The effect of avocado consumer preferences and behaviour on the global commercialization of new avocado horticultural intellectual property

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Executive summary

Supermarkets source avocados globally to ensure it is available to consumers year-round. However, for individual producers, and for country specific avocado industries, it is also imperative to find ways in which to lengthen their production season to optimise their market share. Westfalia Fruit Estate, a subsidiary of Hans Merensky Holdings, has been testing various potential cultivars that mature at different stages during the seasonal span to lengthen their production season. They were subsequently awarded the commercialization rights to a Plant Breeders' Rights protected avocado cultivar '3-29-5' (late maturing) in all major avocado producing countries. Critical information regarding consumer preferences, buying behaviour and perceptions about avocados was needed to formulate a strategic pathway to ensure effective management of this cultivar internationally. This study therefore explored avenues in avocado consumer preference and buying behaviour.

The study population consisted of avocado consumers who regularly buy and eat avocados. To ensure useful results are obtained, a purpose non-probabilistic sampling method were used. An avocado-eating population was approached through social media (using Facebook), and responses were obtained using an electronic survey that was posted on an e-survey website. In total, a response of 550 completed surveys was received, of which 497 were usable. Data from the survey were pooled according to four distinct geographic areas and frequencies determined for each statement. This data arrangement into respondent country of origin was done to address the specific objectives of this study relating to main markets for avocados relevant for Westfalia.

The study's aim was to determine how consumers relate to specific factors that affect the way in which fruit is marketed in supermarkets. This might have an influence on effective commercialization of new intellectual property in the global avocado industry. The objectives were:

- To assess the importance of year-round availability of avocado to ensure customer acceptance and whether this has an influence on buying behaviour
- To determine the value of a trademark Gem® and the necessity to develop this trademark to distinguish '3-29-5' from other avocado cultivars

- To determine if the origin of an avocado fruit will influence the consumer buying behaviour
- To identify whether exclusivity of a product will lead a consumer to pay more for the product

As the aim of this study was to get an overview of consumer behaviour and perceptions, and due to the size of the sample compared to the population size, no market- or segment-specific conclusions can be drawn from this data. To devise specific segment marketing plans, a more in-depth analysis is needed. This study also did not look at consumer behaviour and perception towards other crops and subsequent successfully branded cultivars currently available. The survey was a cross-sectional snapshot at a particular moment in time and did not allow for extrapolation far into the future.

Consumers in all regions confirmed that good eating quality avocado supply is not constant, and that most would buy more avocados if the supply of good quality was constant. Most consumers in all four regions indicated that they are prepared to pay a premium for an attractive, high quality avocado. Knowledge of neither how to ripen avocados, nor how to use avocado as part of a diet would affect consumers to buy more fruit. Consumers in all regions state that they are aware that there are different avocado cultivars available. There appears to be no clear trends as to preference for cultivars based on fruit skin colour alone. Although most consumers in the survey suggest that they do not prefer or actively pursue a specific avocado cultivar when shopping, results from the current study suggest that even if they did, cultivar information is not displayed in supermarket stores for consumers to distinguish between cultivars. Consumers from all regions are aware that avocados offered on supermarket shelves in their respective countries can come from different producing countries. Consumers from avocado producing countries in this study confirmed that if they had a choice, they would buy locally grown avocados. Although preference for country of origin exists in some cases, it seems that price overrides the influence of country of origin on the buying behaviour of consumers. Most consumers from all regions indicated that they are not prepared to pay a premium price for a specific avocado cultivar. It also appears that consumers do not place any value on exclusive availability of fruit, even if exclusivity is based on availability of a cultivar from a specific supermarket.

Further research should foremost determine where the break in the information chain towards the consumer is. Once this is established, a training program can be initiated to educate both supermarkets as well as consumers what the differences between cultivars are, and how they differ with regards to specific characteristics such as season, skin colour, storageability etc. Market research into how to divide the avocado eating market into different segments within each region is important with relation to their reaction to cultivars and willingness to pay more for good quality fruit. Adding onto this research, it is also important to determine what factors ensure uniqueness to Gem® avocados. Then studying the willingness of consumers to pay will determine the intrinsic value placed on a high quality fruit. This will allow Westfalia to position 'Gem®' fruit at the right price into specific markets that would help to ensure the survival of this cultivar.

Original work declaration

I certify that the research report: “The effect of avocado consumer preferences and behaviour on the global commercialization of new horticultural intellectual property” is my own original work that has not been submitted for any degree purposes previously. All references used are accurately reported.

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Theo Bekker Date

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Table of Contents

List of Figures

List of Tables

Chapter 1: Problem in context / Orientation

1.1 Introduction

Producers supply fresh fruit markets around the world with avocados, aiming to ensure avocados retain a permanent position on the shelves of supermarkets, who demand constant year-round supply. Supermarkets manage to do this by sourcing fruit globally. For individual producers, and for country specific avocado industries, it is also imperative to find ways in which to lengthen their production season. There are two ways in which to achieve this – planting orchards in a wide range of climates, but also by using different cultivars that matures at different stages during the span of a season. To this end, Westfalia has been testing various different potential cultivars and now owns the commercialization and marketing rights to a Plant Breeders' Rights protected avocado cultivar '3-29-5' in all major avocado producing countries. Critical information regarding consumer preferences, buying behaviour and perceptions about avocados is needed to formulate a strategic pathway to ensure effective management of this cultivar internationally. This study therefore explores avenues in consumer preference and buying behaviour; seeks to determine whether the country of origin has an effect on product liking; and whether consumers identify and related to specific cultivars.

1.2 Problem in context

The consumer market has become a global giant where consumers and consumer-driven supermarkets demand year-round supply of a product to justify shelf space. Except for specific promotions in leading supermarkets, fruit however loses its producer and cultivar identity as well as reference to its country of origin along the supply chain. Consumers are most often not exposed to where fruit comes from, who produced it, or even what cultivar it is. Consumers are also oblivious to the fact that fruit is seasonal, and in most cases one country cannot continuously supply one type of commodity throughout the year. This has led to globalization of the production and sourcing of avocados to supply fruit to these markets ensuring avocados as a permanent product on the supermarket shelves. Not only do these supermarkets demand year-round supply, but also exclusive rights to sell a certain type of fruit or a specific cultivar, which leads to market advantage, and may result in a premium price for that commodity (although not always realised).

Tree crop cultivar development and commercialization may take from 25 to 30 years to realise. Most new avocado cultivar releases results from identification of either chance natural mutations or from an organised selection process. This process entails the systematic selection of fruit grown from cross-pollinated seed. Yield, post-harvest disease resistance, and shelf-life are some of the characteristics that are evaluated before the process of distributing plant material begins to test the material all over the world under different growing conditions. Only a few active avocado breeding selection and testing programs exist in the world, and new cultivar releases are scarce. Also, because it takes so long to develop a new cultivar, this is an expensive form of research, and breeding institutions are now capitalizing on this created intellectual property. To this end the University of California (owner of the intellectual property that lies within '3-29-5') are dependent on an external party that can commercialize its selected cultivars while both parties share the potential royalty income on the intellectual property. While Westfalia Fruit Estates does its' own breeding, selection and commercialization of avocado rootstock material, it was approached by the University of California Riverside to commercialize a cultivar '3-29-5'. Westfalia now owns the commercialization rights to this cultivar in all major avocado producing countries as well as the European Union.

There now exists a need for a strategy to determine the key drivers that will allow the successful commercialization of '3-29-5' as a viable cultivar. Effective protection over and above the acquisition of Plant Breeders' Rights of the plant material is essential for commercialization, which includes but is not limited to having every grower of the material to sign some form of contract (either a non-propagation and testing agreement or a grower club agreement) that prevent them from propagating or distributing the material in any way. Seeing as it is easy to steal plant material and in effect copy the cultivar, effective protection thereof by both PBR's and contractual conditions is imperative to ensure global commercialization succeeds. Linked to plant material protection is the development and subsequent protection of a trademark. This trademark in fresh produce is more often linked to a specific quality of fruit, and only fruit of superior quality is then marketed under this trademark. The Pink Lady® apple is an excellent example of such a trademark developmental process where the trademark is linked to a set of quality parameters. Strategic decisions within the different countries with regards to volume being produced, and quality allowed is necessitated and strategic thinking as to what parties are to be approached to be sublicensed, not only to grow, but also to market this fruit, and deciding

on what models to use in different countries appear to be as important as having a good product to offer to consumers. After all this is done and in place, the important question remains whether the consumer would be willing to pay a premium price for a product to warrant the cost involved in the development thereof.

1.3 Problem review

The Problem in context has opened up a number of potential business issues that need further elucidation. These issues will be subjected to a critical reflective analysis here, and later further interrogated through the application of underlying theoretical considerations (see chapter 2).

The realization of the value of agricultural **innovations** through **intellectual capital** protection has resulted in the concentration of proprietary technology in a few corporations (Athokorala and Kohpaiboon, 2010). International commercialization of this material and global distribution thereof (**globalization**) forms part of this value realization roll-out plan. This roll-out plan set as a first goal to test domestic market acceptance, and then develop a domestic market for '3-29-5'. Only when Westfalia can be assured of a 12 month of the year supply of '3-29-5' fruit, part of the **strategic marketing** concept being developed for '3-29-5', will controlled supply of this cultivar be allowed to specific supermarkets outside individual domestic markets.

The absolutely dominating role of the avocado cultivar 'Hass' in the world avocado trade is the greatest challenge to develop '3-29-5' successfully. For this reason, '3-29-5' production has not taken off in California where the cultivar was developed as the US consumer market is primarily 'Hass' (or at least black skin fruit) orientated. Steenkamp and van Trijp (1996) states that food markets (and especially so for fruit markets) are buyers' markets as a consequence of low growth in demand, the proliferation of choice and international competition. On top of consumer unawareness of different cultivars available, they are also becoming more aware of quality issues linked to health, taste, environmental and ethical issues (Ness *et al.,* 2010). Marketing agents within the supply chains are required to formulate **marketing strategies** to differentiate products that they offer, to gain competitive advantage (Anderson, *et al.,* 1994). The development of the trademark Gem® for '3-29-5',

as part of the strategy to showcase '3-29-5' as a premium product may assist to increase the return on investment, and ultimately justify the payment of a royalty.

Westfalia is in the process of registering the trademark Gem® globally for '3-29-5' as part of the **intellectual capital** associated with this cultivar. To this end, it is important to ask whether the consumer is aware of differences in avocado cultivars. As the trademark Gem® will be used only for superior quality fruit, consumer awareness of cultivar related quality parameters is vital. Also, would consumers pay a premium price for a product if they perceive the product to have superior quality? Ultimately, is it necessary to develop a new trademark for '3-29-5', or could the effort put into this be utilised better elsewhere? Strategic marketing to determine the right market segment, product category and marketing strategy relating to trademark usage for '3-29-5' is essential to ensure the implementation thereof by middle management is effective.

A possible solution in determining a **marketing strategy** is to place the consumer at the centre of the business focus. This consumer focus requires understanding of the consumer purchase decision process and to focus on the satisfaction of these 'consumer quality needs' rather than being producer or supermarket lead (Hallowell, 1996). Whether the consumer buying behaviour is influenced by exclusivity of produce, or whether only price determine consumer purchase behaviour, should still be proven. However, no more can developers of **innovation** capitalize on **intellectual capital** with a narrow single-market focus. Continued supply of high quality produce to the consumer leads to **globalization**, which in turn lead to an incredible race in the field of innovation where innovation is often taken as a purpose in itself. Szanto (2001) divides companies that race towards innovation into three groups: the avant-garde, the followers and the tails. The approach to **innovation** of any company dealing in, and wanting to gain financially from **intellectual capital**, will determine their success.

Westfalia's aim with **innovation** is not to only hold their market share, but to increase their rate of **innovation** creation to increase market share. Indeed, strong **intellectual capital** may not provide a stimulus towards innovation in avocado producing countries that are highly protected from international trade. In open trade regimes though, local firms face foreign competition that use the latest technology. Local firms that wish to meet the

challenge by purchasing technology from abroad may find that weak **intellectual capital** protection at home impedes their efforts. It is true that firms that hold technology are reluctant and often refuse to license or lease their innovations to countries with weak **intellectual capital** protection (Gould and Gruben, 1996). If the incentives to innovate are triggered, intellectual property rights protection may affect economic growth (Gould and Gruben, 1996). Will stricter enforcement of **intellectual capital** protection be a good strategy for the economy of developing countries growing avocados? The question remains whether WTS should limit the **intellectual capital** distribution as part of their **marketing strategy**.

Part of the **strategic marketing** of '3-29-5' would be that all fruit trade of globally produced '3-29-5' will be channelled through Westfalia and its related international companies in order to coordinate the market supply to ensure year-round availability. Is the optimized supply of '3-29-5' fruit to selected retail groups in specific countries as an exclusive product the right strategy to develop '3-29-5' as a competing avocado cultivar in the world market? Will this strategy ensure a premium price for Gem® fruit?

1.4 Problem statement

The research problem statement, research questions and sub-questions, as well as hypotheses and propositions were developed according to proposed guidelines by Watkins (2008).

1.4.1 Main problem statement

Consumers are becoming conscious buyers, and may be willing to pay more for a specific cultivar when buying fresh produce, if this cultivar is linked to higher fruit quality. Also, to supply consumers continuously with a product of high quality, production globalization is necessary. Globalization of this plant material, especially if it is protected by intellectual property rights, should form part of any fresh produce marketing strategy to build brand awareness and thus ensure survival of new intellectual property in the consumer market. The problem statement is:

The need to commercialize new intellectual property in the global avocado industry necessitates a broadening of the understanding of avocado consumer preferences and behaviour, within all the important international avocado markets.

1.4.2 Research question

How does consumers relate to specific factors, which affect the way in which fruit is marketed and presented in supermarkets, which might have an influence on effective commercialization of new intellectual property in the international avocado industry?

1.4.3 Investigative (sub-) questions

A) Does the year-round availability of avocados influence consumer buying behaviour?

B) What is the trademark value of Gem® and is it necessary to develop this trademark to distinguish '3-29-5' from other avocado cultivars?

C) Will consumer knowledge of product exclusivity lead to a consumer paying more for the product?

D) Does the origin of fruit influence consumer buying behaviour?

E) Would linking the trademark Westfalia® to Gem® assist in creating a stronger brand in the marketplace?

F) Is the use of Plant Breeders' Rights protection sufficient to ensure exclusivity of horticultural intellectual property?

1.4.4 Objectives

Given the comprehensive range of possible questions listed above, and the practical realities of time, this research will only attempt to answer some of the above questions. They are posed here as objectives for the study.

1) To assess the importance of year-round availability of avocado to ensure customer acceptance and whether this influences buying behaviour

2) To determine the value of a trademark Gem® and the necessity to develop this trademark to distinguish '3-29-5' from other avocado cultivars

3) To determine if the origin of an avocado fruit will influence the consumer buying behaviour

4) To identify whether exclusivity of a product will lead a consumer to pay more for the product

1.5 Importance of the research

The study was important to provide insight into avocado consumer knowledge and buying behaviour. In the past, marketing decisions have been taken on limited knowledge of avocado consumer preferences and largely based on retail chain requirements. Not only Westfalia will benefit from the knowledge gained in this study; any marketing company or retail outlet that wants to understand consumer perceptions regarding avocados will profit from this study's outcomes. Knowledge gained from this study will aid in, amongst others, allowing marketers to understand consumer knowledge on differences between cultivars, and how consumer education should be focussed; understanding what information should be included on product labelling and advertising of avocados; and determining whether the country of origin is at all important to consumers and something to capitalize on. This study also paves the way for strategic thinking on how to commercialize new intellectual property held in avocado cultivars, and assist in delegations between producers and retail outlets on how to market avocados.

1.6 Assumptions and Delimitations

It was assumed that respondents who completed the consumer survey were willing to participate in the study and provide their honest, unbiased opinion on specific statements. Also, that the participants fully understood all the research questions contained in the consumer survey. Pretesting and in-depth discussions were focused on comparable individuals outside the target population to prevent interactions and exchanges with the researcher that may influence study responses (Cooper and Schindler, 2003). The consumer survey was assumed to be a reliable instrument. The study was limited to the avocado consumers. The limitations identified at the onset of the research were that the study is very specific, focused and narrowly defined. The descriptive nature of the study did not allow for causal interferences to be made and the survey was a cross-sectional snapshot at a particular moment in time and did not allow extrapolation far into the future.

1.7 Overview of the report

The research report followed a chapter layout. Chapter 1 is aimed at orientating the reader and introducing the research topic. In this chapter the rationale of the study, research problems delimitations, limitations and importance of the study are discussed.

Chapter 2 presents the strategic framework of the study and the research problem broadly contextualised in the strategic framework of the industry.

Chapter 3 provides a critical review of literature, concentrating on key topics identified in the research problem statement and research questions. It aims at identifying gaps in the literature and sketches the specific contextual framework of the study.

Chapter 4 discusses the research methodology in detail. It explains the experimental design, sample selection, development of the measurement instrument, data analysis and other elements relevant to the material and methods of the study.

Chapter 5 discusses and explains the results, putting the findings into context, presenting the statistical findings and other results obtained from the research. This is achieved by interpreting the results, comparing the results of the study to previous research and indicating the relevant gaps in the literature that should still be addressed. The trends, patterns, differences and limitations of quantitative results are noted. Figures and tables are used to present the data.

Chapter 6 provides conclusions from the information presented in Chapter 5, and discusses recommendations on possible steps to be taken by Westfalia to commercialize '3-29-5'. The final section lists the references and provides the appendices.

1.8 Summary

Chapter 1 introduced the research topic, and opened up the major issues surrounding shortcomings in avocado consumer preferences and buying behaviour. Chapter 2 will focus on appropriate business management considerations that are applicable in order to address the research problem.

Chapter 2: Problem analysis / Theoretical considerations

2.1 Introduction

In chapter 1 the foundations for a business case to this study has been laid through the identification of a number of key business issues. These issues will now be further interrogated through the application of appropriate business management theoretical considerations, thus unravelling further the underlying complexity of these issues.

What is the best strategy to follow to develop intellectual property? Although most producers aim to diversify their offered product, numerous retail outlets are moving towards one cultivar being 'Hass' – is this sustainable in the long run, and will consumers benefit from a diversification strategy implemented by producers? The theoretical considerations below aim to address these issues.

2.2 Theoretical considerations

2.2.1 Diversification

Avocados are still a relatively new crop in all markets compared to deciduous and citrus fruit. Albeit new, avocado consumption has and still is growing tremendously. Currently 5000 tons of avocados are consumed in Europe per week, while South African consumers alone consume 800 tons of avocados per week. It is therefore important to note that although '3-29-5' will enter the consumer market as a new cultivar, it may get lost in a sea of unbranded fruit if it is not marketed correctly. Penetration into markets where'3-29-5'is suspected to draw a premium price is also imperative. In order to ensure this, **diversification** needs to form part of Westfalia's marketing strategy, where they will seek to increase profitability through increasing sales obtained from new products in new markets. Diversification forms part of the four main growth strategies as defined by the Market/Product Ansoff matrix (Figure 2.1). Although diversification can include numerous strategies, the marketing of '3-29-5' will rely on licensing of new technologies.

		Products	
		Present	New
Markets	Present	Market penetration	Product development
	New	Market development	Diversification

Figure 2.1: The four main growth strategies a company can implement as defined by the Product/Market Ansoff matrix

The marketing of '3-29-5' would fall within concentric diversification, as there is a technological similarity between '3-29-5' and other avocado cultivars. This means that Westfalia should be able to leverage its technical know-how to gain some advantage, as limited new knowledge is necessary to successfully market '3-29-5'.

There are two dimensions of rationale for diversification. The first one relates to the nature of the strategic objective: diversification may be defensive or offensive. This strategic development of '3-29-5' would be offensive where Westfalia would be taking opportunities that promise greater profitability than expanding avocado volumes of current commercially available cultivars. The second dimension involves the expected outcomes of diversification: Westfalia expect both great economic value (growth by new market penetration and profitability) as well as complementary coherence to their current activities by exploitation of their know-how and efficient use of their available resources and capacities.

2.2.2 Resource Management

Using the **resource-based view (RBV)** as a business management tool it is possible to determine the strategic resources available to Westfalia (Figure 2.2). The basis for a competitive advantage lies primarily in the application of the bundle of valuable resources at the firm's disposal (Wernerfelt, 1984) (Figure 2.3).

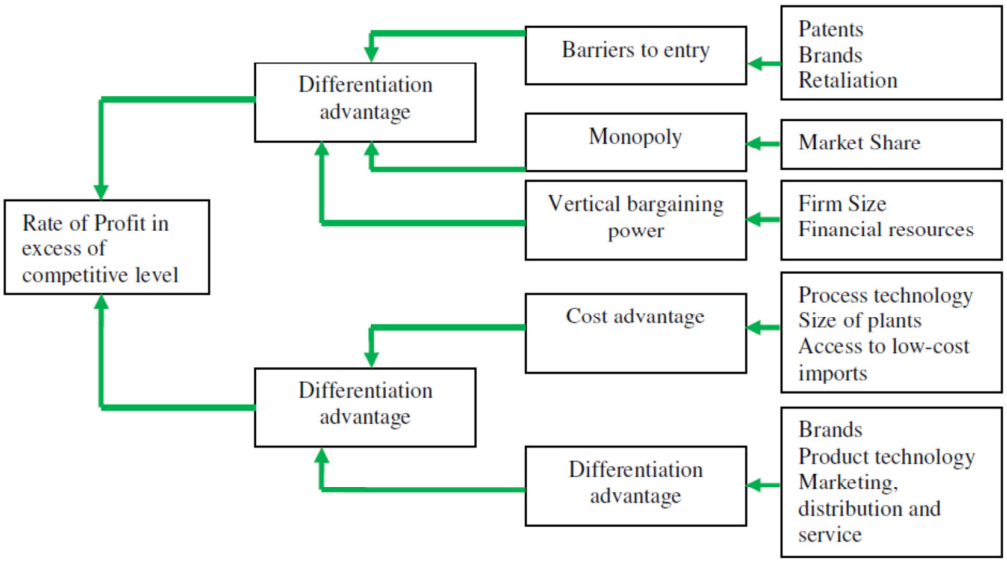

Figure 2.2: Resources as the basis for profitability, adapted from Grant (1991).

