This chapter also reports the empirical measurement and competitive performance trends of the South African table grape industry over time, and identifies and analyses factors that either enhance or constrain the table grape industry through the application of the Porter competitive diamond model (steps 2, 3 and 4).

Based on the findings in this chapter and the analysis therein, Step 5 will be attended to in the next chapter, where industry-level strategies are proposed to assist the South African table grape industry to improve its competitive performance.

5.2 MEASURING THE COMPETITIVE PERFORMANCE OF THE TABLE GRAPE INDUSTRY IN SOUTH AFRICA (ANALYTICAL FRAMEWORK STEP 2)

Time-series trade data obtained from the ITC (2018) and FAOSTATS (FAO, 2018) was used to measure the competitive performance of the South African table grape industry.

It was important to use this trade-based data from the ITC in the calculation of RTA and RCA as measures of the competitiveness of the South African table grape industry in context of the whole economic trade database; FAO STATS only refer to agricultural trade information. The RTA and RCA trends were devised from 2001 to 2017. The results are shown in Figure 5.1.

5.2.1 Competitive trends in the South African table grape industry

As discussed in Chapter 2, the RTA reflects comprehensive trade performance and considers both import and export trade values. In contrast, the RCA only reflects export performance, as it is based solely on export trade values; it does not consider import trade. Despite these differences in the measures and the influence of import trade values on the

RTA, Figure 5.1 reveals similar graphs for both RCA and RTA reflecting the low levels of imports.

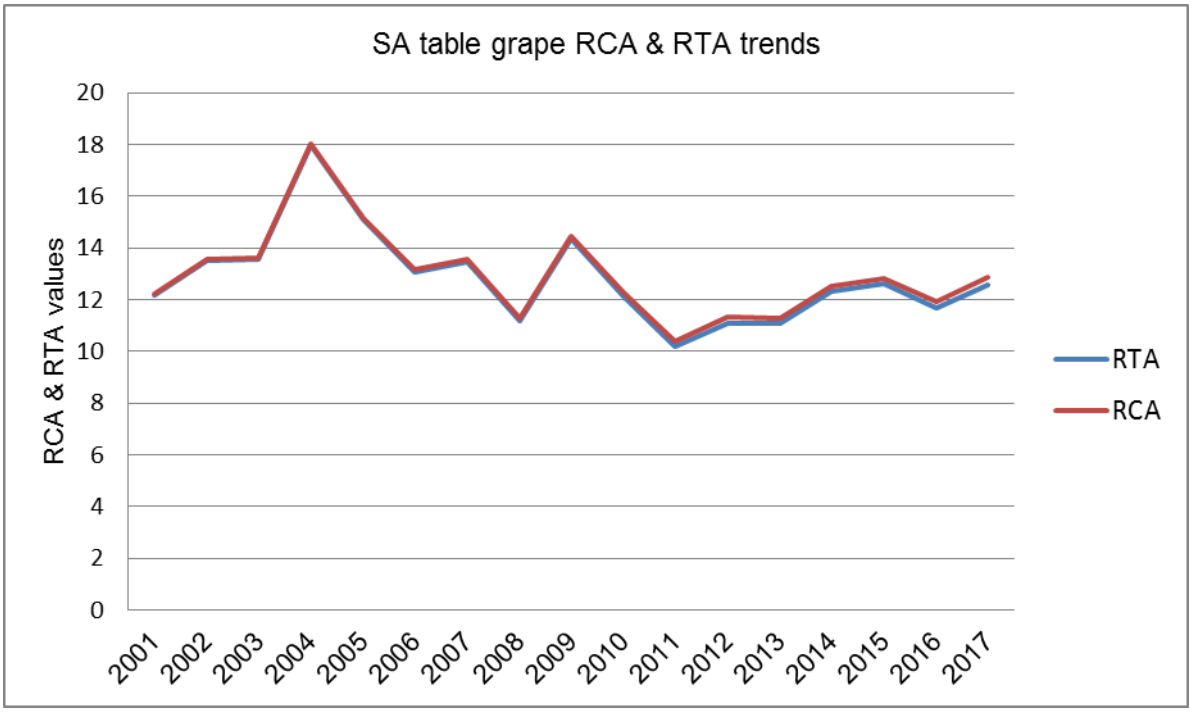

Figure 5.1: Comparison between relative trade advantage (RTA) and relative comparative advantage (RCA) for South African table grapes from 2001 to 2017

Data source: ITC (2018). Own calculations

This similarity can be attributed to the minimal imports that South Africa receives from other countries (SATI, 2018). The time series data from the FAO (1961 to 2013) and the data from the ITC (2001 to 2017) were used to determine the competitive performance of the South African table grape industry. The ITC data gives a better description of the 'opportunity cost' status of an industry, as per the definition of competitiveness in this study, as the ITC database encompasses all the industries and commodities, as opposed to the FAO database, which consists of agricultural commodities only. The FAO data, however, spans over a longer period, since 1961 included the deregulation and political democratisation events of the 1990s, which dramatically affected the South African economy. The FAO data, however, aggregates table and dried grapes, which would affect the applicability of the results. Given these reasons, this study gives preference to ITC data, but will refer to the FAO database results.

The results obtained from the calculation of the RCA and RTA values from both the FAO and ITC can be interpreted as follows: the higher the value, the greater the competitiveness of the country or industry over a set of reference countries. A value that is between zero and

one indicates that the industry is marginally competitive. Any value that is less than zero indicates competitive disadvantage, which simply means that the industry is more dependent on imports of that commodity. The results obtained from the FAO and ITC are interpreted in Figure 5.2.

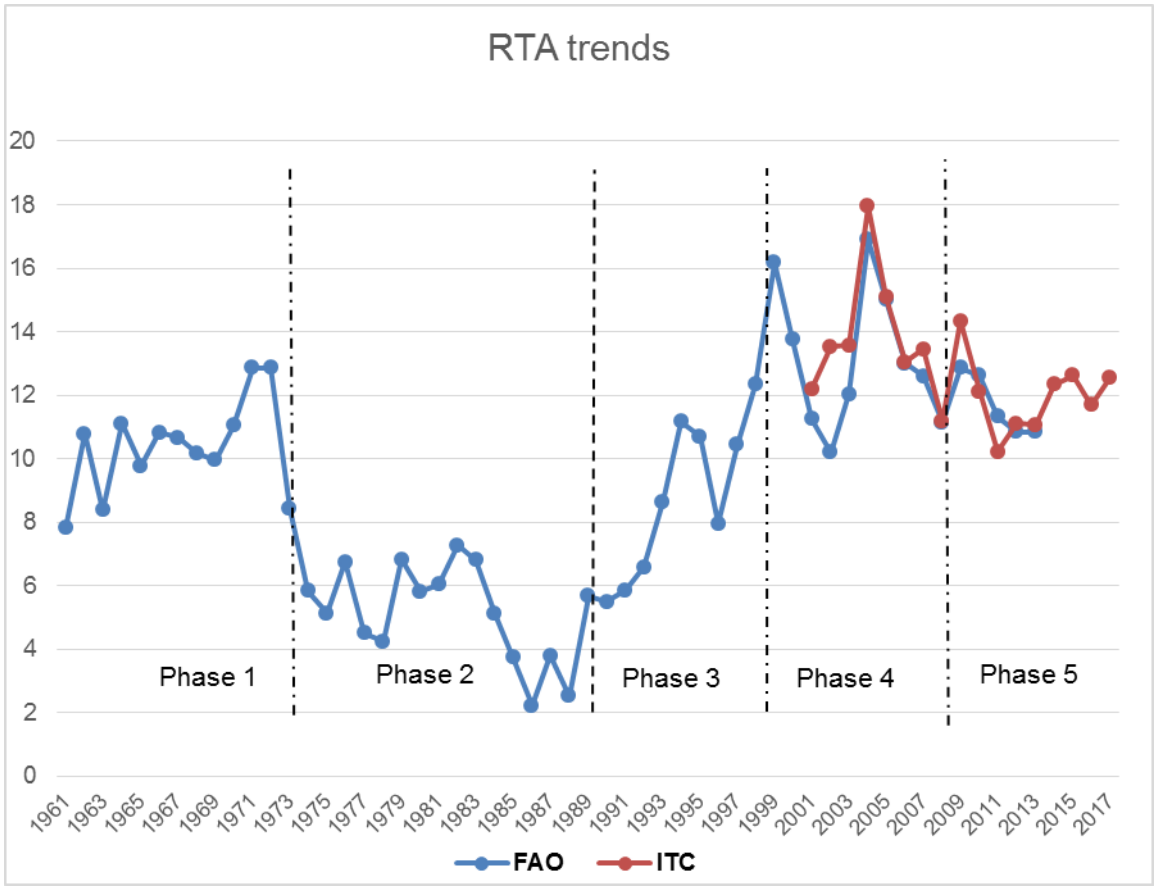

Figure 5.2: RTA values showing South African table grape trends

Source: FAO (2018) and ITC (2018)

Note: The FAO data include all grapes, whether for fresh consumption or dried

The industry showed positive values but fluctuating throughout the years, which indicates that it has sustained competitive in the international markets. The industry RTA value in 1961 was 7.9, and the lowest RTA value of 3.9 was obtained in 1985. The highest RTA value of 18 was obtained in 2004, with 12.9 in 2017. Another observation on the trends from both the FAO and ITC is that there is not much difference between them, since the ITC data disaggregates the table grapes from dried grapes, as opposed to FAO data, which does not. It therefore is clear that the table grape values dominate the formula. Having observed clear trends and fluctuations in competitive performance since 1961, the literature was reviewed

and responses from the Delphi group members were taken into account for an in-depth analysis of these trends. This is discussed below.

Phase 1: Increasing competitiveness: Operating in a highly regulated environment (1961-1973)

The FPEF (2016) notes that 1960s was a boom time for South African fresh fruit exports, inter alia due to the locality of South Africa in the Southern Hemisphere, which counters the cold European winter periods and provides fresh and high-quality fruit to such markets. Marketing and promotional campaigns increased, and the handling, cooling and cold storages techniques ensured that the demand was met with ever-improved consistency and high-quality produce.

Esterhuizen (2006) points out that the high competitiveness in the table grape industry was also a result of the relatively low interest rates and low inflation of those times, promoting long-term investments in the industry. He further notes that, during this period, the agribusiness sector, including table grapes, was highly regulated by the government through marketing boards, which allowed the artificial boosting of the industry through government support and promotions, protecting the industry against competitive forces.

Therefore, these factors – government-related factors in the Porter competitive diamond model – initially contributed to the high and increasing competitiveness of the sector.

Phase 2: Declining competitiveness: The oil crises and political trade sanctions (1974-1990)

During the early to mid-1970s, a drastic decline in South Africa's RTA values was observed, which could be attributed to economic hardships in both Europe and the United Kingdom, inter alia the economic depression caused by the cost-increasing effects of the 'oil crises' of those times. In the late 1970s, producer prices only rose by 9% a year, while production costs rose by 15% and the farmers' debt increased to R2 621 million in 1978. In the same year, the agricultural sector's net income was only 62% of the total debt load. It is clear that rising production costs during this period became a matter of concern, as shown by a low RTA value of 4.2 in 1978.

In the early 1980s, the table grape industry showed recovery. From 1980 to 1985, deciduous fruit exports grew by 2.6% (Kirsten *et al*., 1994). As a result, South Africa was regarded as the largest table grape producer in the Southern Hemisphere. However, global politics changed the picture when 25 countries, including major markets, instituted sanctions against

South Africa. Amongst the countries that imposed sanctions on South Africa were the UK and USA; this negatively affected the competitiveness of the industry, as shown by the lowest RTA value of 3.9 in 1985. A further decline in RTA values was observed between 1986 and 1988, since the RTA in 1986 amounted to 2.2 and in 1988 it was 2.5. This decline can be associated with violent uprisings that led to a state of emergency, and the intensification of economic sanctions. Kirsten *et al*. (1994) also noted that, due to stricter trade sanctions against South African products in Europe, a decline of 0.74 per cent per annum between 1985 and 1990 was observed in the deciduous fruit sector.

The impact of trade sanctions enabled countries such as Chile, Peru, Brazil and Argentina to grab the opportunity of supplying markets that were previously dominated by South Africa. Increased cost factors, such as high interest rates, contributed to the drop in competitiveness in this period (Esterhuizen, 2006). Furthermore, the droughts that occurred in 1974, 1978/1979, 1983/1984 and 1984/1985 also made a significant contribution to the declining RTA values during this phase, indicating how 'outside/external factors' – the chance factors of the Porter competitive diamond model – had a substantial impact on the competitive performance in this industry during this period.

Phase 3: Increased competitiveness: Democratisation, economic deregulation – the "Madiba Magic" (1990-1999)

In the early 1990s, a dramatic increase in the competitive performance of the table grape industry was observed as South Africa started embracing democracy. South Africa underwent enormous economic, social and political transformation, especially after democratic elections in 1994: economic sanctions were lifted, trade increased and the table grape industry reclaimed its position as one of the top producing countries in the Southern Hemisphere. Table grape exports grew, and the competitiveness of the industry improved significantly, as shown by RTA values reaching 10.5 in 1995. The FPEF (2016) highlights that the export growth can also be attributed to an increase in the production of seedless varieties, deregulation and access to a greater variety of markets. Reforms in agricultural marketing and trade liberalisation were major features of this process and, by 1997, all marketing controls had effectively been removed. Agricultural Marketing Boards were closed down, allowing free trade and market access. Many market-focused organisations and collaborations were established after deregulation, for example the Deciduous Fruit Producers' Trust (DFPT), and Unifruco Ltd merged with Outspan International, which was its citrus counterpart, to establish Capespan International Ltd, which still remains as the largest single exporter of South African fruit. The FPEF (2016) notes that, in 1999, the South African

Plant Improvement Organization (SAPO) became a trust, with the producer associations as beneficiaries. This phase showed an increasing upward trend in competitive performance until 1999.

Phase 4: Increasing, fluctuating competitiveness: Transitioning towards a competitive global player (2000-2008)

During the 2000s, the RTA values were on a surge, as shown by a value of 13.7 in 2000. However, a slight decline was observed in 2001 through an RTA value of 12.1. This decline can be associated with a decrease in agricultural production. The Department of Agriculture ([DoA] 2001) notes that, in 2001, horticultural production decreased by 4.5% compared to the previous season. After 2001, the institutional structuring of the industry continued, with positive impacts. The FPEF was established in order to address export agents' common concerns. In 2002, Fruit South Africa (FSA) was established and, in 2004, the table grape producers established the South African Table Grape Industry (SATI) with the aim to strengthen the value chain between producers and exporters (FPEF, 2016). A highest RTA value of 18 was obtained in 2004. Another possible contributing factor towards the highest RTA value in 2004 is the Trade, Development and Co-operation Agreement that was concluded with the EU in 1999, which entered into force on 1 May 2004 after ratification by all signatory parties (Wesgro, 2014). The Trade, Development and Co-operation Agreement established preferential trade arrangements between the EU and South Africa, along with a free trade area that covered 90% of bilateral trade. The data also reveals that, between 2001 and 2004, table grape exports in volume to trading nations such as the Netherlands, the UK and Germany grew by 45%, 110% and 160% respectively (ITC, 2018).

Exports to Africa also grew during this period. Vink and Van Rooyen (2009) note that, even though the European Union remains the largest destination for South African agricultural exports, the total number of agricultural exports to Africa grew up to 20% by 2005. This is particularly true in the case of table grapes because, according to the ITC (2019), the total quantity exported to Kenya in 2001 was 195 tons and in 2005 it amounted to 294 tons. Again, the total amount of table grapes exported in Angola in 2001 was 189 tons, and in 2005 it was 318 tons (ITC, 2019). Therefore, a growth rate of 58.8% and 68.3% in exports was observed in Kenya and Angola respectively between 2001 and 2005. Another factor that could be attributed to competitive performance dominating the table grape industry was the new plantations of vines in the period of 1994 to 1996 (Kirsten, 2006). Therefore, the vines were only reaching their full production cycle from 2001, which increased the total quantities harvested and exported by South Africa.

Despite the early positive trend in competitiveness performance, a declining, but still positive trend, was experienced from 2007, and in particular from 2008, when the industry was negatively affected by the world economic crisis; 2008 yielded a low RTA value of 10.5. This low RTA value can be associated with a decline in quantities exported by South Africa to countries such as the United Kingdom.

Phase 5: Resilient competitiveness: Operating in a constrained, highly competitive global environment (2009 onwards)

During this period, the industry was recovering from the financial crisis that occurred in 2008. The RTA value in 2009 increased to 11.2, from 10.5 in 2008. The 2010/2011 season has been labelled as the most difficult season for both producers and exporters, and as a result the total amount of table grapes exported declined by 13% compared to the previous season. This difficulty was a result of a myriad of factors, such as floods that affected the northern provinces and Orange River region. There was an increase in oil prices due to political instability in North Africa and the Middle East, and electricity prices continued to increase. The rand appreciated its value through to the end of the season; however, the strength of the rand was offset by the improvement in earnings due to the delay in the Chilean season. The impact of labour unrest from November 2012 to the beginning of 2013 as a result of unhappy farm workers also negatively affected the industry. The NAMC (2013) highlighted that 50 hectares of table grapes were burnt down by the striking farm workers. Also, several farm properties such as packhouses and equipment were damaged. The industry recovered during the 2016/2017 season, as shown by a high RTA value of 12.3, compared to the 2014/2015 and 2015/2016 season, which had RTA values of 12.2 and 11.9 respectively. SATI (2017) noted that table grape producers, marketers and exporters faced many challenges in the 2016/2017 season due to an increase in the world supply. The instability and unfavourable exchange rate was the biggest challenge faced by South African producers. The South African rand was down by 16.42% against the US dollar, 29.33% against the pound and 21.99% against the euro when compared to the previous season. The exchange rate appeared to be the biggest factor that had a negative effect on the farm gate income during the preceding season (SATI, 2017).

5.2.2 A relative comparison of South African table grape performance and its global competitors

This sub-section compares the competitive performance of the South African table grape industry with other table grape-trading countries (Northern Hemisphere and Southern

Hemisphere countries) competing in the global market. The RTA method was again used to determine this competitive performance. Measuring competitiveness using the RTA method allows for a relative comparison amongst nations because it measures the exports and imports of a nation in relation to global exports and imports. The RTA measurement gives an indication of the competitive performance of a selected industry in the context of its own, wider national economy, and also in the context of globally competing industries. It is worth noting that the RTA values are thus affected by the different sizes of economies and should thus not be viewed as an absolute comparison; rather, competing industries should be compared in the context of their own economies (Valentine & Krasnik, 2000).

