

**LEADERSHIP IN AGRICULTURE: INNOVATION IN MACADAMIA
NUT FARMS IN KWAZULU NATAL AND MPUMALUNGA**

A Research Report

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Declaration

I, Robert Hugh Carlton-Shields, declare that this is my own work. It has not previously been submitted for any dissertation or examination at this or any other university.



11th May 2012

Robert Hugh Carlton-Shields

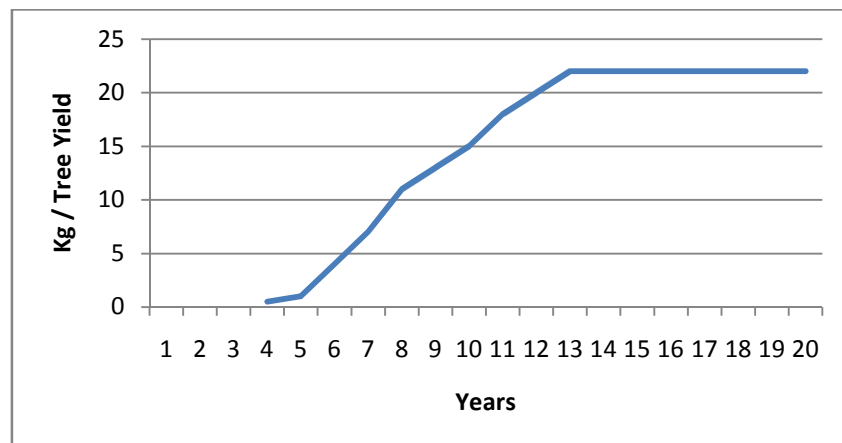
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Abstract

The global macadamia nut industry is fast developing at present. South Africa is currently the third largest global producer. There are many contributing factors influencing the increased demand for macadamia nuts. The most important factor would probably be the nutritional value provided by the nuts.

It is important for the macadamia nut industry to demonstrate strong leadership in order to ensure that the growers and the industry develop ahead of the markets and retain a competitive edge as the industry develops. In agricultural terms the investment into a macadamia farm is significant. Figure 1 highlights the long gestation period a grower must financially sustain prior to a crop being produced.

Figure 1: Macadamia yields cycle



Source 1: (South African Macadamia Association 2007)

Developing a farm with a long gestation period and high capital input cost requires a significant commitment from a grower. The risk associated with error is potentially very high and may have serious financial repercussions to the growers and their long term sustainability. Strong leadership and innovation practices within the industry should be a continuous improvement process in order to challenge and enhance current practices within the industry and to mitigate risks associated with the industry as a whole.

The purpose of this research was to understand the perceptions of growers and the macadamia nut industry regarding the role of leadership and innovative behaviour to support increased growth and sustainability of growers and the industry alike.

Merging leadership and innovation to create innovative leadership may enable the macadamia industry to raise its benchmark and to be an industry with strong visionary and strategic capacity with the ability and the means to achieve its objectives through new and creative ideas.

The intention of the researcher was to investigate both the growers' and the industry's perceptions and understanding of these concepts and how they might impact on the long term growth and sustainability of the macadamia nut industry. The research was undertaken through a series of structured interviews supported by focus group discussions to better articulate and contextualise the initial findings. The data was coded and analysed and the outcomes interpreted and presented as a set of results.

The results provided a platform for discussion against which a number of recommendations were made. It is hoped that the industry will hold value in the information and the recommendations provided and use them to the long term benefit of the industry.

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- The members of the macadamia nut industry who provided contact information for participants in the research study
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Dedication

This research project is dedicated to my wife Karen who keeps me motivated and grounded. This milestone in my personal development could not have been possible without her ongoing support and belief in me.

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Terminology

DIS – Dry in Shell. Relates to macadamia nuts that have been dehusked and dried but have not yet been cracked

Facility – processing factory or co-operative

Farmer – is the land owner that produces product at either a subsistence or commercial level

FFA – Future Farmers of America

Grower – this is an entity that may own or lease land from a farmer for the sole purpose of growing a product for commercial gain

Industry – are all parties that partake directly and indirectly in the manufacture, process or distribution of Macadamia nuts

Organisation – this is representative of a commercial farming operation or business

Pre-harvest – this encompasses all farming operations that precede the picking of nuts. Examples include fertilisers, herbicides, pesticides and pruning

Title of Research

LEADERSHIP IN AGRICULTURE: INNOVATION IN MACADAMIA NUT FARMS IN
KWAZULU NATAL AND MPUMALUNGA

“Everyone has the spark of creativity in them. It is the job of the leader to inspire and release that spark.” (Sloane 2003)

Chapter One

Introduction

1.1 Introduction

Food availability, like water can be identified as a critical resource. Populations continue to grow and with it the demand for food. New productive land is becoming less available, constricting food production which is further compounded by a decrease in land productivity (Das Sharma 2008). While farming is critical to supporting populations it isn't always financially sustainable, with many growers needing to include alternative businesses or sources of income, often unrelated to their farming activities to maintain financial sustainability.

In highlighting this plight, one example is the macadamia nut industry in the KwaZulu Natal and Mpumalanga regions of South Africa. The harvested nuts are cracked locally and exported to other countries for processing through independently owned facilities. Nuts are exported either in or out of their shells with foreign countries adding value to the agricultural value chain.

The net effect is that with the value added outside of the country, there is less income for the farmer to develop or diversify a farm's output (Agri Forum SA 2008) which negatively impacts the economic importance of the industry.

There is currently a high global demand for macadamia nuts (California Dried Fruit and Nuts 2011) which has been attributed to two key factors. The first can be attributed to the recent supply constraints within the major producing countries who suffered recent drought conditions. The second relates to an increase in consumer demand as a result of the realisation of the nuts' high nutritional value.

South Africa is the 3rd largest global macadamia nut producer, producing more than 30 000 tons per year of macadamia nut in shell (SAMAC 2009). The grower's percentage of profitability in the value chain however remains the lowest when benchmarked internationally (Nailana 2011). There are some growers that operate a higher level of profitability than other growers. Understanding their use of leadership or innovative behaviour may demonstrate a link between the level of leadership and

extent of innovation existing within the growers' community and the degree of profitability being achieved by the growers.

While export volumes continue to steadily increase, there is a concern regarding the negative impact of unsound kernels (South African Macadamias Growers Association 2008). 2010 saw a revenue loss of R54 Million in nuts rejected largely as a result of stink bug damage. Nailana (2001) highlights the importance for growers to continuously address factors that affect nut quality especially in times when the financial challenges facing agriculture are ever increasing.

The agricultural industry is also affected by land claims resulting in farmers being reluctant to further invest in the land. This can also be directly linked to the fact that financing institutions impose stricter lending criteria for agricultural activities due to the agricultural risk profile (Nailana 2011).

Considering the long gestation period of the macadamia nut tree, these elements have raised the barriers of entry for new growers into the macadamia industry. Although the long gestation period may not pose a significant problem to a processing house, the barriers to entry remain high as a result of the significant amount of capital that is required to develop a processing facility. To ensure long term sustainability of growers and the industry in general, leadership capabilities and more innovative behaviours and practices might be required to ensure their survival.

1.2 Background

Historically there has not been a need for a grower to diversify within the confines of his business and as such this does not form part of his inherent culture (Osborne 2004).

As our world changes and adapts and populations continue to grow, the role of the traditional grower is increasing in importance (Agri Forum SA 2008). The traditional grower identified a crop and grown it in accordance with the fertility and terrain of the land. They would then go off to market and sell the crop. This has fundamentally not

changed. Markets might be called co-operatives or cracking facilities but they still trade with the grower for his produce.

While there is a significant concern in the agricultural sector that farms are being underutilised (Department of Agriculture 2011), the intention of this research was to investigate how leadership in the agricultural sector can influence innovative practices that will lead to increased bottom line contributions. Specific focus was given to the leadership capacity of growers to innovate within the macadamia nut industry in two regions of South Africa.

Currently processing facilities market, package and process products on behalf of growers. At the start of each season the facility will call on the growers for volume until their plant capacity is achieved or when the sales orders are fulfilled at a predetermined price to the grower. Providing that the grower is not bound by an exclusivity agreement, they have the flexibility to source alternative facilities to process excess product. Alternatively their excess product is scrapped and that revenue is lost.

This raises the question regarding whether the processing facilities engender a climate of innovation with growers with regards to improving nut quality and supply volumes. It also asks whether growers themselves have the leadership ability to innovate in order to meet quality and volume demands, or alternatively to introduce mechanisms or practices that reduce their risk and dependency on processing facilities.

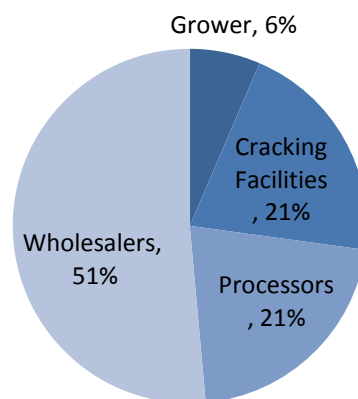
One might suggest for example, that a grower could focus on the kernel style and sell into the confectionary market where colour and size determine quality. Alternatively, they could focus on the oil quality within the kernel selling into the cosmetic industry. Either decision may impact on the grower's operational practices or the extent to which they may or may not interface with different processing facilities.

A grower's ability to adapt to different situations may be directly linked to their capacity as a leader or their ability to innovate change in order to optimise returns. It was therefore the intention of this research to understand the environment within which farmers operate in order to provide insight into the leadership practices required to support innovation and the role of the grower as a leader in identifying and developing process or product innovation.

South Africa exports 95% of its nuts with only 27% of the revenue stream remaining in the country (Department of Agriculture 2011). Figure 2 shows that the grower's earning potential comprises only 6% of the local revenue stream. Opportunities must surely exist for the growers to increase their revenue stream, possibly through new innovation and diversification within the growers' sector. One must however consider the broader perspective and not exclude the macadamia nut industry across the greater value chain.

Succinctly put one may argue that the grower could reduce costs through management and operational efficiency or increase their activity within a value chain to increase their revenue stream and profitability.

Figure 2: Revenue Earned per Market Sector



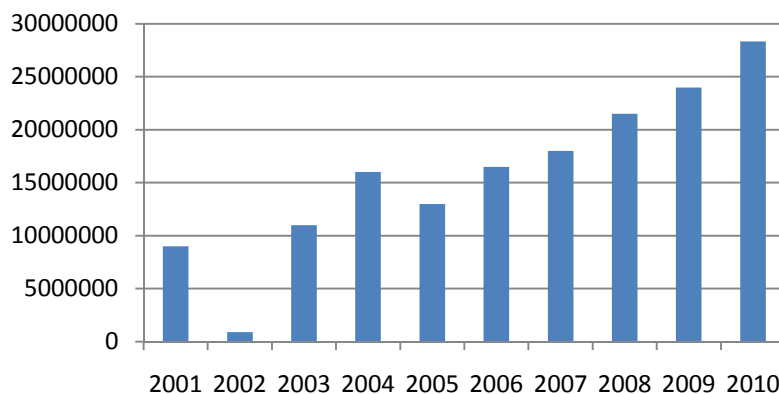
Source 2: (South African Macadamias Growers Association 2008)

The macadamia industry was selected for this research as there has been an average of 24% year-on-year increase in production between 2001 and 2010, as demonstrated in Figure 3. The product is perceived by Crantz (2007) as a premium product with high returns. Macadamia nuts are not only a member of the super group

of foods but have a variety of other applications across a broad spectrum of various markets. Crantz (2007) suggests that due to the properties and the nature of the nuts they will remain a premium product for the foreseeable future.