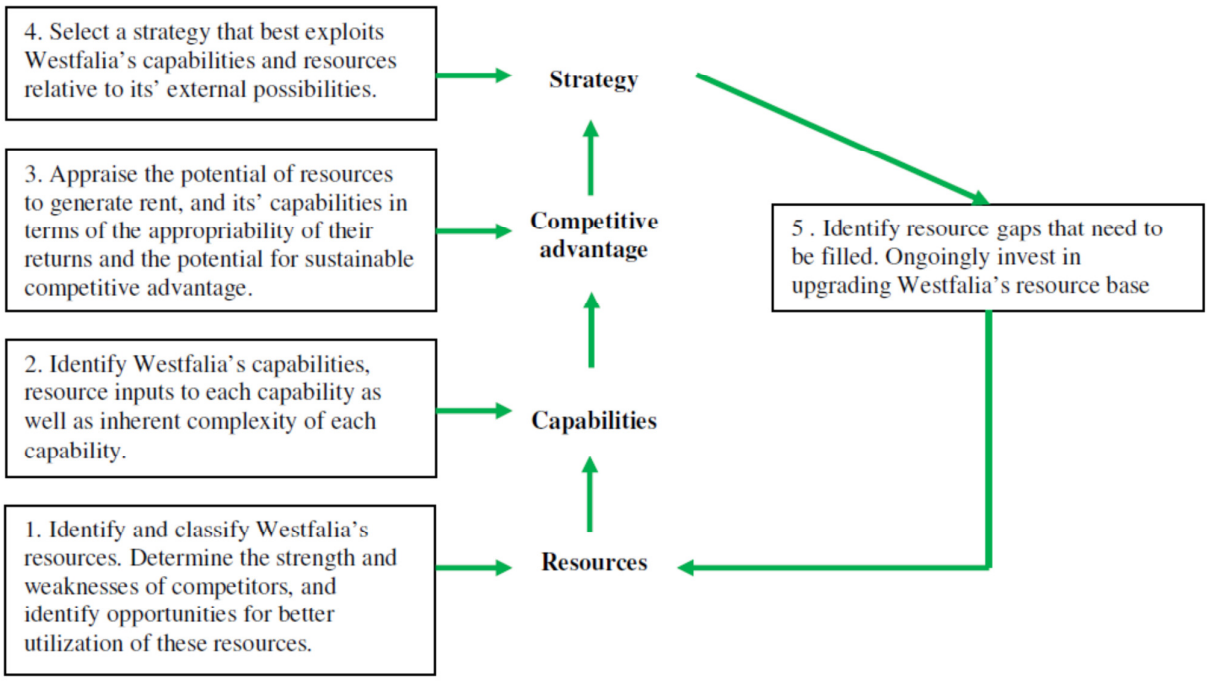

Figure 2.3: A resource-based approach to strategy analysis – a practical framework, adapted from Grant (1991).

In order to transform a competitive advantage with a short life span into a sustained competitive advantage, it is necessary that these valuable resources are neither perfectly copied nor substitutable without great effort (Barney, 2001). Under these conditions, a firm's resource bundle can assist in sustaining above average returns. The new intellectual property held in '3-29-5' as well as a new brand held in Gem® are potential key resources. These resources hold value as it enables Westfalia to employ a value-creating strategy, by both outperforming its competitors by having valuable produce they do not have as well as reduce its own weaknesses by extending its own season and limiting supply gaps that exist in the market. Westfalia holds the sole commercial rights to '3-29-5', and all licensing contracts will stipulate that Westfalia marketing is the sole agent in consumer markets, leading to this resource being rare, and only available from one supplier. Because breeding takes so long and the cultivar '3-29-5' has distinct features that distinguish it from other mainstream cultivars it would be difficult to imitate the resource. Competitors might be able to substitute this resource with other cultivars leading to prices being driven down to the point that the price equals the discounted future rents resulting in zero economic profits. These characteristics mentioned are individually necessary, but not sufficient conditions for a sustained competitive advantage (Priem and Butler, 2001). Within the framework of the

resource-based view, the chain is as strong as its weakest link and therefore requires the resources to display each of the four characteristics to be a possible source of a sustainable competitive advantage.

2.2.3 Globalization

Globalization is a major characteristic in order to assure effective and continuous supply of '3-29-5' into the main avocado consuming markets. Westfalia's global strategy should address what the market presence must be in the world's major avocado markets, and how this global presence will be built. Also important is to decide on the optimal production locations around the world. Because Westfalia is working with a perishable product, continued supply of the product throughout the year is imperative to build markets, and to hold market share. Globalization is imperative to allow Westfalia to sell a standardized product continuously. As Westfalia does not have to invest monetary capital to ensure production of '3-29-5' in different countries, the cost of globalization is extremely low compared to other globalization strategies. Building intellectual capital may take time, and global strategies require firms to tightly coordinate their pricing and product strategies across locations and international markets, and therefore firms that aim to have a global strategy tend to be typically highly centralized.

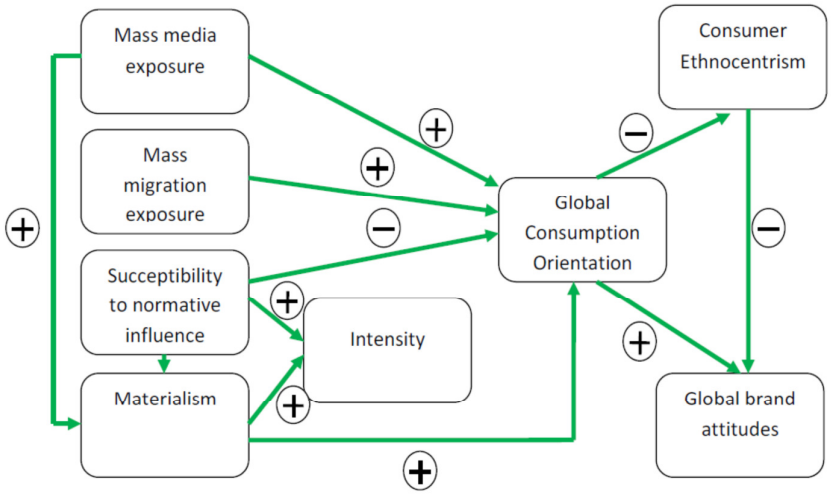

Figure 2.4: Factors that have either a positive or negative influence on consumer attitudes towards globalization (Alden *et al.*, 2006).

Consumption alternatives as a result of market globalization lead to consumer attitudes clustering along a global–hybrid–local continuum (Figure 2.4). Alden *et al.* (2006) used

quantitative modelling to describe consumption preferences that vary in terms of cultural content from global to local. Their model indicates that globalization and cultural homogenization are not equivalent, and that consumers often integrate local and global consumption symbols. As avocados grown in the European Union is limited to those grown in Spain, and seeing as the majority of avocados consumed in the EU are produced elsewhere in the world, most EU consumers are exposed to globally produced avocado fruit. Alden *et al*. (2006) further argue that it may be more profitable to offer a portfolio of brands that differ in terms of attribute associations along the global-hybrid-local continuum, depending on the country and target market attitudes towards globalization. This is something that Westfalia can offer, as they source fruit from all avocado producing countries, ensuring a global-hybrid-local continuum within their fruit source. The unstoppable flow of global media and migration suggests that a homogenous global consumption orientation (GCO) will eventually dominate local markets. Nonetheless, diverse attitudes towards global consumption orientation will still exist for the foreseeable future. Markets in which consumers have a strong negative attitude towards GCO, a locally positioned brand is likely to be met with greater success than one that forms part of a GCO symbol set, whereas markets in which consumers have a positive attitude towards GCO offer a brand manager more flexibility in positioning the brand as local, global or foreign. Consumers' exposure to mass media positively influences GCO and global brand attitudes, emphasizing the importance of on-going communication. Mediation of the path between GCO and consumer ethnocentrism influenced global brand attitudes which indicates that consumers continue to hold varying opinions about whether the global availability of consumer goods and lifestyles is either positive or negative to modern life.

Global business development within Westfalia based on its Intellectual Property (IP) strategy cannot be assumed as a reason for its growth. From incremental models proposed for describing the accelerated globalization phenomenon (Rialp *et al*., 2005), Westfalia can be described as an international New Ventures company. This is a "business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries" (Oviatt and McDougall, 1994).

IP plays a crucial role in the globalization process of Westfalia. It has been shown that knowledge-intensive organizations leverage knowledge and other resources in order to globalize rapidly and gain competitive advantage on the global market (Auruskeviciene *et*

al., 2008; Gudas, 2009). This includes building on existing knowledge of markets and technology, and incorporating new knowledge domains until the value of products or services, incorporating all the knowledge, become more valuable than the sum of different knowledge domains. This leverage process does not happen accidentally, it requires strategic IP decisions including protection, sharing, and acquiring of intellectual property.

The Price-"Operation-mode"-Market strategy (POM strategy) is used to describe the determinants of accelerated globalization (Luostarinen and Gabrielsson, 2004). Although the POM-strategy model have a few important determinants relating to International Entrepreneurship including environment and finance, this discussion will only focus on the role Intellectual Property (IP) plays. Westfalia's technological reputation is one of the underlying considerations in the design of its IP portfolio. Not only is the quantity of IP relevant, but the value and quality thereof is even more important. Chesbrough (2003) states that by itself technology has no built-in value, and that value is only created when technology is commercialized.

Characteristics of intellectual property rights (IPR) can have three types of impact on Westfalia. IPR can be a barrier to globalization; it can block constraining competitors and their ability to leverage; and it can support the market and knowledge leverage. Despite both international and regional initiatives to harmonize the legal IP framework in different countries, IP systems remain "products" of national legal systems embedded in the local legal cultures. Firstly, because a product protected in one country does not necessarily enjoy protection in another, Westfalia has to protect (using for example Plant Breeders' Rights) '3-29-5' in all countries where it is doing business. Secondly, the extent of IP rights and limitations differ between countries, even though UPOV (Union for the Protection of new Varieties of plants) has helped tremendously to generalize plant protection legislation worldwide. Thirdly, the existence of IP does not guarantee that the rights of Westfalia are not infringed. It is up to Westfalia to enforce its rights, which is why no material is handed to growers without a detailed grower contract being signed. This task is more complicated if done in many jurisdictions, which will be the case for '3-29-5'. Consequently, difficulties relating to enforcement could constitute a challenge to Westfalia given its' limited resources.

In addition to barriers, IP could however also offer opportunities and possible leverage effects. The faster Westfalia identifies opportunities created by IP and learns how to realize them, the higher the chances are for successful globalization, leading to the recognition of opportunities and entrepreneurial learning situations. Company strategy (POM-model) and management behavioural patterns (e.g. opportunity identification and realization) match better to a general understanding of rapid globalization process than formal criteria. While IP can be both a barrier and leverage for Westfalia, entrepreneurial learning is required which will lead to a need for better understanding of the content of core competence(s) and their interaction in creating long-run competitive advantage that is hard to compete within the Market.

To this end Miyaki *et al*. (2004) proposes a patent portfolio management model (Figure 2.5) where each piece of IP should be examined and classified into either one of four categories that will help with the management of this property. The cultivar '3-29-5' fits into the spearheading and shotgun category, where Westfalia sees it as intellectual property that needs to be held and developed. Also, the sharing of this IP will be under license, and Westfalia will still benefit financially as well as increase in stature from sharing this IP.

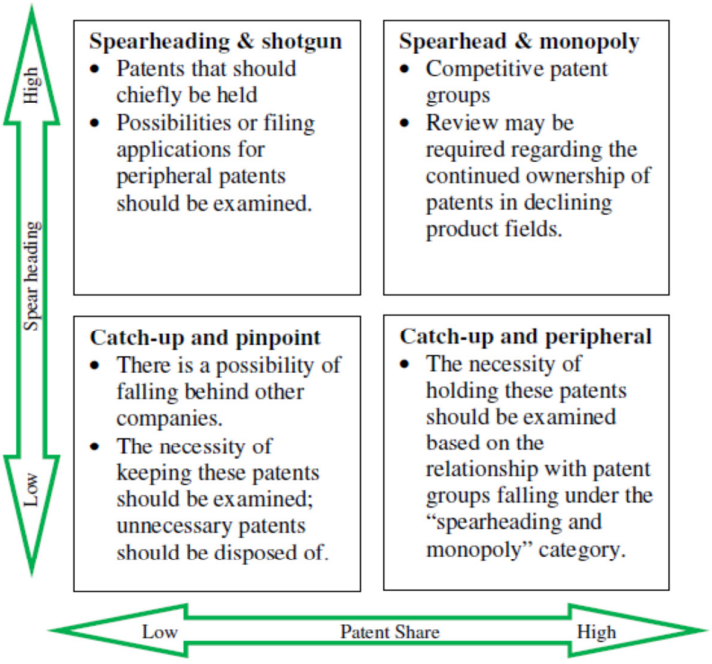

Figure 2.5: Strategies that can be implemented to manage a company's intellectual property portfolio (Miyake, Mune and Himeno, 2004)

Similar to other assets, IP can be leveraged to generate profits; it cannot be used; or even depreciate. IP possession therefore is not a guarantee of success. On average, companies actively use only 10 – 15% of its' IP portfolio which is, outside isolated cases, a reflection of poor IP management. Although businesses generate some of the most innovative intellectual property, this IP my stay unused due to the lack of capital needed to take advantage of it. However, funding opportunities does exist that allows companies with top intellectual property, but limited fixed assets, to grow.

Forged alliances between companies lead to heightened value of intellectual property and mutually beneficial competitive advantages. Revenue is enhanced through better R&D and market intelligence deployment by the correct strategic positioning of IP. This also leads to licensing income, as well as the potential for other business developments such as mergers, joint ventures, and cooperative R&D agreements. These alliances will often give the partners involved increased clout in their particular technology field.

All intellectual property is not income generating and does not fit into legal IP definitions such as patents, trademarks, and trade secrets. By sharing internal knowledge with other teams within the company, a company as a whole is able to complete projects more efficiently and effectively.
Intellectual property should be seen as part of the resources of Westfalia. The optimal use of this resource will assist in creating a sustainable competitive advantage in the global marketplace. By utilizing this resource Westfalia will be able to diversify its product range and potential market service which will fuel its global strategy. Global business development within Westfalia based on its Intellectual Property will try and use their knowledge-intensive focus to globalize rapidly and gain competitive advantage on the global market not only by building on existing knowledge, but also to become more valuable than the sum of different knowledge domains.

2.2.4 Branding

In order to understand, manage, and organize the full scope of brand management tasks, a BLIP-model is proposed by John (2006), which emphasizes the need to consider not just how to advertise and build brands, but also how best to leverage them, how to identify their position, and how to protect past investment in brands. While brand building is important,

focusing on it alone risks neglecting other critical elements of strategic brand management. To combat this myopic focus, it is necessary to utilize an overarching framework called the BLIP model that highlights the need for continued management of brands well beyond their initial creation. The model identifies four components of branding, which is Building, Leveraging, Identifying, and Protecting Brands.

Firstly, Westfalia should define what its brand represent, i.e. the brand identity. Once a clear idea of the brand's identity is formed, marketing tools can be used to build the brand. This includes the use of the '4P process' where product, price, place, and promotion analysis is used to create a promotional strategy that utilizes both traditional advertising and inventive approaches. The product itself should, through customers' experiences, build and solidify desired perceptions. Management of distribution and placement can be done by considering the customer experience and merchandising at every selling point. Pricing should be both low enough to drive growth, but not so low as to dilute the brand.

A vital decision is how to best utilize brand assets. Westfalia may choose to leverage some of its brand's established equity to create line extensions, brand extensions, or co-branded products. Monitoring customer impressions of important elements of the brand including sensitivity to a brands' country of origin, customer attitude towards the brand etc. plays an important role in brand management. It is important to identify what a brand is and how it changes over time so it can be successfully leveraged.

Protecting the brand has historically been short-changed, being forgotten as the brand building bandwagon took off. Traditionally, protection came from legal teams whose work with trademarks remains an element of protecting the brand but is, by no means, the entire protection needed. Westfalia should institute policies to avoid the dilution of brands. Many of the elements of leveraging a brand can also dilute a brand. Westfalia should ask whether they are monitoring and minimizing the costs of dilution from line extensions, brand extensions, and co-branding arrangements.

Strategic brand management is not only a question of building brands, but also using a broader consideration framework when managing brands. To maintain healthy and vital brands, firms need to pay attention to brand building, but should not neglect important issues related to brand leveraging, identification, and protection.

2.3 Summary

There now exists a need for a strategy to determine the key drivers that will allow the successful commercialization of '3-29-5' as a viable cultivar. Effective protection over and above the acquisition of Plant Breeders' Rights of the plant material is essential for commercialization This includes but is not limited to having every grower of the material to sign some form of contract (either a non-propagation and testing agreement or a grower club agreement) that prevent them from propagating or distributing the material in any way. Seeing as it is easy to steal plant material and in effect copy the cultivar, effective protection thereof by both PBR's and contractual conditions is imperative to ensure global commercialization succeeds. Strategic decisions within the different countries with regards to volume being produced is necessary as well as strategic thinking as to what parties are to be approached to be sublicensed, and what models to use in different countries should be devised.

In chapter 2 the identified key business issues were discussed with the help of appropriate business management theoretical models thus unravelling further the underlying complexity of the issues at hand. The following section will focus on current literature available on the subject, and highlight the importance of leveraging current knowledge to reach the set goal.

Chapter 3: Literature review

3.1 Introduction

Chapter 2 applied theoretical knowledge on the subject field to the current study, and indicated that a complex issue, broken down into manageable sections, can be analysed and managed using current knowledge. Yet, to ensure that theoretical models are applied correctly, it is important to look at existing knowledge on the subject to further understand the underlying complexity of these issues. This chapter will therefore explore the broader academic issues related to the main themes already identified, i.e. Globalisation, legislation pertaining to Plant Breeders' Rights and trademark protection, branding and consumer buying behaviour.

3.2 Globalization

Over the past few centuries, national governments sought to encroach and micro-manage economies, nurtured partly by a belief that only the State could boost industrial development and also by the need following periodic economic depressions to boost the economy (Reardon and Barrett, 2000). This management style was repeated in various diluted versions by governments of newly independent countries throughout the developing world whom, with the goal of growth and equity in mind, were looking to wean their economies away from the colonial mind-set of provisioning the core countries with primary products (Adams, 2008; Peter *et al.,* 2001). Governments are now seeking ways to reduce spending and the favoured solution is to entrust the market with hitherto government-assumed functions by privatizing state-owned enterprises including sectors such as health and education. Privatization exposes vulnerable groups to market alterations. How did agriculture feature in this development model and what is its new role in this globalization context?

Agriculture was seen as having a passive role in economic development. Providing a surplus for the growth of the industrial sector, including surplus labour, food and agricultural products supplied as inputs into industry and as export commodities to generate foreign exchange. Excessive surplus extraction could harm the incentive to raise agricultural production, which lead to overvalued exchange rates and distorted pricing policies (Raynolds, 2004; Reardon and Barrett, 2000). This underlines the importance of agriculture,

not just as a passive surplus generator for industrial growth, but also as a provider of sustenance for the majority of the world's population. The surplus-producing role of the agricultural sector remains constant. This in effect nurtures an industrial sector which begins to experience faster growth than agriculture; thus agriculture begins to decline relatively. Simultaneously, there have been major changes in the organization of the agri-food economy. These changes include reduced state regulation, globalization, contractual agreements between processing firms and famers, and of the increased reliance on intellectual property rights. These changes and increased global competition in the agri-food economy are linked closely with rapid technological change. Agro-industrialization is both an agent of and response to globalization and induced institutional and technological change (Peter *et al.,* 2001; Gibbs, 2000).

International trade and foreign investment in agriculture are archaic concepts, where merchandise exports represented 15% of Western Europe's gross domestic product in the late nineteenth century, compared to around 25% in the 21st century. However, the context within which the current globalization drive is occurring has changed (Peter *et al.,* 2001). Two aspects are significant: the global ideological shift and the spread of new information and communication technology. The latter part of the 20th century saw a realignment of national policies towards economic liberalization, where the role of the State in economic management was dismantled. This leads to greater access for singular economies to international trade and investments. National tariffs in developing countries dropped within two decades from 34% to 20% by 1998, and are expected to fall even further in the near future (Adams, 2008). Simultaneously, technological advances has led to super-fast and effective communication channels, which can convey intricate and elaborate information bundles by the click of a button – technology that has revolutionized the world (Anon, 2000).

Three mechanisms are responsible for the spread of globalization – foreign investment, trade, and the transmission of new ideas and innovation. Proposed changes to international tariffs (currently 40% on agricultural products) and the reduction in subsidization of exports (most of which occurs in developed countries) may result in an increase of 50% in agricultural trade, making the world better off by US$160 billion (Anon, 2000b). These trends had and have direct influences on the agri-food economy. Various trade agreements and liberalization efforts by some countries have opened domestic agri-food markets to

considerable international competition (Gibbs, 2000). Also, some countries have moved away from previous strong commitments to food self-sufficiency which creates opportunities for agro-industries while also raising issues of competitiveness and technical innovation. Productivity level boosting of agriculture in developing countries to ensure survival against competition will increase, while net importers of food will have to face up to rising consumer prices. This will lead to competitive countries gaining from the global subsidy reduction (Adams, 2008).

Market-oriented economic reforms throughout the latter half of the twentieth century have reduced cross-border distribution costs and so resulted in increased currency to profit-minded activities by private sector firms (Raynolds, 2004). This has fostered increasing integration of good and capital markets around the world, linking farmers in the developing world to consumers in developed countries. Increased integration has nevertheless also raised issues regarding internationalization of product standards. Rapid technological change is transforming both the conduct and structure of production and commerce in all sectors, enhancing productivity and enabling customized production and marketing processes, all with lower transaction costs (Stiglitz, 2004; Peter *et al.,* 2001).

Barriers to foreign investment have been dismantled, with regional alignments furthering this trend, including policies adopted by agencies such as SADC. Distribution of digital technology and the subsequent dramatic decline in its prices have contributed to the increase in trade and investment in especially cross-border production by multinational enterprises (Ufkes, 1993). Multinational corporations now control one-fifth of world manufacturing GDP, and one-third of world trade occurs between globally placed factories of multinationals (Anon, 1999).

Foreign direct investment also already impact agriculture in developing countries with new export commodities being introduced. This said, the transmission of demands by international supermarket chains that their suppliers meet rigid quality standards can already be seen. It has also lead to multinationals investing directly in the agriculture sector. This could negatively impact small-scale farmers, who now account for most of the global labour force (Peter *et al.,* 2001).

The fast pace of globalization is indeed the main threat to the agriculture sector. Three facts should be considered here: (i) the domination of the food trade by a few multinational corporations; (ii) the vast technology gaps between rich and poor countries; and (iii) the role of agriculture which employs most of the labour force in poorer countries. In the agriculture sector, more than elsewhere, countries may have to step in and dictate the speed of globalization and direct its flow (Adams, 2008). The third spreading mechanism of globalization has the potential to play the most important role. The accelerated search and distribution of new ideas through innovation and technological progress has led to a decrease in innovation lag from 50 to 2-3 years. Innovation is born by something that lies outside the range of everyday economy and its notable routine activity (Szanto, 2001; Gibbs, 2000). This is why it is difficult to create social needs for unknown or new products. The chase for innovation move modern society from its relatively static state towards a dynamic and continuously changing vague state of affairs (Szanto, 2001).

The demand for innovative change, also in agriculture, is formulated as an individually launched value, later being spread all over society until it is externalised into a new value system. Technological innovation departs from the social value system and model pursued until now, and technical change is never considered unethical, as is usually the case in other segments of culture (Stiglitz, 2004; Szanto, 2001). Rapid and intense innovation through agro-industrialization has happened in both low and middle income economies throughout the world. Population and income growth together with urbanization throughout the world have induced global changes in consumer behaviour and demand patterns, especially in horticultural products, following Bennett's law. Seeing as the demand for food is income inelastic, these mega-trends also fuel growth in demand for non-food goods and services, thus inducing rural industrialization and non-farm employment growth (Raynolds, 2004).

Growth in downstream components of the agri-food channel and multi-nationalization has set off significant changes in the agri-food system organizations. Also including the reuse of contractual exchange in the place of spot markets, and increased attention to both fact and perceived product quality and safety (Stiglitz, 2004). These changes affect development indicators including technological change and renewed access to foreign private capital. Changing technologies and scale economies in processing and distribution, where it may

not have existed in production, can lead to differentiation between large and small firms and farms (Reardon and Barrett, 2000).