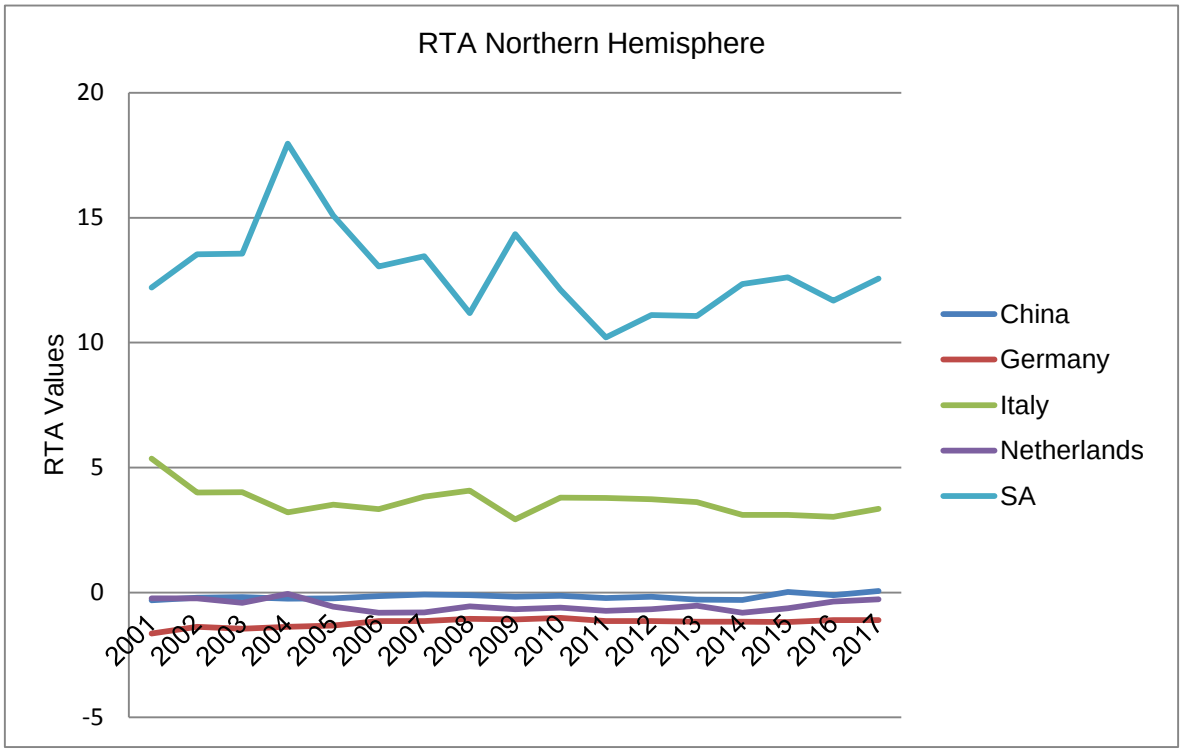

Figure 5.3: Table grape ITC trends: SA compared with NH countries

Source: Author's own calculations based on data from ITC (2018)

Based on Figure 5.3 above, there is a clear indication that the South African industry relatively outperformed the table grape industries in all the countries in the Northern Hemisphere. Countries like China, the Netherlands and Germany showed RTA values below zero, meaning that they are uncompetitive. This could be due to the fact that countries like China are the world's largest producer of table grapes; however, due to the massive domestic market, the country exports only about 2% of its produce (FPEF, 2016). Italy, on the other hand, also showed positive trends, which indicates competitive performance, since all its RTA values from 2001 to 2017 have always been above three (3). It should be noted

that Italy is in direct competition with South Africa, as it exports its table grapes to the same markets, such as Germany and France. For the past five years, Italy's share in value has surged; for example, it was 26.8% in 2013, 25.7% in 2014, 30.3% in 2015, 31.3% in 2016 and 31.6% in 2017. According to Fresh Plaza (2015), the decrease in the total amount of grapes exported in Italy was a result of a decrease in the number of hectares planted in Apulia, which is one of the high-producing regions. The quantity exported to Germany by Italy in 2014 declined to 103 324 tonnes, while it was 117 149 tonnes in 2013. This gave South Africa an opportunity to increase its exports to Germany during that period, since South African exports to Germany increased from 11 049 tons in 2013 to 13 630 in 2014 (ITC, 2018).

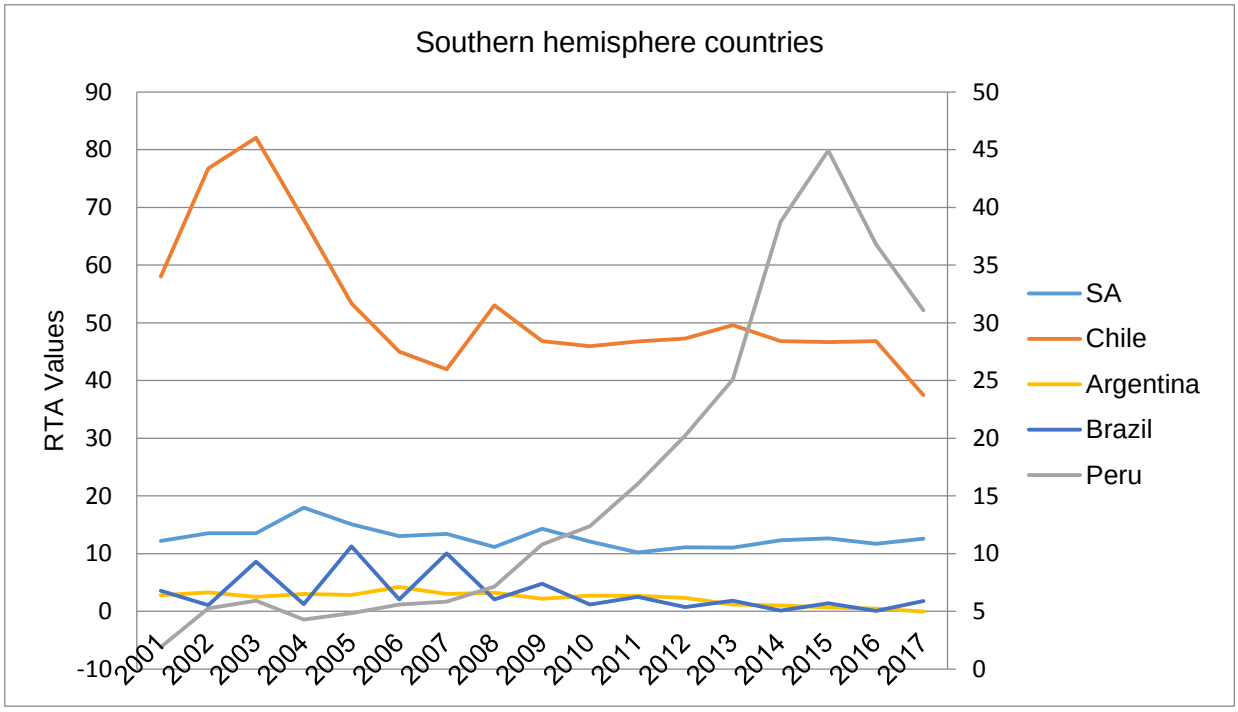

Figure 5.4: Table grape ITC trends: Comparison of SA with countries in the SH

Source: Author's own calculations based on data from ITC (2018)

Figure 5.4 above depicts the trends in the competitive performance of South African table grapes compared to other nations in the Southern Hemisphere. Based on climatological factors, these countries are in direct competition with South Africa. These countries were selected based on their performance according to the ITC (2018). They are among the top exporters of table grapes in the Southern Hemisphere and supply the same markets as South Africa. When a comparison is made, it is quite clear that all the countries in Figure 5.4 are competitive, with an exception of Brazil, which is marginally competitive, as its RTA values range between 0 and 1. Peru shows interesting trends as a top performer with Chile.

Peru's competitive performance trend started off slowly, being marginally competitive in 2001, when it had an RTA value of 1.91. It has since been growing to a point of showing higher competitive trends than many other countries in the Southern Hemisphere. In 2001, the total number of table grapes exported by Peru amounted to 11 620 tonnes and, in 2017, an amount of 652 390 tonnes were exported. According to Siekman (2016), the success of table grapes in Peru can be attributed to strong collaboration between the public and private sectors. Having clear policies in place has resulted in permanent farming entrepreneurship and investment. On the other hand, Chile generally outperformed all the countries over the long run, with no RTA value less than 35 from 2001 to 2017. There are many factors contributing to Chile's consistent high competitive performance trends. Ojeda (2017) says that temperatures and favourable weather conditions also play a significant role in Chile's economic success with table grapes, as these increase output.

South Africa has the third highest RTA after Chile and Peru. It has been showing positive RTA values since 2001, with an average of 12. In 2004 and 2009, South Africa showed the highest RTA values, of 17.96 and 14.34 respectively. The RTA values for South Africa have been fairly stable over the years; this means that, even though it is doing well, there are lessons that can be learnt from other countries to further increase its performance.

Comparisons with related industries: Figure 5.5 below depicts the competitive performance of South African grape juice against countries in the Northern Hemisphere. From the results shown above, it is clear that South Africa has a competitive disadvantage in terms of grape juice, as it has been showing negative values in the last four years. From 2002 to 2005, positive RTA values that were more than 1 indicated that South Africa had a competitive advantage. Most of the South African grape juice was being exported to Japan, with 5 466 tons exported in 2002. However, over the years, a drastic decline in South African fruit juice has been witnessed, with a lowest quantity of 394 tons exported to Japan in 2016. A total of 1 791 tons of grape juice were exported in 2017. Spain showed high RTA values, with a highest value of 19.7 recorded in 2017. The second country that showed positive values is Italy. Both the UK and USA revealed a competitive disadvantage in grape juice. The results support the observations by Angala (2015), Dlikilili (2018), Sibulali (2018) and Van Rooyen *et al*. (2011) that, as one moves down the value chain, the competitiveness in the SA agribusiness environment declines.

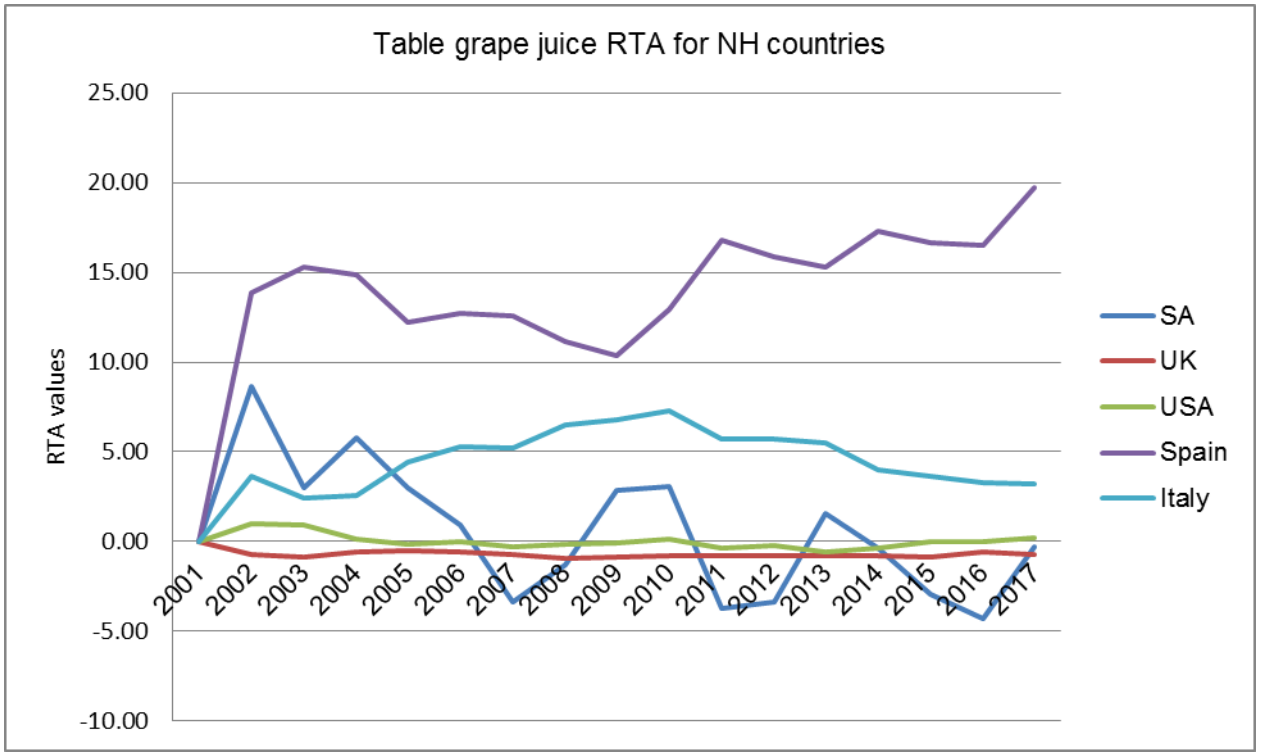

Figure 5.5: Comparison of SA grape juice with that of NH counties

Source: Author's own calculations based on ITC (2019) data

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SA	0.00	8.6773	2.99007	5.7495	2.96444	0.89261	-3.3392	-1.2866	2.81812	3.08771	-3.7521	-3.3522	1.54794	-0.4007	-2.9672	-4.2667	-0.293
UK	0.00	-0.7208	-0.857	-0.5892	-0.4941	-0.5843	-0.746	-0.9461	-0.8661	-0.7988	-0.801	-0.8061	-0.7949	-0.815	-0.8584	-0.5956	-0.7197
USA	0.00	1.01279	0.93098	0.14306	-0.157	-0.0265	-0.2659	-0.1374	-0.056	0.14186	-0.3795	-0.2518	-0.5825	-0.337	0.00855	-0.0173	0.22426
Spain	0.00	13.8638	15.2882	14.8981	12.2463	12.7221	12.5999	11.1465	10.333	12.9671	16.7793	15.8513	15.2562	17.2906	16.6669	16.4962	19.7116
Italy	0.00	3.61444	2.38616	2.53755	4.42478	5.25666	5.23192	6.48081	6.75481	7.26789	5.71007	5.71765	5.51117	3.97457	3.64776	3.26673	3.23485

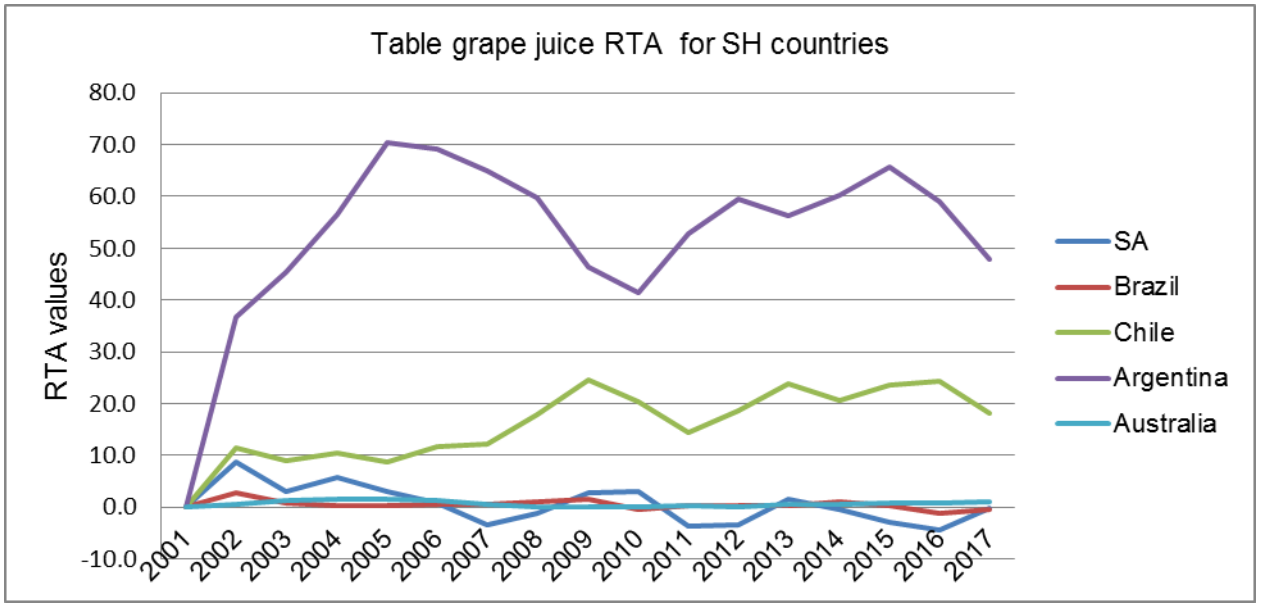

Figure 5.6: Comparison of SA grape juice with that of SH counties

Source: Author's own calculations based on ITC (2019)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SA	0.0	8.7	3.0	5.7	3.0	0.9	-3.3	-1.3	2.8	3.1	-3.8	-3.4	1.5	-0.4	-3.0	-4.3	-0.3
Brazil	0.0	2.9	0.9	0.2	0.4	0.6	0.7	1.0	1.7	-0.3	0.4	0.3	0.3	1.0	0.4	-1.2	-0.5
Chile	0.0	11.5	8.9	10.4	8.6	11.6	12.1	17.9	24.6	20.4	14.4	18.6	23.8	20.7	23.6	24.4	18.1
Argentina	0.0	36.8	45.3	56.5	70.4	69.1	64.9	59.8	46.5	41.4	52.8	59.5	56.2	60.1	65.6	59.0	47.9
Australia	0.0	0.7	1.2	1.6	1.5	1.3	0.7	0.2	0.0	0.0	0.2	0.2	0.5	0.5	0.8	0.9	1.0

Figure 5.6 reveals that the two countries that have a competitive advantage in grape juice are Argentina, with the highest RTA value of 47.9 recorded in 2017, followed by Chile, with 18.1. South Africa and Brazil showed a competitive disadvantage, with negative RTA values of -0.3 and -0.5 respectively. Australia, on the other hand, is marginally competitive, as indicated by values ranging between 0 and 1. Based on the above figures, it can be concluded that South Africa is more reliant on imports of grape juice, mainly from Argentina and Italy. This warrants an investigation to determine the reasons for the competitive disadvantage of South African grape juice and devise possible ways to remedy the situation.

5.3 IDENTIFYING THE FACTORS INFLUENCING THE COMPETITIVE PERFORMANCE OF THE SOUTH AFRICAN TABLE GRAPE INDUSTRY (ANALYTICAL FRAMEWORK STEP 3)

The analysis of table grape performance conducted in sections 5.3 and 5.4 reveals that the South African table grape industry is globally competitive, as shown by RTA values above one (1). However, this does not explain in detail why, for example, the industry is competitive and why there are fluctuations in this performance? Furthermore, it does not propose new strategies that can be employed to ensure that the industry improves or maintains its competitive status. To advance the analysis in order to accommodate such strategic dimensions, primary data based on expert opinions from relevant industry players was collected by applying a Delphi process. A general survey questionnaire (TGES, see Appendix A) was first designed and pilot tested in collaboration with South African Table Grape Industry (SATI) members. This questionnaire was structured to accommodate the Porter competitive diamond model to gather information from selected industry executives, experts and leaders on factors that enhance and/or constrain the competitive performance of the industry. The target group was selected from the table grape value chain, viz. input producers, packers, processors, exporters and/or marketers. These respondents were asked to rate the current impact of the various factors based on their experiences and views.

5.3.1 Descriptive analysis

This study was conducted with the support of the South African Table Grape Industry. The first step towards undertaking the Delphi analysis was identifying the respondents within the table grape value chain, ranging from producers to exporters. The questionnaire was designed using six determinants in the form of the Porter competitive diamond model, namely production factors; demand factors; related and supporting industries; firm strategy, rivalry and structure; government support and policies; and chance factors. After a pilot

study with SATI officials, the questionnaire was distributed to the respondents in the Western Cape and Northern Cape via e-mail for them to give their expert opinions on the competitive performance of the table grape industry. They were requested to rate the impact of each question on a scale ranging from 1, denoting less competitive, to 5, denoting highly competitive.

5.3.2 Identifying and rating factors affecting competitive performance

A total of 107 factors were identified as affecting competitive performance. Figure 5.7 below reveals the impact rating of each identified factor, as highlighted in blue lines.

The total number of factors rated was 107. Of the 107 factors, 45% were viewed as ones that enhance he competitive status of table grapes in South Africa, 53% were factors that were rated lower, indicating that they constrain the competitiveness of the table grape industry in South Africa, and only 2% were rated neutral. The fact that only 2% of questions were regarded neutral denotes the relevance and validity of the questions that were asked to the respondents on the impact of the various factors for the analysis of this study.