Consideration must be given that in a free market system the perceived value must remain high to protect against organic price pressures. At the start of the value chain the grower should have the ability to initiate the value proposition and protect the revenue stream. Strong leadership and innovation may better enable a grower to meet such an objective.

Figure 3: Macadamia Production dry in shell (DIS)



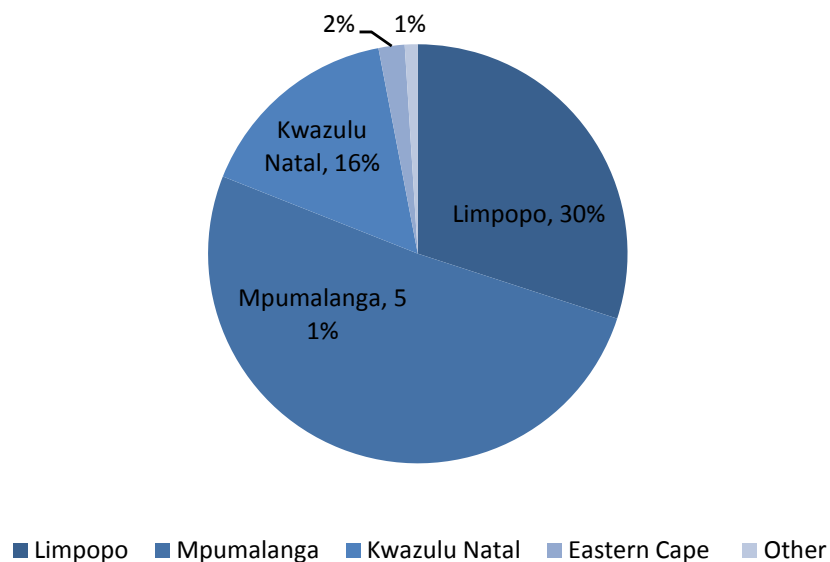
Source 3: (Nailana 2011)

In 2009 South Africa saw a 35% reduction in contribution to the global macadamia industry, which was largely attributed to a R54 Million loss of nuts through stinkbug damage (Department of Agriculture 2011). Mitigating this is becoming a critical imperative and growers need to lead their organisations to identify new and innovative methods for pest control that are less capital intensive, as poor nut quality could have the single largest impact on a grower's return.

An increase in production volumes requires a stronger management of pest control to reduce product spoilage. These programs are typically cost intensive. Sound leadership practices and innovative thinking could potentially play a role in the development of alternative practices that are more effective and efficient.

For the purpose of this research particular focus was given to macadamia nut farms in the KwaZulu Natal and Mpumalanga provinces of South Africa, as Mpumalanga is the largest producing area and Kwa Zulu Natal the fastest growing area by volume produced, as demonstrated in Figure 4.

Figure 4: Contribution by Geographical Area



Source 4: (SAMAC 2009)

The objective of this study was to explore the role that leadership plays in creating innovative thinking within the macadamia nut industry. Through a series of semi-structured interviews and focus groups it was the intention of the researcher to ascertain the extent with which leadership influences or affects the growers' ability to innovate within their organisations; where innovation is defined as the organisation's all-encompassing ability to identify new operational methodologies or practices, marketing techniques or new products within the value stream (Kostas 2010).

It was the intention that the tools applied in the research were designed to enable the identification of a number of viewpoints. The first, being to establish individual understanding of leadership and its role in agriculture. The second was to establish an understanding of viewpoints relating to innovation. Thirdly the researcher intended to understand the capability and ability to implement leadership and innovation within the macadamia nut industry. Aspects we hoped to see emerge included passion, dedication and commitment amongst farmers to the growing

process, as well as a knowledge and understanding of their competence in the macadamia nut industry.

The outcomes of the interviews and focus groupshad to provide clarity regarding the growers' current perception and understanding of leadership, its value in agriculture and its role in creating innovation. It was also important to understand the extent to which a grower understands the markets, consumer trends, mega trends or lifestyle changes affecting macadamia nuts and the industry.

1.3 The problem in context

The following areas highlight the problem: Ability to innovate, access to information, and leadership ability.

1.3.1 Ability to innovate

In the past, growers operated independently and their source of pressure to innovate was their competitive advantage. As consumerism increased and the buying power of the farmer decreased, growers consolidated to form processing facilitiesin order to increase their buying power. Over time these facilities evolved and ownership changed, leaving them as independent enterprises chasing the bottom line like any other commercial business.Within the macadamia nut industry these facilities earn 21% of the revenue pool, as demonstrated inFigure 2, while the grower only earns 6%.

Initially the farmer benefited, but over time his level and need to innovate decreaseddue to the increasing power of the facilities. This is largely because the facilities have become the major conduit between the grower and the market.

With this shift in powerfacilitieshave become more commercially focused needing to meet the demands of their shareholders. With diminished control over the markets, growers increasingly produce to the demand or quotas of the facility. The nett effect is that the grower becomes further removed from the market.

The current structure when trading with a processing facility is that the grower will supply against a volume forecast at a price determined by that facility(Green Nut Farm Company 2011). The facility will trade on the grower's behalf with local or

international traders but the grower plays no part in the process. As such the grower becomes further removed from the market and the prevailing market prices into which the product is marketed. The gap created between the market and the grower may impact on a grower's ability to innovate as he is no longer current with the demands of the industry or the consumer.

The issue of concern is whether growers then still have the capacity or desire for innovative thinking due to the increased demand by the facility for volumes and little transparency in price determination. In situations where growers do have the capacity, it could be questioned whether they are able to apply it effectively.

Macadamia nut farms in South Africa as a whole do not use mechanised processes and as a result are labour intensive, leaving little capacity for the grower to divest their time in other areas (Department of Agriculture 2011). This is particularly relevant as growers still largely operate with unskilled and semi-skilled labour forces in rural environments (Chiripanhura 2008). Management styles are largely activity driven and authoritative by nature making leadership a difficult behaviour to instil and maintain (Osborne 2004). Further to this is whether the grower has sufficient capacity to ensure that they remain abreast of current leadership styles and techniques.

These behavioural trends question the role for leadership in a grower's organisation and the extent to which that role affects innovation.

1.3.2 Access to information

Informal discussions within the industry have led the researcher to establish the opinion that as markets have changed and trends altered, facilities have adapted and progressed while the growers appear to have stagnated, remaining only growers.

Technology has advanced and information is more freely available. Outside of the urban areas telecommunication and internet availability is intermittent and unreliable (IBM 2009) and facilities may have become very selective in the information they transfer to growers, in order to protect their market positions. A lack of transparency

and free flow of information may be an influencing factor in the behaviour of the growers and their ability to lead their organisations to more innovative opportunities, as they continuously operate on a need to know basis.

Peer groups and the internet are available to growers as sources of information that can provide valuable information to improve structures, processes and procedures yet there appears to be little willingness on the part of the growers to actively research innovative practices and challenge existing practices (Department of Agriculture 2011).

If one were to assume that growers are inherent leaders, then with limited available resources to develop and keep abreast of the changes regarding current leadership styles and techniques, it could be questioned whether they are efficient and effective leaders. Furthermore it can be questioned as to whether the grower has an understanding of the current role of leadership in agriculture, and whether they are aware of their ability or capacity to apply it to their organisations in order to innovate more effectively.

This is easily demonstrated in the extent with which mechanised equipment is used locally when compared to global producers (Agri Forum SA 2008). Local equipment importers import mechanised equipment for macadamia farming against demand from the growers.

One can argue as to whether it is the responsibility of the grower to push or to pull new technology information from an equipment provider or whether the lower cost of labour does not warrant new technology. Another argument is that growers may not remain current with global changes and trends and have “boxed” themselves into a situation where they no longer have the capacity or liquidity to investigate alternatives. This leads one to the assumption that the growers have become more dependent on the facilities and suppliers for information and technology and therefore less self-reliant.

This research investigated the internal and external drivers leading to this situation.

1.3.3 Leadership ability

Looking at the context of leadership there may be many opportunities within the current operational arena where growers can review their structures and systems in order to improve efficiencies. Where there is a climate for innovation growers can look at new methodologies and possibly diversify their operations further up the value chain.

With the advent of chain stores and facilities it appears that growers have become removed from the greater environment into which they serve, losing some of their ability to lead their businesses through changing needs and into emerging markets (McConachie 1997). This may be directly related to the growers' ability to remain abreast of current changes and emerging trends. This could be vitally important in an industry as dynamic as macadamia nuts.

South Africa exports 95% of its macadamia nuts with 5% being marketed on the local front by small independent growers. Various local markets import an additional 600 tons per annum of processed nuts (Department of Agriculture 2011). This is a R25 million revenue stream that could remain within South Africa and the South African economy to the benefit of growers or facilities.

There are further benefits in job creation and micro-business development (Williams 2012). Sally Williams (2012) identifies the importance of macadamia nuts to black growers within South Africa and the responsibility of leaders within the industry to provide support and innovation to these emerging farms. Potentially it is the strong leaders and innovators that will be better placed to leverage these opportunities for the benefit of either themselves or the industry.

An understanding is required of the effects that the increased power of facilities may have over growers as well as the potential impact of the diminished focus of growers towards innovative practices. It could also be questioned whether these facilities have built a barrier between the grower and the market through a psychological contract that is promise-based and developed over time (Rousseau 1995).

The on-going belief in this promise may build a mental model of stability and durability within the growers that their well-being is the facilities' primary concern. As that belief grows stronger, so the need to question may be reduced and the growers' dependency on the facilities increased. The level of dependency may contribute to the degree with which growers understand the role of leadership and its role in innovation.

Part of the study determined whether the current activity based management styles practiced by growers are an inhibitor for leadership and innovation and whether growers are able to recognise the role of leadership in innovation.

It was also established whether growers are able to execute leadership with limited knowledge and understanding of its role in innovation. Information was gathered in order to assess capacity and ability in developing growers' skills and knowledge towards leadership and its role in relation to innovation.

These are two very different and critical points to understand and put into perspective. Knowledge and skills play a critical role in building capacity, capability and sustainability, which is critical to the lifecycle of any business.

1.4 Problem statement

Growers in the macadamia nut industry have the potential to apply uniqueness to their operations and product quality through the employment of innovative leadership, and increasing their presence in the agricultural value chain. An understanding of the role of leadership in innovation is hoped to provide constructive insight to enable innovation.

1.5 Research objectives

It was the intention of this research to understand the environment within which growers operate in order to provide insight into the leadership and innovation practices to support growth and sustainability. The research investigated a number of viewpoints. The first was the individual understanding of leadership and its role in agriculture. The second was an understanding of viewpoints relating to innovation.

Thirdly the researcher sought to understand the capability and ability to implement leadership and innovation within the macadamia nut industry.

The focus of this study explored innovative leadership in macadamia nut farming through the sub current practices of access to information and readiness:

- To understand the perceptions of macadamia nut growers with regards to leadership, innovation and innovative leadership.
- To determine the direct effect that the accessibility to information has on innovation by establishing a link between the accessibility of information and a lack of innovative behaviour or thinking by the macadamia nut grower.
- To explore the readiness of leaders to embrace innovative behaviour.

1.6 Importance/ Benefits of the study

This study within the macadamia nut industry aimed to contribute to the continued sustainability of a growing and dynamic industry.

Global demand for macadamia nuts has and continues to increase in excess of supply as a direct result of the nutritional benefits as a healthy alternative to a variety of other foods due to their composition (Crantz 2007). Other industry sectors where the oil viscosity of macadamia nuts is valued (Department of Agriculture 2011) like cosmetics and the medicinal arena are also demanding macadamia nuts for processing. Recent research has identified the medicinal qualities of macadamia nuts to be more beneficial than tree-tea oil and as a future critical ingredient in new medicines (Rowe 2009).