Although the role of intellectual property rights in economic growth is not clear in recent theory, stronger IPR protection corresponds to higher economic growth rates. A nation's trade policy may influence the degree to which intellectual property rights enhance growth. The linkage between innovation and IPR protection may play a weaker role in less competitive, highly protected markets. This is expected if innovation adds less to a firm's market share and profits in less competitive markets. Within closed markets, it is expected that exogenous technology shocks would be more important in determining economic growth than in open markets. Under open markets, it is expected that competitive forces would stimulate innovation and IPP to induce it even more (Gould and Gruben, 1996).

3.3 Legislation pertaining to Plant Breeders' Rights and Trademark protection

Intellectual property in agriculture refers mainly to industrial property, which vests in inventions, patents, innovations, trademarks, industrial models, trade secrets and expertise (Thiele-Wittig and Claus, 2003). The basic rights of ownership of intellectual property are known as intellectual property rights (IPR), which are mainly derived from legislation concerning designs, patents, and trademarks (Drahos and Maher, 2004). The impact of intellectual property locked up in Plant Breeders' Rights (PBR's) and trademarks on globalization can be threefold – it can either be a barrier to internationalization; it can be a blocker for constraining competitors' ability to leverage; and it can support the market and knowledge leverage (Mets, Kaarna and Kelli, 2010).

Legal protection of intellectual property allows the owners thereof to assert exclusive rights in relation to certain agricultural innovations (Le Buanec, 2006). Whether through breeding innovation protection under plant breeders' rights protection laws or through the patenting of genes and gene fragments, there is a clear trend towards searching and developing IPRs in agriculture (Blakeney, 2011).

The following categories of IPR are acknowledged by law and relevant to this study:

- Confidential information, trade secrets such as business plans, recipes, formulas, manufacturing processes, etc. These rights are protected by common law.

- Trademarks and trade names (including logos, slogans, or designs) (see the Trade Marks Act, 194 of 1993).

- Plant breeders' rights (see the Plant Breeders' Rights Act, 15 of 1976).

Furthermore, explicit provisions exist which prohibit unfair competition and fraudulent imitation (goods passed off as being identical/similar to those of a competitor). The Competition Act, 89 of 1998, and the Counterfeit Goods Act, 37 of 1997, regulate the matters in question. Intellectual Property Rights are mainly established through legislation, but the common law also has an influence on certain aspects of intellectual property rights (Le Buanec, 2006).

Trademarks: A trademark is a mark that has been registered with the aim of distinguishing, in the course of trade, the services or products of a person from the services or products of his/her competitors. A trademark gives its owner the exclusive right to exclude competitors' use of the mark with reference to identical or similar products or services. In addition to ordinary trademarks, collective trademarks and certification trademarks also exist (Srinivasan, 2003).

Plant breeders' rights: South Africa is a signatory to the UPOV Convention of 1978 (International Convention for the Protection of New Varieties of Plants). Plant breeders' rights in South Africa are also regulated in accordance with the Plant Breeders' Act, 15 of 1976. Plant breeders' rights are to a great extent dealt with in the same way as patents. There are several important differences:

A plant breeder's right is granted for 25 years in the case of vines and trees, and for 20 years in all other cases. An annual renewal fee is payable, as in the case of patents (Tripp, Louwaars and Eaton, 2007).

As with patents, application for a plant breeder's right must be made to the Registrar of Plant Breeders' Rights, and specific provisions apply in this regard.

- New: In order to meet the requirement of being deemed new, the variety should not have been made available to the commercial market for a period of one year in the case of South Africa; a period of six years in the case of trees and vines, in so far as the variety has been made available in a convention country; or a period of four

years in all other cases, in so far as the variety has been made available in a convention country.

- Distinct: The variety must be clearly distinguishable from existing varieties of the same kind of plant.
- Uniform: A particular characteristic of the variety must at always be present in the variety, within normal variation limits.
- Stable: The particular characteristics of the variety will stay unchanged during propagation.

As in the case of a patent, a plant breeder's right confers on the holder the right to produce, propagate, sell, import and export the variety. This right also applies to varieties which are derived from the registered variety, but which are not necessarily distinct by it (Swanson & Goschl, 2000).

IPR are not static legal structures but undergo directed metamorphosis to relate to changing national and global socio-economic, technological, trading and political developments. Food security and the limiting effect IPR has on this factor (Wright, 2008) forms part of this. Unexpected advances in science and technology have out-paced the legal structures thereby requiring a constant review to arrive at workable intellectual property laws in the present and future contexts. This constant transition makes its appreciation imperative for all parties involved (Van Overwalle, 2005; Ganguli, 2000).

3.4 Branding

The American Marketing Association defines a brand as "a name, term, sign, symbol, or design, or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors" (O'Malley, 1991). This definition may be too product-oriented emphasizing the visual features as a differentiating factor, and resultantly Dibb *et al*. (1997) modified this definition to a name, term, design, symbol or any other feature that identifies one seller's good or service as distinct from those of other sellers. This allows for intangible features such as brand image as a differentiation point. Ambler (2003) stated that the difference between a product and a brand is that unlike

a product, which can be produced in a factory and it can be copied by a competitor, a brand is unique. The attributes that make up a brand may be real or illusory, rational or emotional, tangible or invisible; and can be defined from different perspectives (Wood, 2000). It is all about how customers perceive what the business or product can deliver across the board.

Strong brands can increase company value as investors are willing to pay more for intangible asset such as a strong brand (Davis 2002; Ambler, 2003). Strong brand building in today's environment is a daunting task as there are substantial internal and external pressures and barriers (Aaker, 1996) including price, proliferation of competitors and fragmented media. Brand image and brand identity is critical to ensure strong brands (Nandan, 2005), but if the core brand benefits are not clearly communicated the brand will ultimately fail. According to Kunde (2002), strong brands are made when value is attributed to a product and consumers become involved with it. Strong brands are developed over time and brand strength is not due to changing customer perceptions but rather the meaning the brand creates (Kay, 2005). Brands however need to be relevant and appeal to the new generation of consumers and that is why branding has evolved over the years and strong brands are always being revitalized to maintain relevancy and to attract new consumers.

Jevons (2005) stated that branding was discovered long before the earliest definition of marketing. Over the years the definition of branding has evolved from referring to a brand as a name, symbol or logo to people's perception about a product or a company (Barron, 2003). The use of brands is nothing new and the majority of countries started trademark acts to establish the legality of a protected asset as far back as 1890. According to Berry (1993)there was a shift in the way brand management was organized as it became a team effort within organizations with a focus on enhancing the customer experience (de Chernatony, 1996). The concept of branding also became more globalised with global brands gaining more recognition and value.

According to Beverland (2005), brands have always been commercial agents and brand managers take pride in their ability to meet the needs of their target market. However, these two desires are in conflict with the recent trend towards positioning brands as "authentic," emphasizing the timeless values desired by consumers while downplaying apparent

commercial motives. The dual problem for the firm is in creating images of authenticity while dealing with the challenge that authenticity presents for brand management.

Kunde (2002) highlights that the world is over supplied and there is an overabundance of brands. Differentiation and uniqueness are important for Brand survival. Consumers do not purchase products but purchase brands. If a brand maintain top of mind awareness; is unique and differentiated, it becomes easier for consumers to select this brand over those of competitors and it becomes part of their repertoire.

Trademarks, a form of branding, confer exclusive rights to use the brand, thus enhancing a company's ability to appropriate economic returns. It is an important part of contemporary culture globally; and constitutes a source of qualitative and quantitative information on socio-economic activities (Mendonca *et al*., 2004). Branding should therefore be driven by businesses strategy (Dunn and Davies, 2004). Developing strong brands necessitates a focus on creating a positive customer experience. According to Groucatt (2006), companies need to understand both external and internal factors that can affect brand management. Through understanding an organization can review their brand's position within the marketplace. Further, they can aim to plan possible outcomes for their brand. Brand management today has proven adaptable to differing firm and marketing environments over its existence.

Shocker *et al*. (1994) add that given the dramatic changes in market competitiveness, firms face difficult trade-offs between the increasing importance of coordinating brand activities, both within and outside the organization and the pressures to decentralize decision making and eliminate entire layers of management to cut costs.

Brand equity can be defined as the marketing effects that accrue to a product with its brand name compared with those that would accrue if the same product did not have the brand name (Keller 2003).Brand equity can also be used to distinctly separate selling from marketing. In essence selling seeks an immediate order for a product and aims to increase the revenue line of a profit and loss account immediately whilst marketing invests resources before it expects to reap the rewards (Ambler, 2003). Brand equity has become the most valuable asset for many companies.

According to Ambler (2003) there is also a distinct difference between the asset (brand equity) and what the asset is worth (brand valuation). Aaker (1996) highlights four major assets through which brand equity generates value: brand name and awareness, brand loyalty, perceived quality and brand associations. Because of the value that brand equity adds for shareholders, it is still surprising that there are on-going debates as to whether brand equity building activities are important or not. As a result companies that are focused on short term gains do not perceive brands as important assets. By viewing brands as assets, companies are better able to put their brand building expenditure in context with the value that those brands deliver (Davis, 2002).

According to Yoo *et al.* (2000), there are several dimensions of brand equity. Any marketing action has the potential to affect brand equity. Brand name recognition with strong associations, perceived quality of product, and brand loyalty can be developed through careful long-term investments. Yoo *et al.* (2000) recognized two types of marketing management efforts from a long term perspective of brand management namely: brand-building activity and brand-harming activity. It was observed that frequent use of price promotions is a typical example of brand-harming activity whilst high advertisement spending, high price and distribution through retailers with store images and high distribution intensity are good examples of brand-building activity.

From the above discussion, it is evident that brand equity is a major marketing asset of many firms and that it can be used to drive long-term growth and deliver value for shareholders. Although brand equity plays a significant role in increasing shareholder value, it is important that measures are put in place to track it. It is a well-known fact that what is not measured is not managed and therefore tracking and measuring brand equity assist in creating brands that consistently deliver on their promise. As brand equity is an intangible asset, most people struggle to quantify it. Various tools are available that have been used effectively by many organizations to measure brand equity as discussed in the following section.

3.5 Consumer buying behaviour

The European food market is constantly supplied with a wide range of consumer goods, and they can therefore be critical as to what they choose. This makes consumer-orientation vital in order to gain a so-called “share-of-mouth” (Kotler and Keller, 2006; Van Trijp and Meulenberg, 1996). In a consumer-oriented approach to new product development and marketing, the way in which consumers make their product choices, and knowledge about how consumers react to efforts by marketers, may be the starting point to create customer value for different consumer segments (Van Trijp and Meulenberg, 1996). Implementing a consumer-pull strategy, which is fundamentally different from a supply-push strategy, supply chains must aim for an optimal “demand-and-supply” match. This would imply being responsive to and comply with consumer demands (Zimmerman and van der Lans, 2009). There is therefore a clear need to understand fruit product preferences of the European consumer, including consumer demands for quality products, and to identify those key product attributes that underpin them.

The underlying foundation of demand, therefore, is a model of how consumers behave (Groeppel-Klein, 2005). The individual consumer has a set of preferences and values, though not determined within the realm of economics. These preferences are dependent upon numerous factors including education, culture and individual tastes. The measure of these values for a particular good is in terms of the real opportunity cost to the consumer who purchases and consumes the good.

Consumer behaviour in terms of the impact of price on the demand for a particular fruit cultivar and competing produce using sales data have been use to devise models to predict future behaviour (Stolz *et al.*, 2011). These models describe consumer response, in other words the percentage change in demand related to a 1% increase in price or other factors (Perloff, 2001). Different fruits, such as apples and oranges tend to compete with each other (Richards and Patterson, 2000). For specific fruit types, there is substitution and complementarily evidence in consumer purchase decisions between different growing regions and among cultivars (Wandel and Bugge, 1997).

Consumer habits also influence consumers purchase behaviour (Richards and Patterson, 2000). The quantity of specific fruit purchased responded little to price changes, but was sensitive to changes in family income (Wandel and Bugge, 1997). Elasticity studies

suggested that sales of new or speciality cultivars are more sensitive to price than traditional and more mature cultivars (Richards and Patterson, 2000).Consumer expectation of quality is a critical factor in determining food choice whether a food succeeds or fails to meet these expectations can have a profound impact on the satisfaction level and consequently the repurchase decision (Deliza and MacFie, 1996).

Nonetheless, context is also an important aspect in the acceptance and consumption of food. The influence of context on choice behaviour and food selection has received less attention. Choice has no disciplinary boundaries, being strictly behavioural (Groeppel-Klein, 2005). Consumers take product characteristics, as well as the situational and social context into consideration when making choices among different types of fresh fruit eating occasions (Jaeger and Rose, 2008).

Quality remains more important to consumers than price (Kopetz, *et al*., 2011). The premium consumers are prepared to pay for quality varies between individuals. To realize the potential value of the quality of a fruit it is necessary to ensure public recognition of the cultivar/brand. Therefore, it is important that existing and new avocado cultivars are easily differentiated in the marketplace, and to rigorously enforce quality standards so that product and quality are strongly linked in the consumer's mind. A bad experience will cause consumers to stop buying for a while, change cultivars, and/or change to other types of fruit. In the future, research needs to emphasize comparisons across the generic fruit category as well as within the specific avocado category, since consumers' choice of fruit is often made at the generic level.

Sensory analysis can be defined as a "scientific disciple used to evoke, measure, analyse, and interpret reactions to those characteristics of foods and materials as they are perceived by the senses of sight, smell, taste, touch and hearing" (ITF, 1975). In a study done by the Camden Laboratory in the United Kingdom, consumers judged the external appearance, odour, flavour and texture of '3-29-5' avocados compared to 'Hass' fruit from both South Africa and Peru. '3-29-5' were perceived as higher in quality in all four categories. This confirms that '3-29-5' would not be inferior to consumer perceptions of superior avocados, and does open the possibility of demanding a premium on this product.

Increased world production and better storage technologies have allowed avocados to be available on EU supermarket shelves for 12months. These developments have led consumers to expect fruit to be available throughout the year (Wandel and Bugge, 1997). On top of this, there has been continuing release of new cultivars that are both more robust in terms of their storage potential, and provide consumers with a more intense eating experience (Poole, Martinez-Carrasco, and Gime´nez, 2007). Increasingly, product life cycles are expected to become shorter (Hughes, 1996), even though considerable investment is needed to develop orchards and there is a delay before trees come into production.

The ease with which consumers adapt to improvements in quality and perhaps exaggerate past experiences, linked with the pressure on industry to develop new products and technologies, has driven a spiral of increasing expectations for avocado quality. Failure to meet consumer expectations of quality may be devastating to an entire industry as well as to a particular cultivar (Foxall, Oliveira-Castro, and Schrezenmaier, 2004). Following a bad eating experience, consumers may change cultivars, purchase fewer fruit, switch to other types of fruit, stop buying fruit for a while, or switch brands (Batt and Sadler, 1998). Fruit quality should not be considered as an absolute, unchanging variable. Rather, it is a concept that changes dynamically across time as consumers' expectations change. As new products are released and new postharvest technologies are developed, there will be a corresponding impact on the lifecycle of existing products (Groeppel-Klein, 2005).

Consumer fruit choice is often underpinned by their attitudes, beliefs, and perceptions of food. It is subsequently necessary to consider these factors relative to the importance of fruit quality (texture, taste and flavour). The importance of health benefits, naturalness, and providing a refreshing experience to consumer perceptions of fruit as a snack is important. Choices between fruit are also often based on perceptions of utility (Jack *et al*., 1997) as well as taste. Consumers differentiate among fruit on the basis of convenience and ability to share fruit with friends and family (Jack *et al*., 1997). It is anticipated that awareness and attitudes to living a healthy life need to change in order to achieve an increase in fruit consumption. These paradigm shifts are more likely to be achieved through public education, than improvements in fruit quality. It is still important to ensure that the hedonic experience associated with consumption of fruit is not dramatically lower than that of non-fruit snacks.

Consumers seem to have little difficulty in recognizing the appearance of the fruit that they prefer, and often expectations of the eating experience are based on appearance of fruit (Cliff *et al*., 1999; Jaeger and MacFie, 2001). Harker *et al.* (2003) speculate that consumers that regularly purchase fruit of one cultivar do so with the knowledge of the specific eating experience it will provide. Quality targets therefore, should be specific to cultivars rather than generic across a specific fruit. Greater attention needs to be focused on the role of a particular cultivar in the varietal mix. Discussion of cultivar recognition logically leads to the consideration of branding. Branding of fruit is widely considered to be problematic due to the variability in quality of the product, and irregularity of supply (Richards, 2000). Furthermore, research has been ambiguous as to the impact of brand on consumer choice of fruit (Patterson and Richards, 2000). It is unclear as to the relative importance of brand, cultivar and country of origin. Increasingly, companies are amalgamating the concepts of brand and cultivar. Newer cultivars tend to be protected by plant variety rights, trademarks cover their names, and they are marketed through exclusive licensing agreements with companies (Ferguson *et al*., 1999). However, the maintenance of brand awareness by consumers can be costly (Onweze and Bartels, 2011). There is anecdotal evidence that some niche fruit brands have been able to maintain strong and often dramatic premiums over the equivalent unbranded commodity product (Harker*et al.,* 2003).

3.6 Consumer behaviour to fruit cultivars

The global fruit industries are experiencing a period of intense competition, sometimes referred to as a state of hyper-competition (Eklund-Axelson and Axelson, 2000), a condition of rapidly escalating competition based on price-quality positioning; competition to create first-mover advantage; to protect or invade established product or geographic markets; and competition based on deep pockets. In this state of hyper-competition the boldness and frequency of dynamic movement by players accelerates to create a condition of constant change. Eklund-Axelson and Axelson (2000) predicts that for the fruit industry consumer requirements will become higher, branding for product differentiation will become more important, information technology will improve and subsequently logistics will have to improve too.

The level of competition in the fruit industry might be seen as a reflection of market saturation in terms of supply. Fruit industries are sometimes forced to dump fruit, especially

in fruit types that can be stored for long (including citrus and pome fruit) (Hemphill, 2001). Yet, there is still unexploited capacity for more fruit (with specific reference to avocados as well) in both existing markets, but specifically in untapped markets, where Asia will play a very important role in the next 20 years to come.

Consumption of fruit varies greatly among countries (Eurofruit, 2000), and in many countries there is a great concern that the low rate of fruit and vegetable consumption by some consumers will create problems for public health in the future (Krebs-Smith *et al*., 1996; van der Pol and Ryan, 1996). Therefore, there is still capacity to expand the market for fruit by increasing consumption in those regions and countries that fail to meet recommended intake for fruit and vegetables. Thus, it appears that modification of consumer attitudes to fruit rather than alterations to supply and/or price is needed.

Consumer response to fruit has therefore been researched and driven from two perspectives. Firstly by the need to improve consumption of fruit for public health reasons (Krebs-Smith *et al.,* 1996; van der Pol and Ryan, 1996), and secondly through the need of industry to improve its competitiveness (Ricks *et al*., 2000). From both perspectives it has been incredibly difficult to assess the impact of quality on consumer preferences and choice of fruit. Attributes such as texture, taste and flavour require consumers to eat the product before making a judgement on quality, and are therefore not always easy to assess experimentally. This is often not feasible experimentally, and eating quality is usually examined at a conceptual level as tasting of products is rarely incorporated into protocols (Baker and Crosbie, 1994; van der Pol and Ryan, 1996). Studies that get consumers to taste fruit are undertaken in formal consumer testing facilities and away from usual contextual and environmental situations associated with fruit consumption (e.g. Jaeger, 2000).

A similar study was conducted by the Camden Laboratory in the UK to evaluate the sensory attributes of Gem® compared to the EU market standard ‘Hass’ (table 3.1). The attributes were rated on a scale of 1 to 9 where 1=bad and 9=excellent, with a rating of 5 as satisfactory. Gem® rated higher than ‘Hass’ in all factors measured. However, as the 2 cultivars differ in their season of maturity and definitely in their optimal maturity stage, Gem® surely had an unfair advantage over ‘Hass’. Although the results of this study may have indicated that within a specific market, Gem® might be of a higher quality than ‘Hass’

at a specific time within the marketing season, it does not and cannot categorically rate Gem® as a better cultivar compared to 'Hass'.

Table 3.1: Sensory evaluation by the Camden Laboratory in the UK to compare the attributes of Gem® to the EU market standard 'Hass'.

Cultivar	External Appearance	Odour	Flavour	Texture/ mouth feel
Gem®	8	7	8	8
'Hass'	7	6	5	5

As said then, perhaps the greatest limit on research is associated with the perishable nature of fruit, which means that its quality and consumer perceptions of quality will change throughout the year (Plotto *et al.*, 1997). In studies that compare cultivars in all fruit types, it is difficult to present consumers with optimum quality fruit when cultivars need to be harvested sequentially during the picking season (Cliff *et al.*, 1998). Also, there is an important need to link knowledge from a range of disciplines to ensure appropriate quality fruit are given to consumers in the right context. Numerous research disciplines including marketing, economics, psychology, and sensory science have a shared interest in consumer behaviour, and these disciplines have recently increasingly focused on consumer beliefs, attitudes, perceptions and preferences for fruit. In this study, information gathered on consumer preferences are shared and integrated with principles from these diverse disciplines. The aim of the study is to understand and provide a considered argument as to how improved cultivars may be successfully integrated into fruit markets.

Mexico is the largest avocado producing and consuming market in the world (USDA, 2005). Chile ranks as the second largest producer following several decades of rapid industry growth, also with a strong and developing local consumption. The USA is the third world producer of avocados, but only supplies its local market with limited exports to Mexico (9% of total production). Avocado marketing in the USA is driven by the 'Hass' Avocado Board, who's main aim is to promote the cultivar 'Hass' within the USA market, and recently also in other main avocado markets. The strong drive to grow and eat 'Hass' has led to both the producing and consuming markets to limit any new cultivar introductions that were not 'Hass', or at least 'Hass'-like. The US-market is therefore only used to black-skin cultivars (more than 95% 'Hass'). South Africa is ranked number five in terms of world production of

avocados and therefore occupies very important strategic positions with regards to its global contribution, with more than 90% of its exports destined for the EU. The USA and EU remain the two major blocks that consumes avocados. Mexico consumes more than 70% of its production. Although South Africa, Israel, Spain, Chile and Peru all export large volumes to specific countries, and many have developed strong local consumption, certain factors are limiting to individual countries, including production season, competitive countries, and trade barriers.

While the USA, albeit its' own large domestic production, get much of its avocados from Central- and South American countries (mainly Mexico and Chile), the EU mainly depend on countries outside the EU for their avocados (with the exception of Spain as a small producer). Although the consumption of avocados in the EU has grown slower compared to that of the USA, the supply for avocados still remain below the demand in EU. Analysts believe that the EU market could show stronger growth if supply was more consistent and not hampered by the on-off season phenomenon (Naamani, 2007).Supply to the USA from 1995 to 2006 has been fairly consistent, which is mooted to have facilitated the stronger growth compared to the EU. Countries that are export oriented include Chile, Peru, Mexico, Israel and South Africa (FAOSTAT, 2010). A seasonal period of lower production of avocados is between October and March, and this period can be regarded as the off-season, as there is limited supply of avocados during that time worldwide. The countries that produce avocados during the October-December period are Mexico, Chile, New Zealand, and the only countries that produce avocados between October and March are Israel, Spain and Morocco (Figure 3.1). South Africa currently relies on imports during the months of October to March. This means that countries that produce avocado from October to March have the opportunity to get good prices as the world supply is at its lowest compared to the rest of the year. The development of cultivars that can produce early-/ late-maturing fruit (such as Gem® that matures more than 4 weeks later than 'Hass'), or developing new non-traditional avocado growing areas can help countries like South Africa to export avocados 12 months in a year, and thereby gaining better share in the domestic and international avocado markets. A common sentiment is that the world market for avocados is under-supplied with a great opportunity for growth. Longer domestic production seasons will also help develop local markets by having cheaper produce for longer, and limiting individual producing country import seasons.