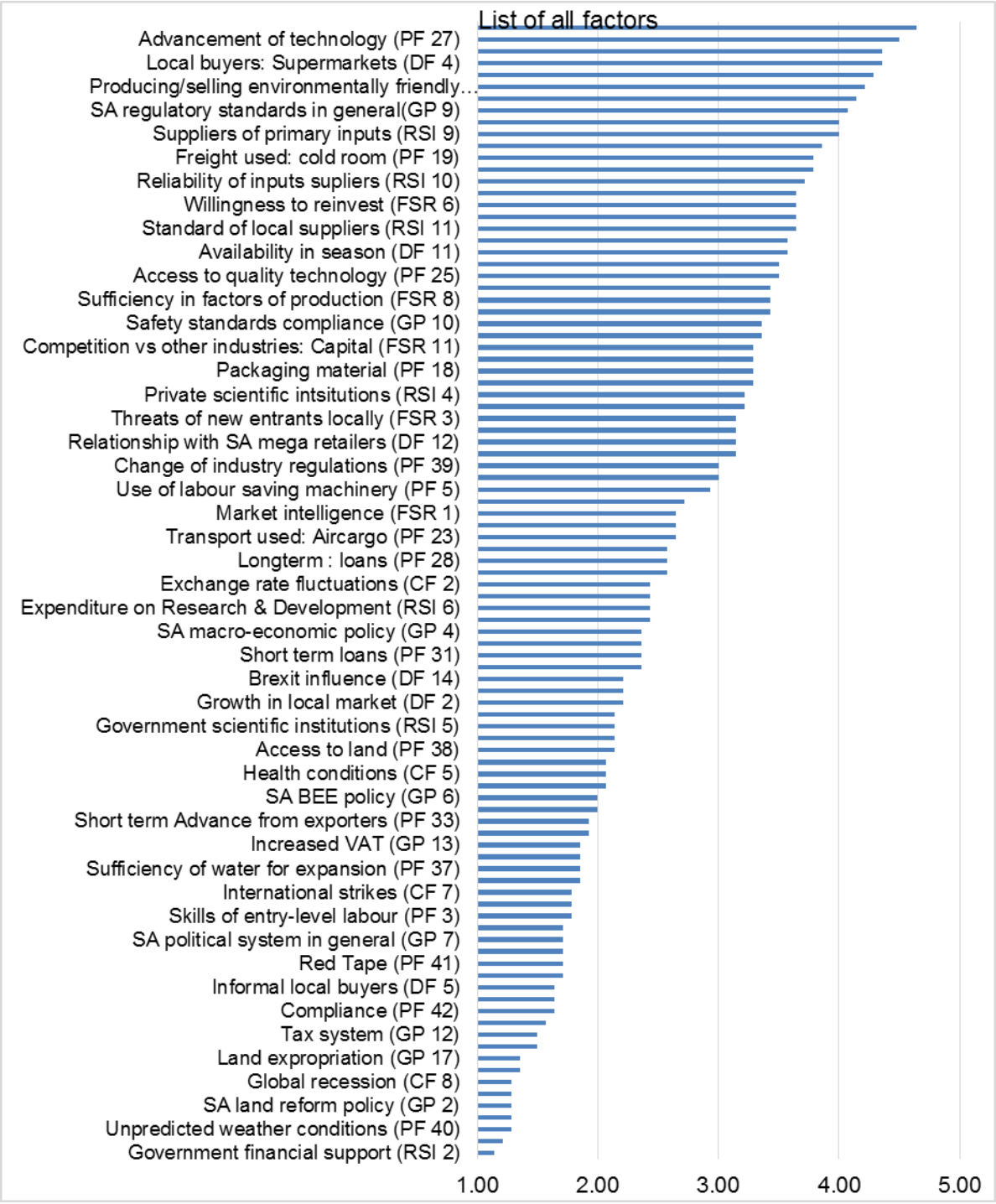

Figure 5.7: Impact rating of factors affecting the competitive performance of the SA table grape industry

Source: Own calculations

Ratings: 1 = most constraining; 3 = neutral; 5 = most enhancing

Note: The 107 factors could not all be shown above due to a large dataset, but they are all shown in Appendix A.

5.3.3 Top factors that enhance and constrain the South African table grape industry

Table 5.1 below depicts the factors that enhance and constrain the competitiveness of the table grape industry in South Africa.

Table 5.1: Top ten factors enhancing and constraining the table grape industry

Enhancing factors		**Constraining factors**	
Importance of well-developed infrastructure	4.64	International competition	2.57
Advancement of technology	4.50	Insufficient water supply for expansion	1.86
Local buyers: Supermarkets	4.35	Quality of labour skills	1.79
Current exchange rate	4.00	Uncertain Land reform policies: Potential land expropriation	1.35
Product traceability system	4.35	Local market size	1.35
Value of research available	4.28	Crime situation	1.28
Suppliers of primary inputs	4.00	Government financial support	1.28
Producing/selling environmentally friendly product	4.21	Global recession	1.28
Innovation	3.86	Unpredictable weather conditions	1.28
Reliability of input suppliers	3.71	Cost of infrastructure	1.21

Source: Own calculations based on the TGES

Ratings: 1 = most constraining; 3 = neutral; 5 = most enhancing

As indicated on Table 5.1 above, factors such as the advancement of technology, together with innovation and research, having a well-developed infrastructure, and the link to local supermarkets have a positive influence on competitiveness. This means that the standard of these factors needs to be maintained at all times in order to remain competitive. On the other hand, the top constraining factors include local market size, SA trade policy, cost of

infrastructure and aspects related to South Africa's uncertain land reform policy. Some of the constraining factors are beyond the control of an individual firm and therefore require a collective effort from the industry and the South African government. The fierce international competition is viewed as a constraint, indicating the context created by some of these types of constraints, e.g. "it is difficult to compete when factors out of the industry and/or firm control impact negatively on business prospects".

5.4 COMPETITIVENESS DETERMINANTS: CONSTRUCTING THE PORTER COMPETITIVE DIAMOND MODEL (STEP 4)

A more structured and competitiveness-focused approach is required to interpret these ratings in terms of a strategic approach (Porter, 1998). Factors identified in step 3 were thus grouped and clustered according to the Porter competitive diamond model into its respective determinants, namely production factors, demand factors, firm strategy, structure and rivalry, related and supporting industries, chance factors, and government support and policies. An average rating for each determinant was calculated.

Table 5.2: Average impact scores of Porter's model determinants

Porter determinants	Average factor score
Production factors	2.78
Demand factors	2.75
Related and supporting industries	2.88
Firm strategy, structure and rivalry	3.45
Chance factors	2.3
Government support and policies	2

The results shown in Table 5.2 above are illustrated in the radar chart in Figure 5.8 below.

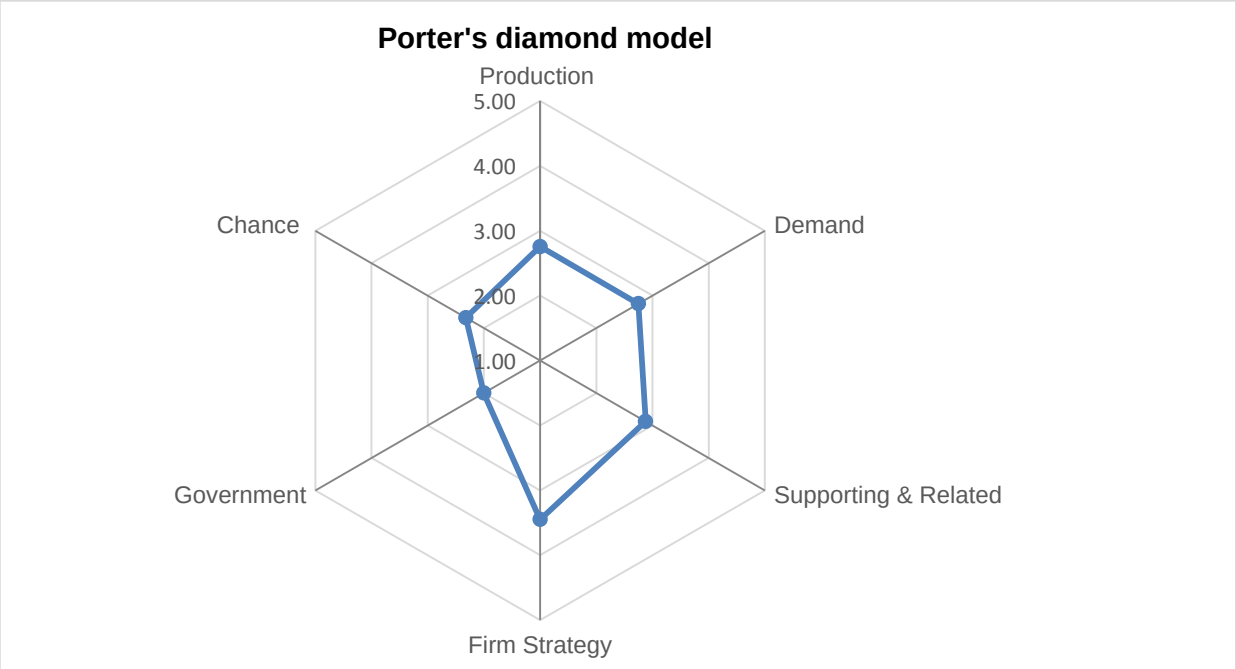

Figure 5.8: Impact rating scores of Porter's diamond

Source: Table Grape Executive Survey

Firm strategy and rivalry was rated at 3.45/5 as the main determinant that enhances the table grape industry, with some support from related and supporting industries (2.88), demand factors (2.75/5) and production factors (2.78/5). This is a logical finding in the context of the high level of competitiveness ratings (RTA), as other factors such as government (2.0/5) and chance factors (2.3/5) have a negative impact. This negative impact thus needs to be countered through firm-level strategies and industry structure.

5.4.1 Principal component analysis (PCA) to determine variations and alignment in the table grape industry

The PCA was performed for all Porter's determinants independently. This was done in order to determine the highly correlated factors within a particular determinant, i.e. factors in the dataset for which the individual responses were very similar and concentrated on a particular rating, as well as uncorrelated factors, i.e. factors for which respondents gave a more variable range of rating values. The highly correlated factors are presented in Table 5.3 below. All the factors that are not presented on Table 5.3 were found to be uncorrelated.

Table 5.3: Summary of principle component analysis (PCA) and impact ratings per Porter's determinant

Highly correlated factors	PCA rating	Impact rating
Production factors		
Cost of technology	0.824	1.43
Qualified and experienced labour	0.776	2.43
Industry effectivity level	0.803	2.21
Access to water	0.694	1.86
Infrastructure	0.630	3.78
Freight used: Cold room	0.803	3.79
Transport used: Ocean cargo	0.669	2.57
Demand factors		
Competition in SH and NH	0.995	1.71
Consumer tastes and preferences	0.607	3.50
Relationship with mega-retailers	0.638	3.40
Growth in local market	0.786	1.36
Related and supporting industries		
Private scientific institutions	0.697	3.21
Firm strategy, structure and rivalry		
Product traceability system	0.995	4.36
Willingness to take risks	0.997	3.29
International competition	0.793	4.57
Willingness to re-invest	0.955	3.64
Market intelligence	0.961	3.00
Competition in resources vs. other industries	0.939	3.43
Government support and policies		
Agri-BEE policy	0.829	2.00
Water Regulation Act	0.786	2.08
Administrative regulations	0.771	2.14
SA political system	0.753	1.77
SA land reform policies	0.875	1.29
Chance factors		
Exchange rate	0.866	4.00
Global recession	0.515	1.29

This process was crucial for the questionnaire refinement required for the second Delphi round. Only the highly correlated factors per determinant were taken for further exploration in the second Delphi round. These factors did not necessarily receive a high impact rating from the respondents, as the PCA identified consensus in ratings between respondents, not impact.

Factors that showed a high degree of variation in opinion between respondents were regarded as uncorrelated and were not considered for the second Delphi round. However, these factors do provide valuable insight into industry opinion. A high degree of variation indicates that different players across the value chain experience the factor from opposing perspectives. These findings could be used for further exploration and discussion to determine whether interventions could shift those respondents being constrained by a particular factor to instead be enhanced by that factor. This, however, will be left for future research, as this study focused only on determining the relevance of the factors with a high degree of consensus. The results obtained under each determinant of Porter's competitive diamond are discussed separately below.

5.4.2 Analysis of each Porter's determinant

5.4.2.1 Production factors

Figure 5.8 below reveals the results of the Table Grape Executive Survey (TGES) for the rated production factors. Factors that were highly rated include the importance of well-developed infrastructure, the advancement of technology and the value of the available research. These results are supported by New Competitiveness Theory (Porter, 1990), which highlights that factors such as innovative infrastructure and technological advancement are important for industries to achieve their competitive advantage. Since the industry experts also indicated that the available research is important for the enhancement of the competitive status of the industry, as denoted by an impact rating of 4.28 out of 5, it means that the respondents find the quality of research available in the table grape industry valuable. The Agricultural Marketing Resource Centre (2019) also emphasises the importance of research in any industry and notes that, in terms of table grapes, research becomes critical, especially when new plantings are being established. They note that it is important to establish varieties that are in demand and also to form solid relationships with the buyers before planting, because once a mistake is made it may take ten years or more to be rectified. The industry experts highly rated the advancement of technology as a factor that enhances the industry to be competitive. However, they indicated that, even though it is

important to have advanced technology, its cost is very high and this is financially constraining, especially as South Africa relies on imported technology.

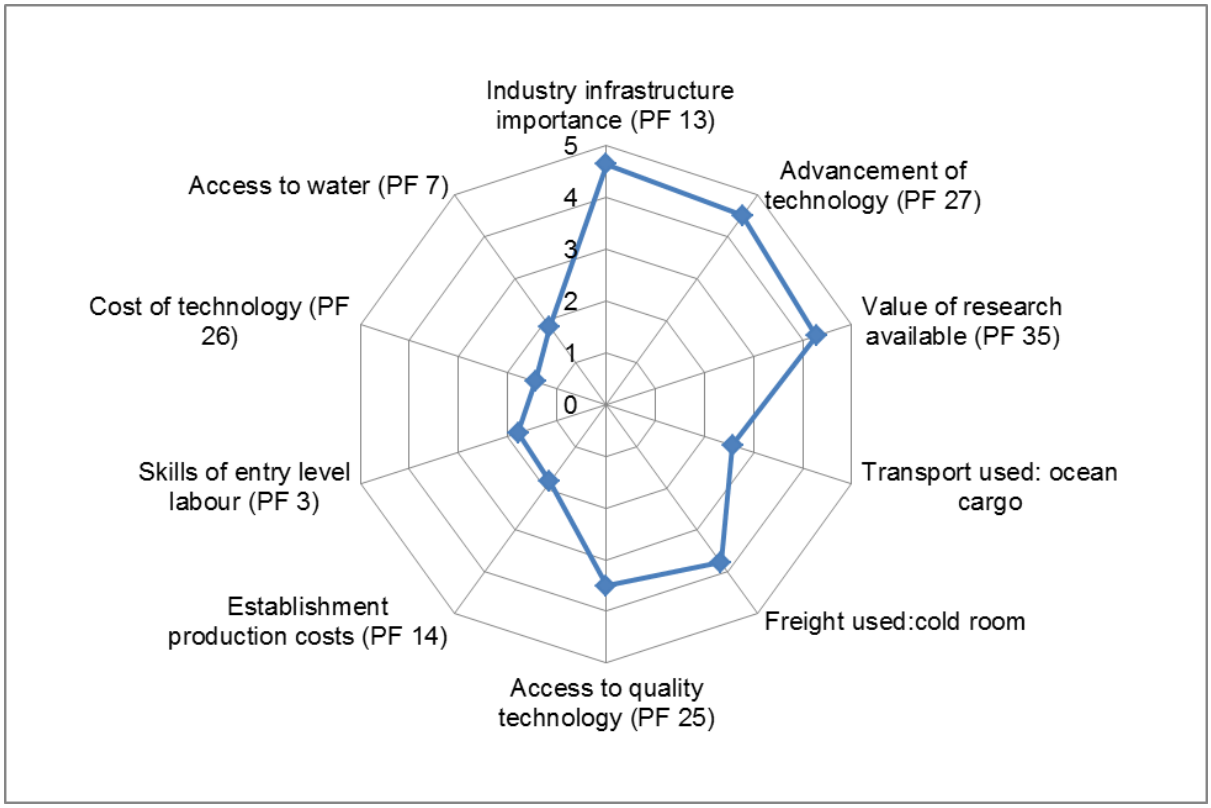

Figure 5.9: Production factors determinant directing the competitive status of the industry

Source: Own calculations based on the TGES

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

Establishment production costs and electricity costs are amongst the factors that were viewed by the industry experts as a constraint to the competitiveness of the industry. Angala (2015) notes that the costs of on-farm infrastructure and farm production-related activities require approximately ten years of farm operations before breakeven point can be achieved. VinPro (2009) supports this by noting that the average costs relating to the establishment of wine grapes in 2008 amounted to approximately 70% of annual running costs. Also, since 2004, the average production cost for the whole industry has increased by 24% to R23 578 per ha. These production factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

Principal component analysis (PCA) was performed to determine whether there was consensus or variation in the responses to questions in the TGES under the determinant of production factors. This was done in order to identify highly correlated variables, i.e. factors in the dataset that were rated similarly by the respondents – to be viewed as 'consensus' factors. Furthermore, the uncorrelated variables, or 'variation' factors, i.e. factors in the dataset that received different ratings from the respondents, were also analysed. A factor was regarded as highly correlated or 'consensus' if the factor loading for it was 0.40 or above, and the uncorrelated factors were those that revealed a factor loading less of than 0.40.

The results from the PCA revealed that highly correlated - consensus- factors included cost of technology, experienced and qualified labour, access to water, industry infrastructure, transport used, i.e. ocean cargo. Other factors under this determinant were uncorrelated. It is important to note that 'variation' in the case of this study does not indicate that the 'uncorrelated' factors are invalid; it merely indicates that there are differences in views on them that would require a deepening of the analysis in which cluster analysis can be applied using a larger sample size.

5.4.2.2 Demand conditions

Demand conditions refer to the nature of demand for a particular product or service of a particular industry, and the ability to have this demand recorded. This may include the recording of demand composition, size and volume of the local and international market buying the product. During the TGES, the respondents were requested to rate factors that enhanced and constrained competitive status under the determinant. The results shown in Figure 5.9 below indicate that the respondents were positive about the local buyers in supermarkets and their adaptability to new cultivars, which received an impact rating of 3.4 and 3.14 out of 5 respectively. The respondents mentioned that, although the local market demand is small, the industry can access the local market lucratively through supermarkets such as Woolworths and Pick n Pay, since consumers are willing to pay for high-quality products. Furthermore, the industry indicated that, since there are new cultivars that are introduced to the market, the local market responds positively to them. The international market also received a high impact rating, of 3.5 out of 5, which also reflects that the industry can access global table grape markets lucratively, given that the country produces a high quality of table grapes that are in demand in various markets and does so through the use of effective marketing channels.