As the 3rd largest global producer of macadamia nuts the long term sustainability of the South African industry is essential to the economic growth in agriculture. Innovation is becoming important to better differentiate the industry in the global market reducing its risk to free market pressures (Porter 1998).

Changes in government policy are encouraging agriculture to create more jobs and to develop labour skills (Department of Agriculture 2011). Growth within the macadamia nut industry links into Government's long term programme to increase subsistence farming through land restitution (Department of Agriculture 2011). Sally

Williams (2012) identifies the importance of macadamia nut farming for black farmers because it has the capacity to create jobs.

This provides a unique platform for growers to provide leadership and innovation into an agricultural sector that has been recognised by Government for growth and development providing potential leveraging opportunities into new emerging markets for macadamia nuts.

Government and Non-Government Organisations (NGO's) are supportive and encouraging of new agricultural initiatives as they have a greater potential for job creation (Department of Agriculture 2011). As a 3rd world emerging market, leadership and innovation can go a long way to differentiate South Africa within 1st world economies. Funding is available on a local and international front to support such initiatives; however growers need to demonstrate innovative thinking, taking the leadership role and proactively leverage these opportunities in their favour (World Economic Forum 2010).

There are opinions that innovative opportunities exist within the industry to reduce the volumes exported and imported in favour of processing nuts locally. If the industry develops its ability to locally process macadamia nuts for a variety of markets it positions itself towards increased job creation and innovation. The increased internal flow of revenue within the local South African economy can in turn be used to boost new initiatives to grow and develop the industry in a sustainable manner and potentially reduce the risk of foreign exchange rate volatility.

1.7 Limitations and delimitations

1.7.1 Delimitations

Delimitations are the boundaries of the study providing clarity on what is and is not to be studied (Leedy & Ormrod 2010).

The boundaries of this study are:

- Focused on the KwaZulu Natal and Mpumalanga regions in South Africa.

- The study focussed on two target populations: the first are the nut growers within the regions who grow and dehusk the macadamia nuts for the cooperatives or facilities; the second is the co-operatives and cracking houses that purchase the nuts from the growers and resell the nuts in various other markets for further processing.
- The study only examined leadership practices in relation to enabling innovation and did not seek to examine leadership in any other contexts.

1.7.2 Assumptions

To prevent misunderstanding and undue influence on the research the following was taken into account when conducting the research:

- All communication was undertaken in English.
- All the data received was classified into different categories and analysed accordingly to prevent skewed results.
- All participants interviewed or surveyed were advised of the research objectives to eliminate bias.
- Participants hopefully contributed meaningfully to the research process as the outcomes should be of interest to them.
- Organisations participating were encouraged to request and encourage employees to be honest and unbiased in their responses.
- It is also assumed that all participants identified themselves and their roles truthfully.

Chapter Two

Literature Review

2.1 Leadership

A quality of good leadership is the ability to collaborate (Clark 1997). A stronger link into global research centres can provide valuable information to growers on the local front (World Economic Forum 2010). Such collaborations have the potential to diversify the relationships, providing higher levels of education or grants to fund development and innovation.

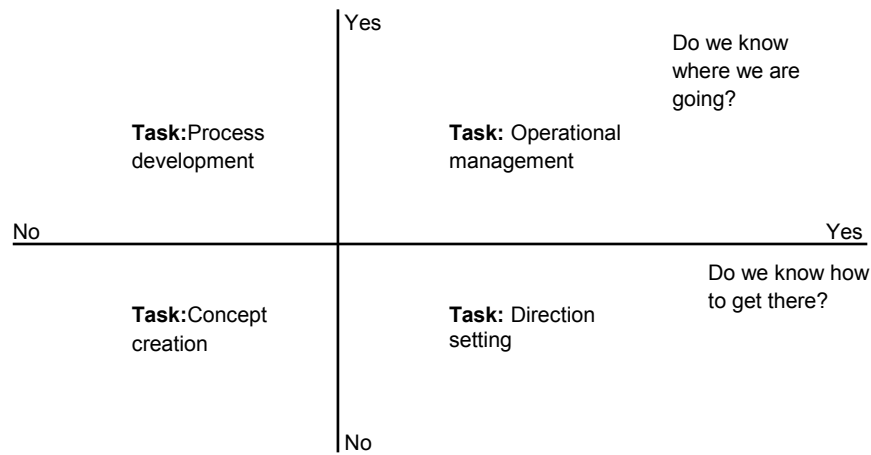
Within an agricultural environment and more specifically within the macadamia nut industry, the role of leadership has different challenges for growers as their infrastructure and resource availability are different from that of a mainstream commercial organisation. Growers are often owner managed with unskilled and semi-skilled labour forces which require a high level of activity management in the daily operating functions of the farm. This constricts the capacity of the grower to invest time elsewhere.

With many competing priorities the growers need to prioritise their areas of focus. It is therefore important to understand the impact of these challenges and how it affects the growers' capacity to understand leadership and its role in innovation and innovative practices (Giner 2009). The principles of Barath (2008) competing values framework (CVF) model was used to understand the perceptions of stakeholders regarding leadership, with a specific focus on the role of leadership in innovation.

Often one of the difficulties in leadership is in testing for readiness. Yapp (2005) offers a model to do so that requires two questions need to be asked, as identified in Figure 5. The first question establishes whether we know where we are going. The leader needs to have a clear understanding of what the outcome or objective is to be able to provide direction. This provides insight regarding the degree to which leadership is currently applied by the grower and the industry. The second question asks whether we know how to get there. Here the leader needs to understand the method or roadmap to be taken to achieve the desired outcome. This aspect

provides insight regarding the level to which the grower understands the role of leadership and how it can be most effectively applied to different situations.

Figure 5: Problem Types



Source 5: (Yapp 2005)

One must remain cognisant of the impact leadership has on the ability to innovate effectively if leadership is a key to the growth and development of the industry and its long-term sustainability.

2.2 The Role of Leadership

The introduction of innovation can be highly frustrating for some growers as they may also need to engage in change practices to prepare the environment (Johnson 1992). Leaders must have a vision and be able to impart that vision (Osterloh & Frey 1999).

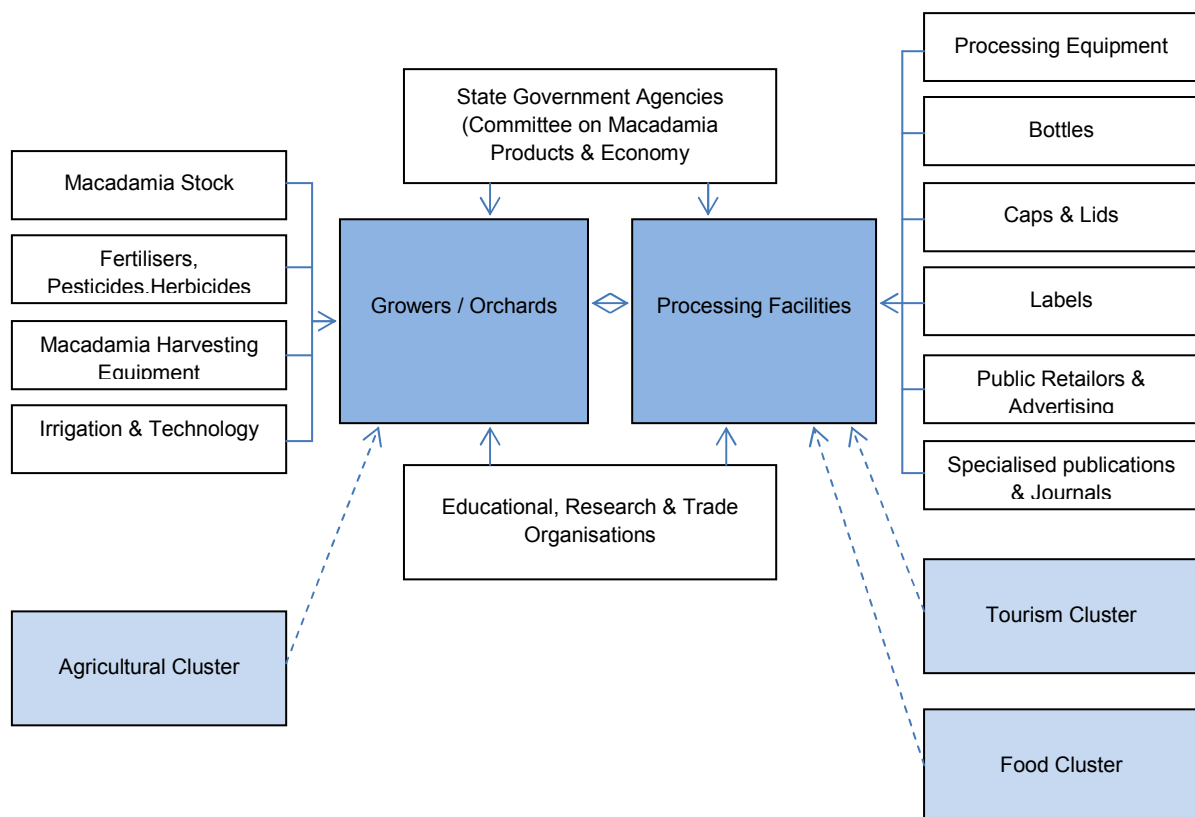
Within agriculture the grower fulfils the role of the leader and needs to provide leadership to support and drive innovation in order to increase the value proposition to the market through differentiation and by increasing their competitive advantage. It must however be questioned whether growers have the ability and the capacity to achieve this, thereby increasing the appetite for developing innovation.

Innovation practices tend to be effective when the leadership supports the vision and motivates change (Osterloh & Frey 1999). The value of leadership is acknowledged in most organisations (Carucci 2009), but it is not clear whether growers believe in the need for leadership or the extent of their role to foster a climate for innovation.

Michael Porter (1998) refers to the importance of clusters, where likeminded organisations within an industry segment group together to enable leadership and innovation within a market sector. In his reference to the California Wine Cluster Porter stresses the importance of all the stakeholders' involvement in developing uniqueness within the industry. This is done to promote and support research and technology, leveraging specialised trade associations and journals to build the reputation and image of the industry globally.

As a significant global producer of macadamia nuts it is important for South Africa to present itself as uniquely productive and innovative in the industry. Although a cluster is a collective of industry role-players, the grower plays a significant role within the cluster as demonstrated in Figure 6. As such so the growers' leadership and innovative behaviours and capabilities are critical to the overall success of the clusters objectives.

Figure 6: Interpretation of Porters cluster model adapted for the Macadamia Nut Industry



Source 6:(Porter 1998)

The Future Farmers of America (FFA) was formed as a federally funded program in an effort to improve the sustainability of world food availability and quality. They focused on strengthening the role of the grower in the market place to help resolve global supply and demand issues, building partnerships with agricultural producers, agribusiness and governments through market education programs (Future Farmers of America 2012). Realising the value of leadership, the FFA sought to achieve its objectives by developing the potential for “premier” leadership, personal growth and career success through agricultural education, thereby preparing students as leaders for careers in the science, business and technology of agriculture.

Conversely in Latin America the Agribusiness sector realised the limitations of farm management and leadership towards innovation and new product development. As a result they sought to encourage the investment of private firms into innovation to support the growers rather than from the state (Pomareda & Hartwich 2005). A survey by Pomareda in 2005 identified leadership as one of five basic conditions that would encourage private investment into innovation building within the agricultural sector.

It is important to realise the value and extent of existing leadership within the macadamia industry and the willingness of the industry to facilitate or highlight to growers the importance of leadership and the role that it plays in innovation for the long term sustainability of the industry.

2.3 Innovation

The bulk of the macadamia nuts grown in South Africa are exported in their raw state and then imported back once other countries have added value to the product (Nailana 2011). This creates a window of opportunity for the South African market to find ways of keeping the nuts here and enriching them for our own markets.