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mexico												
Chile												
USA												
Peru												
SA												
Spain												
Morocco												
Israel												
Australia												
NZ												

Figure 3.1: Seasonal distribution of global avocado production. Green indicates main producing seasons while yellow indicate limited production of mostly non-'Hass' cultivars.

Most of the EU countries could not enjoy these new supply sources due to a very simple reason; they use traditionally green skin varieties, while the imports from most exporting countries are mainly of the 'Hass' variety. However, most new markets being developed are only exposed to 'Hass' and 'Hass'-like fruit, so green skin fruit are unknown for most new developing markets. The increase in supply of the green varieties could have stimulated consumption and increased the demand in the EU. The cultural diversity of the European block can also be attributed to the slow consumption of tropical fruits and avocados could have been affected by these factors too. The production and supply of green skin avocados have increased in some producing countries like Mexico and Peru, but supply thereof was mainly focused on their domestic markets which also preferred the green varieties and they only exported 'Hass'. Traditional export focused countries have also experienced significant growth in avocado consumption in their respective countries. The increase in consumption has increased the demand for avocados, and the supply has failed to match the continuous growth.

Trade barriers in Europe and the USA (the two biggest avocado consuming markets) could also be responsible for the slow growth in supply of avocados, while the opening of USA markets to Mexico and other producing countries have directly increased the consumption and supply to USA markets. There are various trade barriers and international protocols

that affect the production and distribution of agricultural products. Individual countries have phytosanitary barriers that limit fruit supply into all avocado markets. Currently, the South African avocado industry is working towards market access into both the USA and Japan, while Peru was only awarded market access into the USA in 2011.

Historically, tariffs have been the most important barrier to trade while also serving as protectionist devices for domestic industries (Schuh, 2000). The Uruguay Round of the General Agreement on Trade and Tariffs / World trade Organization (GATT/WTO) negotiations concluded in 1994 led to a commitment by member countries to decrease tariff rates in agriculture. As the protectionist tariff barriers to trade are reduced, non-tariff barriers gain importance. The importing countries normally used various methods to protect their domestic farmers from competing with foreign imports. This has also affected agricultural products mainly from emerging countries to the developed countries. There are several trade barriers that maybe be classified as either tariff and non-tariff barriers. The tariff barriers mainly focused on heavy tariffs for important goods. The non- tariff barriers may include measures such a subsidies to the local producers and sanitary and phytosanitary measures that makes it difficult to penetrate some markets. Hillman (1991) defined non-tariff barrier to be “any governmental device or practice other than tariff which directly impedes the entry of imports into a country and which discriminates against imports, but does not apply with equal force on domestic production or distribution”.

3.7 Summary

Protection of plant material through plant patents and plant breeders’ rights, and subsequent branding is essential to capitalise on new intellectual property generated in the agricultural sector. With the global view widening, and trade and other barriers shrinking, a global view of consumer markets and consumer product demand is necessitated and essential for companies to supply in the needs of consumers.

In chapter 3 we looked at current literature available on the main issues pertaining to the commercialization of new intellectual property in the agricultural sector. The following section will focus on the methods used to test the hypothesis as discussed in chapter 1.

Chapter 4: Research Design and Methodology

4.1 Introduction

Research methodology refers to the approach taken conducting a research project and dictates the research tools used to gather, manipulate and understand data (Leedy and Ormrod, 2005). This chapter aims to explain and justify the research paradigm implemented in this study; describe and characterize the population, the sampling method and sample; the data collection method and measurement instrument; reliability and validity; ethical issues; and study limitations. The chapter concludes with a consistency matrix, ensuring that there was consistency between the problem statement, literature review, hypotheses, the data collected and the data analysis method.

4.2 Research paradigm

The research paradigm used in a study, be it qualitative, quantitative or mixed, has to align with the specific research problem. In this study, the paradigm had to (i) allow one to determine whether year round availability of avocados influence consumer buying behaviour; (ii) provide an opportunity to identify the value of cultivar identification, and trademark use in avocados; (iii) allow the researcher to understand whether the origin of fruit affect consumer buying behaviour; and (iv) to identify whether exclusivity of a product will lead to a consumer paying more for avocados.

These objectives are satisfied by using a quantitative research method. Quantitative research, also called the experimental, traditional or positivist approach, answers questions about relationships among measured variables with the purpose of explaining, predicting and controlling phenomena, where variables are known and numeric data are analysed statistically in a deductive manner to test theory. Qualitative research aims to generate theory and use inductive reasoning. This form of research, also referred to as interpretative, constructivist or post-positivist approach, answers questions about the complex nature of phenomena, aiming to describe or understand the phenomena from the participants' point of view. It builds theory from an unstructured approach, unknown variables and textual data by searching for themes and categories inductively. Nevertheless, quantitative and qualitative designs are not mutually exclusive and a mixed design combines elements of both approaches (Lee, 1999; Leedy and Ormrod, 2005).

In this study a mixed method design, classified as a two phased dominant, less dominant design is used (Lee, 1999). It entails a mainly quantitative design coupled with a smaller qualitative element. The quantitative component tested relationships among consumer behavioural measurement variables. The study was mainly descriptive, involving identification of the importance of different criteria to measure consumer behaviour, without modifying the situation or intending to determine cause-and-effect relationships.

4.3 Data collection methods

Experimental research allows control over the variables being measured. This research study followed the descriptive quantitative research approach. It tests the research problem and hypotheses, although it does not give the researcher control over the variables being studied. Descriptive research can make use of survey research, observation studies, correlation research, and/or developmental designs (Leedy and Ormrod, 2005).

An observational study was unsuitable to the research problem because it is mainly intended to quantify a particular behaviour, and limit the data population. Survey research was more appropriate, because it is used to acquire information about one or more groups of people and then draw inferences about the population. It was therefore suitable to quantify the perception of the population. Correlation research gathers data from two or more characteristics of a group of people and establishes if a relationship exists between them. This was relevant for this study and useful to determine consumer buying behaviour. A developmental design using a longitudinal study requires collecting data over a lengthy period of time (Lee, 1999; Leedy and Ormrod, 2005).

4.4 Population and sample

The study population consisted of avocado consumers who regularly buy and eat avocados. To ensure useful results are obtained, a purpose non-probabilistic sampling method were used. It was important to ensure that consumers who are aware of what is an avocado; consumers who use and buy avocados complete the survey. Respondents were also urged to forward the link to the survey to as many avocado-users as possible. An avocado-eating population was approached through the form of social media (using Facebook) and was not limited in number. The survey was posted on an electronic survey website called www.esurveys.com. Facebook users were drawn to a link to the survey on

specific avocado pages within Facebook. Respondents were limited to one survey per individual. In total, a response of 550 completed surveys was received, of which 497 were usable. Specific details on sample size, age, language, socio-economic status, and educational level and frequency distributions of the sample are provided in Chapter 5.
Exclusion criteria include consumers that do not use the internet; are not linked to Facebook; do not visit Facebook regularly; and are not linked to the avocado-related pages on Facebook were excluded. Inclusion criteria include consumers that know what an avocado is; are linked to social media such as Facebook; and are electronically literate.

4.5 Data Types

There are 5 types of data that can be distinguished according to their meaning, source and their time dimension. Facts are characteristics or situations that exist, or have existed in the past, and the first type. The second type of data refers to awareness (or knowledge) of a specific happening. Thirdly, there are attitudes and opinion data, reflecting peoples' feelings towards something specific. The fourth type is intentions, referring to acts that people have in mind to do. Lastly, data can also refer to motives of individuals, which are internally driven (Diamantopoulos and Schlegelmilch, 2000). Data collected in this study included knowledge, intentional, motive and attitudinal data.

Primary data, referring to data collected with a specific purpose in mind, were collected using the survey to measure consumer buying behaviour. Secondary data, data which was not expressly collected for this study, was also collected by obtaining information on supermarket practices, financial data and sales figures. Data from this study was also cross-sectional, and does not refer to changes in consumer behaviour that took place over time.

Descriptive statistics was used to describe the nominal data collected. Nominal data is rather limited, and can only be counted and/or a mode or the most frequently occurring value calculated. For the purpose of the study all the demographic variables will be summarized using frequency distributions and percentages.

4.6 Data collection and analysis

Quantitative research tends to rely on deductive reasoning. This process begins with certain hypotheses, and then drawing conclusions from them. Objectivity is important, and

this method tries to maintain this by conducting predetermined statistical procedures and evaluate the outcomes thereof.

The measuring instrument used in the current study was an electronic consumer survey (Appendix 1). The survey was divided into three distinct sections. Section A collected demographic information of respondents; Section B tried to determine the factors consumers see as indicators of fruit quality; Section C contained 32 statements that relates directly to the objectives of this study. Each objective was represented by between 5 – 10 statements. The survey was electronically available for 4 weeks where after the survey was closed and respondents could not visit the survey again. Because respondents needed to read carefully, and click on an electronic button to proceed throughout the survey completion, some surveys returned incomplete due to respondents not following instructions closely. The consumer survey took approximately 10 minutes to complete.

Data from the survey were pooled according to four distinct geographic areas (South Africa, the USA, Europe including the United Kingdom, Australia, and a miscellaneous group called “other”) and frequencies determined for each statement or question. This arrangement was essential to obtain meaningful results, as markets in the four geographic areas differ tremendously. Although markets within these geographic areas also tend to differ, the number of respondents was not sufficient to divide survey respondents into smaller consumer segments. This data arrangement into country of origin was done to address the specific objectives of this study relating to the main markets for avocados.

Furthermore, a PCA (Principle Component Analysis) was performed to identify the link between variables that influences consumer perception of fruit quality and consumer reaction to the statements in section C of the survey originating from the key objectives of this study. External preference mapping was performed by regressing the consumer data (y space) with the physical and sensory attribute values (x space) using Partial Least Squares (PLS) modelling.

4.7 Bias

Bias refers to any condition, influence or set of these that either singly or in combination distort data. This factor influences the integrity of facts. Sampling bias could have played a role in the current study. Using an e-survey already excludes a portion of the avocado-

eating community. Furthermore, the use of Facebook as a tool to link consumers to the survey could also have excluded valid avocado consumers. The inclusion of both positive and negative statements could have had an influence on the attitude of respondents to specific statements (Leedy and Ormrod, 2010).

4.8 Reliability and validity

To determine the validity of the research project as a whole, internal and external validity will be considered. Internal validity is the extent to which the research design allows cause-and-effect conclusions to be made. External validity is the extent to which the results can be generalized to other contexts. Apart from the internal and external validity of the research study, the research instrument used should also be valid and reliable. The validity of an instrument is the extent to which it is measuring what it is supposed to be measuring. Reliability is the consistency with which a measuring instrument yields a result when the entity being measured has not changed. Reliability is a condition for validity, but does not guarantee validity.

The current study was in nature descriptive, which made cause-and-effect conclusions less important than for experimental research. However, internal validity was still key to ensure that conclusions drawn were warranted. By approaching consumers who already eat and buy avocados through avocado-related pages on Facebook, increased internal validity were achieved by preventing the inclusion of respondents likely to be unacquainted with the criteria being tested. The consumer survey was developed to be relatively short (<10 minutes), and no option was provided to go back to answers given in each section to prevent a maturation effect where respondents may modify answers over time due to tiredness or other distractions. Fifty three consumer surveys were excluded from the analysis, as the respondents did not complete all the satisfaction ratings. This was done in an attempt to preserve the internal validity of the study.

External validity of the study were improved by using real-life setting (not controlled laboratory conditions), and sampled the entire target population. The study was also compared to previous similar studies to provide ‘replication in a different context (Leedy and Ormrod, 2005). The sample size of 550 (497 after exclusion of fifty three consumer surveys) was in excess of the minimum recommended sample of size of 30and it presented a high response rate of the population (Diamantopoulos and Schlegelmilch, 2006). Strong external

validity was therefore achieved, which meant that the results could be generalized to the population.

A single standard consumer survey document was used for all participants, trying to maintain a high level of reliability. As specific consumers were not targeted, but the study relied on respondents following an internet link to the survey site, response rate could not be determined. The reliability of the instrument can be estimated by inter-rater reliability, internal consistency reliability and test-retest reliability. Inter-rater reliability is the extent to which grouped respondents provide identical judgments. Internal consistency reliability is the extent to which all items within an instrument yield similar results and test-retest reliability is the extent to which the same instrument yields the same results on two different occasions. These elements were not tested for the current study.

4.9 Ethical issues

Most of the ethical issues that require consideration in a research study can be divided into four categories: informed consent, right to privacy, protection from harm, and honesty with colleagues. The study does not expose the respondents to any physical and/or psychological harm that is appreciably higher than the risks of day-to-day living. Participation in the study is strictly voluntary and respondents will be informed of the nature of the study and asked for their informed consent to participate in the study.

The right to privacy will be respected and the anonymity of participants guaranteed. Full acknowledgement of material and findings of other studies and their authors will be provided in the list of references. Findings will be reported in an honest fashion (Leedy and Ormrod, 2005).

4.10 Limitations and delimitations

The limitations of the research are discussed in Chapter 1, while a more comprehensive discussion of the research limitations after completion of the study is presented in Chapter 6.

4.11 Pilot study

A pilot study to investigate a suitable target population for the study, using an unstructured interview of 20 randomly selected avocado consumers (random probabilistic sampling), revealed that these individuals had limited knowledge on avocado cultivars, and that

constant availability affected their consumption of avocados. Furthermore, these individuals indicated limited knowledge on fruit in general, when it is in season and where it is grown might affect their buying behaviour if they had more information on the fruit. These interviews helped with the question structuring and design of the survey for the current study.

4.12 Consistency matrix

The consistency matrix is provided in Table 4.1. The diagram allows evaluation of the consistency throughout the study, by directly comparing the problem statement, research sub-questions, the literature review, hypothesis and propositions, the data collected and the data analysis method. The matrix showed that accurate alignment of the different elements existed in the study.

Table 4.1 Consistency matrix of the study measuring avocado consumer buying behaviour

Main Problem: The need to commercialize new intellectual property in the global avocado industry necessitates a broadening of the understanding of avocado consumer preferences and behaviour within all the important international avocado markets.			
Sub-questions	**Literature review section**	**Data to be collected**	**Data analysis**
What is the trademark value of Gem® and is it necessary to develop this trademark to distinguish '3-29-5' from other avocado cultivars?	3.3; 3.4	Quantitative primary data.	Descriptive statistics (frequency distribution) with inductive reasoning
Does the year-round availability of avocados influence consumer buying behaviour?	3.2; 3.5	Quantitative primary and secondary data.	Descriptive statistics (frequency distribution) with inductive reasoning
Does the origin of fruit affect consumer buying behaviour?	3.2	Quantitative primary data.	Descriptive statistics (frequency distribution) with inductive reasoning
Will the knowledge of product exclusivity lead to a consumer paying more for the product?	3.6; 3.7	Quantitative primary data.	Descriptive statistics (frequency distribution) with inductive reasoning

4.13 Summary

Chapter 5 discussed the methodology implemented to undertake the research for the current study. The following chapter will focus on the results obtained, and integrate the findings with current knowledge in other crops and industries.

Chapter 5: Results and Discussion

5.1 Introduction

Chapter 4 explained the research methodology applied in the current study to answer the objectives as set out in Chapter 1 (1.4.4 Objectives). The current chapter presents data from a consumer survey, and aims to address the following objectives:

1) To assess the importance of year-round availability of avocado to ensure customer acceptance and whether this influences buying behaviour

2) To determine the value of a trademark Gem® and the necessity to develop this trademark to distinguish '3-29-5' from other avocado cultivars

3) To determine if the origin of an avocado fruit will influence the consumer buying behaviour

4) To identify whether exclusivity of a product will lead a consumer to pay more for the product

5.2 Demographics of participants

The total responses to the consumer survey were 550, of which 497 were completed correctly and reliable to use. The respondents were divided into their country of origin. Of the respondents, 271 were South African, 148 were from the USA, 31 were from Australia, 17 from the EU (included are respondents from the UK, France, Denmark, Germany and the Netherlands), and 18 from other countries (These included Taiwan, India, Vietnam, and numerous countries in South America) (Table 5.1). This data arrangement into country of origin was done to address the specific objectives of this study relating to the main markets for avocados.

Responses from different marketing focus areas were therefore pooled to create four main respondent consumer groups, that being South Africa (n=271), the USA (n=148), the EU (n=17) and Australia (n=31) as said. Respondents were fairly well representative of the population. Regarding age of respondents, 68.1% were between the age of 20 and 50, with 31% being older than 50 years. 59.8% of respondents were female. Suburban and urban dwellers accounted for 82.5% of the total respondents. Of the respondents, only 24% works

in the avocado or related industries. Only 13.1% of respondents admitted that their avocado consumption is affected by their dietary requirement (including medical conditions such as blood pressure, diabetics, and cholesterol) (Table 5.1).

Table 5.1: Demographic information of participants.

		Total		RSA		USA		Australia		EU		Other	
	N	497		271		148		31		17		18	
		#	%	#	%	#	%	#	%	#	%	#	%
Age	<20	2	0.4	0	0.0	0	0.0	1	3.2	0	0.0	1	5.6
	20-30	133	28.4	114	42.1	11	7.4	3	9.7	0	0.0	5	27.8
	30-40	129	26.2	82	30.3	29	19.6	4	12.9	9	52.9	5	27.8
	40-50	67	13.5	27	10.0	22	14.9	9	29.0	4	23.5	5	27.8
	>50	154	31.6	48	17.7	86	58.1	14	45.2	4	23.5	2	11.1
Gender	Male	200	40.2	94	34.7	66	44.6	13	41.9	11	44.0	12	66.7
	Female	297	59.8	177	65.3	82	55.4	18	58.1	14	56.0	6	33.3
Living arrangement	Single	145	29.2	93	34.3	34	23.0	5	17.2	7	38.9	5	27.8
	Living together	57	11.5	26	9.6	18	6.6	0	0.0	0	0.0	4	22.2
	Married	274	55.1	139	51.3	92	33.9	23	79.3	9	50.0	8	44.4
	Other	21	4.2	13	4.8	4	1.5	1	3.4	2	11.1	1	5.6
Contextual surroundings	Rural	87	17.5	33	12.2	37	25.0	12	38.7	3	12.0	2	11.1
	Suburban	230	46.3	121	44.6	82	30.3	12	38.7	12	48.0	1	5.6
	Urban	180	36.2	117	43.2	29	10.7	7	22.6	10	40.0	15	83.3
Monthly household income	< R5000	34	6.8	27	10.0	2	1.4	1	3.2	2	8.0	2	11.1
	R5K-R15K	76	15.3	60	22.1	8	5.4	2	6.5	3	12.0	2	11.1
	R15K-R30K	138	27.8	87	32.1	33	22.3	5	16.1	6	24.0	6	33.3
	R30K-R45K	114	22.9	53	19.6	35	23.6	12	38.7	8	32.0	4	22.2
	> R45K	135	27.2	44	16.2	70	47.3	11	35.5	6	24.0	4	22.2
Do you work in the avo-industry	Yes	119	24.0	43	15.9	37	25.2	16	51.6	8	32.0	13	72.2
	No	377	76.0	228	84.1	110	74.8	15	48.4	17	68.0	5	27.8
Avo consumption affected by dietary requirements	Yes	65	13.1	37	13.7	16	10.8	2	6.5	4	16.7	4	22.2
	No	395	79.8	219	81.1	118	79.7	27	87.1	17	70.8	12	66.7
	Maybe	35	7.1	14	5.2	14	9.5	2	6.5	3	12.5	2	11.1

5.3 To assess the importance of year-round availability of avocado to ensure customer acceptance and whether this influences buying behaviour (Objective 1)

Numerous factors contribute to supermarkets being able to supply fruit 12 months of the year. These include new technology such as controlled atmosphere storage (Kupferman, 1997) and 1-MCP treatments (Watkins *et al.*, 2000), as well as globalization of fruit production. These developments have led consumers to expect fruit to be available throughout the year. Technological advances are not as effective in all fruit types, and impair the development of fruit flavour in the case of apples (Fan and Mattheis, 1999) and only extend the shelve life of fruit with a few weeks (in the case of avocados), which open

opportunities for and emphasize the importance of the development of global supply networks that allow Southern Hemisphere producers to supply fresh 'out of season' fruit into Northern Hemisphere markets; and vice versa, to name but one example. Technology; 'out of season' supply; and the continued, albeit slow, release of new cultivars that are both more robust in terms of their storage potential and differ in their maturity within a specific season, has led to supermarkets being able to provide consumers with a specific commodity on a continual basis (Bedford, 2001; Greene and Weis, 2001). Gem® is an example of a new cultivar that allows for production season extension within a specific producing country.

Availability of tree-grown fruit is influenced by naturally occurring seasons. The month(s) in which a tree bears its fruit is influenced by, amongst other factors, genetic composition, climate and cultivation practices (Verheij, 1986). Without global supply of fruit, this phenomenon has in the past led to fruit only being available 'in season' in supermarkets. This said, supermarkets are demanding more and more with regards to the constant supply of a specific item of fresh produce to ensure shelve space reservation. This has led to global sourcing of fruit to fulfil this supermarket requirement. But does the year-round availability of avocados influence the consumption of avocados?

From the current study it appears that consumers experience fluctuations in availability of good quality avocados in the market throughout the year (73.2% in RSA, 58.4% in the USA, 57.2% in Australia and 50% in the EU) (Table 5.2). When consumers were asked whether they would buy more avocados if good quality avocado supply was constant, most consumers responded affirmative (72.5% in RSA, 45.4% in the USA, and 74.4% in Australia). There were no clear trends in the EU, with 30.4% of consumers saying they would buy more avocados, and 34.7% saying that the constant availability of avocados would not influence their decision to buy avocados.

There appears to be a correlation between the price of avocados due to its seasonal availability, and the buying behaviour of consumers. In South Africa, 49.3% of consumers indicated that they buy fewer avocados in spring and summer because it is more expensive during this period, while 57.8% of the RSA consumers indicated that they buy more avocados in autumn and Winter due to a cheaper price during this period. When comparing the volume of avocados available in the local market in South Africa with the price per ton

received on the local market, there appears to be an invert relationship. As supply decreases, consumers are willing to pay more for the privilege to obtain some fruit (Table 5.2).

Consumers in both the USA (58.1% vs. 47.5%) and Australia (55.5% vs. 71.4%) had the same response. Consumers in the EU market indicated that they buy more avocados during the EU Spring and summer when it is cheaper than in the EU Winter. This might be because the bulk of the EU avocado volume is supplied in their summer by South Africa and Peru, while Chile, Israel and Spain are the main suppliers in their winter period. Large avocado volumes have been marketed recently during the European Summer, leading to decreases in prices, and increased spending on avocados.

The ease with which consumers adapt to improvements in quality and exaggerate past experiences, linked with the pressure on industry to develop new products and technologies, drives a spiral of increasing expectations for avocado quality. Cultivar life cycles are expected to become increasingly shorter (Hughes, 1996), even though considerable investment is needed to develop orchards and there is a delay of up to 10 years before trees come into full production. Some avocado cultivars (such as 'Ryan' in the EU market) are starting to show indications that it is losing popularity. Failure to meet consumer expectations of quality may be devastating to an entire industry as well as to a particular cultivar. According to Batt and Sadler (1998) Australian consumers indicated that following a bad apple eating experience, 58% of them change cultivars, 31% purchase fewer fruit, 24% switch to other types of fruit, 17% stop buying apples for a while, 10% change to higher priced fruit, 5% switch brands, and 1% change to lower priced fruit. This finding has a potential significant impact on the global avocado industry, especially where the global push is towards a single cultivar being 'Hass'.