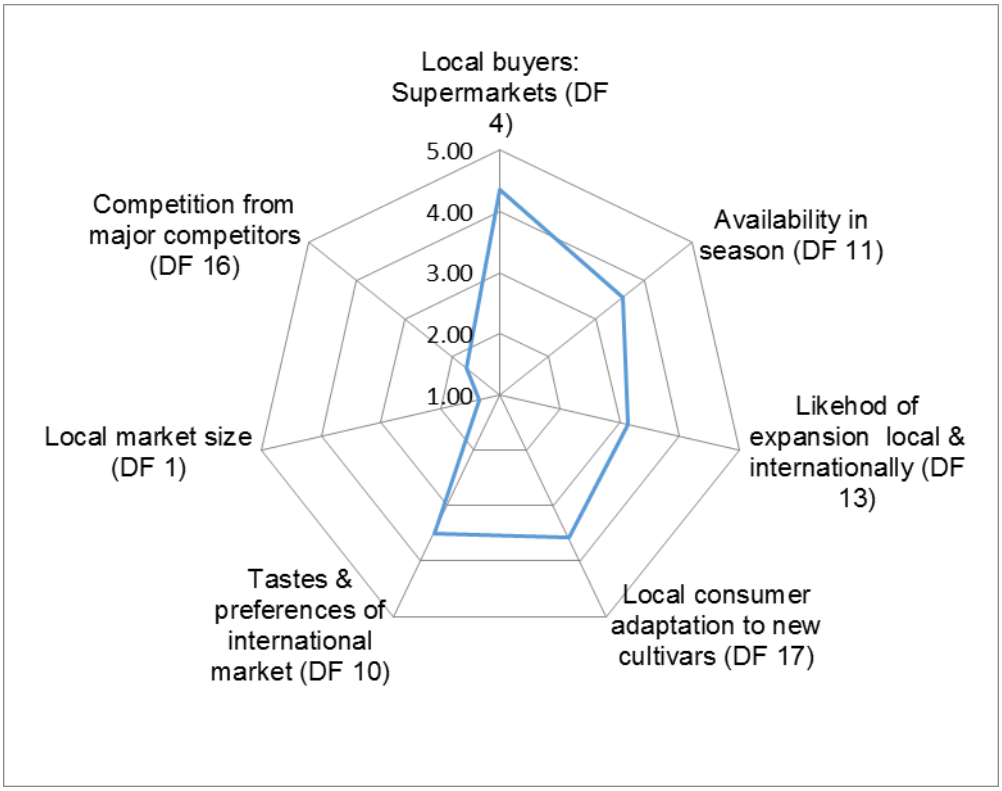

Figure 5.10: Demand factors determinant directing the competitive status of the industry

Source: Own calculations based on the TGES (2019)

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

Factors that were viewed by the respondents as constraining the table grape industry included competition in both the Northern and Southern Hemisphere, with an impact rating of 1.71. This can be attributed to the same markets being supplied in the same season by countries such as Italy and Peru. The results from the ITC (2019) reveal that Peru is one of the leading producers of table grapes in the Southern Hemisphere and that the country experiences good climatic conditions, which enable its vines to mature 55% faster than those in neighbouring countries. A report by Kotze (2019) mentions that many South African table grape producers have indicated that the level of competition in the global grape market has intensified, with Peru doubling its exports to Europe and India entering the market a bit earlier every year. The industry is also concerned about growth in the local market size, as this factor received an impact rating of 1.36. It is assumed that many South African consumers perceive table grapes as a luxury good that is only suitable for the international market, and they therefore do not buy much of this product. This is supported by the FPEF (2016), which mentioned that more than 90% of the total table grapes produced in South

Africa are supplied to the international market, with the focus on these markets and not on local conditions. The demand factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

Principal component analysis (PCA) was performed to determine whether there was consensus or variation in the responses to the questions in the TGES under the determinant of demand factors. This was done in order to identify highly correlated variables, i.e. factors in the dataset that were rated similarly by the respondents – to be viewed as 'consensus' factors. Furthermore, the uncorrelated variables, or 'variation' factors, i.e. factors in the dataset that received different ratings from the respondents, were also analysed. A factor was regarded as highly correlated or 'consensus' if the factor loading for it was 0.40 or above, and the uncorrelated factors were those that revealed a factor loading of less than 0.40.

The PCA results reveal that, irrespective of the position of the respondents in the value chain, there were a few variables that were considered to be highly correlated. These include competition from major competitors, consumer tastes and preferences, relationship with mega-retailers and growth in the local market The respondents varied in all other factors, such as availability in season and local market volume growth.

5.4.2.3 Related and supporting industries

Competitiveness is enhanced by related and supporting industries, as they play a crucial role (Dlikilili, 2018; Mashabela, 2007; Porter, 1998). The results for this determinant are shown in Figure 5.10 and are discussed below.

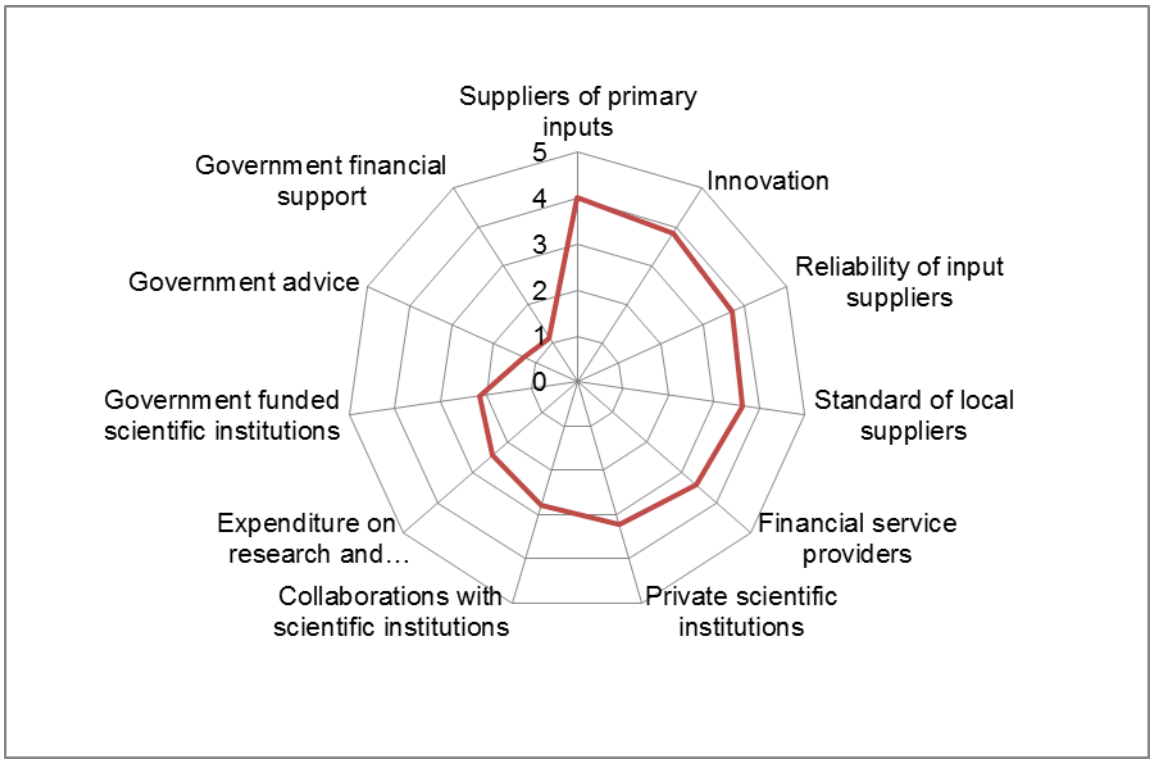

Figure 5.11: Related and supported industry determinant directing competitive status of the industry

Source: Own calculations based on the TGES

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

The factors relating to government support were all rated low, which indicates that they constrain the competitiveness of the industry. These constraining factors would benefit from sound government intervention, as they cannot be rectified by the industry on its own. The industry experts felt that there was insufficient government expenditure on research and development, as denoted by an impact rating of 2.42. Furthermore, it was clear that the industry experts preferred the research to be conducted by private institutions like the South African Table Grape Industry (SATI), rather than by government-directed research institutions. This is denoted by a rating of 3.21 for privately funded research institutions and 2.14 for government-funded institutions, as indicated in Table 5.5 above. These results are in line with studies that have been conducted on the competitiveness of South African fruit, which also reveal that privately funded research is preferred by the relevant industry (Barr, 2019; Boonzaaier, 2015; Dlikilili, 2018; Esterhuizen, 2006; Jafta, 2014; Sibulali, 2018; Van Rooyen *et al*., 2001). The negative views on government-led research among the industry experts is problematic, however, as this sector does have an important role to play in the

support of a public good such as agricultural research (Malich, 2016). Future strategies should thus address such challenges.

The related and supporting industry factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

All the factors under the related and supporting industries were subjected to PCA to determine those that were highly correlated and uncorrelated. Under this determinant, only private scientific institutions (RSI 4) were highly correlated. The experts varied in their responses related to other determinants. This may indicate different views within the industry value chain and will need further investigation. It is important to note that 'variation' in the case of this study does not indicate that the 'uncorrelated' factors are invalid, but that there were differences in views on them and this would therefore require further analysis in which cluster analysis can be applied using a larger sample size.

5.4.2.4 Firm strategy, structure and rivalry

Firm strategy, structure and rivalry focuses on industry conditions that determine how companies are created, organised and managed (Porter, 1990). The rating for this determinant by the industry experts was 3.44 out of 5, which was the highest among all the Porter diamond determinants. This determinant was also found to be the highest in other studies that have been conducted on the SA fruit industry (Boonzaaier, 2015; Boonzaaier & Van Rooyen, 2017; Dlikilili, 2018; Esterhuizen, 2006; Jafta, 2014; Sibulali, 2018; Van Rooyen *et al*., 2011). Abei (2017) and Angala (2015) found the same in the Namibian and Cameroonian fruit industries. Almost all the ratings for factors under this determinant were above 3 out of 5. This indicate that, in a highly competitive trade environment, as is the case for table grapes, industry structure and firm-level strategy needs to be of the highest order to sustain their trade. This finding also confirms the stated definition of competitiveness used in this study. Porter (1990) furthermore mentions that there is no generic managerial philosophy and style that can be regarded as perfect for an industry's or a nation's competitiveness; it rather depends on whether the industry's practice is enabling and efficient to enhance the competitive advantage of that particular industry.

Figure 5.12 below depict the results of the ratings by the industry experts. The factors under this determinant were all rated as highly enhancing the competitiveness of the table grape industry. The openness of the industry to new entrants into the market – as no quotas or

restrictions apply – was highly rated as highly enhancing competitiveness. The experts indicated that this factor motivates the industry participants to perform to the best of their ability and ensures that they gain access to lucrative markets, keep up to date with the latest technology and systems, and ensures that they deliver according to the required international standards and consumer requirements. Furthermore, consumer tastes and preferences are ever changing; therefore, having updated market information was highly rated, as it enables consumer demands to be met.

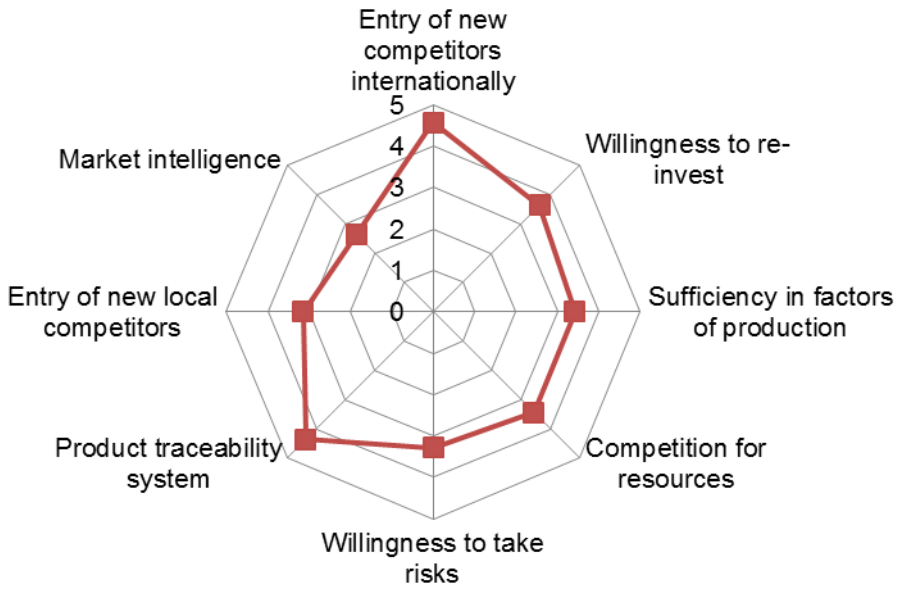

Figure 5.12: Firm strategy, structure and rivalry determinant directing the competitive status of the industry

Source: Own calculations based on the TGES

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

The views of the industry experts are supported by studies that have been conducted in the South African fruit sector. For instance, Jafta (2014) conducted a study on competitiveness in the apple industry that revealed that domestic rivalry enhances competitiveness. Dlikilili (2018) recently conducted a study on the competitiveness of the South African citrus industry, and his results reveal that factors such as new competitors, both locally and internationally, enhance competitiveness. Porter (1990) also explains that there is a strong relationship between domestic rivalry and the competitiveness of any industry, because domestic rivalry exerts pressure on producers to improve their product quality and service in order to improve their competitive status.

The firm strategy, structure and rivalry factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

PCA was performed to determine whether there was consensus or variation in the responses to the questions in the firm strategy, structure and rivalry determinant survey. This was done to identify the highly correlated variables, viz. factors in the dataset that were rated similarly by the respondents – to be viewed as 'consensus' factors; as well as uncorrelated variables, i.e. factors in the dataset that received different ratings from the respondents, to be viewed as ' variation' factors. The results of the PCA reveal that factors such as willingness to take risks, international competition, willingness to re-invest, market intelligence, and product traceability system, were factors that were highly correlated. The uncorrelated factors included ease of entry by new entrants, both locally (3.14) and internationally (3.64). Such ratings might be because some respondents view access to a competitive industry as a necessary ingredient for sustained competitive performance by the various participants, as also noted by Porter (1998). However, others may view such 'easy entrance' by new competitors as threatening. In general, the 'keeping all on their toes view', as an important notion, is supported by the relatively high ratings. It is important to note that 'variation' in the case of this study does not indicate that the 'uncorrelated' factors are invalid, but that there are differences in views on them. This would require further analysis in which cluster analysis can be applied using a larger sample size.

5.4.2.5 Government support and policies

Under the government support and policies determinant, the factors that were rated highly as enhancing the competitiveness of the table grape industry were official SA regulatory standards and safety compliance standards, as denoted by impact ratings of 4.07 and 3.35 respectively. The factors that were rated low, which means that they constrain the industry, are also shown in Figure 5.13 below.

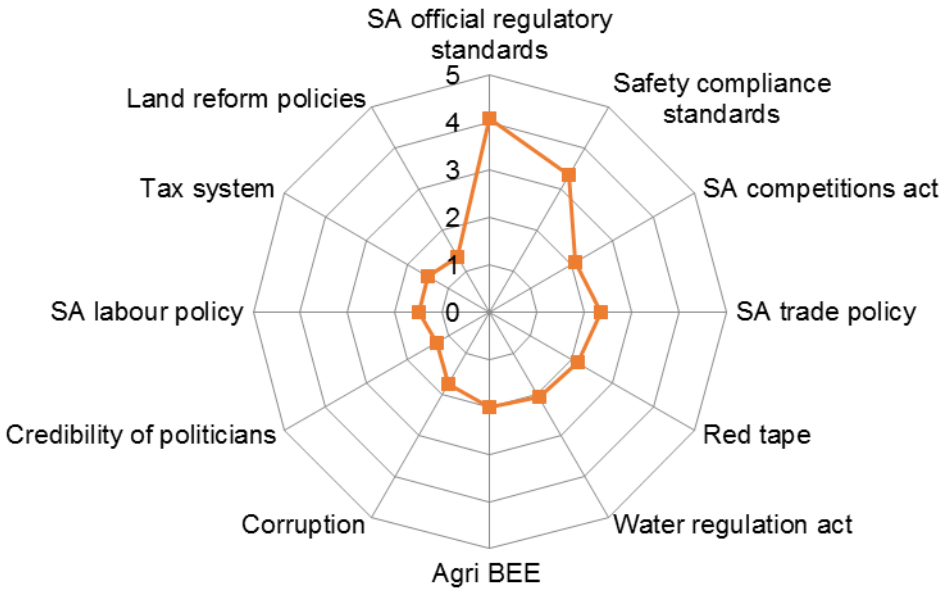

Figure 5.13: Government, support and policy determinant directing the competitive status of the industry

Source: Own calculations based on the TGES

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

These findings are similar to those recently obtained in competitiveness studies by Dlikilili (2018), for citrus, and Sibulali (2018), for subtropical fruit. The uncertain land reform policy was rated 1.34. The industry's concern regarding this factor is about the uncertainty in relation to its implementation. It is viewed as constraining any long-term investments, in particular the focus on expropriation without compensation, and as affecting the competitiveness of the table grape industry negatively. The government is also blamed for the slow and uncertain implementation of land reform in the agricultural sector (BFAP, 2017; Dlikilili, 2018). The application of the Competition Act was also viewed as constraining. Based on the low rating the Competition Act received from the industry, it is assumed that the industry experts might have felt that the Act is not effective enough to allow businesses to improve and develop in order to remain strong competitors in the field.

The government support and policy factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

The PCA analysis was performed for the government support and policy factors and the responses to and ratings of five factors under this determinant were found to be highly correlated. These were SA BEE policy, the Water Regulation Act, administrative regulations, credibility of politicians and land reform policies. The uncorrelated factors under this determinant included compliance with safety and standards, the tax system, the SA Competition Act, SA trade policy and corruption.

5.4.2.6 Chance factors

In Chapter 3, chance factors were explained as factors that refer to events that are often beyond the control of firms or nations (Porter, 1998). These factors include, but are not limited to, new disruptive technologies; political unrest; environmental events such as droughts, storms, hail, currency fluctuations; and health crises. It is said that these factors may impact dramatically on competitiveness, may cause the restructuring of an industry, and will require innovative business models and management strategies, and therefore they play a significant role in influencing the competitiveness of the industry (Mashabela, 2007; Van Rooyen *et al.,* 2011).

When the industry experts were presented with a list of chance factors to rate from 1 to 5, the current exchange rate was highly rated as a factor that enhances competitiveness in the table grape industry. The results are no surprise, since the table grape industry is export oriented and a drop in the value of the rand generally favours the export trade. However, fluctuations in the exchange rate were rated as 2.07, which indicates that it constrains competitiveness as it creates uncertainty and unpredictability in relation to prices, costs and investments. The view of industry experts is supported by Esterhuizen and Van Rooyen (2008, 2012), who indicated that the rand is one of the factors that constrain the competitiveness of agribusinesses in South Africa. The industry experts indicated that, even though experts who export their products benefit from the depreciation in the rand, those who are importing production inputs or machinery are affected negatively. Such currency fluctuations furthermore affect those in the value chain differently, depending on the stage of operation. Factors under this determinant are illustrated in Figure 5.14 below.

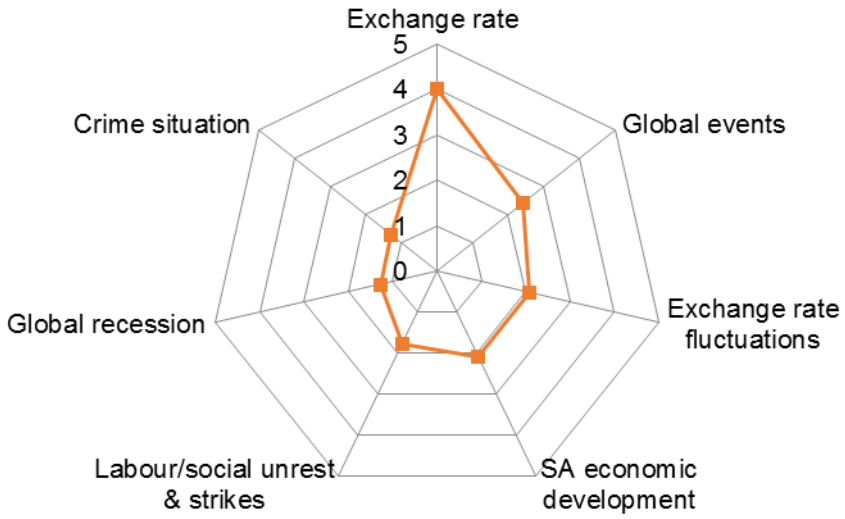

Figure 5.14: Chance factors determinant directing the competitive status of the industry

Source: Own calculations based on the TGES

Notes: 1 = constraining; 3 = neutral; 5 = enhancing

Additional factors that were highlighted by industry experts as negatively influencing the competitiveness of the industry include the global recession, labour/social unrest and strikes, and crime, with impact ratings of 1.29, 1.78 and 1.28 respectively.

The chance factors were also analysed using principal component analysis to determine consensus or variation in the responses of the experts. The results are explained below.

Principal component analysis

In order to determine whether the views of the respondents pertaining to chance factors of the survey were consensus or varied, a principal component analysis (PCA) was performed. It was discovered that only two factors were highly correlated, namely the exchange rate and the global recession. The views of the respondents varied in terms of factors such as labour/social unrest and strikes, crime, competitors' unfortunate events, health conditions, and SA economic development, which means that there could be discrepancies within the industry value chain that will constrain co-ordinated decision-making. It is important to note that 'variation' in the case of this study does not indicate that the 'uncorrelated' factors are invalid. Rather, it indicates that there were differences in views on them and this would require further analysis in which cluster analysis can be applied using a larger sample size.