The impact that this has on our local economy is not part of the scope of this research but rather serves to provide an understanding of the potential impact of innovation in the South African economy and the long term sustainability of the industry towards growth and localised job creation. We can then ask the question as to what the impact towards increased growth and demand in new more profitable

markets locally and internationally for finished goods would be if the macadamia community were to be more innovative as an industry.

It is interesting to note that contrary to what has been previously mentioned there are currently certain elements of the industry in South Africa that are wanting to move even further back in the value chain. Instead of cracking the nuts and exporting the kernels, they are selling them DIS locally and to places like China at a much lower level of profitability.

One key-behaviour of innovative thinking is that a leader needs to be up to date with the latest research and technology available (Barath 2008). If the macadamia nut industry is to grow and develop as an industry contributing to economic growth and development and to contribute to job creation and sustainable development, then the industry needs to develop and remain abreast of or lead technological development.

Within industry organisational leaders guide and maintain a climate for innovation and innovation practices, building capacity for innovation and the management of change to support innovation (Kostas 2010).

Sylver (2006) defines innovation as introducing something new that is different from anything preceding. Porter (1998) emphasises the importance for strong leadership in successful innovation.

It is an individual or organisational choice to innovate and it is important to understand the link between needing to innovate and wanting to innovate. That choice may be driven by a need or a behaviour demanding continuous improvement, and leadership may play a vital role in defining this.

By exploring how growers understand innovation will significantly impact our understanding of the extent to which leadership is perceived to support innovative thinking in agricultural practices. It will also provide an understanding of how innovative leadership is perceived to support increased growth and demand in new more profitable markets specifically in the macadamia nut industry.

2.4 The Role of Innovation

There are many factors that influence the ability to innovate and it was not the intention of this paper to explore all the variables. The intention was to focus on the effects of leadership in innovation presuming that there already is a climate and appetite for innovation.

The role of innovation has been clearly linked to a grower's capability to differentiate themselves within the marketplace (Kostas 2010). The extent to which they are able to differentiate can be translated into an increase in the perceived value of a product within the agro-food sector and the grower's contribution to industry in identifying new opportunities (Giner 2009).

Reij and Waters-Bayer (2001) defined innovation in agriculture "as anything new that you are doing on your farm". Their research through Africa identified a significant degree of innovation relating to farmers changing the cultivars or the crops they grow, with little evidence of innovation in any other areas. Their results measured the growers' innovation in quality, farming processes or practices and product differentiation to be less than 3% of the 500 farmers interviewed (Reij & Waters-Bayer 2001).

When translated into the macadamia nut industry it must be noted that the industry is new and still developing to a great extent (Agri Forum SA 2008). The crop has a seven year gestation period so there is little chance for crop or cultivar rotation. There are however growers that plant additional crops, such as tomatoes between the rows of macadamia trees in order to have an income during the gestation period.

The role for innovation would therefore start at the point of pre-harvest with the grower identifying anything new that can be done on the farm to improve the operation or quality of the end product.

Many agricultural development centres and universities now incorporate leadership skills in their curricula, supporting the need for innovation to ensure increased productivity and agricultural sustainability (Future Farmers of America 2012). An important question to be raised regarding this is how this knowledge or skill set is

disseminated through to existing growers and whether they understand the role of innovation in differentiating themselves within the marketplace (World Economic Forum 2010). Research undertaken by the World Economic Forum (WEF) identifies the need for the technical know-how held by global institutions to be transferred to local entrepreneurs in order to inspire innovative breakthroughs within agriculture at the grower's level.

The privatisation of agricultural research has allowed for the development of certain services designed for the support of agricultural innovation (Department of Agriculture 2011). Research has identified that some agricultural associations have links into various institutions to help develop innovation.

In the case of The Maui County Farm Bureau (MCFB) an initiative with the University of Hawaii Maui College (UHMC) led to the introduction of a food innovation centre for entrepreneurial farms and ranchers. The centre acts *“as a business incubator providing the space and equipment for research, development and small-scale production of value-added food products”*(Isotov 2012). This has enabled local growers to become more innovative in their thinking and behaviour. An example of this is the identification of better ways to utilise and dispose of excess product through revenue generating channels in new markets alleviating some of their economic pressures.

It is a concern that when economies contract and markets become constrained, resources are reallocated and priorities shifted, negatively affecting the relationships that engage innovation (Riley Geoff Riley, Eton College, September 2006). This is particularly relevant in demand driven markets and often results in the constraining of innovation (Klerkx & Leeuwis 2007). Similarly, as economies constrict a grower has the increased pressure of managing an operation in more cost conscious markets. Fewer resources and largely unskilled labour becomes energy intensive increasing already challenging conditions for increased productivity and innovation (Vilsack 2012).

Michael Porter (1998) highlights the need for innovation and to have unique products, features and services to be advanced in a given industry. Porter goes on to say that being unique is not easily achieved and is dependent on a local firm understanding the needs of foreign customers more than foreign rivals and where the local firm has the understanding that innovation most often stems from local conditions.

There is a significant amount of global research highlighting the need for innovation in agriculture and collaboration between all stakeholders to ensure an agricultural environment that is innovation-driven (World Economic Forum 2010).

Within the macadamia industry growers need to be understanding of their customers' needs and aware of their rivals' practices. On a local front they need to apply that learning to existing practices in an innovative way in order to differentiate themselves within the industry.

Chapter Three

Literature Review

3.1 Innovative Leadership

Innovation leadership within the macadamia nut industry is a platform that may potentially result in new and creative ideas that could transform and develop the industry. Giner (2009) highlights the fact that “conventional” mainstream agricultural products can be a source of value creation in the agriculture sector. Giner goes further to comment on the fact that farmers can take greater advantage of their role if they were to promote certain aspects of the specific characteristics of their products and processes.

Teresa Amable (1998) supports the thinking that managers believe there is value in creativity and the generation of new and useful ideas. She goes on to comment that creativity is undermined by the day to day activities driven by the business imperatives. This is relevant within the agricultural sector as labour generally has a low level of skill and education and the farms are typically rural thereby adding complexity to the daily activities of grower.

Amable (1998) identifies three critical components to creativity which are significant precursors to innovation and which are strongly influenced by leadership: expertise, creative-thinking skills, and motivation, where:

- Expertise – knowledge whether technical, procedural or intellectual
- Creative-thinking skills – determining the flexibility and imaginativeness of individual approaches to problems
- Motivation – the inner passion to problem resolution; intrinsic motivation

Since the 2008-2009 economic crisis organisations have increased focus on innovation, identifying it as a key driver in increased competitiveness (Kostas 2010).

There is an increased focus on innovation delivery and innovation management through innovation leadership, which is identified by Kostas as a powerful facilitator in an organisation’s adaptability to increased innovation and change.

3.2 The Role of Innovative leadership

In order to understand how innovative leadership impacts on organisational effectiveness a model by Quinn and Rohrbaugh (1983) was used to assist in locating the importance of the role of leadership in innovation. Quinn and Rohrbaugh (1983) go further to describe two dimensions that highlight the relevance of leadership in innovation for an effective organisation.

- The first dimension looks at the well-being and development of the organisation as a whole rather than of specific individuals within the organisation.
- The second dimension looks at the attitude and well-being of the organisation and stakeholders and their receptiveness towards change.

If the role of leadership can facilitate innovative behaviour within a grower or an organisation, then perhaps innovative leadership can provide the individual with a greater understanding and context of leadership towards innovation within the organisation and similarly the industry improving the growth potential and sustainability as a whole.

A review of relevant journals indicates that a significant amount of research is being undertaken regarding macadamia nuts in a variety of applications in a number of countries (South African Macadamias Growers Association 2008).

In contrast an examination of local journals and industry specific publications indicates a gap in the research area on innovation leadership in macadamia nut farming. This gap was the focus of this research report. This questions the level of innovative leadership and the extent of the value that is being added locally in the macadamia value chain as a result of it.

3.3 The readiness of leaders to embrace innovation

A leader acts as an innovator and broker whose main role is to lead the organisation to innovate, increasing its flexibility to adaptability (Sylver 2006). Giner (2009) puts a specific emphasis on growers' ability to increase their presence in the value chain through innovation that will translate into new products in the market. This sentiment is strongly supported by Reij and Waters-Bayer (2001) whose research highlights a greater need for grower innovation to improve crop quality and productivity.

Reij & Waters-Bayer (2001) go a step further and suggest that growers who are leaders and innovators have a responsibility to impart their knowledge to other growers in order to build an agricultural community which supports leadership and innovation.

“We can be more innovative about delivering solutions that already exist to the farmers who need them. Knowledge about managing soil and tools like drip irrigation can help poor farmers grow more food today. We can also discover new approaches and create new tools to fundamentally transform farmers’ lives”(Gates 2012).

Is it not then the responsibility of the grower to ready themselves to become leaders creating the willingness to embrace and implement innovation? An important aspect of this is how the grower gathers knowledge and skills to embrace or remain current of leadership practices and develop their understanding of the importance of leadership in innovation.

It is important for the leadership to support good business practice and take individual ownership of responsibility, confidence in decision making and self-development (Amable 1998). This will enable the leadership to maintain a sound climate for innovation, empowering them to successfully innovate for the benefit of their organisation and the industry.

Visible knowledge and understanding within the grower community demonstrates their leadership ability for innovation and provides critical insight to their organisations’ ability to gain external acceptance to the leadership as well as their ability to innovate and provide uniqueness to their organisation and the industry (Porter 1998).

Within Latin America subsistence growers continue receiving technology and knowledge assistance from government. This has inhibited their need to innovate to the extent that they are not utilising their self-potential to innovate increasing their dependence on government (Pomareda & Hartwich 2005). This amplifies the concern about ensuring a clear understanding of the importance of creating a willingness to