Table 5.2: Fractions of regional divided consumer survey results on their buying behaviour pertaining to avocados and the effect of seasonality on this factor

		Total	RSA	USA	Australia	EU	Others
		%	%	%	%	%	%
The availability of good eating quality avocados in supermarkets is constant	Strongly Disagree	15.1	14.9	17.6	14.3	4.5	11.8
	Disagree	51.2	58.3	40.8	42.9	45.5	58.8
	No opinion	15.3	15.3	16.2	10.7	13.6	17.6
	Agree	15.5	9.9	20.4	28.6	36.4	5.9
	Strongly Agree	2.9	1.7	4.9	3.6	0.0	5.9
If availability of avocados in supermarkets was constant, I would buy more	Strongly Disagree	4.0	1.7	7.8	0.0	13.0	0.0
	Disagree	15.0	10.4	22.7	11.1	21.7	11.8
	No opinion	19.4	15.4	24.1	14.8	34.8	23.5
	Agree	46.2	51.7	36.2	63.0	26.1	52.9
	Strongly Agree	15.4	20.8	9.2	11.1	4.3	11.8
I buy fewer avocados in Spring and Summer, because it is more expensive	Strongly Disagree	7.4	3.4	14.7	0.0	8.7	11.8
	Disagree	32.2	24.1	43.4	29.6	34.8	52.9
	No opinion	22.8	23.2	24.5	14.8	26.1	11.8
	Agree	30.4	40.9	14.7	37.0	21.7	17.6
	Strongly Agree	7.2	8.4	2.8	18.5	8.7	5.9
I prefer to buy avocados in Autumn and Winter because it is then cheaper	Strongly Disagree	7.2	3.0	14.2	3.6	13.6	5.9
	Disagree	26.7	21.1	33.3	21.4	36.4	47.1
	No opinion	21.1	18.1	29.1	3.6	22.7	23.5
	Agree	33.9	40.9	20.6	57.1	22.7	23.5
	Strongly Agree	11.0	16.9	2.8	14.3	4.5	0.0
The season does not affect me buying avocados, irrespective of the price	Strongly Disagree	9.0	11.3	6.4	11.1	4.5	0.0
	Disagree	32.7	34.7	27.0	55.6	36.4	11.8
	No opinion	16.8	15.9	17.0	14.8	27.3	17.6
	Agree	32.7	31.4	35.5	14.8	31.8	58.8
	Strongly Agree	8.7	6.7	14.2	3.7	0.0	11.8
I am prepared to pay a premium price for an attractive/high quality avocado	Strongly Disagree	4.5	3.8	4.9	3.6	9.1	5.9
	Disagree	22.8	23.9	23.2	21.4	22.7	5.9
	No opinion	22.6	23.1	25.4	14.3	18.2	11.8
	Agree	43.6	40.8	43.0	50.0	50.0	70.6
	Strongly Agree	6.5	8.4	3.5	10.7	0.0	5.9

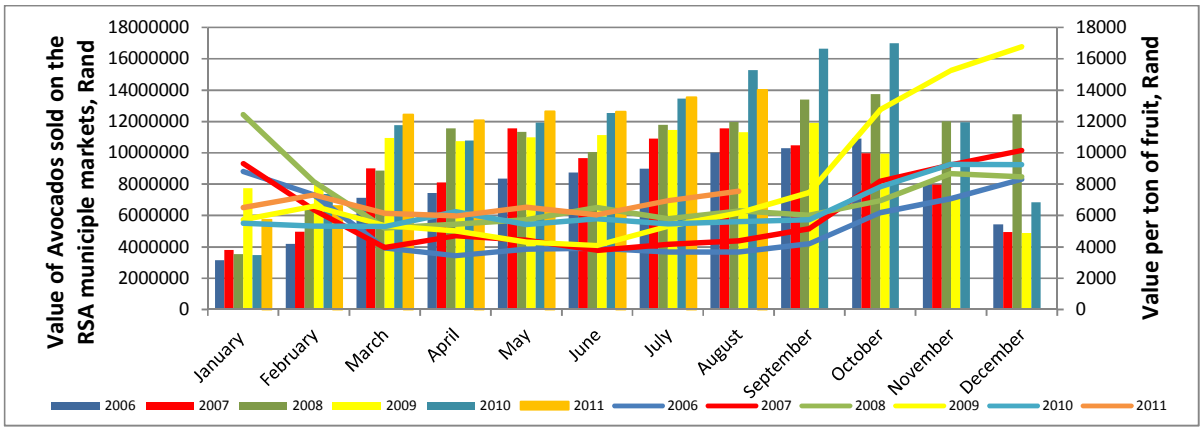

Figure 5.1 Avocado fruit sold on South Africa's municipal market, correlated to price per volume.

Price appears to play a distinct role in the Australian and European markets, where 66.7% and 40.9% respectively of Australian and European consumers confirmed that they disagree with the statement that seasonality does not affect their buying behaviour, irrespective of the price of avocados. Most consumers indicated that they are willing to pay a premium price for attractive fruit of high quality (49.2% of RSA, 46.5% of USA, 60.7% of Australia and 50% of European consumers).

Fruit quality is not an absolute, unchanging variable. Rather, it is a dynamic concept that changes over time as consumers' expectations change. As new products are released, new producers come on board, new markets are opened and new postharvest technologies develop, there will be a corresponding impact on the lifecycle of existing products.

Whether a cultivar succeeds or fails to meet these consumer expectations can have a profound impact on the level of satisfaction, and consequently on the consumer decision to repurchase (Deliza and MacFie, 1996). The importance of a specific maintained level of fruit quality at all times should not be underestimated. This proves to be difficult seeing that avocados are sourced from different countries (and subsequently most often different growers, where there is proof that major differences in fruit quality can also exist between 2 orchards on one farm), while different cultivars are also offered. Also, consumer expectation development of a 'cultivar of choice' with regards to quality has resulted in consumers to expect a greater sensory experience in all cultivars of a specific commodity. This is true for

apples where a higher quality associated with specialty apples (green and bicoloured) have gradually led to consumers expecting a greater sensory experience in all apples. Similar trends in avocado markets (mainly due to marketing by both industry-run generic marketing campaigns and specific supermarket promotions) have led to consumers increasingly expecting all avocados to either be a 'Hass' avocado, or have similar quality and physical characteristics of a 'Hass' avocado. The implication of consumer expectations of fruit quality that changes, raises some important questions for the avocado industry: how does the cycle between expectations and experiences influence consumer judgments of fruit quality?; and how has the way industry released new cultivars and developed new storage protocols influenced these judgments of quality?

Consumer's most likely judge quality in relation to a created memory of what the sensory quality of a fruit should be (Cubero *et al*., 1995). Research show that people tend to exaggerate sensations at the upper and lower extremes of the odour stimulus range (Osaka, 1987), and memories are often exaggerated (Vanne *et al*., 1998). Furthermore, the ability of consumers to remember difference in texture across days has been demonstrated (Harker *et al*., 2002). It can therefore be speculated that consumers' ideals for quality are based not only on a memory of the best of their past experiences, but are likely to be exaggerations of these experiences. There is however little research on this topic.

The Ansoff matrix described in chapter 2 can be used to predict the life cycle of '3-29-5'. If Westfalia can provide a product with quality that is reliable and constant, irrespective of the country of origin, it would enable Westfalia to move from their current market position of present products in present markets to a Product Development Strategy. Here, the focus would be on developing export standards for '3-29-5', introducing the product to target markets, and thus leading to the development of a Brand Strategy. Only then would Westfalia be able to move towards a Diversification Strategy, where '3-29-5' would be key. As the exclusive license to '3-29-5' lies within Westfalia, Westfalia would be the only entity that could offer this cultivar and its' attributes. In an era where supermarkets want to distinguish themselves from other similar commercial partners, access to exclusive produce with which they can differentiate themselves is essential. The cultivar '3-29-5' offers just that – a point of differentiation. Quality of '3-29-5' fruit as well as external appearance, over and above exclusive availability may aid to develop a point of differentiation package.

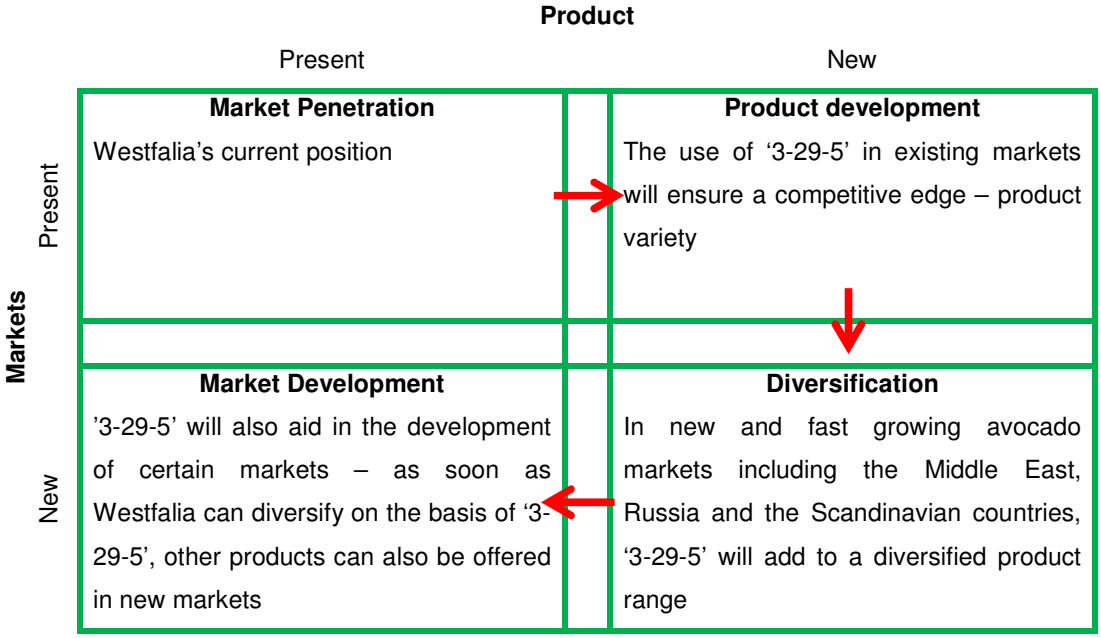

Figure 5.2: The combination of product and market familiarity describing the potential life cycle of '3-29-5'

For the South African market, where production of '3-29-5' is furthest developed globally, the cultivar has been offered to the supermarket Woolworths exclusively. The seasonal availability of '3-29-5' also allows Woolworths access to avocado fruit when the South African market is ruled by imported fruit from Spain and Chile that has been stored for a long period of time (with subsequent quality concerns). Good quality would therefore be a key point of differentiation for '3-29-5' fruit during the period October to February. In international markets, the idea is to source fruit globally to allow good quality '3-29-5' fruit to trickle into supermarket programs on an exclusive basis throughout the year. Results from the current study underline this, as the majority of consumers in all markets indicated that they are prepared to pay a premium price for an attractive and high quality avocado.

Once Westfalia has gained access into new markets, the opportunity exists to fill a dual strategy. Having gained access into new markets with the help of '3-29-5' would allow Westfalia to build a commercial relationship with business partners, which might allow Westfalia to move some of its current product into these new markets. There are two challenges that should not be misjudged: 1) most competing businesses in the international avocado market are searching for a point of differentiation - although access to new plant material is scarce, the development of new cultivars should not be ruled out; and 2) consumers are continuously on the lookout for new products, and '3-29-5' will not be seen

as a new product forever. Thus inevitably, '3-29-5' will change status to a 'current product', which will push Westfalia's strategy towards market development alone.

5.4 To determine the value of a trademark Gem® and the necessity to develop this trademark to distinguish '3-29-5' from other avocado cultivars (Objective 2)

Recognizing consumer preference for fruit appearance is not difficult, and often eating experience expectations are based on fruit appearance (Cliff *et al*., 1999; Jaeger and MacFie, 2001). Associations between cultivar appearance and eating experience are firmly established in the psyche of regular fruit consumers. Consumers that regularly purchase a specific cultivar, do so with the knowledge of the specific eating experience it will provide. This is easier to establish in fruit types that have distinct visual and taste differences such as grapes compared to avocados.

When consumers in the current study were asked whether they are aware that there are different avocado cultivars available, 83.2% of all respondents agreed (Table 5.3). When asked whether consumers are aware of differences between green and black skinned avocados, most consumers in the non-RSA regions agreed (73.6% USA, 67.9% Australia, and 72.7% EU). However 43.6% of the South African consumers disagreed while 47.5% agreed with the statement.

Interesting tendencies appeared when consumers were asked about their preference for green or black skinned avocados. European and Australian consumers reacted negatively to both statements (EU = 27.3% disagreed to a preference for black skinned fruit (18.2% agreed); 36.3% disagreed to a preference for green skinned fruit (54.5% agreed); AU = 53.5% disagreed to a preference for black skinned fruit (28.6% agreed); 40.7% disagreed to a preference for green skinned fruit (37% agreed).

This tendency was not the same for the USA, where 53.6% of consumers indicated a non-preference to green skin avocados (13.5% preferred green skins) compared to 36.9% preferring black skin avocados (24.3% not preferring black skins). For South Africa this preference seems to be inverted, with 45.2% of consumers indicating a preference for green skin avocados (23.4% not preferring green skins), compared to only 15.5% preferring black skin avocados (43.5% not preferring black skins). A study conducted by Krugel (2011) on South African avocado consumption confirms this finding. That said, Krugel (2011)

stated that although South African consumers indicated a preference for green skin avocados, they believe that green skin fruit are often expensive (63% of respondents). In the same survey, black skin avocados were more poorly rated than green skin fruit in all categories except price where they are better perceived than green skinned avocados.

Consumers from both Australia (78.6%) and the EU (71.5%) agreed that supermarkets seldom specify avocado cultivars. To the contrary, 64.8% of USA consumers disagreed with this statement, implying that supermarkets do specify cultivars on their retail shelves or packaging. There was no clear distinction between South African consumers with regards to their perception of supermarket indication of avocado cultivar. However, there might be some correlation between consumer perception as to supermarket display of avocado cultivar, and their reluctance to look at labels (Table 5.3).

Most (57.9%) of the respondents do not prefer and pursue a specific avocado cultivar when shopping (63.8% RSA, 54.7% USA, 63.7% EU agreed). Yet, there does seem to be a possibility that a large section of the Australian population prefer and pursue a specific avocado cultivar (42.8%). A preference for a specific cultivar does not limit consumers in buying other avocado cultivars (78.4% of total population agrees). In all regions except the USA, there appears to be agreement that avocado cultivar availability does not affect their choice of fruit (59.4% RSA, 53.6% Australia, and 59% EU) (Table 5.3).

Discussion of cultivar recognition leads logically to the consideration of branding. Branding of fruit is widely considered to be problematic due to the variability in quality of the product, and irregularity of supply (Richards, 2000). Furthermore, research has been ambiguous as to the impact of brand on consumer choice of fruit (Patterson and Richards, 2000). Increasingly, companies are amalgamating the concepts of brand and cultivar. Newer released cultivars tend to be protected by plant variety rights, trademarks cover their names, and they are marketed through exclusive licensing agreements with companies (Ferguson *et al*., 1999). The model proposed for Gem® is similar. More recently, there has been a move to brand fruit that have been sorted for high soluble solids content using near infra-red technology by applying a 'Tastemark' sticker to individual fruit, trying to differentiate fruit in such a way (Anon, 2000).

Maintenance of brand awareness by consumers can be costly. The apple industries often invest in the advertising and promotion of new cultivars (Richards and Patterson, 2000). Richards and Patterson (2000) examined the relative importance of generic and cultivar-specific promotion, and consumer experience on demand for Fuji apples (a cultivar that was relatively unknown by US consumers, at the time of the study). Their results showed a strong impact of both promotion and consumers' experience with the product (cumulative consumption) on retail demand. That said apples are goods where a consumer's experience with the product is often more valuable in generating sales than industry providing information about the product. Thus, in some cases word of mouth might be expected to help establish the market (Richards and Patterson, 2000), in which case quality will be of overwhelming importance.

Other aspects of fruit could also possibly be used in order to differentiate, and in some cases even brand fruit. In the current study, the fact that fruit is free from chemical residue as an indicator of quality is rated extremely high by European consumers (95%), compared to other regions (61.9% RSA, 35.5% USA, 60.8% Australia). A quality assurance label as an indicator of fruit quality also seems to play a more important role in the EU (69.5%) compared to South Africa (38.8%), Australia (28.6%), and the USA (18.6%). Many consumers in the USA rated a quality assurance label as a low to very low indicator of fruit quality (46.9%).

All regions indicated external appearance as a good indicator of quality (61.2% RSA, 46.2% USA, 55.2% Australia, and 90.9% EU). However, internal appearance were even more important with 86.3% of total respondents indicating that internal appearance are a high to very high indicator of fruit quality (85.9% RSA, 86.9% USA, 85.7% Australia, 100% EU) (Table 5.4).

Table 5.3: Fractions of regional divided consumer survey results on their preference for and knowledge on specific avocado cultivars

		Total	RSA	USA	Australi	EU	Other
		%	%	%	%	%	%
I would eat more avocados if I understood how to ripen them	Strongly Disagree	19.2	12.1	34.5	10.7	13.0	11.8
	Disagree	35.0	30.5	40.8	42.9	39.1	29.4
	No opinion	12.2	11.3	9.2	14.3	26.1	29.4
	Agree	25.8	35.6	10.6	25.0	21.7	23.5
	Strongly Agree	7.8	10.5	4.9	7.1	0.0	5.9
I would eat more avocados if I understood how to use and eat them	Strongly Disagree	26.7	20.3	39.7	10.7	31.8	29.4
	Disagree	41.0	40.7	41.8	35.7	50.0	35.3
	No opinion	10.5	11.6	7.1	17.9	9.1	11.8
	Agree	19.4	25.3	9.2	28.6	4.5	23.5
	Strongly Agree	2.4	2.1	2.1	7.1	4.5	0.0
I am aware of the differences between green and black skin avocados	Strongly Disagree	8.9	13.3	3.6	7.1	4.5	0.0
	Disagree	21.9	30.3	12.1	10.7	13.6	11.8
	No opinion	10.5	9.5	10.7	14.3	9.1	17.6
	Agree	33.0	28.6	37.9	25.0	50.0	47.1
	Strongly Agree	25.7	18.3	35.7	42.9	22.7	23.5
I prefer black skin avocados	Strongly Disagree	10.3	11.3	6.4	21.4	9.1	12.5
	Disagree	26.2	32.2	17.7	32.1	18.2	12.5
	No opinion	38.8	41.0	39.0	17.9	54.5	18.8
	Agree	14.8	6.3	24.8	28.6	9.1	37.5
	Strongly Agree	9.9	9.2	12.1	0.0	9.1	18.8
I prefer green skin avocados	Strongly Disagree	7.9	4.2	12.9	7.4	4.5	23.5
	Disagree	26.5	17.2	40.7	33.3	31.8	23.5
	No opinion	32.4	33.5	32.9	22.2	40.9	17.6
	Agree	23.8	32.2	12.1	25.9	13.6	11.8
	Strongly Agree	9.4	13.0	1.4	11.1	9.1	23.5
I am aware that there are different avocado cultivars available	Strongly Disagree	2.5	2.9	2.1	0.0	4.5	0.0
	Disagree	7.4	9.6	2.8	10.7	9.1	5.9
	No opinion	6.9	6.3	7.8	3.6	4.5	17.6
	Agree	44.3	48.1	37.6	32.1	63.6	41.2
	Strongly Agree	38.9	33.1	49.6	53.6	18.2	35.3
Supermarkets seldom specify avocado cultivars	Strongly Disagree	3.3	2.6	5.7	0.0	7.1	0.0
	Disagree	28.1	19.4	59.1	14.3	0.0	17.6
	No opinion	41.4	52.4	25.0	7.1	21.4	23.5
	Agree	19.4	23.3	0.0	50.0	28.6	35.3
	Strongly Agree	7.8	2.2	10.2	28.6	42.9	23.5
I prefer and actively pursue a specific avocado cultivar when shopping	Strongly Disagree	16.6	18.8	15.1	7.1	27.3	0.0
	Disagree	41.3	45.0	39.6	32.1	36.4	23.5
	No opinion	16.6	15.8	18.0	17.9	13.6	17.6
	Agree	19.5	17.1	18.0	35.7	22.7	35.3
	Strongly Agree	6.1	3.3	9.4	7.1	0.0	23.5
I would not buy avocados if a specific cultivar is not available	Strongly Disagree	25.9	29.7	22.7	21.4	17.4	17.6
	Disagree	52.5	53.6	50.4	50.0	65.2	41.2
	No opinion	12.5	10.9	14.9	10.7	17.4	11.8
	Agree	7.6	5.0	11.3	17.9	0.0	5.9
	Strongly Agree	1.6	0.8	0.7	0.0	0.0	23.5
Avocado cultivar availability does not affect my choice of fruit	Strongly Disagree	6.1	2.1	12.1	3.6	4.5	17.6
	Disagree	21.5	18.0	27.1	28.6	13.6	23.5
	No opinion	20.6	20.5	21.4	14.3	22.7	23.5
	Agree	41.7	48.5	30.0	39.3	54.5	29.4
	Strongly Agree	10.1	10.9	9.3	14.3	4.5	5.9

Table 5.4: Fractions of regional divided consumer survey results on their rating of specific avocado characteristics as indicators of avocado quality

Rating as quality indicators of avocados		Total	RSA	USA	Aus	EU	Othe
		%	%	%	%	%	%
Taste	Very Low	0.4	0.8	0.0	0.0	0.0	0.0
	Low	0.2	0.0	0.0	0.0	0.0	5.6
	Moderate	5.1	6.3	1.4	3.4	17.4	5.6
	High	42.2	42.0	41.0	48.3	43.5	44.4
	Very High	52.0	51.0	57.6	48.3	39.1	44.4
Nutritional content	Very Low	0.4	0.0	1.4	0.0	0.0	0.0
	Low	5.6	3.5	10.4	3.4	4.5	0.0
	Moderate	23.1	18.4	28.5	34.5	27.3	23.5
	High	45.5	48.4	39.6	41.4	45.5	58.8
	Very High	25.4	29.7	20.1	20.7	22.7	17.6
Freshness	Very Low	0.0	0.0	0.0	0.0	0.0	0.0
	Low	1.1	0.8	2.1	0.0	0.0	0.0
	Moderate	14.1	13.2	11.1	20.7	22.7	29.4
	High	50.1	50.6	48.6	48.3	59.1	47.1
	Very High	34.8	35.4	38.2	31.0	18.2	23.5
Free from chemical residues	Very Low	3.2	2.4	6.2	0.0	0.0	0.0
	Low	10.1	7.1	18.6	3.6	0.0	5.6
	Moderate	29.0	28.6	29.7	35.7	5.0	44.4
	High	31.1	32.9	28.3	42.9	30.0	11.1
	Very High	26.6	29.0	17.2	17.9	65.0	38.9
External appearance	Very Low	1.3	0.4	2.8	3.4	0.0	0.0
	Low	7.9	8.2	8.3	13.8	0.0	0.0
	Moderate	33.7	30.2	42.8	27.6	9.1	50.0
	High	38.8	40.4	35.9	48.3	31.8	33.3
	Very High	18.3	20.8	10.3	6.9	59.1	16.7
Internal appearance	Very Low	0.9	0.8	0.7	0.0	0.0	5.6
	Low	2.0	2.0	2.1	0.0	0.0	5.6
	Moderate	10.8	11.4	10.3	14.3	0.0	11.1
	High	38.8	36.9	44.8	28.6	26.7	44.4
	Very High	47.5	49.0	42.1	57.1	73.3	33.3
Quality assurance label	Very Low	11.1	7.5	20.0	10.7	0.0	5.6
	Low	20.0	18.8	26.9	17.9	4.3	5.6
	Moderate	34.5	34.9	34.5	42.9	26.1	27.8
	High	23.5	26.3	14.5	25.0	30.4	44.4
	Very High	10.9	12.5	4.1	3.6	39.1	16.7
Local or regional identity	Very Low	11.3	14.2	10.3	7.1	0.0	0.0
	Low	20.3	26.8	13.1	21.4	8.7	0.0
	Moderate	34.6	33.9	32.4	39.3	43.5	44.4
	High	22.4	16.5	29.7	21.4	30.4	38.9
	Very High	11.3	8.7	14.5	10.7	17.4	16.7
High Price	Very Low	11.6	9.8	19.4	3.4	0.0	0.0
	Low	23.4	22.4	29.2	17.2	14.3	11.1
	Moderate	37.3	37.4	32.6	51.7	28.6	61.1
	High	18.5	20.9	10.4	13.8	42.9	27.8
	Very High	9.2	9.4	8.3	13.8	14.3	0.0
Producer brand name	Very Low	21.7	20.8	30.3	7.1	0.0	16.7
	Low	32.0	34.1	29.7	46.4	17.4	16.7
	Moderate	29.0	29.4	26.9	25.0	43.5	27.8
	High	11.9	11.0	9.0	14.3	26.1	27.8
	Very High	5.3	4.7	4.1	7.1	13.0	11.1
Reputation of retail seller	Very Low	10.5	9.0	16.0	3.4	0.0	11.1
	Low	18.4	15.7	19.4	34.5	18.2	22.2
	Moderate	33.5	31.0	40.3	34.5	13.6	38.9
	High	28.4	34.5	18.1	20.7	45.5	16.7
	Very High	9.2	9.8	6.3	6.9	22.7	11.1

In the South African (54.9% vs. 14.7%), American (60% vs. 13.1%) and Australian (53.5% vs. 21.4%) opinion, producer brand name is not a high or very high indicator of fruit quality. This said, in the EU, 39.1% of consumers indicated that brand name is important, compared to 17.4% indicating it is a low quality indicator. In South Africa (65.5%) and the EU (59.1%), the reputation of a retailor is possibly a better indicator of quality. There were no clear trends as to the importance of retailor reputation as a fruit quality indicator (Table 5.4). For industry to realize the value associated with any improvements in quality, the consumer must be able to recognize the product. This recognition can be based on branding or cultivar, but increasingly in the future these two factors will be amalgamated into single brand/cultivar identities.