5.4.3 Cronbach's alpha applied to correlated factors

Cronbach's alpha was used to determine the internal consistency or reliability amongst the identified correlated factors. Internal reliability seeks to clearly define the level at which all the items in question measure the same concept or construct, and hence it is connected to the interrelatedness of the items within the test (Tavakol & Dennick, 2011). Determining the reliability of the instrument is one of the final steps in arriving at step 5, which deals with the development of strategies.

Table 5.4: Results from the Cronbach's alpha of correlated factors

Cronbach's alpha	Cronbach's alpha based on standardised items		No. of items	
.739	.682		27	
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Competition from major competitors (DF 16)	79.00	130.833	-.352	.756
Consumer tastes and preferences (DF 10)	77.31	114.897	.467	.721
Product traceability system (DF 8)	76.38	115.756	.219	.736
Relationship with mega-retailers (DF 12)	77.69	106.731	.664	.703
Growth in local market (DF 2)	78.69	122.231	.083	.742
Local buyers	79.08	122.910	.099	.740
Exchange rate (CF 1)	76.85	123.308	.127	.738
Global recession (CF 8)	79.54	126.436	-.112	.744
Willingness to take risks (FSR 7)	77.38	111.923	.422	.720
International competition (FSR 4)	76.38	123.756	.069	.741
Willingness to re-invest (FSR 6)	77.15	126.808	-.101	.752
Market intelligence (FSR 1)	78.00	116.167	.483	.722
Competition vs. other industries: Land (FSR 9)	78.31	129.731	-.197	.764
Freight used: Cold room (PF 19)	77.00	106.333	.585	.706
Cost of technology (PF 26)	76.31	120.897	.289	.732
Industry efficiency level (PF 15)	77.54	119.103	.167	.739
Transport used: Ocean cargo(PF 22)	78.08	109.410	.424	.719
Transport used: Air cargo (PF 23)	77.92	106.077	.574	.706
Freight used: Ship container (PF 20)	77.62	108.590	.573	.709
Industry regulation changes (PF 39)	77.85	107.474	.486	.713
Qualified and experienced labour (PF 1)	78.31	116.564	.347	.727
Access to water (PF 36)	78.38	108.923	.481	.714
Infrastructure (PF 8)	77.00	112.833	.458	.719
SA BEE policy (GP 6)	78.69	126.231	-.075	.746
Water Regulation Act (GP 16)	78.77	120.692	.174	.737
Administrative regulations (GP 11)	78.54	119.603	.149	.740
SA land reform (GP 2)	79.46	125.269	-.010	.743
Private scientific research institutions (RSI 4)	77.54	120.269	.170	.737

Source: Own calculations based on the TGES

Cronbach's alpha was calculated to determine the reliability of the TGES questionnaire. The 27 factors as shown in Table 5.4 that were found to be highly correlated during the PCA analysis were assessed and they ensured enough datapoints to give a balanced alpha value (Tavakol & Dennick, 2011). Cronbach's alpha has a maximum value of 1, which represents the highest level of interrelatedness. The alpha value for the TGES was found to be 0.739, which falls within the spectrum of 0.7 to 0.95, which indicates that the questions were sufficiently interrelated, but still varied (Tavakol & Dennick, 2011).

5.4.4. Rating of relevance and impact: Round two Delphi analysis

This process was performed in order to indicate relevance – how important for the immediate vz longer term impact, i.e. what the implications would be. This created a decision-making matrix indication: important for now but little impact; important for now with a big impact; can have a big impact but not relevant for now; and small impact but relevant in the run. The results from round 1 after PCA was conducted were again communicated to the same experts who participated in round 1 to rate the degree of relevance of these factors to the respective elements of Porter's diamond model. The questionnaire was drafted using the Likert scale of 1 to 5 that was used during round 1. In this case, a rating of 1 signified 'no relevance' of the factor, and 5 represented 'high relevance' of the factor to the competitive status of the industry. The response rate from the experts was 71%, which was deemed sufficient to continue with the analysis. The results are illustrated in Table 5.5 and Figure 5.15 below.

This study employed the Delphi method, and it was indicated in Chapter 4 that the Delphi method allows two or more discussion rounds. For this study, a third round was not considered due to insignificant changes in the standard deviations obtained. This implies that the ratings of the respondents in round 2 did not vary much from those in round 1 (see Table 5.5 below).

Table 5.5: Impact and relevance ratings in round-two Delphi analysis

	Round 1		Round 2	
	Impact rating	Standard deviation	Relevance rating	Standard deviation
Production factors				
Freight used: Cold room (PF 19)	3.79	1.166	3.20	1.48324
Technology (PF 26)	4.29	.488	3.00	.70711
Industry efficiency level (PF 15)	3.54	1.301	3.40	.54772
Transport used: Ocean cargo(PF 22)	2.57	1.548	3.80	.83666
Transport used: Air cargo (PF 23)	2.85	1.463	1.80	.44721
Freight used: Ship container (PF 20)	3.21	1.281	4.00	1.00000
Long-term loans (PF 28)	2.57	1.548	4.00	1.00000
Industry regulation changes (PF 39)	2.92	1.553	2.60	.54772
Qualified and experienced labour (PF 1)	2.43	.900	3.20	.83666
Water access (PF 36)	2.36	1.446	4.20	.44721
Infrastructure (PF 8)	3.79	1.166	3.80	.44721
Demand factors				
Consumer tastes and preferences (DF 10)	3.50	.967	4.00	.70711
Relationship with mega-retailers (DF 12)	3.38	1256	3.80	.83666
Growth in local market (DF 2)	2.08	1.115	3.40	.54772
Related and supporting industries				
Private scientific research institutions(RSI 4)	3.21	1.092	3.60	.89443
Firm strategy, structure and rivalry				
Market intelligence (FSR 1)	2.64	.832	3.00	.70711
Competition vs. other industries: Land (FSR 9)	2.64	.832	2.00	.70711
Willingness to take risks (FSR 7)	3.54	1.325	3.20	.44721
International competition (FSR 4)	1.77	.725	3.80	.44721

	Round 1		Round 2	
	Impact rating	Standard deviation	Relevance rating	Standard deviation
Willingness to re-invest (FSR 6)	3.54	1.325	4.00	.70711
Product traceability system (DF 8)	4.38	1.557	3.60	.89443
Government support and policies				
SA BEE policy (GP 6)	2.00	0.760	3.00	1.22474
Administrative regulations (GP 11)	2.14	1.301	3.40	.54772
SA political system (GP 7)	1.77	0.725	3.80	1.30384
Land reform policies (GP 2)	1.29	.630	4.00	.70711
Chance factors				
Exchange rate (CF 1)	4.00	.641	4.00	.70711
Global recession (CF 8)	1.29	.439	1.80	.44721

Source: Own calculations based on the TGES

The results shown in Table 5.5 were drawn in a X-Y scatterplot in Figure 5.15 to show the 'impact ratings, based on round 1 results' and 'relevance scores, based on round 2 results' for all determinants that had a degree of internal consistency in the Cronbach's alpha analysis. This figure provides a visual identification of determinants that are critical to the industry based on their current impact and their relevance to the industry's competitive performance.

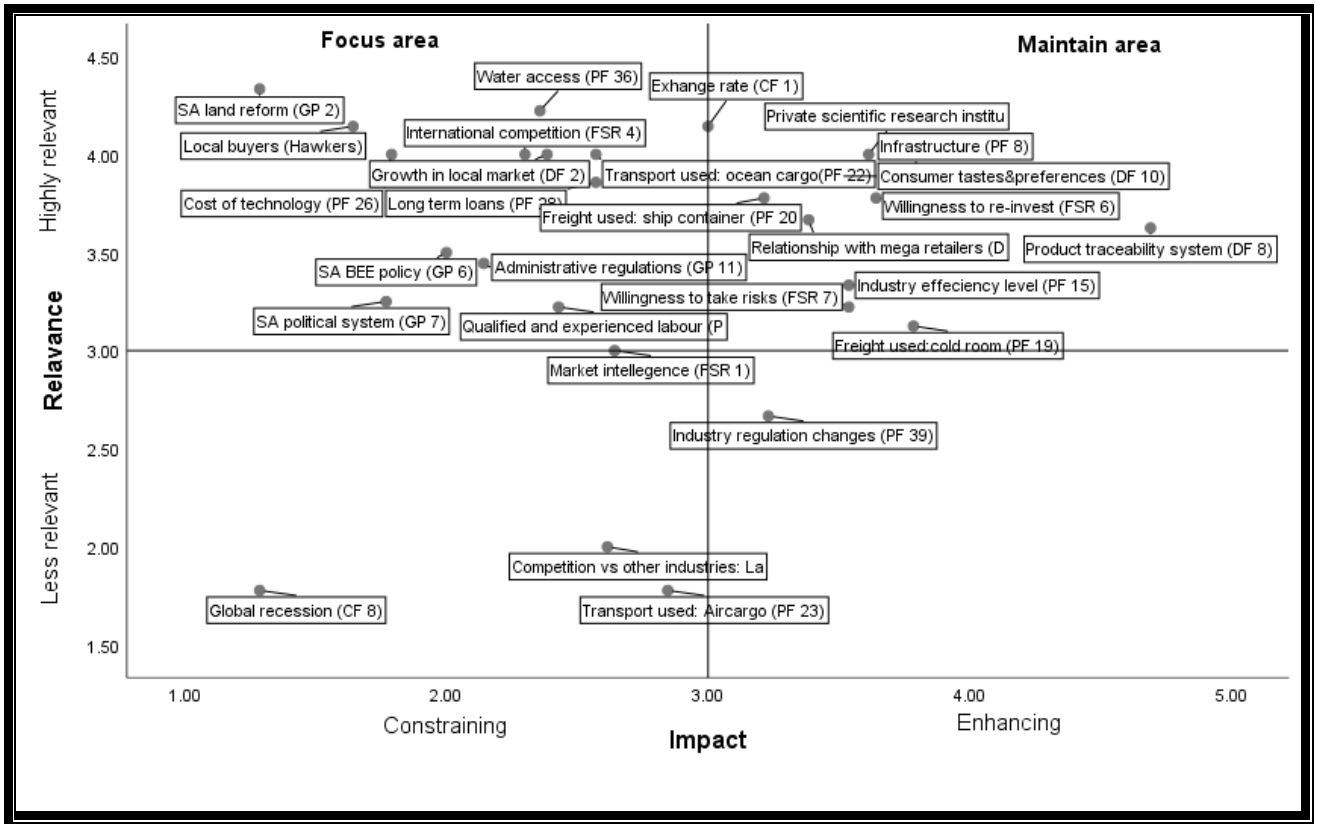

Figure 5.15: Scatterplot of impact and relevance ratings

Source: Own calculations based on the TGES

The quadrant in the top left corner shows determinants that are relevant to the industry and that are currently constraining its global competitive performance. This means that the industry should focus on these determinants for the immediate. They are referred to in this study as the 'immediate focus area', and more emphasis was put on them in terms of drawing up strategic approaches (step 5).

The determinants in the top right quadrant are highly relevant to the sustained performance of the industry, are creating positive ratings and must be maintained as a priority – this quadrant is referred to as the 'priority maintenance area'. Of 27 factors that were found to be highly correlated, the industry found 16 factors to be highly relevant and enhancing the industry. On the other hand, the industry identified eight factors to be relevant to the industry yet constraining.

Determinants located in the bottom left quadrant were found by the industry to be less relevant currently, although they may be constraining to the industry in the long run, i.e. global recession.

5.5 CONCLUSION

This chapter defined competitiveness in the context of the South African table grape industry and assessed the competitive status of the industry in global markets using the relative trade advantage of Vollrath (1991). Data obtained from the FAO and ITC was used to measure the competitive performance of the industry. The results from these sources reveal that the table grape industry is globally competitive and has maintained this status since 1961. South Africa was compared with its global competitors in the Southern Hemisphere and it was revealed that South Africa is challenged by countries such as Peru and Chile, but that it outperforms countries such as Argentina and Brazil. In the Northern Hemisphere, South Africa is a global leader when compared to countries such as the Netherlands.

This chapter also assessed factors that enhance and constrain the competitiveness of the industry using the Porter competitive Diamond model and a Delphi process to gather relevant industry opinions and views. Factors enhancing the competitiveness of the industry include well-developed infrastructure, advanced technology and the product traceability system. Factors constraining competitiveness include access to water, the skills of qualified labour and land reform policies. From an industry consensus viewpoint, the related and supporting industries determinant showed variations in opinion on all factors. Firm strategy, structure and rivalry is a determinant that was rated the highest among all other Porter's diamond determinants, indicating that, in a highly competitive trade environment – as in the case of table grapes – firm-level strategy needs to be of the highest order to sustain trade. This finding also confirms the definition of competitiveness used in this study.

During the second round of the Delphi analysis, industry experts confirmed that the above-mentioned factors are relevant and would have a high impact on the future of the table grape industry. Factors such as access to water, growth in the local market, Agri-BEE policy, uncertain land reform processes, etc., which were identified to be relevant yet constraining to the industry, were used to propose new industry strategies to enhance the competitiveness of the table grape industry. This is done in step 5 of the chosen analytical framework in Chapter 6.

The next chapter aims to highlight the key findings of this study, make recommendations and address the final objective of the study, which is to propose new strategies that can enhance the future competitiveness of the industry in international markets.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This study focused on analysing the competitiveness status of the South African table grape industry. The previous chapter reported on the first four steps of the analytical framework proposed in Chapter 4. It measured the competitive performance and compared trends to its direct global competitors. The factors driving – enhancing and constraining – competitive trends were identified and analysed using the Porter competitive diamond model by gathering primary data through a two-step Delphi process. Therefore, this chapter concludes the last step (step 5) of the analytical framework used in this study, viz. to propose industry-level strategies to improve the industry's competitive performance. This chapter also provides a summary of the key research findings, including pronouncing on the stated hypotheses and listing research items to be explored further.

6.2 SUMMARY OF MAJOR FINDINGS

Defining competitiveness – step 1: The definition of competitiveness applied to this study is based on the theoretical construct of the New Competitive Theory of Porter and combines concepts of comparative and competitive advantage, viz, 'The sustained ability of the South African table grape industry to attract investment by competitively trading its produce within the global marketplace, whilst continuously striving to earn returns at least greater than the opportunity cost of resources engaged'.

Measurement – step 2: The competitive performance of the South African table grape industry was measured using RCA and RTA. The results reveal that the graphs for both RCA and RTA are similar. This similarity can be attributed to the minimal imports South Africa receives from other countries (SATI, 2018).

The competitive performance of the South African table grape industry was measured with RTA. FAO and ITC data was used to calculate the RTA values and assess competitive trends over time. The results reveal that the South African table grape industry has been globally competitive and has maintained its status since the 1960s.

Another observation made on the trends in both the FAO and ITC data is that there is not much difference between them, since the ITC data disaggregates table grapes from dried

grapes, while the FAO data does not. It therefore is clear that the table grape values dominate the formula used.

In-depth analysis of the competitive trends was done in five phases, viz. Phase 1 was described as 'increasing competitiveness: operating in a highly regulated environment (1961 to 1973). This was a period in which the industry increased marketing and promotional campaigns, and the handling, cooling and cold storages techniques ensured that the demand was met with ever-improved consistency and high-quality produce. Also, it was highly regulated by government through marketing boards, and this allowed the artificial boosting of the industry through government support and promotions, protecting the industry against competitive forces. Phase 2 (1974 to 1990) was described as a period in which the industry was affected by many factors relating to politics, the oil crises and trade sanctions. Phase 3 (1990 to 1999) was a period in which increased competitiveness was observed due to democracy, economic deregulation and "Madiba Magic". Phase 4 (2000 to 2008) related to increasing and fluctuating competitiveness, during which the industry was transitioning towards being a competitive global player. Phase 5 (2009 onwards) is a period described as having resilient competitiveness, from operating in a constrained, highly competitive global environment.

A comparison of South Africa with other nations in the Southern and Northern Hemisphere was done to measure the former's competitive performance. The findings show that the South African table grape industry is competitive globally. In the Southern Hemisphere, South Africa outperforms countries such as Argentina and Brazil; however, it is outperformed by countries such as Chile and Peru. In the Northern Hemisphere, South Africa outperforms countries such as the Netherlands and Italy.

The South African table grape value chain was also analysed. It was compared with countries in the Northern and Southern Hemisphere. Argentina and Chile showed a competitive advantage, with an RTA value of 47.9, followed by Chile, with an RTA value of 18.1 in 2017. South Africa and Brazil showed a competitive disadvantage, with negative RTA values of -0.3 and -0.5 respectively. Australia, on the other hand, was marginally competitive, as indicated by values ranging between 0 and 1. From the analysis, it was noted that South Africa is more reliant on imports of grape juice, mainly from Argentina and Italy.

Identification and rating of factors – step 3: This step was concerned with identifying factors that enhance and constrain the South African table grape industry. The Porter competitive diamond was used as a framework of reference, and the relevant factors were

identified and rated using Delphi processes to gather key information from selected experts in the table grape value chain.

A total of 107 factors were identified in this study and were rated by the Delphi round one participants as enhancing or constraining the competitive performance of the South African table grape industry. Factors such as product traceability system, industry infrastructure and technological advancement were identified as enhancing to the industry. While factors such as growth in local market, SA trade policy and land reform policies were amongst factors constraining the South African table grape industry.

The determinants of competitiveness: Constructing the Porter competitive diamond model – step 4: This step structured and analysed the determinants of the competitiveness of the South African table grape industry through the application of Porter's competitiveness diamond model, using factors that were identified in step 3. The determinants of competitiveness were production factor conditions; demand and market conditions; related and supporting industries; firm strategy, structure and rivalry; government support and policies; and chance factors.

Firm strategy, structure and rivalry is the determinant that was rated the highest among all other Porter's diamond determinants. It was also found to be the highest in other studies that have been conducted on the SA fruit industry (Boonzaaier, 2015; Boonzaaier & Van Rooyen, 2017; Dlikilili, 2018; Esterhuizen, 2006; Jafta, 2014; Van Rooyen *et al*., 2011; Sibulali, 2018). Abei (2017) and Angala (2015) also found it in the Namibian and Cameroonian fruit industries. Almost all the factors under this determinant were rated above 3 out of 5. This indicates that, in a highly competitive trade environment, as in the case of table grapes, firm-level strategy needs to be of the highest order to sustain trade. This finding also confirms the definition of competitiveness used in this study.

Principal component analysis was conducted to identify highly correlated and uncorrelated factors. Highly correlated factors are those that were rated similarly by industry experts, and uncorrelated factors are those on which the experts differed greatly in their ratings. Firm strategy, structure and rivalry was identified as the determinant that enhances the performance of the table grape industry the most. Government support and policy, and chance factors were identified as determinants that mostly constrain the industry. The related and supporting industries determinant varied in opinion in relation to all factors.

The views of the respondents also varied on factors such as labour/social unrest and strikes, crime, competitors' unfortunate events, health conditions, and SA economic development,

which means that there could be discrepancies within the industry value chain that will constrain co-ordinated decision-making. In total, 27 factors were found to be highly correlated, and these were used for the second-round Delphi.

The Cronbach's alpha was then calculated to determine the reliability of the TGES questionnaire. The 27 factors from the PCA analysis were categorised into their respective determinants of the Porter diamond model. In the second-round Delphi, industry experts were requested to rate these factors according to the Porter diamond model in terms of their relevance to the industry. The results of the Porter competitive diamond model reveal that the respondents had consensus on many factors, such as importance of well-developed infrastructure, advanced technology, product traceability systems and exchange rate. They agreed that these currently contributed positively and had a big impact to the performance of the industry. Factors such as the agri-BEE policy and land reform policies, access to water, international competition, administrative regulations and quality of both skilled and unskilled labour were identified as factors that were relevant yet constraining to the competitiveness of the industry. These constraining factors were used to propose the industry-level strategies in Step 5 in order to improve the competitive performance of the South African table grape industry. Step 5 is applied in Section 6.5 as a conclusion to this chapter.