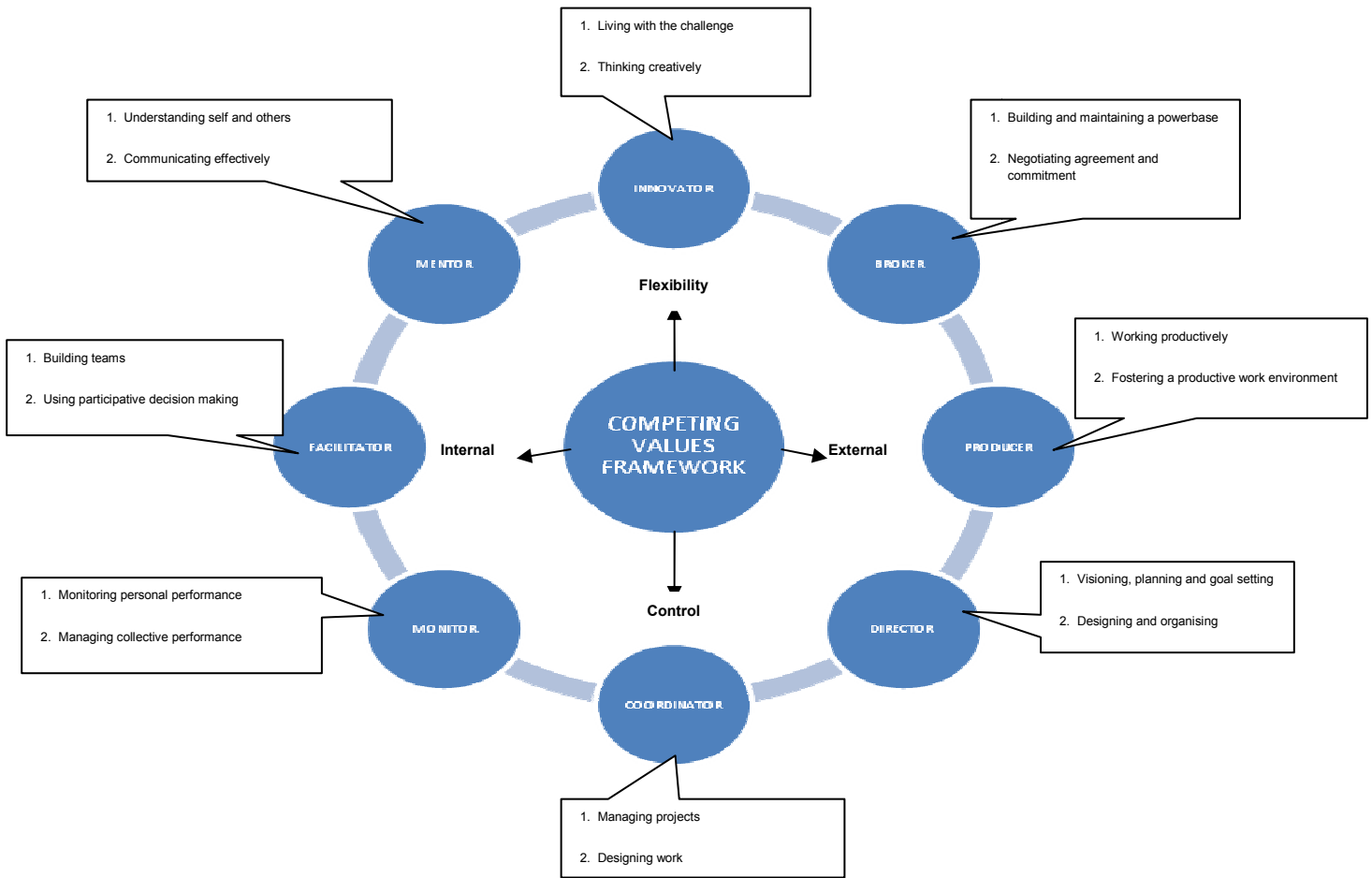
increase self-knowledge and expertise as a leader thereby increasing one's own ability to support innovation.

Within South Africa there is a concern that too much government intervention may be counterproductive to building leadership and innovation (Department of Agriculture 2011). FFA (2012) is of the opinion that grants are essential for education and development of growers on a broader scale, but that the initiative to lead and innovate remains with the grower.

It was an imperative for the researcher to understand the effects and the impact that leadership has on an organisation and its individuals. Key triggers identified were helpful in identifying critical developmental areas of strength and weakness within the leadership of a farming organisation with respect to climate creation for innovation, product development and new products. Although this was not the focus of the study it is relevant in establishing the role of leadership towards innovation. Using the Competing Values Framework (CVF) model, Barath (2008) is of the opinion that industry elements cannot develop the stakeholders, suggesting that it is the responsibility of the grower as the stakeholder to self-develop and increase their capacity and capability to drive innovation as shown in

Figure 7.

Figure 7: Leadership roles and Competencies in the Competing Values Framework



Source 7: (Barath, 2008)

When considering Porter's (1998) discussion on industry clusters, we are able to deduce that elements within industry are able to develop stakeholders. It is therefore an imperative for growers to understand the role of leadership in innovation as well as their responsibility as the stakeholder to their organisation and the industry's long term sustainability.

Both arguments hold merit and the critical imperative is in identifying whether growers can access the most relevant and current information from the industry or alternative sources.

Chapter Four Research Methodology

4.1 Research Methodology

The tools applied in this research were designed to enable the identification of a number of viewpoints relating to the individual understanding of leadership and its role in agriculture, with specific reference to the macadamia nut industry in two regions of South Africa. We also established an understanding of viewpoints relating to innovation and the ability to facilitate, recognise and implement innovation as well as the associated behaviours within the macadamia nut industry that may have a bearing on the issues. These attributes may include passion, dedication and commitment amongst farmers to the growing process, as well as knowledge and an understanding of their competence in the macadamia nut industry.

The outcomes of the interviews and focus groups provided clarity regarding the growers' current perception and understanding of leadership, its value in agriculture and its role in creating innovation. It was also important to understand the extent to which growers understand the markets, consumer trends, mega trends or lifestyle changes affecting macadamia nuts and the industry both locally and internationally.

The research methodology utilised in this research consisted of four activities:

- Research design
- Data collection
- Data analysis
- Report compilation

Researchers must ensure that the research methods are reliable and that the conclusions are valid (Silverman 2000) and accurately represent what is happening (Hussey & Hussey 1997).

A qualitative methodology comprising of semi-structured interviews and a focus group was used to gain both specific information and a broader opinion from the target audience. Interviews were undertaken with selected growers that were

identified through selection criteria based on referrals provided by industry and growers within Kwa Zulu Natal and Mpumalanga. The interviews were done in order to gather primary data with regards to how leadership and innovation are experienced from the growers' perspective. A focus group was used to deepen the understanding of the topic from an industry perspective and to explore the topic from multiple perspectives.

Growers were selected according to the size of farm and the age of the producing trees. This allowed for the categorisation as small, medium or large growers. Additional consideration was given to the respondents' level of contribution to the industry and degree of experience within the industry.

As explained by Saunders, Lewis and Thornhill (2009) a qualitative research methodology that includes semi-structured interviews was selected to enable the researcher to gather greater depth of information and understanding of the subject matter, in this case from the perspective of the growers. The primary data collected was categorised and interpreted. A focus group was used to better contextualise and clarify the findings from the interviews.

For any study to be a success the method of data collection and processing is important. Leedy and Ormrod (2010) identify four critical steps to this process:

1. A clear understanding of the study must be obtained.
2. The researcher must clearly identify what it is specifically that they wish to further examine.
3. The researcher must ensure that the data is broken into smaller manageable sizes that are workable when necessary.
4. The researcher must ensure that they use the appropriate techniques to analyse the data.

To clarify the types of research used in the study, primary research was undertaken with a representative sample of growers, suppliers, processing houses as well as other stakeholders. These samples were selected based on the opinions of Khali (2008) who suggest that the research is conducted with subjects in the direct area of

the research to provide more relevant information directly related to the research. As suggested by Kohlbacher (2006) a qualitative process of semi-structured interviews of the subjects was undertaken in their natural environment where they tend to be more relaxed and typically provide more accurate and comprehensive information.

4.2 Sampling

Due to the size and geographical displacement of the macadamia nut industry an appropriate sample of growers and industry specialists was selected for the primary research that was representative of the target population. Cochran's (1977) formula, $[N = (T^2 * S^2) / D^2]$ with a margin of error of 5%, was used to determine the original data base of 60 potential interviewees. The potential interviewees were in turn individually invited to participate. A total of 23 interviews were held. Following Boyce and Neale's (2006) guide, a significant trend was noticed during the interviews, which was confirmed in the remaining interviews.

To ensure data integrity, growers were identified through referrals from industry and growers and a database was created providing a random listing of appropriate interviewees from which a sample was then selected and the most senior level of management or ownership available interviewed. A focus group comprising of industry peers not previously interviewed was then undertaken to provide a deeper understanding of the primary data collected.

Some of the criteria selected for the sample size included geographical placement, size of farm and facilities on farm. This was important in ensuring that no specific category was excluded from the research by either design or non-participation.

The semi-structured interviews consisted of some open ended and closed questions which were prepared around the theme by the researcher. The interview was designed with sufficient flexibility to support discussion in order to gather additional information that could provide greater insight into the study objectives.

As suggested by Saunders, Lewis and Thornhill (2009), the semi-structured interviews allowed for further probing of interviewees for the purpose of gathering

additional information through discussion. This enabled the gathering of additional insight and clarity building depth into the research.

The interviews were undertaken with various growers, suppliers and processing facilities within the macadamia nut industry in the Kwa Zulu Natal and Mpumalanga regions. The interviews were particularly important in understanding the current innovative practices and leadership capabilities within the industry. Three main themes with sub-themes were included in the interview as shown in Table 1.

Table 1: Three main themes with sub-themes were included in the interview:

Theme	Sub Theme
Understand the perspective of macadamia growers to innovative leadership.	<ul style="list-style-type: none"> • Leadership at an individual level • Leadership at an organisational level • Innovation at an individual and organisational level • Innovative leadership at an individual level
Determine the direct effect that the accessibility of information has on innovative behaviour or thinking by the macadamia nut grower	<ul style="list-style-type: none"> • Availability of information at an individual and organisational level
Explore the readiness of leaders to embrace innovative behaviour	<ul style="list-style-type: none"> • Individual interest in innovation • Individual leadership • Innovative leadership for the individual

The collected data was analysed through a process of coding and merging to group individual data characteristics.

As suggested by Thong, Sainsbury and Craig (2007) thematic identification techniques were used where responses were grouped around key words and themes. A weighted average against the sample size was used to establish the

perspective of the samples perceptions using $((x \times y) + (x \times y) / \text{sum}(x \times y))$ where x is the value and y is the number of occurrences.

“Yes” and “No” responses were added up and a percentage was derived according to the responses in order to provide a definite measure of agreement or disagreement by the sample.

The summary of the perspectives obtained from the primary data analysis was presented in a controlled manner to the focus group to encourage discussion and interaction and in order to explore and clarify the shared perspectives. As suggested by Tong, Sainsbury and Craig (2007) feedback from the focus group was used to curtail researcher interpretations driven by a self-agenda or knowledge and to increase the validity of the researcher’s interpretations of the individual perspectives.

4.3 Report Compilation

In examining sources of bias and rigor, that include reliability and validity in the context of the research design, Saunder, Lewis and Thornhill (2009) identify two types of bias:

- Researcher bias – the structuring of questions specifically to predetermine the outcomes which can be mitigated through a pilot or pre-test phase
- Observer bias – where the participants are cautious of repercussions from within the organisation which can be mitigated through confidentiality of the results

To eliminate researcher bias the interviews were designed around the objectives of the study incorporating questions sufficiently flexible to enable interviewee’s latitude to fully express their perceptions. The methods of merging and coding of data for data analysis were specifically chosen to enable a true reflection of the data and reduce bias. To encourage a truthful response free from repercussions the importance of confidentiality was explained to all participants in the primary research and the focus group and while the researcher would keep the responses safe they too needed to keep the discussion safe.

A focus group was used to add validity to the shared perceptions provided to the research agent reducing researcher bias and increasing the integrity of the research. To mitigate observer bias the focus group was designed to engage discussion amongst the participants. Participants were requested to keep the proceedings confidential to reduce the fear of repercussions of colleagues speaking about what was said outside of the focus group. The researcher was able to further probe responses that may have appeared to be 'group think' related.

Saunders, Lewis and Thornhill (2009) associate reliability with the extent with which the data collection techniques provide consistent findings. Lewis (2001) explains that validity is the extent to which the measure or observation represents what the researchers actually does. The data collected as part of this study was transcribed into a coded data base which was collated against common observations, perceptions and key words given by the interviewees.

Lewis (2001) suggests that the most effective method to measure validity is through the use of a representative sample size, for which Cochran's (1977) formula was used. To increase the validity of the research confidentiality was discussed in that the data would remain secure and access would be limited to the supervisor or external examiner if any questions were raised. The researcher would not be allowed to break confidentiality for any other reason.

As suggested by Leedy and Ormrod (2010) it is the responsibility of the research agent to be respectful of participants and to understand threatening cues of a verbal and non-verbal nature. With the interviewer it was important to remain vigilant of non-verbal cues of discomfort during the semi-structured interviews and adjust the style and tempo of the interview accordingly to ensure an honest and truthful response.

Chapter Five

Results

5.1 Respondents Background

The response rate for Kwa Zulu Natal was 74% with Mpumalanga being 13%. The response from industry across both areas was 13%. The higher response rate in Kwa Zulu Natal is indicative of the willingness of individuals to be interviewed; in addition the researcher was based in Kwa Zulu Natal which may have influenced a higher rate of response from this area.