This single brand/cultivar identity has been achieved by two separate fruit entities being Zespri International™ and Pink Lady™. Although both trademarks are now well known brands in their own right, the creation of these brands took a long time and managers of these brands focus on different issues to uphold and develop the brand identities.

The Zespri International™ brand is grower-owned by a kiwifruit producer organization which annually exports 2 billion kiwis to an estimated 70 countries. Kiwifruit consumption rose substantially globally in the 1980's as people got to know the fruit. Consumer awareness drove competition, and competing countries such as Australia, California, Chile, Turkey and South Africa started to grow bigger volumes than New Zealand. The various growing seasons of these regions and the fruits' storage ability of up to six months lead to kiwis being enjoyed all year round (Rusch, 2001).

By 1988 kiwifruit production in the rest of the world overtook New Zealand's production for the first time. By the early 1990s the New Zealand industry faced a crisis with falling volumes and prices in an over-supplied European market (Meads & Sharma, 2008). The place of origin was no longer the strongest differentiator for choosing one kiwi over another. Furthermore, the name "kiwi" or "kiwifruit" was never registered as a trademark and the name fell into generic usage like apple or banana (Rusch, 2001).

During 1997, the New Zealand Kiwi Marketing Board took on a punchier name 'Zespri' to describe the zest of the fruit (linked to its' health attributes) combined with its life giving properties (esprit, fr.). In 1997, the new name and brand identity were rolled out in an

international campaign to promote the brand as “active, real, fresh and vibrant”. Shortly after the rebranding, a new product variety called Zespri Gold™ (a fruit with a yellow/golden inside compared to the normal green) was rolled out internationally in 1998, giving Zespri™ the jump on competitors with a unique product, which is difficult for others to commercialize quickly.

In 2004 the New Zealand kiwifruit industry recorded gross profits of over NZ$900 million. Even though Italy, Chile and China surpassed New Zealand in production volume, the brand Zespri International™ held 25% of the total year round global market share in terms of value. The Zespri International™ System coordinates 2,600 growers, 13 suppliers and 65 million trays of kiwifruit to consumers in 70 global countries, all under one brand without differentiation between producers or country of origin (Means & Sharma, 2008).

Zespri International™ also engages in product tailoring due to requirement differences between countries. The brand strategy for Zespri International™ is to be known as the category leader based on excellence and the number one brand of choice (Means & Sharma, 2008).

Zespri™’s future lies in a multiproduct, global distribution and non-seasonal income.With continuous record financial returns to growers, significant premiums, strong brand management, reliable quality assurance systems and leadership in R&D, Zespri™ is a standout brand in a traditionally commoditized industry (Rusch, 2001).

Similarly, the trademark Pink Lady™ is used for apples of the variety ‘Cripps Pink’ that comply with a specific set of quality parameters, irrespective of the producer or country of origin. Consistent quality is ensured by strong and enforced quality standards, and this in turn stabilizes and enforces the brand. One of the key successes of this brand is its’ global web of trademark protection. Applications and registrations for this trademark are supported by defence actions where needed. However, in most cases protection is filed proactively and defensively to defend brand space. The right to use the brand is licensed to Master Licensees, who sublicense both exporters and importers. Subsequently, licensed exporters may only export to licensed importers. The Brand is positioned as such to incorporate not only its genuine healthy lifestyle image but also to highlight the premium quality and unique taste.

The minimum quality specifications are at the centre of the brand. These are designed so that the consumer receives a consistent eating experience –time after time, anywhere in the world, no matter where in the world the fruit was grown. Guidelines for use of the brand seeks consistent brand 'look and feel' world-wide, while still allowing local innovation in each country. When consumers eat Pink Lady™ apples their response must always be a positive "Wow!" (Dall, 2009).

Taken from John (2006), a BLIP model is proposed for the commercialization of Gem®. This model emphasizes the need to consider not just how to advertise and build brands, but also how best to leverage them, how to identify their position, and how to protect past investment in brands to aim for a brand as well-known and respected as Pink Lady™ or Zespri™. An overarching framework (the BLIP model) is needed for continued management of the intellectual property that lies within a brand. The model identifies four components of branding, which is Building, Leveraging, Identifying, and Protecting Brands.

Strategic brand management is not only a question of building brands, but also using a broader consideration framework when managing brands. To maintain healthy and vital brands, firms need to pay attention to brand building, but should not neglect important issues related to brand leveraging, identification, and protection.

Figure 5.3 A BLIP model trying to identify the steps to be taken to commercialize Gem®

Brand Identity	The brand identity of Gem® should be developed. Key factors that should play a role in this cultivar image include: its external 'Hass'-like appearance, but with differentiating yellow lenticels that is noticeable throughout; exclusivity of the cultivar; internal quality, and a guarantee of fruit quality marketed under the brand Gem®
↓	
Brand building	*Product* – The brand Gem® will only be used for first class fruit. *Place* – Specific up-market supermarkets will be licensed to sell Gem® *Price* – the price for which Gem® will sell is mostly determined by the market. Exclusivity will be offered to supermarkets that are willing to sell fruit at a premium. *Promotion* – Gem® will be promoted as a superior quality avocado, better external appearance, and greater taste.
↓	
Brand Leveraging	The Westfalia brand is protected in the most important avocado markets. Gem® will be an extension of this brand. Producer branding is normally removed on the supermarket shelves. Supermarkets will only be licensed to sell Gem® if the cultivar is clearly depicted on supermarket shelves and ripened avocado packaging.
↓	
Brand Identifying	From this study, it appears that consumers are more sensitive to fruit quality than to country of origin, branding or labelling. This has a large impact on the envisaged image that Westfalia will try to achieve with the branding of Gem® fruit. It is also important that Gem® should be synonymous with quality and superior tasting fruit.
↓	
Brand Protection	Protection of the brand Gem® has been filed in most of the avocado markets. A brand is not only protected by law, but also by reputation. Strict quality control measures should be in place to ensure that only fruit of the best quality bear the Gem® brand. This should be managed at packhouse level, and feedback from supermarket technicians will be a key instrument.

5.5 To determine if the origin of an avocado fruit will affect the consumer buying behaviour (Objective 3)

To supply avocados to consumers 12 months of the year, supermarkets are reliant on imports from different origins, more often than not from different hemispheres during the course of a year. This reliance is more pronounced in markets where the majority of fruit is imported like the EU avocado market, and less pronounced in markets where the majority of fruit is grown locally such as South Africa (that import limited quantities of fruit from Spain and recently Chile in their off season) and Australia (that import fruit from New Zealand in their off season).

Quality of imported fruit tends to vary, mainly as a result of the time it takes for fruit to travel from the producer to the consumer (which in some cases might be more than 4 weeks), but also due to a lack of enforced global quality standards for exported fruit. In the current

study, regions differ in their perception of local or regional identity of avocado fruit as an indicator of quality (25.2% of consumer rate this factor as a good (high) indicator of quality vs. 41% of consumers rating is as a bad (low) indicator of quality in South Africa; similarly 44.2% high vs. 23.4% low in the USA, 32.1% high vs. 28.5% low in Australia, and 47.8% high vs. 8.7% low in the EU) (Table 5.4). A marked difference can be seen in the data from European consumers, where the majority of respondents (47.8%) indicated that the regional identity of fruit is a good indicator of fruit quality.

The question arises whether consumers are aware that fruit offered on supermarket shelves originate from different production regions. Consumers from all geographical groupings confirmed their awareness of the fact that avocados offered on the supermarket shelve are, more often than not, produced and sourced globally (80.8% RSA, 91.5% USA, 96.4% Australia, 100% EU) (Table 5.5).

There seems to be a difference between South African consumers and those from other regions as to their concern regarding fruit origin. Only 31.1% of South African consumers indicated that they care where fruit originate from, compared to 64.6% of USA, 59.2% Australian and 72.7% European consumers.

This also relates well to regional consumer behaviour regarding their frequent recognition of 'country of origin' markings on packaging, where 49.5% South Africans indicated they never look at labels to determine the country of origin, compared to 72.3% of American, 59.1% Australian and 68.2% European consumers that indicated they frequently look at labels to determine the country of origin.

Although the South African, USA and Australian consumers all indicated they would buy local avocados if they had a choice, this data did not correlate to their response to a statement that they do not have a preference for the origin of avocados they buy. Although the country of origin might affect consumer perceptions about the value of avocados, there is little loyalty from consumers (Table 5.5).

Table 5.5: Fractions of regional divided consumer survey results on their perceptions of fruit origins and whether there are any differences in perceived quality of fruit from different origins.

		Total	RSA	USA	Australia	EU	Other
		%	%	%	%	%	%
I am aware that avos sold in my country can come from different producing countries	Strongly	1.6	2.1	0.7	0.0	0.0	5.9
	Disagree	7.8	11.3	1.4	3.6	0.0	29.4
	No opinion	5.6	5.9	6.3	0.0	0.0	11.8
	Agree	49.8	58.2	37.3	71.4	31.8	23.5
	Strongly Agree	35.3	22.6	54.2	25.0	68.2	29.4
When purchasing fresh fruit I care where they originate from	Strongly	9.2	12.2	5.7	0.0	9.1	11.8
	Disagree	26.3	34.9	15.6	22.2	13.6	17.6
	No opinion	18.4	21.8	14.2	18.5	4.5	23.5
	Agree	33.5	24.8	43.3	37.0	59.1	35.3
	Strongly Agree	12.6	6.3	21.3	22.2	13.6	11.8
I frequently look at labels to see where a product originates from	Strongly	12.1	16.7	7.1	0.0	9.1	11.8
	Disagree	27.6	36.8	14.9	29.6	13.6	17.6
	No opinion	13.2	18.4	5.7	11.1	9.1	11.8
	Agree	29.8	20.1	40.4	40.7	45.5	41.2
	Strongly Agree	17.3	7.9	31.9	18.5	22.7	17.6
I never look at labels to see the country of origin of fresh produce	Strongly	20.4	7.6	38.0	28.6	40.9	12.5
	Disagree	33.2	30.7	38.7	39.3	22.7	25.0
	No opinion	11.0	12.2	6.3	10.7	22.7	18.8
	Agree	27.6	38.2	12.7	21.4	13.6	31.3
	Strongly Agree	7.8	11.3	4.2	0.0	0.0	12.5
If I had a choice, I would buy all my avocados grown locally	Strongly	4.7	2.1	6.3	3.6	18.2	11.8
	Disagree	11.3	9.4	12.0	7.1	36.4	5.9
	No opinion	14.4	14.9	10.6	21.4	13.6	29.4
	Agree	41.2	44.3	38.7	39.3	22.7	47.1
	Strongly Agree	28.4	29.4	32.4	28.6	9.1	5.9
I do not have a preference for the origin of the avocados I buy	Strongly	11.5	5.5	21.4	21.4	9.1	0.0
	Disagree	26.6	22.0	31.4	39.3	27.3	29.4
	No opinion	16.0	17.4	16.4	7.1	13.6	11.8
	Agree	37.5	44.9	25.0	28.6	40.9	47.1
	Strongly Agree	8.4	10.2	5.7	3.6	9.1	11.8
Choosing avos from different countries (same price), I choose fruit from a country I support	Strongly	11.5	13.0	8.2	0.0	18.8	17.6
	Disagree	30.5	21.0	53.1	50.0	18.8	5.9
	No opinion	37.8	43.5	36.7	18.8	6.3	23.5
	Agree	14.1	18.5	0.0	18.8	25.0	29.4
	Strongly Agree	6.1	4.0	2.0	12.5	31.3	23.5
If avos from a country I like => expensive than fruit from other origins, I still choose those fruit	Strongly	14.1	16.8	10.6	10.7	18.2	5.9
	Disagree	39.9	47.1	34.0	25.0	22.7	35.3
	No opinion	22.6	18.9	24.1	28.6	40.9	29.4
	Agree	16.8	12.6	21.3	25.0	13.6	29.4
	Strongly Agree	6.5	4.6	9.9	10.7	4.5	0.0
I would consciously not buy avos if I am against the country of origin, or its principles	Strongly	14.3	20.2	7.7	7.1	9.1	5.9
	Disagree	30.4	34.5	21.1	39.3	36.4	29.4
	No opinion	20.4	20.2	21.8	7.1	22.7	29.4
	Agree	22.6	16.0	31.7	28.6	22.7	29.4
	Strongly Agree	12.3	9.2	17.6	17.9	9.1	5.9
The country of origin affects my perceived value of the avocados	Strongly	14.6	15.7	14.9	3.6	13.6	17.6
	Disagree	36.7	44.5	27.7	25.0	40.9	17.6
	No opinion	20.0	21.2	19.9	25.0	9.1	11.8
	Agree	22.3	16.1	24.8	39.3	31.8	47.1
	Strongly Agree	6.3	2.5	12.8	7.1	4.5	5.9

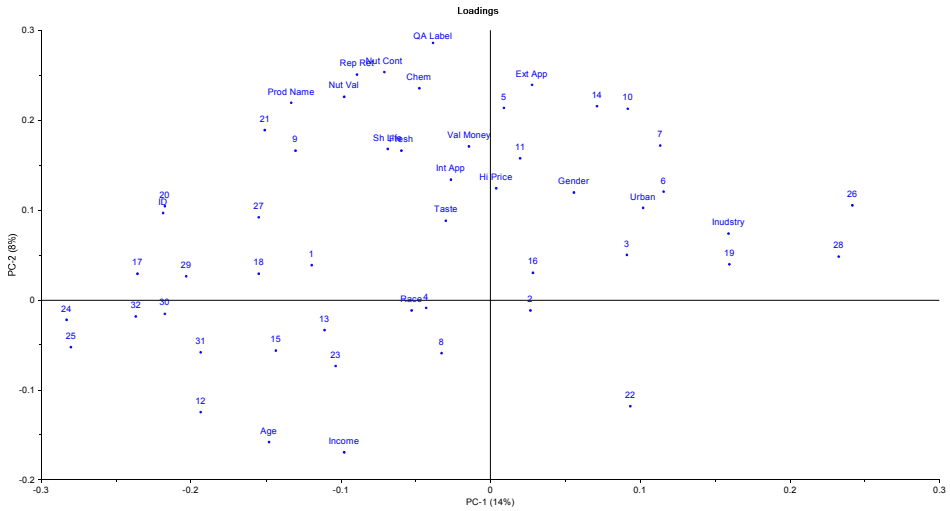

Figure 5.4: External preference map containing all the survey responses with avocado fruit characteristic indicators indicating the position of perceived value of avocados to consumers in relation to the consumer survey feedback.

(This feedback is with specific reference to year-round availability of avocados (Statement 4-8), branding and cultivar choice (Statement 12-19), country of origin (Statement 23-32), and value placed on product exclusivity (Statement 20-22). The survey statements are set out indicated with a numerical value between 1 and 32 on the map. The fruit characteristics were Nutritional Value (Nut Val); Value for Money (Val Money); Shelf Life (Sh Life); Taste (Taste); Nutritional Content (Nut. Cont); Freshness (Fresh); Free from Chemical Residues (Chem); External Appearance (Ext App); Internal Appearance (Int Price); Producer Brand Name (Prod Name); and the Reputation of the Retail Seller (Rep Ret). The map was obtained using a partial least square regression, where the consumer survey data (y space) was regressed onto the fruit characteristics data (x space)).

There seem to be a strong correlation between the positive statements on country of origin, as well as a correlation between the negative statements on country of origin. These two groupings seem to have a direct negative correlation, confirming some reliability of the study (Figure 5.4). Also, there appears to be a correlation between South African consumers that have a preference for a specific cultivar and consumers that are aware of the country of origin of their avocados, and are influenced by this fact (Figure 5.5).

The importance for Westfalia to develop a global strategy has long been realised by the company board. To this end, the vertical integration of its business value chain has proven successful, and has assured Westfalia Europe a 20-25% market share in the European avocado market. Some of the challenges faced by the company include working with a perishable product (one of the main reasons for global sourcing), and the potential for inconsistent fruit quality during the lifespan of a season from a single source, and

inconsistency between sources. Globalization is imperative to allow Westfalia to sell a standardized product continuously.

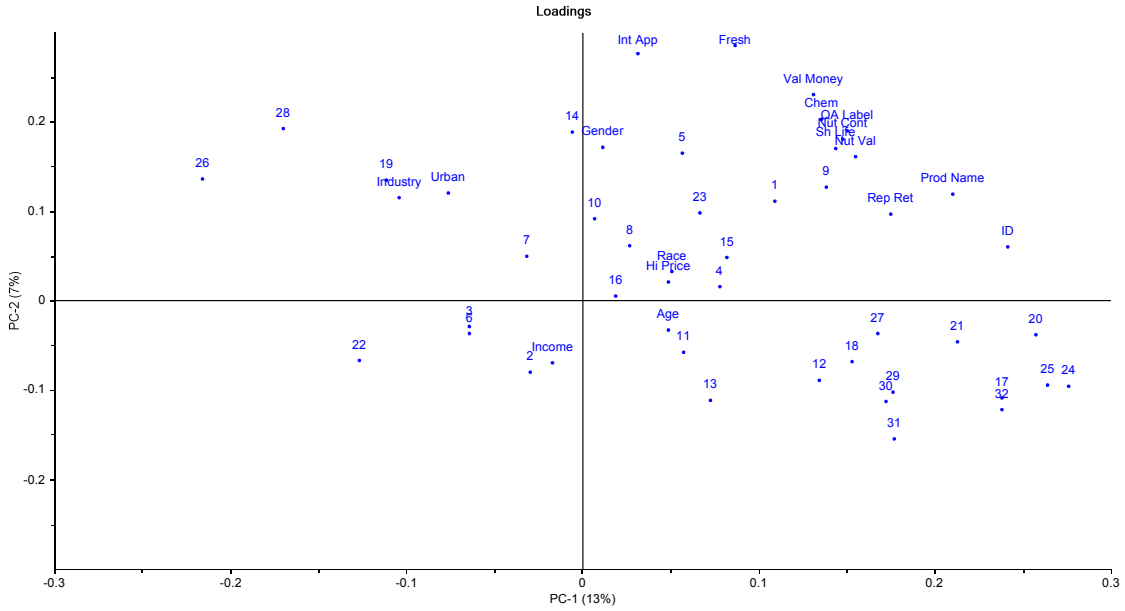

Figure 5.5: External preference map containing the survey responses from South Africa with avocado fruit characteristic indicators indicating the position of perceived value of avocados to consumers in relation to the consumer survey feedback.

(This feedback with specific reference to year-round availability of avocados (Statement 4-8), branding and cultivar choice (Statement 12-19), country of origin (Statement 23-32), and value placed on product exclusivity (Statement 20-22). The survey statements are indicated with a numerical value between 1 and 32 on the map. The fruit characteristics were Nutritional Value (Nut Val); Value for Money (Val Money); Shelf Life (Sh Life); Taste (Taste); Nutritional Content (Nut. Cont); Freshness (Fresh); Free from Chemical Residues (Chem); External Appearance (Ext App); Internal Appearance (Int Price); Producer Brand Name (Prod Name); and the Reputation of the Retail Seller (Rep Ret). The map was obtained using a partial least square regression, where the consumer survey data (y space) was regressed onto the fruit characteristics data (x space)).

Alden *et al*. (2006) reports that consumption alternatives as a result of market globalization lead to consumer attitudes clustering along a global–hybrid–local continuum. They further propose that consumers often don't differentiate between local and global product supply. Consumers in the current study were clearly aware of the global supply continuum that exists within avocado supply chain. Although it could be argued that it might be more profitable to offer a portfolio of brands that differ in terms of attribute associations along the global-hybrid-local continuum. Results from the current study indicate that consumers within specific markets differ with regards to their attentiveness to country of origin-labelling on

fruit packaging, inherently pointing towards a variance in apparent consumer resistance or tolerance to globally-sourced fruit. Awareness does not necessarily relate to resistance. It appears that other factors such as quality, food safety, and price play a bigger role in influencing consumer buying behaviour. As the '3-29-5' product development process matures within Westfalia, and the cultivar becomes commercially available from different producing countries globally, the above mentioned factors would be something that Westfalia could offer, as fruit would be sourced from all avocado producing countries licensed to grow the cultivar. Although the continuous flow of global media and human migration suggests that a homogenous global consumption orientation (GCO) will eventually dominate local markets, diverse attitudes towards global consumption orientation will still exist for the foreseeable future. Generic positioning of the brand relating to country of origin might prove to be the best option.