6.3 ASSESSING THE HYPOTHESES OF THE THESIS

Two main hypotheses were stated in Chapter 1, which were explored and established in this research. The aim of this section is to validate these hypotheses.

- The first hypothesis stated that: international trade-based on New Competitiveness Theory provides a useful conceptual and analytical framework for a competitiveness analysis of the South African table grape industry as it is determined by a number of factors: fluctuations in the rand, financial support systems, quality of technology, innovation, labour factors, industry collaboration and firm-level strategies, value chain interactions, regulatory arrangements and the related government policies.
- Some adaptations to the analytical framework will be required to appropriately accommodate the current socio-economic transformation agenda of the National Development Plan.

After a thorough analysis of the table grape industry's competitiveness, through the application of the Porter competitive diamond model in Chapter 5, the results showed that the factors highlighted in the first hypothesis play a significant role to the competitiveness of

the table grape industry with other factors included (see Table 5.5),. Furthermore, during the analysis using the Porter competitive diamond model, it was revealed that some adaptations to the analytical framework are needed to accommodate the current socio-economic transformation of the National Development Plan. The adaptations of the Porter competitive diamond applicable to the current South African economy are discussed on 6.4 below.

Therefore, the findings of the study permit the researcher to argue for the broad acceptance of both hypotheses, but to consider a further adaptation of the Porter competitive diamond model. It also presents an opportunity to propose industry-level strategies to enhance the competitive performance of the table grape industry in South Africa. These strategies are regarded as step 5 of the analytical framework employed in this study.

6.4 EXPANDING THE PORTER COMPETITIVE DIAMOND: ACCOMMODATING SOCIO-ECONOMIC TRANSFORMATION AND POLITICAL FACTORS AS A DETERMINANT

The Porter competitive diamond model proved to be a sound and interactive model to analyse competitive performance in the South African table grape industry. In the stated second hypothesis, based on observations in the study's problem statement (Chapter 1) and also in section 3.2.6, it was suggested, supported by Porter himself in 2007, that the six determinants of the model may need to be expanded to provide for the South African situation as an economy in socio-economic and politically driven transition. This point is considered in the next sections.

For the purpose of this analysis, relevant factors, as identified through the Delphi process and that could logically be assigned to a 'new' 'socio-economic transition' determinant were selected from the factors included in the TGES. It is worth noting that the selection of factors was subjective and done by the researcher from those factors listed in the TGES. It does not include new factors and therefore cannot be regarded as comprehensive and representative of the range of factors that, if formalised through industry-based interviews and Delphi sessions, would need to form part of such a new determinant. The following factors were selected based on their relevance to the transformation process (with the impact ratings in brackets): SA agri-BEE policy (2), quality of labour (2), cost of obtaining skilled labour (2.43), labour/social unrest and strikes (1.79), and land reform policies (1.29) and obtaining unskilled labour (4).

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Figure 6.1 shows the expanded Porter competitive diamond model, accommodating a seventh determinant of socio-economic and political transformation. Details of this new determinant are shown in the figure.

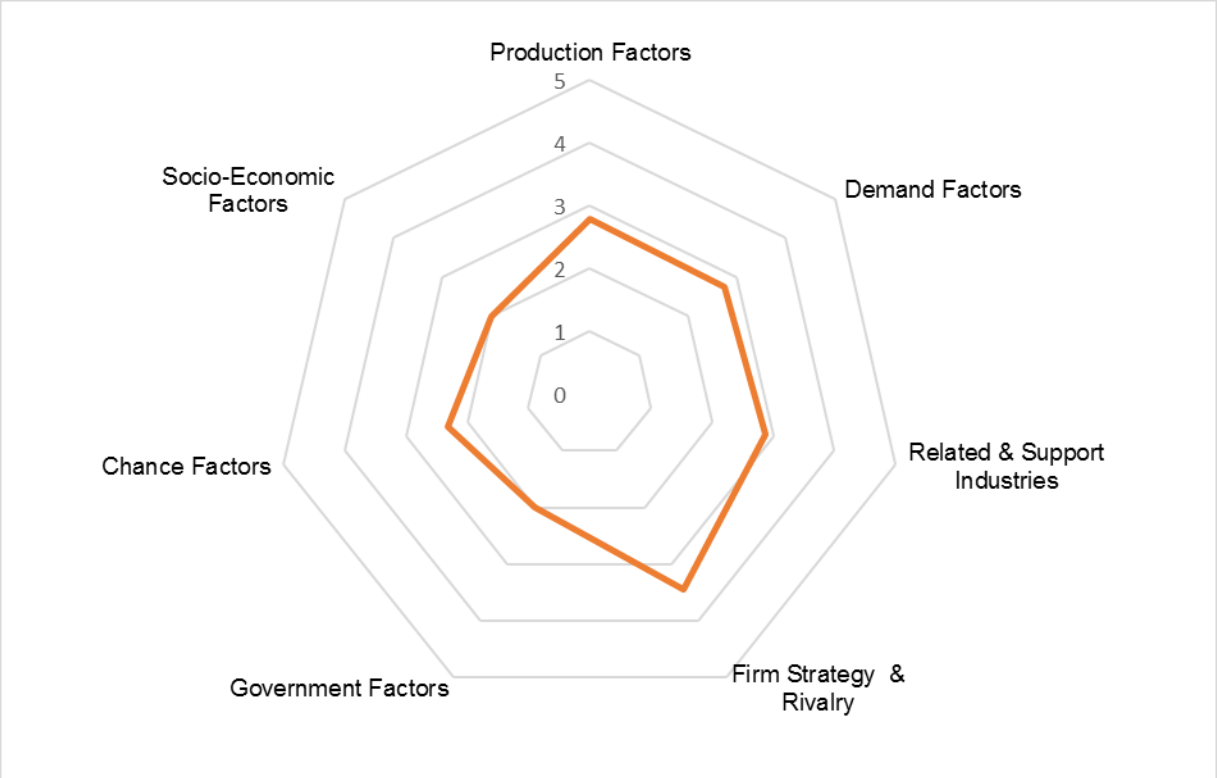

Figure 6.1: Proposed new structure of Porter's diamond model

Source: Own calculations from the TGES

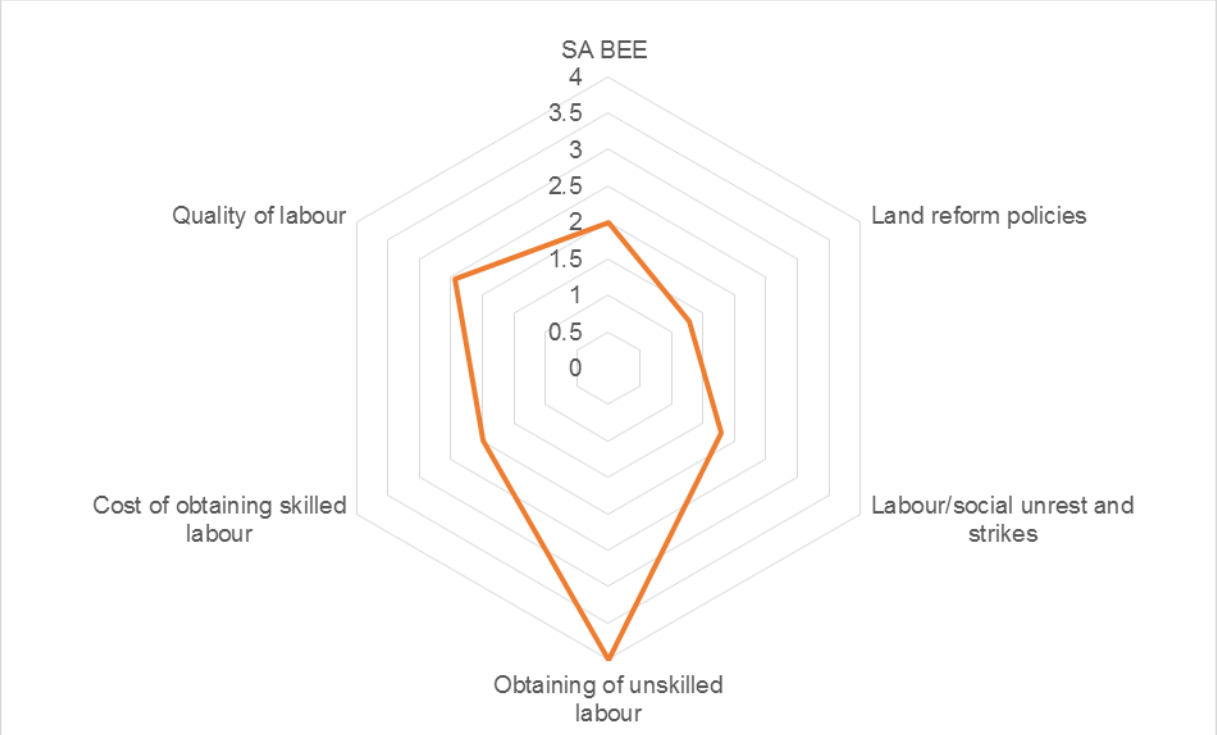

Figure 6.2: Impact ratings of socio-economic determinant factors

Source: Own calculations from the TGES

Most of the factors under this new determinant were constraining. Uncertainty about land reform and the application of agri-BEE policies were the top two constraining factors out of six. The factor that was considered as enhancing in the current socio-economic environment was the ease of obtaining unskilled labour.

The fact that many of the constraining factors under this proposed determinant relate to government action warrants the need to address it comprehensively, as it is clear that it has a significant impact on the competitive performance of the industry. From this perspective, the need to expand the Porter competitive diamond model to accommodate socio-economic and political transformation factors can be argued in the South African context. However, a more comprehensive analysis will be required to provide appropriate and relevant context to such an extension. Such a new determinant would justify and specify the role of socio-economic and political factors and transformation in greater detail of the competitive space. Also, it would highlight the need for specific strategies and interventions to address these currently constraining factors of competitive performance, viz. that socio-economic and political transformation factors affect competitiveness in the agribusiness environment and need to be managed in an appropriate manner. The reports by Sefoko, et al, 2008 and 2010 on transformation in the SA wine industry may inform such an analysis.

6.5 PROPOSED STRATEGIES TO ENHANCE THE INDUSTRY'S GLOBAL COMPETITIVE PERFORMANCE (STEP 5)

The nine strategies listed below are as per step 5 of the stepwise analytical framework of this study. They were drawn from the outcomes of the TGES, as applied in the Porter competitive diamond model analysis in step 4, and aim to address factors that were identified as constraining yet relevant to the industry. It is worth noting, however, that the proposed strategies were not discussed in depth as a set of 'strategic proposals' with the industry experts. They were derived from the findings and results of this study, most of which were guided by experts participating in the two-round Delphi analysis. Therefore, these strategies could be offered from an analysis viewpoint to the industry as a form of 'business intelligence' for further industry-based interrogation and consideration. It should further be highlighted that no direct or firm-level strategies are proposed. For such proposals to be made, a much more detailed analysis, along with scenario development specifically related to a particular firm, will be necessary. As stated in Chapter 1, this falls outside the scope of the current study.

The nine proposed Porter-based industry-level strategies and are discussed below as follows:

Production factors

Constraining aspect related to production factors have a large impact on business activities in the industry. However, from the analysis it is clear that close collaboration with government will be required to alleviate most of the constraints.

- Technology development and innovation: High cost of technology was identified as a relevant and constraining factor to the industry. Some of the experts suggested that government intervention is needed in this matter to at least provide the basic technology needed. The reluctance to allow government to drive such a collaboration should be noted, however, by rather opting for a productive public/private partnership (PPP) model. Such PPP models have been attempted, but with little success. A new approach should thus be attempted with strong private sector management involvement. In addition, development and testing of innovative, yield-increasing and cost-saving technology (fruit-handling systems, harvesting platforms, fertiliser application equipment, moisture management tools, storage, packaging materials, etc.) throughout the value chain is essential. This may require an audit to assess what is currently going on, along with a benchmarking of global best practice technology and implementation strategies.

- Water resources management: Insufficient water for expansion was rated as constraining by the industry. Water scarcity in South Africa is a huge challenge that cannot be addressed by the industry alone. It requires government and the private sector to partner in developing effective policies and sustainable solutions. Along the lines suggested above, PPP models should be considered for improved water resource management. Measures such as building new dams and raising the walls of the existing ones need to be put in place. Furthermore, measures such as more effective collection of ground water need to be fully explored in South Africa.
- Skills improvement: Expanded training and the provision of internship programmes could assist the industry to improve the skills of labour at all levels. Furthermore, the provision of marketable employment packages to professional labour could assist in ensuring that labour is retained. This might prevent newly skilled professionals from leaving the country. Again, as argued above, PPP should be considered to direct such programmes.

Demand factors

- Growth in local and lower income markets: The results reveal that growth in the local market is low. Here, informal and lower income markets provide opportunities to be exploited. Informal traders and hawkers were identified as one of the relevant agents to serve such markets on behalf of the table grape industry. To increase growth, the industry needs to find ways to ensure that there are table grape distribution systems available to hawkers. Appropriate quality grape supply could also be expanded through community-based supermarkets, such as the boxer stores in the Eastern Cape province.

Firm strategy and structure

- Expanding the international market: Competition – specifically from countries in the Southern Hemisphere – was rated as constraining to the industry. These traditional markets are saturated and there is intense competition from countries such as Peru and Chile. To address this challenge, the industry needs to find new markets to ensure that there are various options available for South African table grape producers. Research tools such as Market Access Map could also be utilised to find new markets. Furthermore, the newly established African Continental Free Trade Agreement (AfCFTA) that was recently signed could potentially also open additional avenues for the South African table grape industry.

Related and supporting industries

- The results obtained through the TGES show that no consensus was recorded for the factors under this determinant, as there only were differences in opinion – as can be expected in the case of a highly competitive industry (Van Rooyen *et al*., 2011). This section therefore cannot focus on industry-based consensus views as with the other determinants. Improved industry value chain collaboration, within the framework of the Competitions Act, needs to be prioritised to achieve such improved alignment.

Government support and policies

- Towards improved industry compacts and PPP collaboration: The purpose of such an industry–government compact should be to consider and release constraining policies and regulations and also to establish industry responsibilities. The industry rated features such as uncertain land reform policies, agri-BEE, inflexible labour policies, excessive 'red tape-based' administration and water regulations, and interference in business processes as factors that are highly constraining and relevant to the industry. Overcoming this challenge requires an industry based "strategic plan" to interact with government in order to establish sustained collaboration between the industry and government agencies, in particular Department of Agriculture, Land Reform and Rural Development and the Department of Human Settlements, Water and Sanitation to address water- and land-related matters; and on all trade related matters.

Chance factors

- Under this determinant, the experts rated the current exchange rate as enhancing. However, the fluctuations in the exchange rate were considered as constraining. These fluctuations become a challenge, especially when they are unfavourable because imported equipment for example is normally bought on demand. Therefore, the industry gets heavily affected by these fluctuations. It is suggested that the industry could establish a short-term finance solution where a buffer can be made available. This buffer would enable the industry to have readily available capital to purchase the needed items opportunistically when the exchange rate is favourable rather than having the import timing being dependant on the financial cycle of each industry player.

Socio-economic transformation

- Socio-economic transformation is an important issue in the South African agribusiness landscape. For a productive process, improved political actions and government policies

need to be developed in close collaboration and with the support of the industry to change the current negative perceptions and unproductive actions in this context. A number of these factors were incorporated into the 'new Porter determinant' analysis in section 6.4 above. Although the emerging thesis that such a level of transformation affects competitiveness needs to be examined in more detail and developed further, immediate action will be required to smooth the constraining factors. Some such actions could be incorporated directly into the above recommendations, viz. PPPs and industry/government compacts.

6.6 RECOMMENDATIONS FOR FUTURE RESEARCH

- Expanding the Porter competitive diamond: The addition of a socio-economic and transformation determinant (into the Porter competitive diamond model) to expand on a thesis that such a determinant is important for competitiveness will be an important addition to competitiveness analysis in the South African business context. An in-depth definition, the identification of relevant factors and the analysis thereof need to be undertaken to confirm such an application (refer to the Sefoko, *et al* reports, 2008; 2010).This will allow the mapping of factors to national or industry-specific socio-economic projects or programmes to track factor ratings within this determinant against the interventions aimed at addressing these issues.
- Analysing Porter determinants in more detail: Further investigation or in-depth analysis of determinants of the Porter diamond model can be done, especially on the related and supporting industries determinant, which had variation in opinion on all factors. Research could be conducted to investigate differences that were noted and described in the competitive factor ratings. Engagements with the industry would have to be undertaken in order to obtain clarity and improved agreement. Furthermore, strategies relating to those factors would be needed.
- The consumer side of the table grape industry: A study focusing on table grape consumers would enhance strategic action at both the industry and firm level; as such, research will determine the underlying reasons for slow growth in local table grape consumption.
- Firm-level strategies: This study focused on analysing the competitive performance of the table grape industry in South Africa. Therefore, the proposals made in this chapter focused on the industry level. For future work, the analysis could focus on a table grape firm typology, accommodating the individual business levels, inter alia testing the findings

of this research to assess their applicability to and effectiveness in the competitive performance of the table grape industry.

6.7 CONCLUDING REMARKS

This study considered the competitive performance of the South African table grape industry in context of the new competitive theory led by Porter (1990;98), and using the Volrath - Porter method of analysis. It was found that the industry has been globally competitive and has maintained this status since the 1960s. This is shown by the competitive trends from 1961 to 2013 that were obtained using data from the FAO and data obtained from the ITC (2001 to 2017). In the Southern Hemisphere, South Africa outperforms countries such as Australia and Brazil; however, it is outperformed by countries such as Chile and Peru. In the Northern Hemisphere, South Africa outperforms countries such as the Netherlands and Italy.

From the analysis of factors affecting (positively or negatively) the competitive success of this industry, nine industry-wide strategies were formulated as indicated above. These industry-wide strategic proposals are regarded as providing ‘new’ strategic intelligence to the industry to develop a plan of action to achieve a more sustainable competitive advantage. Also, socio-economic transformation was found to be important an issue in the South African agribusiness landscape and was proposed as a new determinant to be included in Porter’s competitive diamond model.

REFERENCES

Abdi, H. & Williams, L.J. 2010. Principal component analysis. *Wiley Interdisciplinary Reviews: Computational Statistics*, 2(4):433-459.

Abei, L. 2017. An analysis of the competitive performance of the Cameroonian cocoa industry. Unpublished Master's thesis. Stellenbosch: Stellenbosch University.

Agricultural Marketing Resource Centre. 2019. Market research [Online]. Available: https://www.agmrc.org/business-development/starting-a-business/marketbusiness-assessment/market-research [2019, September 15].

Ahearn, M., Culver, D. & Schoney, R. (1990). Usefulness and limitations of COP estimates for evaluating international competitiveness: a comparison of Canadian and U.S. wheat. *American Journal of Agricultural Economics*, 72 (5):1283-1291.Anderson, J.E. 2008. International trade theory, in S.N. Durlauf & L.E. Blume (eds.). *The new Palgrave dictionary of economics*. 2nd edition. Palgrave Macmillan [Online]. Available: https://www2.bc.edu/james-anderson/palgravetrade.pdf [2018, September 14].

Angala, A. 2015. An analysis of the competitive performance of the Namibian date industry - 2001 to 2013. Unpublished Master's thesis. Stellenbosch: Stellenbosch University.

Antonio, S., Gaetano, S.F. & Gianluca, N. 2015. Trade competitiveness in table grapes: a global view [Online]. Available: https://mpra.ub.uni-muenchen.de/70931/2/MPRA_paper_70931.pdf [2019, May 22].

Atchley, W.R. 2007. Introduction to principal components analysis [Online]. Available: ftp://statgen.ncsu.edu/pub/thorne/molevoclass/AtchleyOct19.pdf [2018, December 11].