Each of the size categories, namely small, medium and large farms were well represented as were the average tree age categories, as is represented in Figure 8 and Figure 9.

Figure 8: Farm Sizes

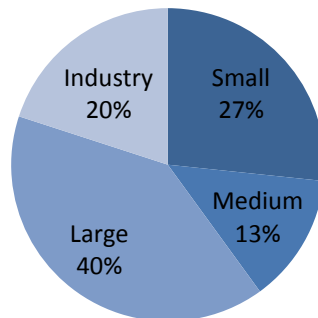
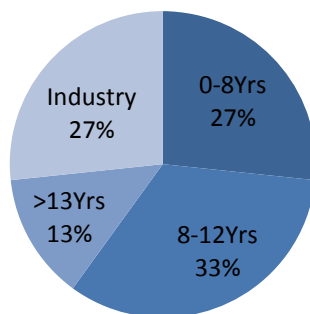


Figure 9: Average age of Trees



On analysing the number farms with and without additional facilities such as drying or dehusking facilities, it was noted that there was equal representation of farms with and without additional infrastructure, thereby ensuring that neither end of the scale could be discriminated against by exclusion.

The concluding analysis indicated that each category was sufficiently representative of the target population increasing the credibility and integrity of the research.

80% of the sample interviewed consisted of growers and 20% came from supporting industries. The industry category consisted of processing houses, consultants and material suppliers to macadamia nut growers. Of the growers interviewed 60% had diversified into macadamia nuts from other crops with a further 20% having researched a range of crop options and bought existing macadamia nut farms.

When analysing the formal education within the target population 38% held agricultural degrees and 15% held business degrees. Interestingly 47% of the population had no tertiary education and had developed their knowledge and ability through years of farming experience. This segment of the population may not have been familiar with the terms and may not have been able to identify their personal experience with the terminology. This was identified by the researcher who realised their difficulty and spent more time explaining the concepts for them. Through this approach the research agent was able to understand their interpretation of the concepts thus reflecting on the complexity of the topic in this field.

5.2 Interview Results

The following analysis was determined from the research data and is discussed in three groups according to the three main themes and their sub themes:

- Perspectives of Growers
 - Understand the perceptions of macadamia nut growers with regards to leadership, innovation and innovative leadership.
- Accessibility of information
 - Determine the direct effect that the accessibility of information has on innovation by establishing a link between the accessibility of information

and a lack of innovative behaviour or thinking by the macadamia nut grower.

- Readiness of Growers
 - Explore the readiness of leaders to embrace innovative behaviour.

5.2.1 Perspectives of Growers

5.2.1.1 Leadership

The role of leadership can be defined as “the process of influencing the activities of an organised group in efforts towards goal setting and goal achievement” (Khalil et al. 2008). The growers were requested to respond as to how they perceive themselves as leaders. In the analysis of the response, 36% of the respondents related leadership to the day to day operations of managing their farms rather than influencing the daily activities, whereas 32% of the respondents believed that they lead by example but in a controlled manner due to the level of education and skill within the labour force. It is arguable as to how these different statements both relate to managing the workforce, rather than meeting the requirements of being a true leader.

It is however important to recognise that some growers provide leadership to specific members of staff who demonstrate the aptitude and respond favourably to leadership. Those same growers however would continue to apply more direct management styles to the broader workforce who lack the required skill or aptitude. Never-the-less, through these answers it is apparent that some respondents did not understand the definition of leadership as a number of questions relating to ‘leadership’ were answered in a manner that they related to ‘management’.

Interestingly 12 % of the respondents believe that they demonstrate areas of leadership in labour practices through various incentives and bonus schemes that they practice on their farms. 12% would rather follow what everyone else is doing, introducing what others have proven to be successful but do not believe they lead in any way, while 8% of the respondents appeared to be of the understanding that there is a true lacking of leadership amongst growers and that growers are unwilling to participate or demonstrate individual leadership.

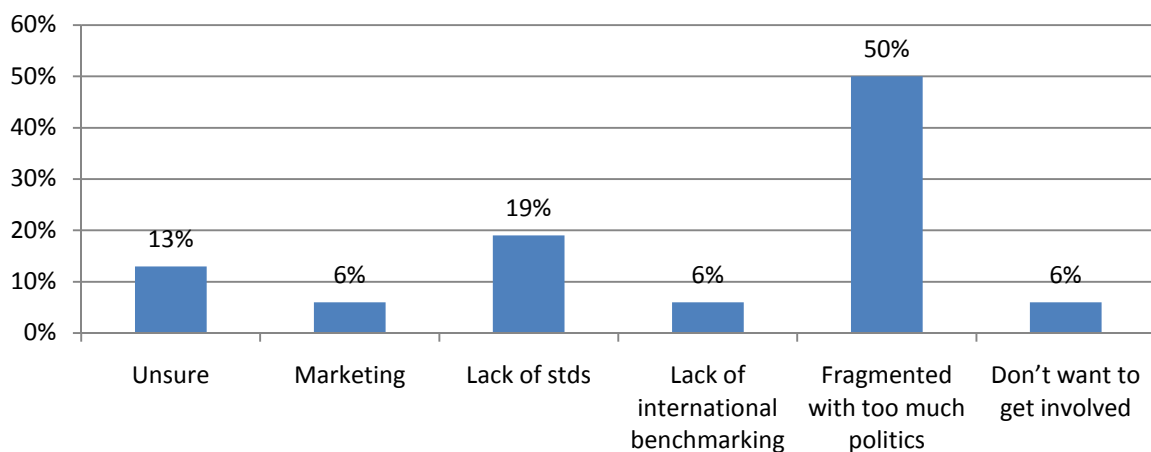
In response to what growers believe makes a leader there were three different schools of thought:

- 58% of the respondents believed that vision, strategy and structure were important attributes of leadership and was strongly supported by role modelling amongst growers.
- 28% of the respondents believed that leadership was defined through success, determination and commitment, strongly supported by attributes of trust and consistent behavioural patterns.
- The third grouping is a consolidation of individual thinking where it is believed that leadership is an inherent ability where individuals are responsible and accountable, that they have a willingness to share their knowledge and time with others and that they are good followers.

With respect to the industry having enough effective leadership the response was unanimous in the feeling that there was insufficient visible leadership within the industry.

This was further clarified in that there is a perception that there are some strong leaders amongst the grower's but that they are not willing to take an active role in the industry.

Figure 10: Drivers Inhibiting Industry Leadership

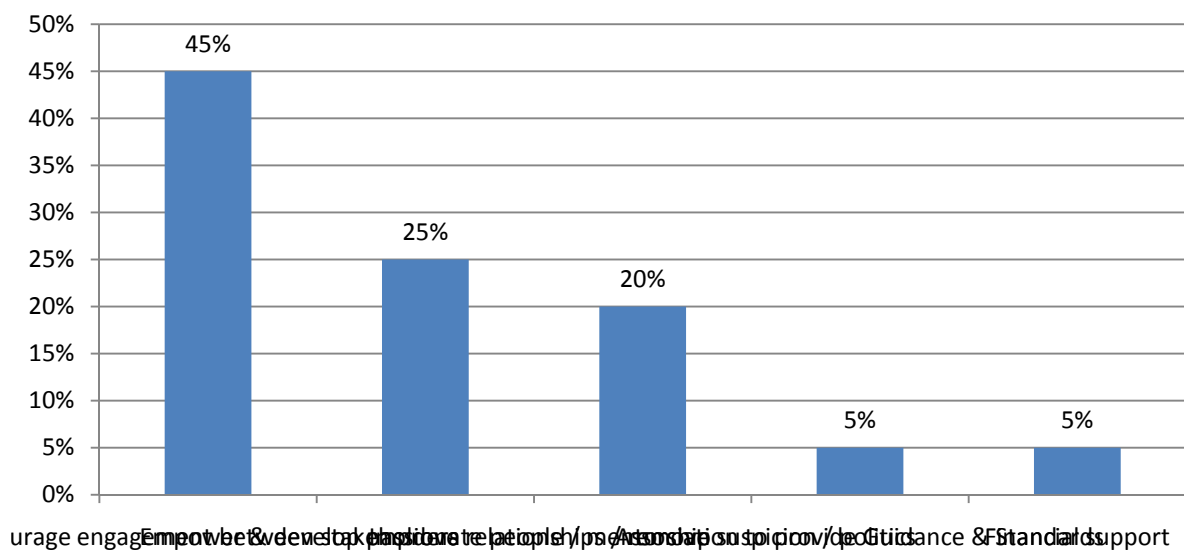


In Figure 10, the respondent's opinion regarding inhibitors towards a lack of visible leaderships identified within the macadamia nut industry where 13% of the

respondents abstained from comment or were unsure. This was largely the smaller and younger orchards where the growers are not yet participating in the industry.

50% believed it to be as a result of too much fragmentation and internal politics within the industry. 19% believed that there is a lack of understanding of the industry’s objectives, with too few governing standards to effectively guide and steer the industry and its growers in a common direction. A further 6% feel that the industry lacked global benchmarking and as a result clear direction.

Figure 11: Recommendations to develop leaders



In terms of developing leadership amongst growers, Figure 11, highlights three critical areas identified by the respondents:

- 45% of the respondents felt that there was a need to encourage an increased engagement between all the stakeholders in the industry which should include suppliers, consultants, customers and any affected parties not excluding the growers and needed to be to the ultimate benefit of the grower.
- 25% of the respondents believed that growers need a climate wherein they are empowered and encouraged amongst their peers to openly discuss innovations, changes and projects as well as to mentor individuals who demonstrate leadership potential.

- 20% of the respondents feel the need to improve relationships amongst the stakeholders through the removal of the internal suspicion and politics that currently exists within the industry.

There is a clear desire by the growers to have industry initiate the development of leadership. It further appears that the growers believe that the industry lacks cohesion and needs to improve the climate within which more information transfer can take place. This is not to say that improved information transfer will enable leadership development but it is believed that it will encourage leaders to step forward and enable others.

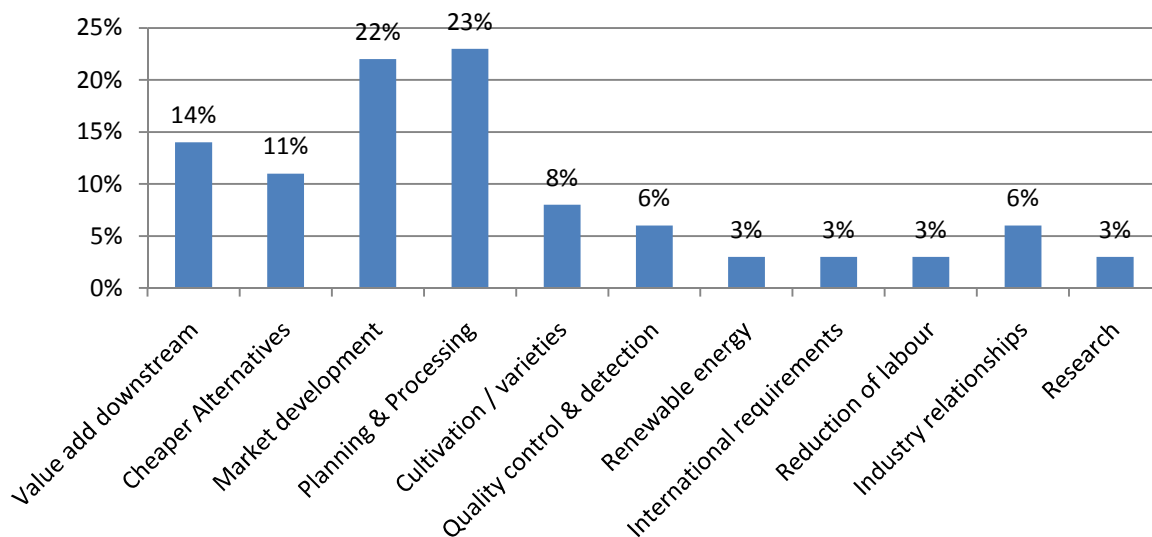
5.2.1.2 Innovation

When analysing the responses regarding how growers perceived themselves as being innovative when innovation is defined as “anything new you are doing on your farm” (Reij & Waters-Bayer 2001), 44% believed that they take the initiative in introducing new processes and techniques, with 19% following other grower’s successes. On the other end of the scale 15% of the respondents believe that government should be leading innovation through incentives and grants or special funding programs and 14% believe that innovation is as a result of a need and do not believe that they should be changing an aspect of their operation if the process is currently working for them. 8% of the population refer to external trials and trial results for innovation. These results indicate that there is a distinct lack of internal motivation to engage in innovative thinking with a strong dependence of external, particularly government, driven impetus for innovative activity.