5.6 To identify whether exclusivity of a product will lead a consumer to pay more for the product (Objective 4)

Consumer surveys tend to indicate the relative value placed on price versus quality by consumers. Most surveys differ in their outcome (Market Review, 1996; Alavoine *et al.,* 1990). Useful information on consumer preferences can be provided by conjoint studies. In most of these studies on fruit, it is clear that consumer preferences involve a trade-off between quality and price. Attempts have been made to identify groups of consumers that exhibited behavioural differences on demographic information and social values. Small differences in the demographic profiles of these segments were observed; yet marked differences in social values characterised by 'fun and enjoyment of life', 'self-respect' and 'sense of accomplishment' appear to exist (Baker, 1999).

In a conjoint analysis study to evaluate the influence of price, quality, convenience in terms of packaging and type of retail outlet (van der Pol and Ryan, 1996) the impact of price on utility seemed to vary depending on consumer income. They suggested that affluent consumers tend to purchase more fruit and therefore, take more account of price. A coefficient indicative of 'willingness to pay' was also created, and results indicated that the lowest income consumers were willing to pay a greater premium compared to middle-and high-income consumers. This is contrary to the common belief that consumers falling in a higher income group will be less reluctant to pay a premium price for a product.

All the conjoint studies normally describe the differences in fruit quality on the basis of external visuals or written descriptions (Baker and Crosbie, 1994; Baker, 1999). The question of relative importance of price compared with eating experience remains unanswered for most fruit.

It has been shown that consumers purchase fruit out of habit (Richards, 2000; Richards and Patterson, 2000). This form of behaviour is usually associated with foods considered to be dietary staple, and which conjure low involvement or thought when consumers select a product. Eating habits developed during childhood can have a significant positive or negative impact on fruit intake among adults (Krebs-Smith *et al*., 1996). In apples, regional preferences for apples also seem to be greatly influenced by consumer familiarity with cultivars. Consumers from the eastern and western seaboards of Canada preferred the appearance of those apple cultivars that were grown in their own region (Cliff *et al*., 1999). Similar evidence is present in especially avocado producing countries, where preference is given to known cultivars above other commercial cultivars available. In South Africa, preference to green skin avocados can still be seen. There is no preference for the outlet where fruit is purchased, as consumers buy their avocados anywhere, ranging from up-market retail shops (with the main aim to ensure quality of the bought product) to street vendors (where consumers buy mainly as a result of low prices.) (Krugel, 2011). Krugel (2011) further states that avocado purchases in South Africa are mostly (40% of the Woolworths customers, 32% non-Woolworths customers) undertaken as part of a weekly/daily food shopping experience. Results from the current study confirm this (with 54.5 % of consumers that agree that they buy and eat avocados at least once a week) (Table 5.7).

Fruit consumers attach different value levels to quality versus price when choosing fruit. Behaviour ranges from “fruit-as-part-of-my-staple” to “pay little attention to price and/or quality”. Other consumers focus primarily on price, although price sensitivity may actually be greater in regular than irregular purchasers of fruit. There is a specific segment of consumers that value fruit quality very highly. It is anticipated that consumers will be most willing to pay for quality when they trust the product to deliver on taste. Of the total respondents in the current study, 86.1% indicated that avocado is a moderate to very high value for money product (table 5.3). Fifty present of South Africans, 32.4% of USA citizens,

44.8% of Australians and 26% of Europeans that took part in the survey rated avocados as a high to very high value for money product.

When asked whether a high price for avocados is an indicator of quality (Table 5.4), most respondents concurred that high price does portray some form of quality (58.3% in RSA, 43% in USA, 65.5% in Australia and 71.5% in the EU).In total, 36% of all respondents rated high price as a low or very low indicator of quality, this was especially the case in South Africa (32.2%) and the USA (48.6%). This relates positively to consumers who sees avocado as a luxury product (55% in South Africa and 39.8% in the USA either agreed or strongly agreed) (Table 5.7).

Table 5.6: Fractions of regional divided consumer survey results on their rating of specific avocado characteristics (Nutritional value, Value for money, Shelf life)

I rate the different characteristics of avocados as follows:		Total	RSA	USA	Australia	EU	Other
		%	%	%	%	%	%
Nutritional Value	Very Low	0.6	0.0	1.4	3.4	0.0	0.0
	Low	3.0	1.9	4.9	0.0	0.0	11.8
	Moderate	16.9	13.2	22.2	27.6	21.7	5.9
	High	52.1	54.1	47.2	37.9	52.2	76.5
	Very High	27.4	30.7	24.3	31.0	26.1	5.9
Value for money	Very Low	1.9	2.0	2.1	0.0	0.0	5.9
	Low	12.0	9.0	19.3	3.4	21.7	0.0
	Moderate	43.5	39.1	46.2	51.7	52.2	52.9
	High	31.6	37.5	22.1	34.5	21.7	41.2
	Very High	11.0	12.5	10.3	10.3	4.3	0.0
Shelf Life	Very Low	3.0	2.4	4.2	0.0	0.0	11.8
	Low	16.2	16.1	18.2	17.2	9.5	11.8
	Moderate	43.8	40.6	47.6	41.4	61.9	41.2
	High	28.4	30.7	23.1	31.0	28.6	29.4
	Very High	8.5	10.2	7.0	10.3	0.0	5.9

Upon asking whether seasonality (and subsequent price) influences consumer buying behaviour, 49.3% of South Africans agreed that they buy less avocados in Spring and Summer as it is more expensive, while 57.8% of South Africans agreed (agree and strongly agree) that they buy more avocados in Winter when it is cheaper. Krugel (2011) found that 36% of respondents from his survey knew when the local avocado season is in SA, 44% were unsure and 18% did not know. This was similar for Australia with 55% buying fewer avocados in spring and summer and 71.4% buying more avocados in autumn and Winter

due to seasonal fluctuations in the price of avocados. Both these countries rely almost solely on local production for the bulk of their consumption. South Africa imports expensive fruit from Spain and Chile, while Australia imports from New Zealand in their off season. Consumers from the USA (although having some local production limited to the state California) and Europe mainly rely on imported fruit for their supply, and price is mostly dependent on the volume of imported fruit in the market at a specific time. It appears that price does play a role in the buying behaviour of most consumers from all four regions.

Table 5.7: Fractions of regional divided consumer survey results on their consumption of avocados

I rate the different characteristics of avocados as follows:		Total	RSA	USA	Australia	EU	Other
		%	%	%	%	%	%
I eat avocado at least once a week	Strongly Disagree	5.6	5.8	5.6	3.6	0.0	11.8
	Disagree	30.2	31.1	27.5	28.6	50.0	17.6
	No opinion	9.8	11.6	4.9	10.7	18.2	11.8
	Agree	35.8	37.8	37.3	28.6	13.6	35.3
	Strongly Agree	18.7	13.7	24.6	28.6	18.2	23.5
I never eat avocado	Strongly Disagree	82.3	82.9	85.0	82.1	77.3	58.8
	Disagree	13.4	12.5	12.1	14.3	22.7	23.5
	No opinion	1.1	0.8	0.7	0.0	0.0	11.8
	Agree	0.4	0.4	0.0	0.0	0.0	5.9
	Strongly Agree	2.7	3.3	2.1	3.6	0.0	0.0
Avocado is a luxury product	Strongly Disagree	9.1	6.2	15.6	7.1	0.0	12.5
	Disagree	31.3	27.7	31.9	50.0	30.4	50.0
	No opinion	12.9	11.2	12.8	21.4	21.7	12.5
	Agree	40.0	45.5	35.5	21.4	47.8	18.8
	Strongly Agree	6.7	9.5	4.3	0.0	0.0	6.3

In total, 41.7% of the total number of respondents admitted that price fluctuations due to seasonality do affect their avocado buying behaviour (46% RSA, 33.4% USA, 66.7% Australia and 40.9% EU) (table 5.6). The response of South African consumers to the statement that the season does not affect their buying avocados, irrespective of the price (table 5.10) was negatively correlated to income (Figure 5.5). A weaker correlation between these 2 factors also exists in Australia (Figure 5.6). There is no correlation between these 2 factors for the USA or Europe. It seems that lower income groups are more affected by seasonal fluctuations in avocado prices. This said, 50.1% of all respondents admitted that they are prepared to pay a premium price for attractive avocados of high quality (

Table 5.8).This willingness to pay a premium price does not relate to specific avocado cultivars (only 23% of total respondents). Their also appears to be no value placed on having exclusive access to a specific cultivar, as willingness to pay a premium price for a specific cultivar drops to 16.3% if it is exclusively available from one supermarket chain (Table 5.8).

Table 5.8: Fractions of regional divided consumer survey results on their willingness to pay a premium price for avocados based on exclusivity

		Total	RSA	USA	Australia	EU	Other
		%	%	%	%	%	%
I am prepared to pay a premium price for a specific cultivar	Strongly Disagree	15.3	16.0	15.5	14.3	9.5	11.8
	Disagree	37.3	41.4	33.8	32.1	38.1	17.6
	No opinion	24.5	23.6	24.6	17.9	33.3	35.3
	Agree	19.3	16.0	21.1	28.6	19.0	35.3
	Strongly Agree	3.6	3.0	4.9	7.1	0.0	0.0
I am prepared to pay a premium price for a cultivar if I know it is exclusive to a specific supermarket/chain-store	Strongly Disagree	21.8	18.1	27.9	22.2	22.7	23.5
	Disagree	41.4	42.0	41.4	44.4	45.5	23.5
	No opinion	20.5	21.8	18.6	11.1	13.6	41.2
	Agree	14.0	16.0	10.0	14.8	18.2	11.8
	Strongly Agree	2.3	2.1	2.1	7.4	0.0	0.0
I would not pay a premium price for avocado based on exclusive availability	Strongly Disagree	4.9	5.0	5.0	3.6	4.5	5.9
	Disagree	17.4	19.7	15.6	21.4	9.1	5.9
	No opinion	19.2	19.7	17.0	7.1	18.2	52.9
	Agree	41.8	39.7	42.6	50.0	59.1	29.4
	Strongly Agree	16.6	15.9	19.9	17.9	9.1	5.9

Consumer behaviour can be modelled in terms of the impact of price on the demand for a particular fruit cultivar and competing produce using sales data. These models generally describe consumer response by calculating elasticities (the percentage change in demand associated with a 1% increase in a specific factor, in this case price) (Perloff, 2001). These studies are the most usable consumer information, by virtue of the large numbers of consumer transactions involved in datasets available. However, they tend to measure the status quo and subsequently do not allow testing of scenarios where quality is manipulated. Different fruit (including oranges, apples and bananas) tend to compete with each other (Lee *et al*., 1992; Richards, 1999; Richards and Patterson, 2000).This means that an increase in the apple price would cause consumers to purchase citrus instead of apples and vice versa. For fruit such as apples, there is evidence for substitution and complementarity in consumer purchase decisions among cultivars and between different growing regions (Richards, 1999; Patterson and Richards, 2000; Richards and Patterson,

2000). This would also be the case in avocados, where an increase in the price of 'Hass' avocados will result in a reduction in consumer demand for 'Hass' and an increase in demand for 'Fuerte' (Patterson and Richards, 2000). Although substitution has not been tested for avocados in all markets, indications are that different markets react differently to specific cultivar availability. The impact of promotion and advertising (as relative factors) has also been investigated. It is speculated that heavy advertising may stimulate fruit purchasing, but once the decision to buy a specific type of fruit is made, consumers considered the relative price of each fruit type carefully (e.g. choose between oranges and apples) (Richards, 1999).

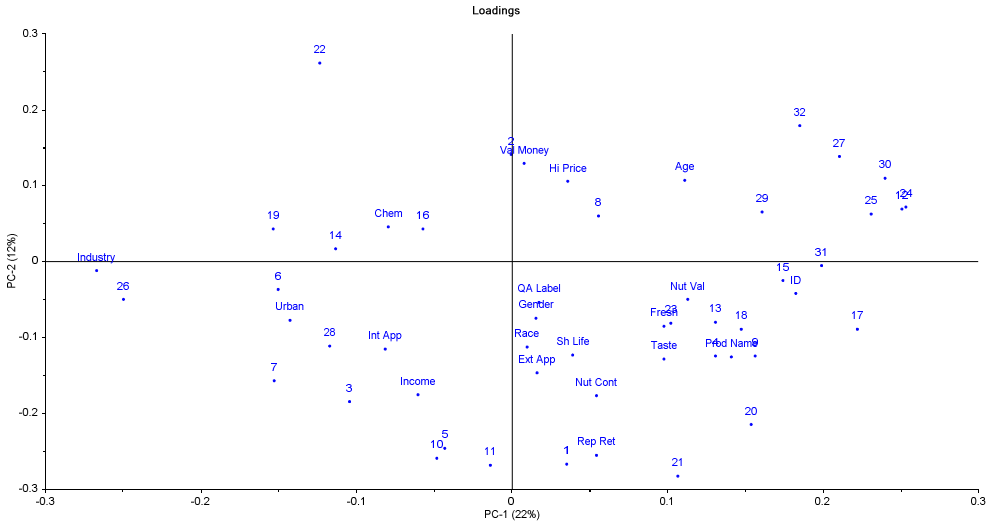

Figure 5.6: External preference map containing the survey responses from Australia with avocado fruit characteristic indicators indicating the position of perceived value of avocados to consumers in relation to the consumer survey feedback.

(This feedback is with specific reference to year-round availability of avocados (Statement 4-8), branding and cultivar choice (Statement 12-19), country of origin (Statement 23-32), and value placed on product exclusivity (Statement 20-22). The survey statements are indicated with a numerical value between 1 and 32 on the map. The fruit characteristics were Nutritional Value (Nut Val); Value for Money (Val Money); Shelf Life (Sh Life); Taste (Taste); Nutritional Content (Nut. Cont); Freshness (Fresh); Free from Chemical Residues (Chem); External Appearance (Ext App); Internal Appearance (Int Price); Producer Brand Name (Prod Name); and the Reputation of the Retail Seller (Rep Ret). The map was obtained using a partial least square regression, where the consumer survey data (y space) was regressed onto the fruit characteristics data (x space)).

Many consumers purchase fruit out of habit (Richards, 2000; Richards and Patterson, 2000). In these cases, the quantity of fruit purchased responded little to changes in price, but is sensitive to changes in family income. Examination of elasticities in apple markets did suggest that sales of newer or speciality cultivars (including Fuji, Braeburn, Jonagold) were more sensitive to price than traditional and more mature cultivars (Red Delicious, Golden

Delicious, Granny Smith) - an observation that lends credence to the contention that consumers view the newer cultivars as luxury goods (Richards and Patterson, 2000). Table 5.5 indicates that in all regional markets, consumers in the current study also see avocados as luxury goods. Because avocado cultivars are yet unknown, consumers do not make this distinction between cultivars within avocado markets.

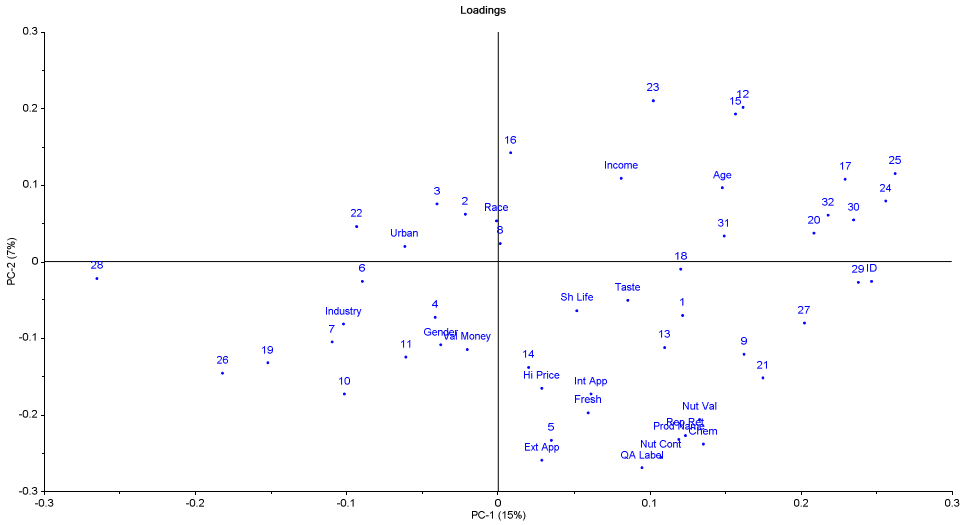

Figure 5.7: External preference map containing the survey responses from the USA with avocado fruit characteristic indicators indicating the position of perceived value of avocados to consumers in relation to the consumer survey feedback.

(This feedback is with specific reference to year-round availability of avocados (Statement 4-8), branding and cultivar choice (Statement 12-19), country of origin (Statement 23-32), and value placed on product exclusivity (Statement 20-22). The survey statements are indicated with a numerical value between 1 and 32 on the map. The fruit characteristics were Nutritional Value (Nut Val); Value for Money (Val Money); Shelf Life (Sh Life); Taste (Taste); Nutritional Content (Nut. Cont); Freshness (Fresh); Free from Chemical Residues (Chem); External Appearance (Ext App); Internal Appearance (Int Price); Producer Brand Name (Prod Name); and the Reputation of the Retail Seller (Rep Ret). The map was obtained using a partial least square regression, where the consumer survey data (y space) was regressed onto the fruit characteristics data (x space)).

US studies have used data from the AC Nielsen HomeScan panel (Richards, 2000), where consumers on HomeScan panels keep a record of the specific products they purchase, number purchased, the brand name, weight, and whether they took advantage of any promotional deals. Analysis of this data suggests important determinants of choice of fruit are advertising, purchase habits, the number of fruit kept in the home, the rate of consumption, and promotional activities by retailers (Richards, 2000). Further analysis identified consumer segments that differed in purchase behaviour, but these segments

could not be segregated from each other only on demographics. The ability of retailers and fruit marketers to exploit these consumer segments is dependent on the ability of supermarkets to track purchase behaviour of individuals (Harker *et al.*, 2003).

In a South African consumer survey (n>8000) focussing on avocado consumption by regular Woolworth's (WW) foods customers (LSM 7 to 10+) as well as non WW customers, the aim was to determine South African avocado consumer behaviour, with specific reference to ripe-and-ready-to-eat (Ripe&Ready) avocados (Krugel, 2011). The majority (45% of WW customers, 42% non-WW customers) purchase avocados once a week, followed by 22% (WW customers) 21% (non-WW customers)) once a fortnight. One of the major dislikes was that avocados are generally too expensive (43% of WW customers, 57% non-WW customers). Between 31% (non-WW-) and 34% (WW-) customers are prepared to pay R17.99 for a two pack of organic avocados (Figure 5.8; Figure 5.9). The majority of customers make use of the 'get three avocados for the price of two' promotions followed by a discount off the regular price in terms of promotions.

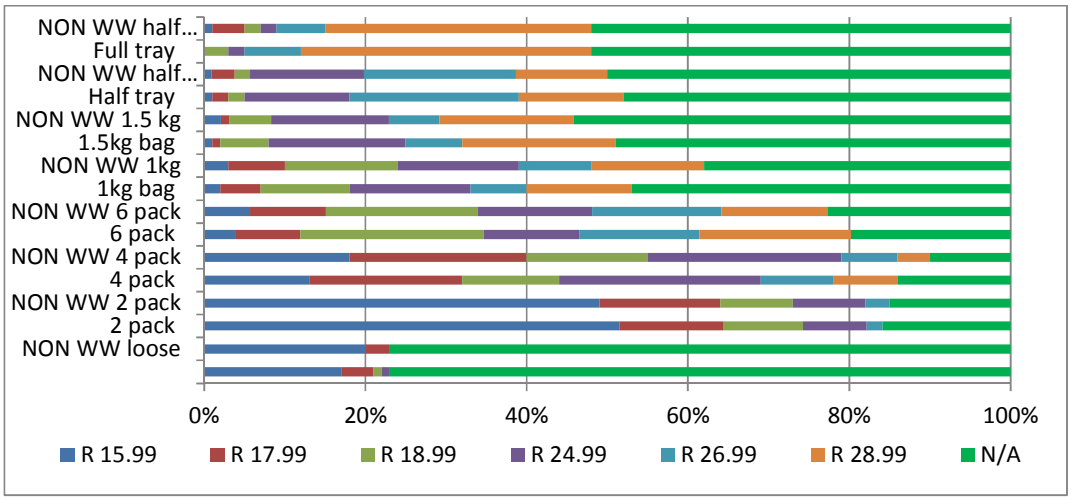

Figure 5.8: South African consumer willingness to pay for different avocado packaging sizes with regards to avocados produced locally.

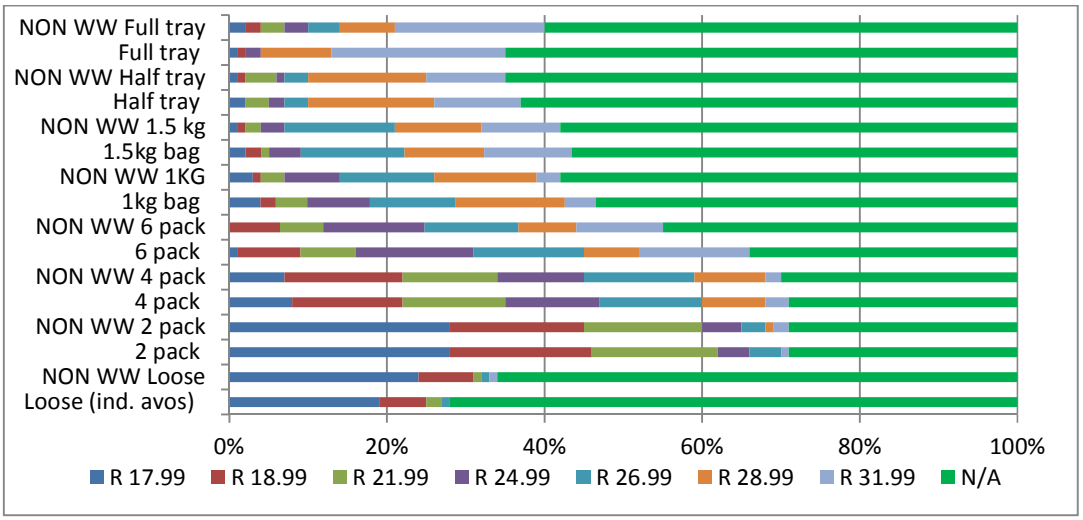

Figure 5.9: South African consumer willingness to pay for different avocado packaging sizes with regards to imported avocados.

5.7 Consumer preferences for different fruit characteristics

The high variability in consumer preference as well as variability within fruit from the same cultivar makes it difficult to identify single product targets. As some consumers may respond positively, while others respond negatively to a change in eating quality, data collected may seem ambiguous.

When asking consumers to rate different characteristics of avocados as indicators of quality, 94.2% of the total number of respondents stated that taste was a high to very high indicator of quality. This did not differ much between regions (93% RSA, 96.6% USA, 96.6% Australia, 82.6% EU). There was also little difference between regions in terms of their rating of nutritional content (78.3% RSA, 59.7% USA, 62.3% Australia, 68.2% EU; pooled data for high and very high respondents) and freshness of fruit (86% RSA, 86.8% USA, 79.3% Australia, 77.3% EU; pooled data for high and very high responses).