Avila, D.D., Sandoval, K.V., Velázquez, Ma.D.R.G. & Fernández, E.V. 2019. Production, growth and international competitiveness of Mexican honey. *Advances in Applied Sociology*, 9:153-162.

Bahta, S. & Jooste, A. 2004. The effect of internalization of the beef and maize sub-sectors: The relevance of revealed comparative advantage measures. *Agrekon*, 44(4):452-464.

Balassa, B. 1965. Trade liberalisation and revealed comparative advantage. *The Manchester School*, 33(2):99-123.

Banterle, A. & Carraresl, L. 2007. Competitive performance analysis and European Union trade: The case of the prepared swine meat sector. *Acta Agriculturae Scandinavia, Section C – Food Economics*, 4(3):159-172.

Barr, A. 2019. An analysis of the factors impacting the competitive performance of the South African wine industry value chain. Unpublished Master's thesis. Stellenbosch: Stellenbosch University.

Bender, S. & Li, C. 2002. The changing trade and revealed comparative advantages of Asian and Latin American manufacture exports. Yale Economic Growth Center Discussion Paper No. 843, New Haven, CT.

Bureau for Food and Agricultural Policy (BFAP). 2015. *BFAP agricultural outlook 2015-2024* [Online]. Available: https://www.bfap.co.za/agricultural-outlook-3/ [2019, August 1].

Bureau for Food and Agricultural Policy (BFAP). 2017. *BFAP baseline agricultural outlook 2017-2026* [Online]. Available https://www.sagis.org.za/BFAP_Baseline_2017.pdf [2019, April 19].

Bureau for Food and Agricultural Policy (BFAP). 2018. *BFAP baseline agricultural outlook 2018-2027*[Online]. Available: http://www.bfap.co.za/wp-content/uploads/2018/08/BFAPBaseline-2018.pdf [2019, August 15].

Bureau for Food and Agricultural Policy (BFAP). 2019. *BFAP baseline agricultural outlook 2019-2028*. Available: https://www.bfap.co.za/wp-content/uploads/2019/08/Final-Baseline-2019.pdf [2019, March 28].

Boonzaaier, J.D.T.L. 2015. An inquiry into the competitiveness of the South African stone fruit industry. Unpublished Master's thesis. Stellenbosch: Stellenbosch University.

Boonzaaier, J.D.T.L. & Van Rooyen, J. 2017. Measuring the competitive performance of the South African stone fruit industry [Online] Available: http://www.bfap.co.za/wp-content/uploads/2018/08/Boonzaaier_Competitive-performance-of-the-South-African-stone-fruit-value-chain.pdf [2019, August 26].

Cao, K.X. & Niu, J.S. 2017. Analysis on the International Competitiveness of Beijing's Cultural Creative Industries. *American Journal of Industrial and Business Management*, 7: 143-159.

Carpenter, M. & Dunung, S.P. 2011. *Challenges and opportunities in international business* [Online] Available: http://jsmith.cis.byuh.edu/pdfs/challenges-and-opportunities-in-international-business.pdf [2019, February 17].

Cho, D. 1994. A dynamic approach to international competitiveness: The case of Korea. *Journal of Far Eastern Business*, 1(1):17-36.

Coughlan, M., Cronin, P. & Ryan, F. 2007. Step-by-step guide to critiquing research. Part 1: Quantitative research. *British Journal of Nursing*, 16(2):658-663.

Dalkey, N.C. & Helmer, O. 1963. An experimental application of the Delphi method to the use of experts. *Management Science*, 9(3):458-467.

Davids, T. & Meyer, F.H. 2017. Agricultural economics research, policy and practice in Southern Africa: Price formation and competitiveness of the South African broiler industry in the global context. *Agrekon*, 56(2):123–138.

Department of Agriculture (DoA). 2001. Trends in the agricultural sector [Online]. Available: www.nda.agric.co.za [2018, December 13].

Department of Agriculture Forestry and Fisheries (DAFF). 2016. A profile of the South African table grapes market value chain [Online]. Available: http://www.nda.agric.za/doaDev/sideMenu/Marketing/Annual%20Publications/Commodity%20Profiles/FRUITS%20AND%20VEGETABLES/Table%20grape%20market%20value%20chain%202015.pdf [2018, May 22].

Department of Trade and Industry (DTI). 2016. Trade agreements [Online]. Available: [2018, March 15]

Dlamini, B.P. 2012. Analysing the competitiveness of the agribusiness sector in Swaziland. Unpublished MSc thesis. Pretoria: University of Pretoria.

Dlikilili, X. 2018. An analysis of the competitive performance of the South African citrus industry. Unpublished MSc Agric thesis. Stellenbosch: Stellenbosch University.

Dlikilili, X. and Van Rooyen, J. 2018. *Measuring the competitive trends of the South African citrus industry*. Southern Africa-Towards inclusing growth [Online]. Available: https://sa-tied.wider.unu.edu/sites/default/files/pdf/SATIED_YS_WP11_May_2018_Dlikilili_vanRooyen.pdf [2019, February 14].

Du Toit, J.P. 2009. Factors influencing the long-term competitiveness of selected commercial milk producers in East Griqualand. Unpublished MSc thesis. Pietermaritzburg: University of KwaZulu-Natal.

Edmonds, J. 2016. *Key industry statistics for citrus growers 2016*. Hillcrest, KwaZulu-Natal: Citrus Growers' Association of Southern Africa.

Esterhuizen, D. 2006. *An evaluation of the competitiveness of the South African agribusiness sector*. Doctoral dissertation, University of Pretoria.

Esterhuizen, D., Van Rooyen, C.J. & D'Haese, L. 2008. An evaluation of the competitiveness of the agribusiness sector in South Africa. *Journal of Competitiveness Studies*, 16(1/2):31.

Esterhuizen, D. & Van Rooyen, C.J. 1999. How competitive is agribusiness in the South African food commodity chain? *Agrekon*, 38(4):744-754.

Esterhuizen, D. & Van Rooyen, C.J. 2006. An inquiry into factors impacting on the competitiveness of the South African wine industry. *Agrekon*, 45(4):467-485.

Esterhuizen, D., Van Rooyen, C.J. & Van Zyl, J. 2001. The competitiveness of the agricultural input industry in South Africa. *Agrekon*, 40(4):678-687

Fan, D.X. 2019. The measurement of competitiveness of Hong Kong International Shipping Center and its promotion strategies. *Modern Economy*, 10:853-871.

Fernandez-Stark, K., Bamper, P. & Gereffi, G. 2016. Peru in the table grape global value chain. Opportunities for upgrading [Online]. Available: https://pdfs.semanticscholar.org/ec63/3a717f3b12e242c15f920c3b9582596996e3.pdf?_ga=2.187624424.1902532390.1570127497-862394109.1570127497 [2019, July 17].

Ferto, I. & Hubbard, L.J. 2002. *Revealed Comparative Advantage and Competitiveness in Hungarian Agri-Food Sectors Technology Foresight in Hungary* (No. MT-DP-2002/8). IEHAS Discussion Papers.

Fin24. 2016. Growth potential in SA table grape industry [Online]. Available: https://www.fin24.com/Companies/Agribusiness/growth-potential-in-sa-table-grape-industry-20160427 [2019, August 29].

Food and Agriculture Organization (FAO). 2016. *Definitions and standards used in FAOSTAT* [Online]. Available: http://www.fao.org/faostat/en/#definitions [2018, December 7).

Food and Agriculture Organization (FAO). 2018. *Definitions and standards used in FAOSTAT* [Online]. Available: http://www.fao.org/faostat/en/#definitions [2019, May 15].

Food and Agriculture Organization (FAO). 2019. *Definitions and standards used in FAOSTAT* [Online]. Available: http://www.fao.org/faostat/en/#definitions [2019, July 14].

Freebairn, J. 1987. Implications of wages and industrial policies on competitiveness of agricultural export industries. Paper presented at the Australian Agricultural Economics Society Policy Forum, Canberra, Australia.

Fresh Plaza. 2015. Italy: Bad year for table grape exports [Online]. Available: https://www.freshplaza.com/article/2139765/italy-bad-year-for-table-grape-exports/ [2019, January 13].

Fresh Produce Exporters' Forum (FPEF). 2016. *Harvest to home: The fresh fruit trade chain. Advanced table grape manual*. Century City, Cape Town: FPEF.

Frohberg, K. & Hartman, M., 1997. Comparing measures of competitiveness. IAMO Discussion Paper No. 2, Halle/Saale.

Galetto, A. 2003. Competitive performance in the western hemisphere diary industry. Universidad del CEMA [Online]. Available: http://www.cema.edu.ar/_agaletto/notas_vcr_dairy_products_ALCA.doc [2019, April 29].

Gloy, B. 2005. A guide to understanding the value chain. *Smart Marketing*, September [Online]. Available: https://scholar.google.com/scholar?hl=en&as_sdt=0%2c5&q=a+guide+to+understanding+the+value+chain&btng= [2019, September 29].

Goetz, L. & Grethe, H. 2009. The EU entry price system for fresh fruits and vegetables – Paper tiger or powerful market barrier? *Food Policy*, 34(1):81-93.

Haankuku, C. & Kirsten, J.F. 2012. Improving agricultural competitiveness by setting priorities for investments in crop research: Lessons from Zambia. *Agrekon*, 51(4):63-80.

Hallat, J. 2005. *Relative competitiveness of the South African oilseed industry* (No. 28063). University of the Free State, Department of Agricultural Economics.Heckscher, E. 1919. The effects of foreign trade on the distribution of income. English translation first published in H.S. Ellis & L.A. Metzler (eds.), (1949). *AEA Readings in the theory of international trade*. Philadelphia: Blakiston Hill Book Company.

Heckscher, E.F. 1919. The effects of foreign trade on the distribution of income. English translation first published. In H.S. Ellis and L.A. Metzler (1949), (eds.). *AEA Readings in the theory of international trade*, Philadelphia, Blakiston. Hill Book Company.

Hitt, M.A., Ireland, R.D. & Hoskisson, R.E. 2001. *Strategic management. Competitiveness and globalisation*. South-Western College Publishing.

Hsu, C.C. & Sandford, B.A. 2007. The Delphi technique: Making sense of consensus. *Practical Assessment, Research & Evaluation*, 12(10):1-8.

International Trade Centre (ITC). 2018. *Trademap* [Online]. Available: https://www.trademap.org/Index.aspx [2018, October 15].

International Trade Centre (ITC). 2019. *Trademap* [Online]. Available: https://www.trademap.org/Index.aspx [2019, June 2].

ISMEA. 1999. *The European agro-food system and the challenge of global competition*. in Institut de Sciences Mathématiques et Economiques Appliquées. Rome.

Jafta, A. 2014. Analysing the competitiveness performance of the South African apple industry. Unpublished MSc Agric thesis. Stellenbosch: Stellenbosch University.

Jooste, A. & Van Schalkwyk, H. 2001. Comparative advantage of the primary oilseeds industry in South Africa. *Agrekon*, 40(1):35-44.

Kalaba, M. & Henneberry, S.R. 2001. The effects of a free trade agreement on South African agriculture: Competitiveness of fruits in the EU market. *Agrekon*, 4:794-809

Kirsten, J.F., Van Zyl, J. & Van Rooyen, J. 1994. South African agriculture in the 1980s. *South African Journal of Economic History*, 9 (2): 19-48

Krugman, P.R. 1979. Increasing returns, monopolistic competition and international trade. *Journal of international Economics*, 9(4):469-479.

Lancaster, K. 1979. *Variety, equity, and efficiency*. New York: Columbia University Press.

Leontief, W. 1953. Domestic production and foreign trade: The American capital position re-examined. *Proceedings of the American Philosophical Society*, 97:332-349.

Liesner, H.H. 1958. The European common market and British industry. *Economic Journal*, 68:302- 316.

Linder, S. 1961. *An essay on trade and transformation*. New York: Johan Wiley.

Lipsey, R.G., Courant, P.N., Purvis, D.D. & Steiner, P.O. 1993. *Economics*. New York: Harper Collins College Publishers.

Madima, T.M. 2009. Competitiveness of the South African deciduous fruit canning industry. Unpublished MSc thesis. Pretoria: University of Pretoria.

Mahlanza, B., Mendes, E. & Vink, N. 2003. Comparative advantage of organic wheat production in the Western Cape. *Agrekon*, 42(2):37-41.

Malich, E. 2016. *Making research accessible to inform better policy decisions* [Online]. Available: www.Thinkingintitiative.org [2019, November 21].

Mamaqi, X., Miguel, J. & Olave, P. 2010. The e-DELPHI method to test the importance competence and skills: Case of the lifelong learning Spanish trainers. *World Academy of Science, Engineering and Technology*, 4:1204-1212.

Mashabela, T. 2007. Measuring the relative competitiveness of global deciduous fruit supply chains: South Africa versus Chile. Unpublished MSc Agric thesis. Stellenbosch: Stellenbosch University.

Mashabela, T.E. & Vink, N. 2008. Competitive performance of global deciduous fruit supply chains: South Africa versus Chile. *Agrekon*, 47(2):240-257.

Min, H. & Zhou, G. 2002. Supply chain modelling: Past, present and future. *Computer and Industrial Engineering*, 43:231-249.

Mosoma, K. 2004. Agricultural competitiveness and supply chain integration: South Africa, Argentina and Australia. *Agrekon,* 43(1):132-144.

National Agricultural Marketing Council (NAMC). 2013. *International trade probe* [Online]. Available: https://www.namc.co.za/wp-content/uploads/2017/09/NAMC-DAFF-TradeProbe-_No-43-Jan-2013.pdf [2019, December 12].

National Agricultural Marketing Council (NAMC). 2018. SA fruit trade flow [Online]. Available: https://www.namc.co.za/wp-content/uploads/2018/07/South-African-Fruit-flow-report-Mar-2018-Issue-29.pdf [2018, August 13].

National Agricultural Marketing Council (NAMC). 2019. SA fruit trade flow [Online]. Available: https://www.namc.co.za/wp-content/uploads/2019/04/South-African-Fruit-flow-report-March-2019-Issue-33-Final.pdf [2019, July 14].

National Development Plan. (2011). *Our future – make it work* [Online]. Available: https://www.poa.gov.za/news/Documents/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf [2018, July 27].

Ndou, P. 2012. The competitiveness of the South African citrus industry in the face of the changing global health and environmental standards. Unpublished PhD dissertation. Alice: University of Fort Hare.

Ndou, P. & Obi, A. 2011. The business environment and international competitiveness of the South African citrus industry. Paper prepared for the International Food and Agribusiness Association (IFAMA) 21st World Annual Forum and Symposium. 20-23 June, Frankfurt, Germany.

Nehme, N. & Nehme, E. 2014. Competitive advantage of nations and multilateral trade systems: How can Lebanon benefit from trade liberalization without enhancing its strategic industries? *Open Journal of Social Sciences*, (2):217-231 [Online]. Available: http://dx.doi.org/10.4236/jss.2014.24023 [2018, February 13].

Nkurunziza, B. 2015. Determining Rwanda's comparative advantage in rice: Eastern Province case study.

Ojeda, G. 2017. International trade and fruit production in Chile [Online]. Available: https://farmfolio.net/articles/international-trade-fruit-production-chile/ [2019, January 23].

Organisation for Economic Cooperation and Development (OECD). 1992. *A study on the factors of regional competitiveness* [Online]. Available: http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/3cr/competitiveness.pdf [2018, August 14].

Organisation for Economic Co-operation and Development (OECD). 2004. Enhancing competitiveness in the agro-food sector: Making policies work. Summary of records of the OECD/BALTIC Workshop. Vilnius, Lithuania.

Petit, M. & Gnaegy, S. 1994. Agricultural competitiveness and global trade: Looking at the future of agricultural through a crystal ball. Paper delivered at the 21st International Conference of Agricultural Economists. 22-29 August, Harare, Zimbabwe.

Pitts, E., Viaene, J., Traill, B. & Gellynck, X. 1995. Measuring food industry competitiveness. Discussion Paper No. 7. In Structural change in the European food industries – A concerted action project within the EU AAIR Programme, University of Reading, UK.

Porter, M.E. 1990. *The competitive advantage of nations*. London: Macmillan.

Porter, M.E. 1998. *Competitive advantage: Creating and sustaining competitive performance: with a new introduction*. New York: Free Press.

Porter, M.E. 2007. *Creating a competitive South Africa*. Presentation in Johannesburg, South Africa [Online]. Available: https://www.academia.edu/2917888/The_Competitive_Advantage_of_South_Africa

Pugel, T.A. 2004. *International economics*. 12th edition. New York: McGraw-Hill.

Pugel, T.A. 2012. *International economics*. 15th edition. New York. McGraw-Hill

Rangasamy, J. 2003. Conventional theories' assumptions challenged by new trade theories. *Trade theory and its implications for competitiveness.* University of Pretoria.

Reekie, W.D. 1989. *Industrial economics*: *A critical introduction to corporate enterprise in Europe and America*. Aldershot: Edward Elgar.

Rugman, A.M. & D'Cruz, J.R. 1993. The double diamond model of international competitiveness: Canada's experience. *Management International Review*, 33(2):17-39.

Seccia, A., Santeramo, F.G. & Nardone, G. 2015. Trade competitiveness in table grapes: A global view. *Outlook on Agriculture*, 44(2):127-134.

Sefoko, N., Janssens, W., van Rooyen, J., Bostyn, F. and D'Haese, L. 2007. Systems to manage black economic empowerment in the South African wine industry. In 45th AEASA Annual Conference: From Policy Reform to Implementation and Delivery in South African Agriculture. Agricultural Economics Association of South Africa (AEASA).

Sefoko, N., Van Rooyen, C.J. D'haese, L. & D'haese, M. 2010. Good governance and social responsibility in the South African wine industry. Warsaw University of Life Sciences, Poland. *Scientific Journal XXV*, 10(25):46-68.

Serin, V. & Civan, A. 2008. Revealed comparative advantage and competitiveness: A case study for Turkey towards the EU. *Journal of Economic and Social Research*, 10(2): 25-41.

Sibulali, A. 2018. Analysing the competitive performance of the South African subtropical fruit industry. Unpublished MSc Agric thesis. Stellenbosch: Stellenbosch University.

Siekman, D. 2016. An overview of Peru's exports of table grapes to China [Online]. Available: https://www.producereport.com/article/overview-perus-exports-table-grapes-china [2019, May 15].

Siggel, E. 2006. International competitiveness and comparative advantage: A survey and proposal for measurement. *Journal of Industry, Competition and Trade*, 6:137-159.

Sihlobo, W. 2016. An evaluation of competitiveness of South African maize exports. Unpublished MScAgric thesis. Stellenbosch: Stellenbosch University.

Sinngu, T. 2014. Competitiveness of the South African citrus fruit industry relative to its Southern Hemisphere competitors. Unpublished Master's thesis. Pretoria: University of South Africa.

Smit, A. 2010. The competitive advantage of nations: Is Porter's diamond framework a new theory that explains the international competitiveness of countries? *Southern African Business Review*, 14(1):105-130.

Smith, A. 1776. *Wealth of nations*. London: William Straham and Thomas Cadell.

South African Table Grape Industry (SATI). 2019. *SATI statistical booklet*. Paarl: SATI.South African Table Grape Industry (SATI). 2018. *SATI statistical booklet*. Paarl: SATI.

South African Table Grape Industry (SATI). 2017. *SATI statistical booklet*. Paarl: SATI.

South African Table Grape Industry (SATI). 2016. *SATI statistical booklet*. Paarl: SATI.

South African Table Grape Industry (SATI). 2015. *SATI statistical booklet*. Paarl: SATI

South African Table Grape Industry (SATI). 2014. *SATI statistical booklet*. Paarl: SATI.

Symington, S. 2008. Staying ahead of the global pack: [creating sustainable competitive advantage in the marketing of South African table grapes to the United Kingdom in the deregulated era]. Unpublished MPhil thesis. Cape Town: University of Cape Town.

Tavakol, M. & Dennick, R. 2011. Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2:53-55.