Without exception all of the participants fully supported the need to be innovative with none of the interviewed participants disagreeing. 31% of the participants believe that innovation is driven by needs only (meaning it is reactive and not proactive), while a further 20% partially innovate according to the perceived benefit to them. 31% do not innovate themselves but will follow the innovation of others, while 6% believe that funding should be made available by other institutions. This highlights a very reactive response, almost showing unwillingness for growers to invest in their own development and future sustainability.

19% of the respondents believed that the industry was being innovative in areas such as marketing, joint ventures and efficiency improvements. A concern was highlighted where 15% of the respondents believed that innovative practices within the industry were un-coordinated and 25% of the respondents felt that information relating to innovation was only being circulated to a selected few with too much politics blocking the free flow of information. 4% of the respondents are of the opinion that there is a lack of funding or research centres that could support and develop real innovative techniques that could be to the benefit of the industry as a whole. Reference was made to other industries such as the South African Sugar Association that are tied into research centres that help develop the industry and the profitability of the grower.

Figure 12: Innovation requirements for industry



For areas where industry innovation is required, Figure 12 shows that respondents believed that further market development was required within the industry to ensure sustainability and protect the trading price of the nuts. There was also the feeling that a stronger focus is required towards more innovative planning and processing procedures. Growers further believe that with regard to the planning and processing procedures, industry standards need to be developed against which the industry can benchmark itself. This would possibly reduce the amount of politics and also remove some of the perceived suspicion that appears to exist within the industry.

Respondents generally felt that innovation is required across the entire business highlighting areas such as the development of better methods to determine nut quality. A small percentage of the population addressed a concern in the lack of innovation towards alternative energy and mechanisation to reduce operating overheads.

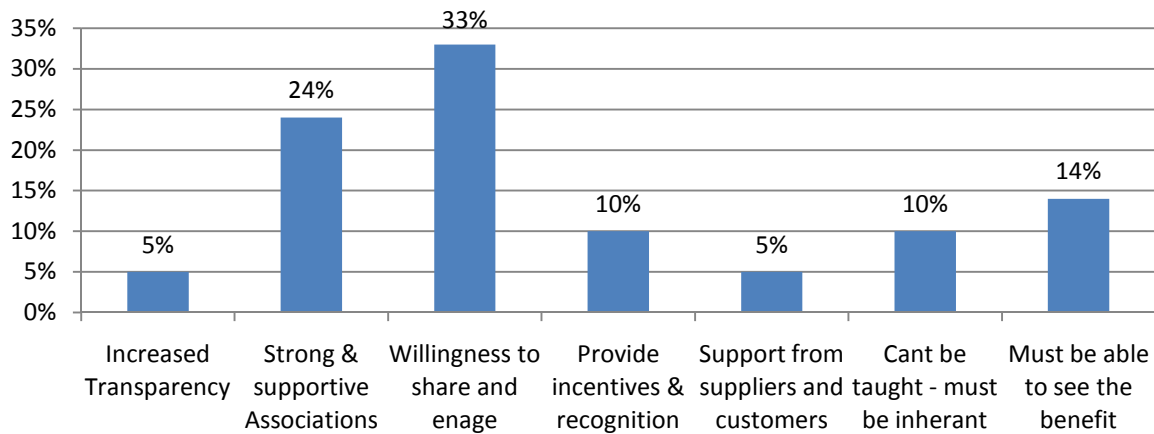
Growers would like to see the industry taking a collective interest in pursuing some of these initiatives to the overall benefit of the industry rather than a select group of growers banding together for their own benefit.

To support such innovation growers believe that industry should be pursuant of government and associations to solicit such support. An example of this is the 14% of the population that would like to see innovation downstream of the processing to increase the value add at a local level, providing job creation and an increased revenue within local communities.

73% of the respondents believe that a grower should be both a leader and an innovator, however as one respondent put it “the industry must be cautious not to become over innovative” as too much innovation in an unstructured environment could become costly to the grower and the industry alike. Only 9% of growers believed innovation to be more important than leadership, where the need to improve current practices outweighed the need to influence others towards an objective or goal.

This does highlight an individualistic trait that may be as a result of insufficient peer or industry support. Alternatively it could be in line with the 18% that are of the opinion that growers need not be a leader or an innovator in today’s environment. This suggests that this segment of growers would most likely be the followers of another person’s innovation which in turn links back to the day to day needs-based management style that happens on farms.

Figure 13: Methods to develop innovative thinking in growers



When the interviewees were asked as to what they believed could be done to develop innovative thinking amongst growers, two major areas were identified. The first was to encourage willingness amongst growers to share information and engage one another and the second was to have strong supportive associations that could lobby for assistance on behalf of the growers and help better inform growers of new and emerging ideas. Interestingly

Figure 13 shows that only 5% believed that suppliers should be playing a greater role in the development of innovative thinking amongst growers and 10% of the interviewees felt that innovative thinking is inherent and cannot be taught.

It is an interesting point to note that in

Figure 13, growers expressed the need for innovation in the supply of cheaper alternatives however only 5% believe that suppliers should be playing a greater role in innovation. This may suggest that the connection between the manufacturing source and the grower has sufficiently distanced itself through an extensive supply chain comprising of agents and distributors that growers no longer perceive manufacturers to the industry as a valuable contributor towards innovation.

5.2.1.3 Innovative leadership

In the research an *innovative* leader was defined as “a person who is a dedicated, passionate, and visionary individual who can think and act boldly” (Anthony 1998). While 35% of the respondents believe they follow this practice in their operations the remaining interviewees believed they were more than lacking in this area. Although they look to the industry to support this form of development through other resources like public leadership and business development, they see few examples of true innovative leadership and very little encouragement towards innovative leadership within the macadamia nut industry.

If one refers to more mature macadamia markets like Hawaii one sees how the government, the industry and its stakeholders invest in new technologies and innovative practices. Industry leaders have united to form research centres to develop leadership and innovation practices and to enable growers to work together to identify and develop new market opportunities (University of Hawai'i 2012).

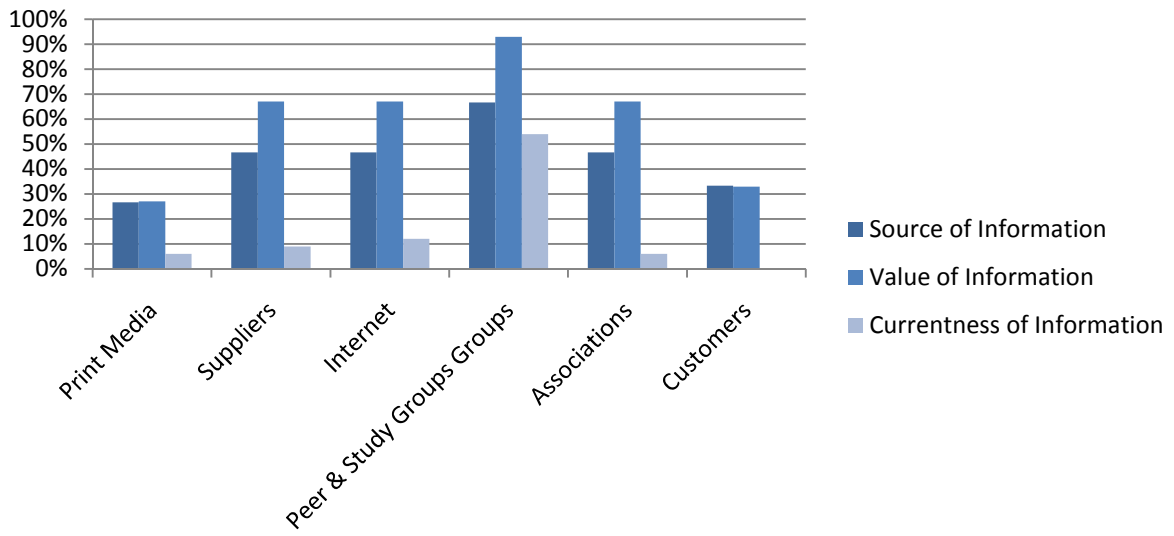
5.2.2 Accessibility of Information

When analysing the data regarding what information drives the decision making process, it is evident that the most practiced methodology appears to be to follow what others are doing, whether through peer or study groups. This is followed by reviewing and analysing existing technologies and then modifying those to better suit the needs of the grower. A limited number of respondents demand further information regarding process and procedural information which they then apply to their operations. With regard to relying on or further investigating new technologies, a small amount of respondents actively pursue such practices.

The fact that a grower is willing to digest and filter out aspects of technologies to best suit their needs is a positive trait, however the reluctance due to a lack of skill or

interest to undertake further additional research, may place them at risk of applying a less effective or more costly solution.

Figure 14: Perceptions regarding information



In identifying sources of information peer groups are favoured by 67% of the population as seen in,

Figure 14. 47 % actively make use of suppliers as well as the internet followed by associations as a source of information. Very few respondents use their customers or print media as reliable sources of information. When compared with the types of information used by the growers there is a clear trend of gathering information from fellow growers, particularly through peer and study groups as shown in

Figure 14, and then following those practices.

When analysing the value perceived from each of the sources identified,

Figure 14, showsthat 93% of the growers felt that the peer groups provide the most valuable information. There was a 67% response where the internet, associations and suppliers respectively were rated as useful sources of information. Print media and customers were rated as a neutral source of information.

In terms of staying abreast of current technology,

Figure 14 shows that 54% of the respondents rely on their peer and study groups. Associations are only relied upon by 6% of the respondents which is similar to that of journals and other global resources. Interestingly only 12% rely on the internet as a source that can keep them abreast of current technology.

In terms of additional research regarding new ideas or technologies only 41% responded favourably, with a further 18% of the individuals following from the learning's of others, while 18% of the respondents will implement trials based on the initial research without undertaking any further research on the idea or technology.

5.2.3 Readiness of Growers

Of the participants, 40% had a moderate appetite for innovation, 20% had a high appetite for innovation with the remaining 40% claiming a very high appetite for innovation.

43% agreed that as individuals they had room for improvement as leaders. These feelings were largely centred on getting out and involved in the industry and engaging more with other growers. 30% of the sample group believed that the industry needs to develop its leadership capability to support growers in training and mentoring programs. In addition they feel industry should provide more alignment through standards and operating principles in order to reduce the fragmentation and politics that are preventing industry leaders from playing a more public role.

It is this percentage of the population that believes that a strong industry leadership will reduce the need for strong individual leadership thereby enabling stronger and better on-farm management where growers can leverage more from the industry.