While specific flavour attributes of apples are projected onto different parts of consumer preference maps, they seem to be closely associated with key taste and texture attributes (see Daillant-Spinnler *et al*., 1996; Jaeger *et al*., 1998). In maps for kiwifruit (Jaeger *et al*., 2002) and pear species it has been shown that preferences for flavour exist independent of texture and/or taste. Consumer preferences within a single fruit-type and/or cultivar therefore are often defined by the stage of ripeness. This may also be the case for

avocados. Maturity in avocados is determined by the oil content of fruit (estimated by measuring the moisture content of avocado flesh), and optimal maturity is determined for individual cultivars based on cultivar-specific oil content. Fruit with a higher moisture content taste watery (bland taste), while more mature fruit have higher oil content, with a subsequent buttery texture with a pronounced nutty flavour. This flavour stems from numerous volatile hydrocarbon compounds contained within the flesh of avocados that are responsible for fruit aroma and flavour (Hui *et al*., 2010).

Consumers tend to separate into groups that like more-ripe or less-ripe versions of the same fruit (Stec *et al*., 1989). Care needs to be taken to ensure consumer preferences attributed to different cultivars are not actually driven by differences in the ripeness of each cultivar (Jaeger *et al*., 2002).

Although consumers respond positively to quality; it is also suggested that the target for quality in terms of texture, taste and flavour differ between individual consumers. This suggests that each cultivar needs to be considered in relation to its specific market niche, and which group of consumers will respond most positively to its particular bundle of sensory attributes.

Consumer fruit choice is often underpinned by their beliefs, attitudes, and perceptions about food. These factors should therefore also be considered relative to the importance of fruit quality. Consumers with a high interest in health may be more likely to choose a fruit as a snack than consumers with a low interest in health. ‘Healthiness’, ‘naturalness’, and providing a ‘refreshing’ experience to consumer perceptions of fruit as a snack product is imperative to encourage fruit consumption (Jack *et al*., 1997). Jaeger and MacFie (2001) indicates that consumer (in this case apples) initial selection of fruit and specific cultivars of fruit is based on expectations of taste while health is an underpinning motive for choosing fruit. It is postulated that for some consumers, taste and texture are the keys that unlock the door to health benefits associated with fruit consumption.

In the current study, all regions rated the nutritional value of avocados as high (84.8% RSA, 71.5% USA, 68.9% Australia, 78.3% EU) (table 5.3). This correlates well in all regions to nutritional content as an indicator of avocado quality, with an overall rating of 70.9% high to very high (table 5.4) In both South Africa (Figure 5.5) and the USA (Figure 5.7), nutritional

content is closely correlated to the Quality Assurance label and a “free from residue” label as indicators of quality. In the study conducted by Krugel (2011), 100% of respondents concurred that they like avocados because they taste good, while 97% of WW consumers and 89% of non-WW consumers buy avocados because they are nutritious.

Choices between fruit are often based on perceptions of utility (Jack *et al*., 1997) as well as taste. Consumers differentiate among fruit on the basis of convenience (including how messy they are to prepare and eat, as well as how acceptable they are to eat while travelling, at home, and/or at work) and ability to share fruit with friends and family (Jack *et al.,* 1997). Between 66-72% of South African consumers indicated that the versatility of avocados is one of the reasons why they buy avocados. This also links to consumer buying behaviour regarding avocados, where between 33-43% indicated they buy avocados as and when they need them (Krugel, 2011). Apples and bananas were rated highly for convenience when compared with kiwifruit and oranges, but only grapes were differentiated from other fruit on ability to share with others (Jack *et al*., 1997).

Consumer perceptions about and attitude towards fruit has a major impact on fruit sales. It appears that perceptions of health benefits and convenience underpin consumer choice of fruit. Awareness and attitudes to healthy living need to change in order to achieve a dramatic increase in fruit consumption. It is nonetheless important to ensure that the hedonic experience associated with fruit consumption is not dramatically lower than that for manufactured snack foods.

Although studies have identified consumer groups who respond differently in terms of their choices and preferences for fruit such as apples, pears or grapes, this has not been proven for avocados. For fruit types where cultivars differ tremendously in taste, texture, and appeal, preferences associated with different demographic factors such as age and race can be marked (Kuhn and Thybo, 2001; Zandstra and de Graaf, 1998; Cristosto and Cristosto, 2002). This is not as easy for avocados, and distinctions between cultivars on the basis of taste are rare. The major characteristics on which preference could be based would be fruit size, colour (black vs. green) and oil content (although this also varies within one cultivar as fruit maturity increases).

Economic analysis of HomeScan data (Richards, 2000) or similar retail-based data sets (Krugel, 2011) identifies segments of consumers who exhibit similar purchase behaviour; whereas these segments are difficult to identify using demographic information alone. There is an increasing expectation that identification of segments needs to be based on purchase habits, and that these habits can be tracked using supermarket loyalty programs.

5.8 Summary

Many studies have demonstrated that quality is more important to consumers than price when prices are varied within the expected commercial range. However, the premium that consumers are prepared to pay varies from person to person. Health and convenience remain key motives for consumers selecting items of fruit, and changes in consumer awareness and response to health issues should improve fruit sales. To realize the potential value of quality of a fruit it is necessary to ensure public recognition of the cultivar/brand. Therefore, it is important that existing and new cultivars are easily differentiated in the marketplace, and to rigorously enforce quality standards so that product and quality are strongly linked in the consumer's mind. A bad experience will cause consumers to stop buying for a while, change cultivars, and/or change to other types of fruit. In the future, research needs to emphasize comparisons across the generic fruit category as well as within the specific category, since consumers' choice of fruit is often made at the generic level. Chapter 5 presented the results obtained from the consumer survey. The next chapter will focus on specific conclusions that can be drawn from these results.

Chapter 6: Conclusions and Recommendations

6.1 Introduction

Producing countries globally supply fresh fruit markets with avocados aiming to ensure it as a permanent product on the shelves of supermarkets who more and more demand year-round supply. The author suspects that supermarket demands for specific quality and other criteria do not always correlate to consumer needs. To the contrary, global producers need to comply with numerous sets of standards and procedures as demanded by supermarkets who justify these requirements by maintaining that it is consumer-requirements. Although consumers sometimes do see the benefit thereof (such as food safety, traceability and fair trade), the biggest benefit are held by retail groups who can, on the basis thereof, distinguish themselves from other traders.

The current study did not focus on the perception of retail groups, but on that of the avocado consumers. This study therefore explores avenues in consumer preference and buying behaviour; seeks to determine whether the country of origin has an effect on product liking; and whether consumers identify and relate to specific cultivars. This is important to know to ensure effective and strategically aligned commercialization of a new avocado cultivar '3-29-5', trademarked as Gem®. The problem statement for the current study is:

The need to commercialize new intellectual property in the global avocado industry necessitates a broadening of the understanding of avocado consumer preferences and behaviour within all the important international avocado markets.

6.2 Limitations and goal achievements

The research was descriptive in nature and did not allow for any causal inferences to be made. The survey was a cross-sectional snapshot at a particular moment in time and did not allow for extrapolation far into the future. Furthermore, the study relied on self-report data that may skew results, although this may have been minimised by the option of anonymity being provided to respondents. A delimitation of the study was that the population was not homogeneous in terms of background, which may have led to greater insight obtained due to diversity.

The goals and objectives of the study were successfully achieved. The main goals as defined in the research question were to test consumer preference to specific criteria that affect buying behaviour. This was successfully achieved and respondents being representative of the population identified the most important criteria to consider upon commercialization of new cultivars. Achievement of the objectives of the study allowed the research sub-questions, the research question and research problem to be addressed. This will be discussed in more detail in this chapter.

6.3 Specific conclusions on research sub-questions

6.3.1 General conclusions as to consumer perceptions of avocados

Although avocados do not seem to be part of the weekly diet of most consumers, survey results indicate that most consumers do eat avocados regularly. Differences in consumer perceptions on avocados exist, as most South African and European consumers see avocado as a luxury product, while this is not the case in the USA and Australia.

Consumers throughout the different regions stated that they perceive the nutritional value of avocados to be very high. Avocados are also seen as a moderate to high value for money product throughout the different regions. Although no clear trends were seen in data between different regions as to the rating of shelf life of avocados, it seems as if European consumers perceive the shelf life of avocados to be moderate. This could be due to the fact that most avocados sold in the EU (except for those produced in Israel, Turkey and Spain) are subjected to up to three weeks of controlled temperature shipping and another two weeks of cold storage before being sold. Although technology has helped to store certain fruit for long periods of time without a decline in fruit quality, this has not been as effective for avocados, and fruit should be sold within four weeks of picking to ensure adequate quality fruit.

Albeit small in some cases, there appears to be differences in consumer preferences to avocados. This study only focuses on differences between regions. However, it is important for marketers in specific markets, to better understand how these differences are further elucidated, to divide consumers in smaller market segments on the basis of their preferences and behaviour. Only then will marketers be able to fathom how best new cultivars can be commercialized in specific countries to the benefit of the plant material.

6.3.2 Year-round availability of avocados and its influence on consumer buying behaviour

Consumers in all regions included in the study are aware that good eating quality avocado supply is not constant. Logistically, there are still advances to be made to ensure good quality fruit on an on-going basis on supermarket shelves. In specific markets (i.e. South Africa and Australia) where avocado supply primarily originates from local produced fruit, consumers confirm that they would buy more avocados if the supply of good quality was constant. This is not the case for consumers in the USA and Europe where avocado supply is primarily based on imported fruit, and a continuous stream of globally sourced fruit is supplied into supermarkets.

Local producers in South Africa, the USA and Australia lack the ability to continuously supply good quality fruit into supermarkets in these countries. This leads to these supermarkets being reliant on imported fruit to stock the off season supply dip. This seasonal oscillation in available fruit volume leads to recurrent price fluctuations which in turn negatively affect consumer buying behaviour. Seeing as most of the European supermarkets are reliant on imported avocados to supply their customers, seasonal fluctuations does not play such an important role in this region. As the volume supplied into these markets can be managed to remain relatively constant, most of the European consumers in this study confirmed that the season does not affect whether they buy avocados or not. There is no clear trend in other regions with regards to consumer reaction to seasonal fluctuations in fruit volume available or related fluctuations in fruit price. That said, most consumers in all four regions indicated that they are prepared to pay a premium price for an attractive and high quality avocado.

Two main conclusions can be drawn from the data under this sub-question: consumers are willing and even eager to buy more avocados if good quality fruit supply is constant; and above this, consumers are willing to pay a premium price for attractive and high quality fruit. This has a direct implication on the commercialization of 3-29-5. As Westfalia have faith in the quality of 3-29-5 as a superior fruit, linked to an attractive external appearance (which is also a very important characteristic of avocados), 3-29-5 holds value to fill this niche. The logistical management to ensure a constant supply of fruit that meet a set of rigorous quality standards sourced from global producers will be challenging. However, the reward for a

constant supply of superior quality fruit most probably will be a premium price, which will ensure that the royalty paid by growers for 3-29-5 can be justified.

6.3.3 The potential benefit in using the Gem® Trademark

Knowledge of neither how to ripen avocados, nor how to use avocado as part of a diet would affect consumers to buy more avocados. Consumers in all regions state that they are aware that there are different avocado cultivars available. The majority of South African consumers were not convinced as to how to ripen avocados, or the difference between ripe green and black skin cultivars. Consumers in the other three regions confirmed that they are aware of the differences between green and black skin ripe avocados. There appears to be no clear trends as to preference for cultivars based on their skin colour alone, except in South Africa where a preference for green skin avocados seems to be prevalent.

Identifying avocados only based on their skin colour is a dangerous practice, and not the only characteristic that should be used. Taste (which is coupled to complex organic chemistry and determined by genetics, cultivation practices and climate), maturity (linking optimal ripeness to the oil content of a cultivar), visual appearance (which is linked to various factors such as fruit shape, average fruit size, fruit colour, blemishes or distinguishing markings on the exterior of the fruit (which is the case for Gem®) etc.) all play a role in cultivar recognition by consumers. Yet, if supermarkets do not specify cultivars upon sale of fruit, consumers will not learn to distinguish between cultivars. In all regions, consumers indicated that supermarkets seldom specify avocado cultivars. This should be of concern to growers and marketers. Although most consumers in the survey suggest that they do not prefer or actively pursue a specific avocado cultivar when shopping, results from the current study suggest that even if they did, cultivar information is not displayed in supermarket stores. The question arises whether consumers do not have a preference for a specific cultivar due to the lack of advertising by supermarkets, or whether supermarkets do not specify because consumers do not care for cultivars.

To ensure the commercialization of 3-29-5 is successful, the effective use of these results is of paramount importance. Education of various parties is needed. Firstly, retail stores should be encouraged to start promoting specific avocado cultivars, and not mere avocados. Also, the inclusion of the cultivar name on packaging, or at least on individual

fruit stickers must be a high priority and definitely a requirement when Westfalia license supermarkets to sell Gem® fruit. Secondly, consumer education has a far way to go in making consumers aware of differences in cultivars, and also in the subsequent differences in quality and taste between cultivars. Without this education, the use of a brand will not be effective in trying to distinguish between avocado cultivars on the supermarket shelve.

6.3.4 Effect of avocado origin on consumer buying behaviour

Consumers from all regions are aware that avocados offered on supermarket shelves in their respective countries can come from different producing countries. Although consumers from the USA, EU and Australia care where their fruit is produced and thus frequently look at labels to confirm the country of origin, this is not true for South Africa. Consumers from avocado producing countries in this study confirmed that if they had a choice, they would buy locally grown avocados (this does not include EU consumers, as production in the EU is limited to Spain and Turkey). Consumers from South Africa and the EU stated that they do not have a preference for the origin of their avocados, while the USA and Australian consumers stated that they do prefer avocados coming from a specific country over avocados from other origins. It seems that price overrides the influence of country of origin on the buying behaviour of consumers, as consumers from the USA and South Africa were not prepared to pay more for avocados grown in a specific country they support. No clear trends could be seen for consumers in the EU and Australia in this regard. The majority of consumers from the USA and Australia confirmed that they would consciously not buy avocados if they are against the country of origin or its principles. This was not true for South Africa, while no clear consumer trends could be seen for the EU.

Although country of origin does play a role in consumer buying behaviour, price of avocado fruit seems to override the influence of country. This has important implications for the successful commercialization of 3-29-5, as constant supply of Gem® fruit into specific supermarkets is a key aspect to the brand development, but also to consumers having access to constant good quality fruit. This can only be achieved by sourcing fruit from global producers. This also underlines the importance of the global use of this ‘spearhead and monopoly’ intellectual property. As fruit will contractually be marketed through one marketing channel, Westfalia still holds the power over global fruit supply and brand development and management.

6.3.5 Premium price for exclusive avocados

Most consumers from all regions indicate that they are not prepared to pay a premium price for a specific avocado cultivar. It also appears that consumers do not place any value on exclusive availability of fruit, even if exclusivity is based on availability of a cultivar from a specific supermarket. Exclusivity therefore seems to be more important for supermarkets than for consumers. The reliability of this data is questionable, as most consumers, although aware of differences between cultivars, cannot distinguish between avocado cultivars except possibly based on skin colour. It is postulated that, as consumers are willing to pay more for attractive, high quality fruit and awareness is created about the quality of specific avocado cultivars that this perceived resistance to a premium price for a specific cultivar might change.

6.4 Recommendations for further research

Foremost, a study determining where the break in the information chain towards the consumer is needs to be initiated. It could be that retail outlets do not get the information from the suppliers, but it is most likely the retail outlets that do not give the information on cultivars through to consumers. It could be asked whether consumers do not have a preference for a specific cultivar due to a lack of information provided, or whether supermarkets do not specify because consumers do not care for cultivars. This might especially be the case for fruit sold loose without any packaging. Once this is established, a training program can be initiated to educate both supermarkets as well as consumers what the differences between cultivars are, and how they differ with regards to specific characteristics such as season, skin colour, ability to store etc.

Market research into how to divide the avocado eating market into different segments within each region is important with relation to their reaction to cultivars and willingness to pay more for good quality fruit. Adding onto this research, it is also important to determine what factors ensure uniqueness to Gem® avocados. Then studying the willingness to pay of consumers will determine the intrinsic value placed on a high quality fruit. This will allow Westfalia to position Gem® fruit at the right price into specific markets that would help to ensure the survival of this cultivar.

The undertaking of controlled experimental studies would provide insights into cause-and-effect mechanisms of consumer controlling tools. No studies were located in the literature

following this approach. Where resource constraints prevent an experimental approach, multiple case studies or the combination of research paradigms are recommended to obtain triangulation support for findings in order to extract maximum value from the research effort.

6.5 Implications of the results on Westfalia's Strategy for the commercialization of Gem®

Although branding of specific avocado cultivars or producers are not very strong in any consumer market, the success of branding has been demonstrated. For a brand to be effective, continued supply of steady volumes of high quality fruit is essential.

Continuous supply of Gem® implies sourcing of Gem® fruit from different growing regions within South Africa but also internationally. Limited consumer preference for specific origins eases the formation of this strategy. Currently, 200 hectares of Gem® has been planted to date in South Africa, with test plantings of Gem® initiated in Australia, Israel, New Zealand and Chile. These test plantings will soon be extended to Spain, Morocco, Peru and Columbia. Gem® will first be introduced to domestic markets within individual producing countries. Only once sustainable volumes of fruit can be sources globally for a period of 12 months will export (and subsequent import) of the cultivar be allowed. Only then will the use of the trademark 'Gem®' be allowed.

The importance of ensuring that only optimal quality fruit bears the trademark Gem® is of utmost importance. Only by linking the trademark to exceptional quality will the trademark develop intrinsic value. Fruit of substandard quality will be marketed under a generic name, and will not be linked to the trademark Gem®.

Although exclusivity was not an important factor for consumers, it would strategically be easier for Westfalia to manage Gem® supply into a single market outlet within each country. This will also assist in controlling the quality of the fruit being marketed as Gem®.

6.6 Summary

In conclusion, the current study helped to broaden the understanding of avocado consumer preferences and behaviour within specific avocado markets. This body of information should be helpful in the commercialization of new intellectual property in the global avocado industry.

From this study it can be deduced that the year-round availability of avocados does influence consumers positively, and consumers tend to buy more fruit if regularly available. The potential for success of a trademark will only realize if active retail and consumer education is undertaken for consumers to distinguish between cultivars; and a strong marketing campaign and excellent fruit quality should back the trademark. Although consumers may be affected by the country of origin of fruit, fruit price is an overriding factor in most cases. Furthermore, although numerous factors do influence consumers' perception and knowledge about avocados, the only reason for consumers to pay a premium price for fruit, at least according to this study, would be exceptional fruit quality.

Westfalia has only recently embarked on this new venture to develop an exclusive and protected cultivar linked to a secure trademark. In order for this trademark to succeed, and for Westfalia to benefit from it, continuous efforts will have to be implemented to ensure fruit sourced internationally and marketed as Gem® meet specific quality criteria. Continuous supply of Gem® into specific markets is also a great challenge for Westfalia and the company are already in the process of licensing international growers that hopefully would be able to supply the Westfalia marketing chain with fruit on a continuous basis. Intensive marketing will also be needed to develop Gem® as a household brand; where brand awareness will hopefully lead to greater consumer demand.

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APPENDIX 1 Research Survey

Graduate School of Business Leadership
University of South Africa
July 2011

Dear Avocado Consumer and Enthusiast:

Avocados are nutritious and healthy fruit grown in the (sub) tropical areas of the world. Growers of this wonderful fruit are appealing to you for help to determine how best to ensure that avocado is part of your daily diet. All that is required is a few minutes of your valuable time.

The study is undertaken by Mr Theo Bekker at School for Business Leadership at the University of South Africa as part of his Master of Business Leadership degree under the supervision of Prof Sidney Shipham.

Ensuring year-round avocados on the supermarket shelf on a daily basis necessitates fine logistical planning and effective marketing throughout the supply chain. Searching for superior genetic cultivars should be linked to consumer preference and behaviour. Various factors relating to fruit supply and consumer reaction influence the product's sustainability; and the way in which it is marketed to consumers.

This study requires you to voluntarily complete a questionnaire and rate the importance of different aspects relating to avocado availability and cultivar choice. Please complete the questionnaire anonymously.

Sincerely,

Theo Bekker

Section A

1) What is your age?									
<20		*20-30*		*30-40*		*>40*			
2) What is your gender?									
Male		*Female*							
3) How would you qualify yourself?									
Black		*White*		*Asian*		*Multiracial*		*Other*	
4) What is your current living arrangement?									
Single		*Living together*		*Married*		*Other*			
5) Define your urban landscape:									
Rural		*Suburban*		*Urban*					
6) What is your current total monthly household income?									
< R5000		*R5000-R15000*		*R15000-R30000*		*R30000-R45000*		*> R45000*	
7) Do you work in the avocado industry or related industries?									
Yes		*No*							
8) What is your country of residence?									
9) Do you have any dietary or health condition that influences your consumption of avocados?									

Section B:

Please use a scale from 1-5 when evaluating Section B & C. The numbers equate to the following responses (assume equal intervals)

1	2	3	4	5
Very low	Low	Moderate	High	Very high

	Variable	Measurement				
		1	2	3	4	5
B.1	I rate the different characteristics of avocados as follows:					
	Nutritional value					
	Value for money					
	Shelf life/keeping quality					
B.2	I rate the following attributes as quality indicators of avocados:					
	Taste					
	Nutritional content					
	Freshness					
	Free from chemical residues					
	External appearance					
	Internal appearance					
	Quality assurance label					
	Local or regional identity					
	High Price					
	Producer brand name					
	Reputation of retail seller					

Section C

The numbers in section C equate to the following responses

1	2	3	4	5
Strongly disagree	Disagree	No opinion	Agree	Strongly agree

Variable		Measurement				
		1	2	3	4	5
C1	I eat avocado at least once a week.					
C2	I prefer green skin avocados.					
C3	I am aware that avocados sold in my country can come from different producing countries.					
C4	The availability of good eating quality avocados in supermarkets is constant.					
C5	I am prepared to pay a premium price for a cultivar, especially if I know the cultivar is exclusive to a specific supermarket/chain-store.					
C6	I buy fewer avocados in Spring and Summer, because it is more expensive.					
C7	I frequently look at labels to see where a product originates from.					
C8	The season does not affect me buying avocados, irrespective of the price.					
C9	I am prepared to pay a premium price for an attractive/high quality avocado.					
C10	I would eat more avocados if I understood how to ripen them.					
C11	When avocados from a country I like are more expensive than fruit from other origins, I would still choose fruit from that country.					
C12	I am aware of the differences between green and black skin avocados.					
C13	I prefer black skin avocados.					
C14	I never eat avocado.					
C15	I am aware that there are different avocado cultivars available.					
C16	Supermarkets seldom specify avocado cultivars.					
C17	I never look at labels to see the country of origin of fresh produce.					
C18	I would not buy avocados if a specific cultivar is not available.					
C19	Avocado cultivar availability does not affect my choice of fruit					
C20	I am prepared to pay a premium price for a specific cultivar.					
C21	If availability of avocados in supermarkets was constant, I would buy more.					
C22	I would not pay a premium price for avocado based on exclusive availability.					
C23	Avocado is a luxury product.					
C24	When purchasing fresh fruit I care where they originate from.					
C25	I prefer to buy avocados in Autumn and Winter because it is then cheaper.					
C26	I prefer and actively pursue a specific avocado cultivar when shopping.					
C27	If I had a choice, I would buy all my avocados grown locally.					
C28	I do not have a preference for the origin of the avocados I buy.					
C29	Upon having to choose avocados from different countries at the same price, I distinctly choose fruit from a country I support/originate from/admire.					
C30	I would eat more avocados if I understood how to use and eat them.					
C31	I would consciously not buy avocados if I am against the country of origin, or its principles.					
C32	The country of origin affects my perceived value of the avocados.					