Tuna, E., Georgiev, N. & Nacka, M. 2013. Competitiveness analysis of the tobacco sub-sector in the Republic of Macedonia. *Agroeconomia Croatica*, 3(1): 53-60.

Tweeten, L. 1992. *Agricultural trade: Principles and policies*. Boulder: Westview Press.

United Nations. 2016. International Trade Statistics Yearbook. Available: https://comtrade.un.org/pb/downloads/2015/VolI2015.pdf [2019, June 15].

United States Department of Agriculture (USDA). 2019. South African deciduous fruit exports continue growth [Online]. Available: https://agfstorage.blob.core.windows.net/misc/FP_com/2019/05/21/SaFresh%20Deciduous%20Fruit%20Semi-annual_Pretoria_South%20Africa%20-%20Republic%20of_5-15-2019.pdf [2019, August 15].

Valenciano, J.d.P., Uriarte, M.M.C. & Battistuzzi, M.A.G. 2017. South Africa's competitiveness against its main competitors in the market of pears imported by the EU28. *Agrekon*, 56(2):191.

Valentine, N. & Krasnik, G. 2000. SADC trade with the rest of the world: winning export sectors and revealed comparative advantage ratios. *South African journal of economics*, 68(2):266-285.

Van der Merwe, J.D., Cloete, P.C. & Van Schalkwyk, H.D. 2016. Factors influencing the competitiveness of the South African wheat industry: A hedonic price model. *Agrekon,* 55(4):411-435.

Van Rooyen, J. & Boonzaaier, J. 2018. The competitive performance of the South African wine industry: From competitiveness analysis to strategy development. Centre for AgriBusiness, Stellenbosch University/BFAP

Van Rooyen C.J. & Boonzaaier, J.T.D.L. 2017. Agri-Competitiveness Matrix, Centre for AgriBusiness, Stellenbosch University/BFAP.

Van Rooyen, C.J. & Esterhuizen, D. 2012. Measurement and analysis of the trends in competitive performance: South African agribusiness during the 2000's. *Journal of Applied Management and Investments*, 1(4):426-434.

Van Rooyen, C.J., Esterhuizen, D. & Doyer, O.T. 1999. How competitive is agribusiness in the South African food commodity chain? *Agrekon,* 38(4):744-754.

Van Rooyen, J., Esterhuizen, D. & Stroebel, L. 2011. Analyzing the competitive performance of the South African wine industry. *International Food and Agribusiness Management Review*, 14:179-200.

Van Rooyen, I.M. & Van Rooyen, C.J. 1998. Economic aspects of the South African flower industry. Agrekon, 37(4):541-550.

Venter, R. & Horsthemke, O. 1999. Analysis of the competitive nature of the Southern African sheep meat value chain. *Agrekon*, 38(4):716-725.

Vernon, R. 1966. International investments and international trade in the product cycle. *Quarterly Journal of Economics*, May:190-207.

Vink, N., Kleynhans, T.E. & Street, K. 1998. The competitiveness of Western Cape wheat production: An international comparison/Die mededingendheid van koringproduksie in die Wes-Kaap: 'n Internasionale vergelyking. *Agrekon*, 37(3):255-268.

Vink, N. & Van Rooyen, J. 2009. *The economic performance of agriculture in South Africa since 1994: Implications for food security*. Development Planning Division, Development Bank of Southern Africa. [Online]. Available: https://agbiz.co.za/uploads/documents/economic-intelligence/food-security/dpd-no17.pdf

[2019, February 02]

VinPro, 2009. *The cost of grape production and producer profitability* [Online]. Available: https://www.namc.co.za/wp-content/uploads/2017/10/Production-cost-of-wine-grapes-July-2009.pdf [2019, August 15].

Vollrath, T. 1991. A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage. *Welwirthschaftliches Archiv*, 127(2):265-280.

Vu, H.T. & Pham, L.C. 2016. A dynamic approach to assess international competitiveness of Vietnam's garment and textile industry. *SpringerPlus*, 5:203. doi:10.1186/s40064-016-1912-3

Webber, C.M. & Labaste, P. 2011. *Building competitiveness in Africa's agriculture: A guide to value chain concepts and applications*. Washington, DC: World Bank Publications.

Wesgro. 2014. Country*:* *Netherlands* [Online]. Available: http://www.wesgro.co.za/pdf_repository/2014.04%20Netherlands.pdf [2019, August 15].

World competitiveness report. 2019. The Global Competitiveness Report 2019. [Online]. Available: http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf [2019, November, 15].

Zamora, E. 2016. Value chain analysis: A brief review. *Asian Journal of Innovation and Policy*, 5(2):116-128.

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Appendix A

RESPONDENT INFORMATION

Name of the respondent (Optional)	
Name of the business	
Contact number	
Email address	
Geographical area: (District/Municipality)	

Table Grape Type	Fresh	

Position in the value chain: Please mark with "x" where applicable*More than one position if possible	**Input or Service Provider**	**Producer or Packhouse**	**Producer or**	**Expor**

If an input or service provider, indicate with an "x" applicable % of resources (land,	<10%	11-	26-50%	51-75%	>75%

If a producer or packhouse, indicate with an "x" the applicable area (ha) under Table	1-20 ha	20-40 ha	>40 ha

If a Producer or Exporter, indicate with an"x", the applicable volume of Table grape	<100 000	100 000 - 500	500 000-1000 000	>1 000 000

If an Exporter or Marketer, indicate with an "x", the applicable volume (equivalent	<100 000	100 000 - 500	500 000-1000 000	>1 000 000

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

PRODUCTION FACTOR CONDITIONS

1)Obtaining qualified and experienced labour is

	1	2	3	4	5	
Not easy						Easy

Comment: _____

2)The frequency of obtaining such labour is

	1	2	3	4	5	
Not very high						Very high

Comment: _____

3) Are the skills of entry-level labour:

	1	2	3	4	5	
Below expectations						Above expectations

Comment: _____

4) Do you think it is fair to pay minimum wage :

	1	2	3	4	5	
Not fair						Fair

Comment: _____

5) Is labour saving machinery being used:

	1	2	3	4	5	
Not currently used						Will be used in future

Comment: _____

6) How is the general infrastructure used :

		1	2	3	4	5	
	Electricity						
Poorly developed	Water supply						Developed
	Telecommunication						
	Any Other:						

Comment: _____

7) Is the cost of such infrastructure:

	1	2	3	4	5	
Electricity Water supply						Very affordable
Telecommunication Any other						

Comment: _____

8) How easy/difficult is it to obtain such infrastructure:

	1	2	3	4	5	
Extremely difficult						Very easy

Comment: _____

9) How important is it to have well-developed infrastructure:

	1	2	3	4	5	
Not important						Extremely important

Comment: _____

10) Establishment and production costs are:

	1	2	3	4	5	
Too costly						Very affordable

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

Comment: _____

11) The effectivity (being successful in achieving a desired result) level of your industry is:

Very low	1	2	3	4	5	Very high

Comment: _____

12) The efficiency (input:output) level of your industry is:

Very low	1	2	3	4	5	Very high

Comment: _____

13) To produce or sell environmentally friendly product is:

Not a very important strategy for your industry	1	2	3	4	5	Very important strategy for your industry

Comment: _____

14) Does the packaging material for your product:

Constrain your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

15) Does the freight used to export your product :

Constrain your industry's competitiveness		1	2	3	4	5	Enhances your industry's competitiveness
	Cold room Ship						
	container Any						
	Other:						

16) The transportation used to export your products :

Constrain your industry's competitiveness		1	2	3	4	5	Enhances your industry's competitiveness
	Trucks						
	Ocean cargo						
	Air cargo Any other:						

17) The quality(modern) of technology available in your industry:

Generally lags behind others	1	2	3	4	5	Is outstanding

Comment: _____

18) Access to quality(modern) technology for your industry is:

Difficult	1	2	3	4	5	Easy

Comment: _____

19) The cost of technology is:

Low	1	2	3	4	5	High

Comment: _____

20) Would advancement of technology impact on the industry's competitiveness:

less likely	1	2	3	4	5	High likely

Comment: _____

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

21) How easy/difficult is it to obtain long-term finance for your industry i.e:

		1	2	3	4	5	
	Loans						
Difficult	Grants						Easy
	Advance from Exportes						

Comment(Please explain your response): _____

22)How easy/difficult is it to obtain short-term finance for your industry:(e.g loans, grants, advance from exporters)

		1	2	3	4	5	
Extremely difficult and costly	Loans Grants						Easy and very affordable
	Advance from exporter						

Comment(Please explain your response): _____

23)How is the availability of research to your industry

1	2	3	4	5	

Generally lags behind other industries — Is outstanding

Comment: _____

24)How valuable is the research available to your industry

1	2	3	4	5	

Not very valuable — Extremely valuable

Comment: _____

25) Is access to water in your industry enough for curret production activites

1	2	3	4	5	

Limited — Readily available

Comment: _____

26) Is water available in your industry enough for expansion

Not sufficient	1	2	3	4	5	Highly sufficient

Comment: _____

27) Access to land in your industry

Limited	1	2	3	4	5	Readily available

Comment: _____

28) Do changes in the industry such as consolidation, regulations, new markets have a:

Negative influence in the industry	1	2	3	4	5	Positive influence in the industry

Comment: _____

29) How does unpredicted weather conditions affect your industry:

Negatively	1	2	3	4	5	Positively

Comment: _____

Comment: _____

30) In general, how is the cost of doing business :

Red tape	1	2	3	4	5

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

Compliance Extremely high						Very affordable
Time lags						
Any Other:						

Comment:

DEMAND FACTORS

1) Is the size of local (SA) market :

Unable to handle large volumes of your produce	1	2	3	4	5	Able to handle large volumes of your produce

Comment: _____

2) Is there a growth in local (SA) market :

	1	2	3	4	5	
Not very much						Very much

Comment: _____

3) How is the adaptability of local consumers to new cultivars :

	1	2	3	4	5	
Slow to adapt new cultivars						Quick to adapt to new cultivars

Comment: _____

4) Local buyers of your industry's products are:

Not concerned about ethics and production methods	1	2	3	4	5	Very concerned about ethics and production methods
Supermarkets						
Hawkers						
Any other:						

Comment: _____

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5) How is the growth in volume of the local market:

Too slow	1	2	3	4	5	Too fast

Comment: _____

6) How is the growth in value of the local market:

Too slow with decreasing trends	1	2	3	4	5	Large enough and show increasing trends

Comment: _____

7) Is there traceability system of the supplier of the product to the producer :

Non-existing	1	2	3	4	5	Exists

Comment: _____

8) The Table grape international market is :

Too small	1	2	3	4	5	Big enough

Comment: _____

9) Changes in tastes and preferences of international market :

Constrains competitiveness	1	2	3	4	5	Enhances competitiveness

Comment: _____

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

10) Availability in season of SA Table grape impacts the industry :

Negatively	1	2	3	4	5	Positively

Comment: _____

11) The relationship of SA Table grape industry with mega retailers such as Woolworths, Pick'nPay is :

Very poor	1	2	3	4	5	Very good

Comment: _____

12) The possibility of expansion in the existing local and international markets is :

Less likely	1	2	3	4	5	Very likely

Comment: _____

13) How will the "brexit type" trade negotiations influence your industry's competitiveness :

Big impact	1	2	3	4	5	Less impact

Comment: _____

14) The potential impact of the USA "closed trade model" (Trump's America first) in your industry's competitiveness :

Will constrain your industry's competitiveness	1	2	3	4	5	Will enhance your industry's competitiveness

Comment: _____

15) How does being in the market at the same time as countries like Peru, Italy etc affect your industry's competitiveness :

Negatively	1	2	3	4	5	Positively

Comment: _____

16) Does production of new cultivars such as Joybells impact on your industry's competitiveness :

Negatively	1	2	3	4	5	Positively

Comment: _____

RELATED AND SUPPORTING INDUSTRIES

1)Financial service providers generally :

Constrain your industry's competitiveness	1	2	3	4	5	Enhance your industry's competitiveness

Comment: _____

2) Government financial support :

None existent	1	2	3	4	5	Readily available

Comment: _____

3) Government advice generally :

None existent	1	2	3	4	5	The best in their field

Comment: _____

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

4) Private funded scientific institutions are :

1	2	3	4	5

None existent — The best in their field

Comment: _____

5) Government funded scientific institutions such as NRF, ARC etc are :

1	2	3	4	5

Doing a poor job — The best in their field

Comment: _____

6) Table grape industry's expenditure on Research & Development is :

1	2	3	4	5

Insufficient — Sufficient

Comment: _____

7) Collaboration of Table grape industry with scientific research institutions is :

1	2	3	4	5

Non-existent — Intensive and continuing

Comment: _____

8) How innovative is Table grape industry :

1	2	3	4	5

Less innovative — Highly innovative

Comment: _____

9) Availability of local suppliers of primary inputs like fertilisers, pesticides etc :

1	2	3	4	5

Numerous and provides all necessary

Few existing and limited supply						inputs

Comment: _____

10) Reliabitliy of local suppliers of primary inputs like fertilisers, pesticides etc :

	1	2	3	4	5	
Not reliable						Very reliable

Comment: _____

11) How is the standard of local suppliers of primary inputs like fertilisers, pesticides etc :

	1	2	3	4	5	
Low and less innovative						High and internationally competitive

Comment: _____

FIRM STRATEGY, STRUCTURE AND RIVALRY

1) The management of market intelligence for the Table grape industry is :

	1	2	3	4	5	
Inadequate						Excellent

Comment: _____

2) Competition from Southern Hemisphere :

	1	2	3	4	5	
Very limited						Very intense

Comment: _____

3) Threat of entrants (new table grape farmers) locally is :

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

	1	2	3	4	5	
Less likely						High likely

Comment: _____

4) Competition in the international market in general is :

	1	2	3	4	5	
Less likely						High likely

Comment: _____

5) Threats of new entrants (new table grape farmers) internationally :

	1	2	3	4	5	
Less likely						High likely

Comment: _____

6) Your willingness to reinvest in table grape operations :

	1	2	3	4	5	
Reluctant						Keen

Comment: _____

7) Your willingness to take risks :

	1	2	3	4	5	
Risk averse						Risk taker

Comment: _____

8) Is your current resource base interms of land, labour and capital enough to support future Table grape operations :

Insuffient	1	2	3	4	5	Sufficient

Comment: _____

9) How is the competition between Table grape industry vs other agricultural related activities with regards to the following resources :

Less intense		1	2	3	4	5	Highly intense
	Land						
	Labour						
	Capital						

Comment: _____

GOVERNMENT SUPPORT AND POLICIES

1) Does South Africa's labour policy (e.g minimum wage) :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

2) Does South Africa's land reform policy :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

3) Does South Africa's trade policy :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

4) Does South Africa's macro-economic policy :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

5) Does South Africa's Competitions Act :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

6) Does South Africa's BEE (transformation) policy :

Constrains your industry's competitiveness	1	2	3	4	5	Enhances your industry's competitiveness

Comment: _____

7) The credibility and reliability of the current political system i.e. constitutional action, elections etc. is :

Very low	1	2	3	4	5	Very high

Comment: _____

8) The credibility and reliability of the current political system as it applies to Table grape industry is :

Very low	1	2	3	4	5	Very high

Comment: _____

9) In your opinion, how are the regulatory standards such as product standards, energy, safety, evironment :

	1	2	3	4	5	
Lax or non-existent						Among the worls's most stringent

Comment: _____

10) Complying with regulatory & safety standards :

	1	2	3	4	5	
Obstructs competitiveness						Increases competitiveness by promoting improvement

Comment: _____

11) Administrative regulations are :

	1	2	3	4	5	
Burdensome						Routine with minor effort

Comment: _____

12) The tax system :

	1	2	3	4	5	
Impedes business environment						Promotes business environment

Comment: _____

13) What effect do you think the increased VAT will have :

	1	2	3	4	5	
Negative						Positive

Comment: _____

14) Did the political, legal or illegal factors over the past five years undermined your industry's strategic positioning :

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

Negatively	1	2	3	4	5	Positively

Comment: _____

15) How does corruption and opportunism affect your industry's competitiveness :

Impedes business environment	1	2	3	4	5	Promotes business investment

Comment: _____

16) The water regulations Act :

Hinges level of competitiveness	1	2	3	4	5	Do not have an impact

Comment: _____

17) The call for land expropriation without compensation will :

Constrain your industry's competitiveness	1	2	3	4	5	Enhance your industry's competitiveness

Comment: _____

CHANCE FACTORS (FACTORS WHICH YOUR FIRM HAS NO CONTROL OVER AND ARE EXTERNAL IN NATURE)

1) The current exchange rate :

Constrains your industry's competitiveness	1	2	3	4	5	Enhance your industry's competitiveness

Comment: _____

2) The fluctuations in exchange rate :

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Constrains your industry's competitiveness	1	2	3	4	5	Enhance your industry's competitiveness

Comment: _____

3) Are there any advantages that SA table grape industry get from occurance of unfortunate events to competitors :

No advantages	1	2	3	4	5	More advantages

Comment: _____

4) Crime in general :

Imposes significant threat to your industry	1	2	3	4	5	Does not impose significant threat to your industry

Comment: _____

5) Health- HIV/AIDS, TB, etc :

Imposes significant threat to your industry	1	2	3	4	5	Does not impose significant threat to your industry

Comment: _____

6) Economic development and growth in South Africa :

Constraints the industry's competitiveness	1	2	3	4	5	Is an opportunity to increase your industry's competitiveness

Comment: _____

7) To what extent does international events such as conflicts, international boycotts etc impact on your industry's competitiveness :

Is an opportunity to increase your	1	2	3	4	5

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

Constraints the industry's competitiveness						industry's competitiveness

Comment: _____

8) Global recesssion will have:

	1	2	3	4	5	
Big negative impact on your industry						No impact on your industry

Comment: _____

FUTURE PROJECTIONS/EXPECTATIONS- PLEASE GIVE YOUR OPINION IN THE BUSINESS STRUCTURE OF YOUR INDUSTRY OVER THE NEXT 10 YEARS

Do you assume that over the next 10 years

1) There will be an increase in the number of existing table grape companies:

Yes	No

2) There will be an increase in the size of table grape companies:

Yes	No

3) There will be an increase in the table grape value chains:

Yes	No

4) There will be an increase in supply of long term contracts along the value chain:

Yes	No

5) There will be more fragmented/diverse markets:

Yes		No

The competitiveness status of the South African table grape

6) There will be an increase in global companies:

Yes	No

7) There will be less trust/more opportunistic in business relationships:

Yes	No

GENERAL QUESTIONS- In your opinion

1) What are the main factors that influence your decision making?

a)
b)
c)
d)
e)

2) Do you think SA Table grape industry is strong enough to cope with competition? If not, what could be done?

Yes	No

Comment: _____

3) Do you think SA government is doing investing enough in the Table grape industry to increase its competitiveness status?

Yes	No

Comment: _____

4) Who are the most threatening competitors both locally and internationally

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

Locally:

Internationally:

Dominant factors currently shaping the Table grape industry: Please rank according to your view

1) Global economic conditions :

	1	2	3	4	5	
Dominant factor						No impact/minimum factor

2) Increased urbanization :

	1	2	3	4	5	
Significant factor						Less significant factor

3) Changing demand :

	1	2	3	4	5	
Big impact						No impact

4) Emerging markets :

	1	2	3	4	5	
Dominant factor						No impact/ minimum factor

5) Uncertainty and volitality :

	1	2	3	4	5	
Big impact						No impact

6) Political factors :

	1	2	3	4	5	
Highly significant						Less significant

7) Changing technology :

	1	2	3	4	5	
Highly significant						Less significant

8) Changing agri-business structure :

	1	2	3	4	5	
Big impact						No impact

9) Trade policy:

	1	2	3	4	5	
Dominant factor						Less dominant

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided

10) Market speculation:

Highly significant

1	2	3	4	5

Less significant

Thank you so much for taking time to complete this survey- it is much appreciated!

The competitiveness status of the South African table grape industry-

Please mark only one block: 1=Negative; 3= Neutral; 5= Positive
Any additional comments would be welcomed in the comment space provided