82% of respondents believe they are not sufficiently knowledgeable or practiced in the latest leadership techniques. 27% of that population follow their gut instinct and 18% are unsure of either the concept or the benefits of staying abreast of developments in leadership techniques. 55% of the respondents believe they are in the process of developing themselves but have no standard or direction against which to measure themselves.

In terms of readiness for innovation 9% of the respondents are not ready for any innovation. A further 64% have a moderate readiness but are concerned about long term sustainability, as well as the lack of industry standards. They also feel that they are time constrained and lack the capacity to implement innovative ideas or techniques.

71% of the respondents believe that they do have what it takes to lead their organisation; however the rest of the interviewees believe that they have the potential but need assistance. A concern emerged regarding resource capacity where time and funds are not freely available to enable individual development of this nature.

If innovative leadership is becoming more important to the sustainability of the industry then only 14% of the sample population believe that they are prepared for the challenge with 29% feeling that they are in the process of developing themselves.

The remainder of the interviewees expressed concerns over their ability and adaptability to change largely due to inexperience in leadership and innovative techniques supported by a current climate of complacency within the industry. This complacency can be due to the fact that macadamia prices are currently at a high (Department of Agriculture 2011) and that there is no perceived need to change existing practices or behaviours.

The greater percentages of respondents believe that associations play a critical role in this arena, and need to become more visible and take a leadership role in the industry. This includes a greater amount of positive reinforcement amongst growers and what they are doing, sharing the outcomes of different practices and behaviours and introducing more structured and semi-structured study groups in an open and transparent climate. A large percentage believes that growers need to have a paradigm shift away from the focus being price orientated to becoming more industry centric. The feeling is that if the industry operates as one, then the benefits of price and increased returns will follow automatically.

Chapter Six Discussions

6.1 Perspectives on Leadership

In order to understand the macadamia nut growers' perspective regarding innovative leadership we learnt through the research that growers see innovative leadership as a requirement for farming in the future. 73% of respondents believe that growers need to demonstrate both leadership and innovator qualities to ensure the long term profitability and sustainability of their operations.

Looking at the leadership aspects, we identified that 36% of the respondents identified leadership as being the day to day management of their farming operations wherein they lead their organisation by example. A further element of the sample that felt that they would rather 'follow the pack' implementing the success of their fellow growers. A further small percentage of respondents believe that there is a lack of leadership amongst growers but feel that growers typically are good managers.

58% of the sample believes that inherent characteristics make a leader, where the grower has the ability to visualise the bigger picture and apply strategic thinking. Others are of the opinion that leadership is defined through success, determination and commitment originating from an inherent ability. They believe that this ability cannot necessarily be taught and is only visible when there is a willingness to share what they know with other growers. Respondents linking leadership to success might suggest a lack of self confidence in their ability.

Similarly, thinking that one cannot be taught leadership skills may suggest a fear or insecurity that they lack ability and as such cannot be taught resulting in them abstaining responsibility.

From an industry perspective 62% of the population believe that there is insufficient leadership within the industry and attribute it to the fact that the industry is fragmented and political due to self-agendas overriding an industry agenda. This

may be compounded by the perceived lack of prevailing industry standards. Participants were of the opinion that there is insufficient transparent engagement between stakeholders, and that weak relationships driven by self-agendas inhibit a climate for a consolidated industry agenda which constrains leadership, discouraging existing or potential leaders.

Innovation is largely perceived as a needs driven requirement and although above 40% of the sample believes that they take the initiative the greater percentage follows the innovation of others. Possibly this 'taking the initiative' is with regards to the 'boer maak 'n plan' syndrome where growers are task driven against a need resulting in them having to make decisions on a day to day basis according to the situation they find themselves in. 'True' innovation is probably that which is gleaned as a result of following other more innovative growers which they in turn implement in accordance to how the innovation has proven itself.

With respect to the industry, the growers highlight the need for increased innovation in the planning and processing areas as well as in marketing and the development of cheaper alternatives. Although recognition is given for some innovative progress in certain areas, most believe that more attention is required.

Some of the opinions given to the researcher highlight areas of concern regarding the lack of co-ordination where innovation is concerned and that information is not openly disseminated amongst growers but rather limited to a select few. These opinions lead back to the fragmentation and political environment that has been previously mentioned. Another interesting and notable point is the trend of growers towards following others rather than leading.

65% of the target population believe it is the industry's responsibility to support and develop innovative leadership while the rest feel they do to an extent follow such practices. Inferences gathered through the interviews suggest that growers would like industry to come to them with suggestions and ideas rather than them going to industry with an idea to promote. A clear trend from the research is that growers believe that the industry needs a strong and supportive association that can help

increase the willingness amongst growers who are innovative and demonstrate strong leadership to share and mentor others.

Through interpretation one can see that growers are confident in the manner in which they operate their farms and to an extent do lead their operations. It is important to understand how distinctively different the agricultural environment is when compared to a typical commercial environment specifically in the context of leadership where unskilled and uneducated labour dominate the workforce. There is a strong tendency for growers to follow the more successful and visible growers in their styles, techniques and practices. There is clear opinion regarding the industry that growers typically find it political and fragmented without a clear agenda or set of standards against which the growers can align themselves.

As growers predominantly see innovation as a needs based activity, unless they as individuals see a need to innovate or unless industry can validate a need and demonstrate its benefits, innovation may not be the preferred mechanism to transform existing practices. This 'why change what works' mentality might well sustain a grower and an industry for a period, but without constant innovation and improvement, it will not be possible for the grower or industry to stay abreast of all the new quality and production methods being introduced globally.

In commercial ventures competition is fierce so organisations and industries need to react quickly to a change in the environment. In agriculture there are fewer competitors and the industry appears to respond more slowly rather leaving change to the next generation. Looking at the overall movement of agricultural based attitudes, the benefits of innovative leadership must play an important role in the building of time and resource capacity of a grower to seek out alternatives relevant to their operation.

The research highlights a strong reliance of the grower to the industry which is concerning from several aspects. Firstly, as the industry grows, a lack of cohesion through self-agendas within the industry has the potential to create or widen a rift in the industry which could potentially lead to fragmentation. Secondly the notable

visible lack of clear standards and industry agenda lends itself to an industry with no clear direction or objective. The third concerning aspect is the growers' tendency to follow their peers rather than to lead them.

6.2 Accessibility of information

In determining the effect that accessibility of information has on the innovative behaviour of the macadamia nut grower we see that the larger percentage of the population relies on what other growers are doing, drawing their information largely from peer and study groups. Understanding the growers' perceived value of the information obtained we again see the highest percentage being derived from peer groups which is further supported by associations, suppliers and to a small extent the internet.

Less than 50% of the sample do additional research on the initial information gathered and only 18% pursue trials against such information or technologies derived from the peer and study groups. It therefore becomes an imperative to ensure that these channels are not only current but also effective in their information transfer of not only the information but also of the perceived benefits.

Consideration must be given to the previously mentioned industry climate where there appears to be gaps that may contribute or inhibit effective dissemination of information. Grower comments regarding associations and the sharing of information only to a selected few present a challenge to the industry when growers are largely dependent on them for information. It should also be important that the information provided through these channels be free of bias and self-agendas.

Understanding that the peer and study groups comprise of growers and association representatives who use the industry as one of their primary sources of information, reinforces the perception of growers that within the existing climate that both industry and associations have an inherent responsibility to the grower.

6.3 Readiness of Growers

All growers interviewed are interested in innovation and 93% perceive value in innovation which is an encouraging and motivating position for the industry. Although 60% have an appetite for innovation which is above high (4) on a five point

scale, less than one third of the population are in a position to pursue innovation. One of the key drivers inhibiting grower innovation is a concern over long term sustainability.

With no prevailing standards and a common industry agenda, growers are concerned that an industry fragmentation might result in a split. This split could result in unhealthy competition driven by own agendas rather than a free market system. As one participant stated “the industry must retain profitability and ensure sustainability.”

To increase preparedness for innovative leadership most of the growers believe that they have the potential and the ability to adapt but realise their limitations. To support their process growers strongly believe that the industry and the associations need to play a greater and more involved role in the growers’ community. Growers identified an explicit need for the industry to consolidate and provide guidance to the growers through more formal training to help them develop themselves.

Growers feel that a stronger structured form of engagement and discussions amongst stakeholders is needed to change mind-sets. This would encourage openness and transparency which will result in a unified industry that can provide fresh new ideas and practices.

It was also noted in the research that growers cannot improve their operational capabilities by not getting involved or associating with their fellow growers. Irrespective of possible fragmentation and political agendas that may prevail within the industry, it should not be acceptable for a grower to insulate themselves from the macadamia community and be blameful of others.

The drivers behind these opinions are in the realisation that growers are inexperienced in the how and why of innovative behaviour and although they express a willingness to adapt, change and innovation do involve time and effort on their part and are dependent on assistance from those who are more experienced. These drivers are compounded in that growers feel there is little access to fresh

information and little visible leadership to encourage and motivate the industry and themselves as growers.

6.4 Additional Insight

At the conclusion of each interview the interviewee was given the opportunity to add comments on the interview and to provide any additional insights they might have. A consolidation of these comments showed that 33% were of the view that associations are not adding true value, 21% stress that the politics within the associations was an issue and a further 21% believed that there were too many self-agenda's and power plays in areas of importance that were fragmenting the industry.

These results speak to the degree with which growers are currently concerned about the current state of the industry and its sustainability considering that it is for most both their conduit for guidance, support and information in all aspects of their operation as well as being the determiner of their degree of profitability as this industry is their sole route to the market place. Growers need to be cautious that they are not perceived to be complacent, inadvertently electing to place a significant amount of responsibility and accountability on the industry and its associations providing them an opportunistic out if and whenever required.

Chapter Seven

Conclusions and Recommendations

Research regarding leadership and innovation in the macadamia nut industry in Kwa Zulu Natal and Mpumalanga identified that growers see value in strong leadership as well as innovation. They further identified a number of areas that are of concern to them as growers.

- Growers recognise the need for self-development in the area of innovative leadership as they see themselves as having limited knowledge or experience in this arena.
- Growers look clearly to the industry for guidance and support in the development of both the growers and the industry towards a more profitable and sustainable future, including guidance regarding innovation.

Growers typically thought that they were able to keep up to date with current information, albeit through other growers and study groups. Concerns were raised over how well information was circulated through the industry to growers. This was directly linked to the fragmentation and political environment within the industry where self-agendas may be limiting the flow of information.

With respect to growers' readiness to embrace innovative behaviour there was a distinct opinion amongst growers that although they want to see and participate in innovative activities there are many inhibiting factors which are described in Table 2.

These inhibiting factors have been identified as preventing growers and the industry from being leaders and becoming more innovative.

Table 2: Grower needs & inhibitors

	Inhibitors																						
	Structure			Strategy				Communication					Reward & Recognition										
	Fragmented	Political	Self-Agenda	Responsibility	Accountability	Clear Direction	Clear Objectives	sustainability	Industry Standards	Guidance & Support	Increased involvement	Transparency	Information Transfer	New Information	Relevant Information	Current Information	Communication	Proven Benefits	Engagement & Relationships	Recognition	Funding & Incentives	Mentoring	Motivation
Visible Leadership	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
Willing Leaders	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Leadership Development				Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Encourage Leadership				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Want to see innovation						Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y
Apetite for innovation						Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Strong Association	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Value from Associations	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y					Y
Willingness to Lead	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peer Groups			Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Study Groups		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y							
Industry Cohesion	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y
Constructive competition	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y		Y		Y					
Sustainability	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y				
Increased Experience						Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y
Latest Technology										Y		Y	Y	Y	Y	Y	Y	Y	Y				
More Information	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y				
Adapt to change						Y	Y	Y	Y				Y	Y	Y	Y	Y		Y			Y	Y
Grower Responsibility	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					Y	
Grower Accountability	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y				

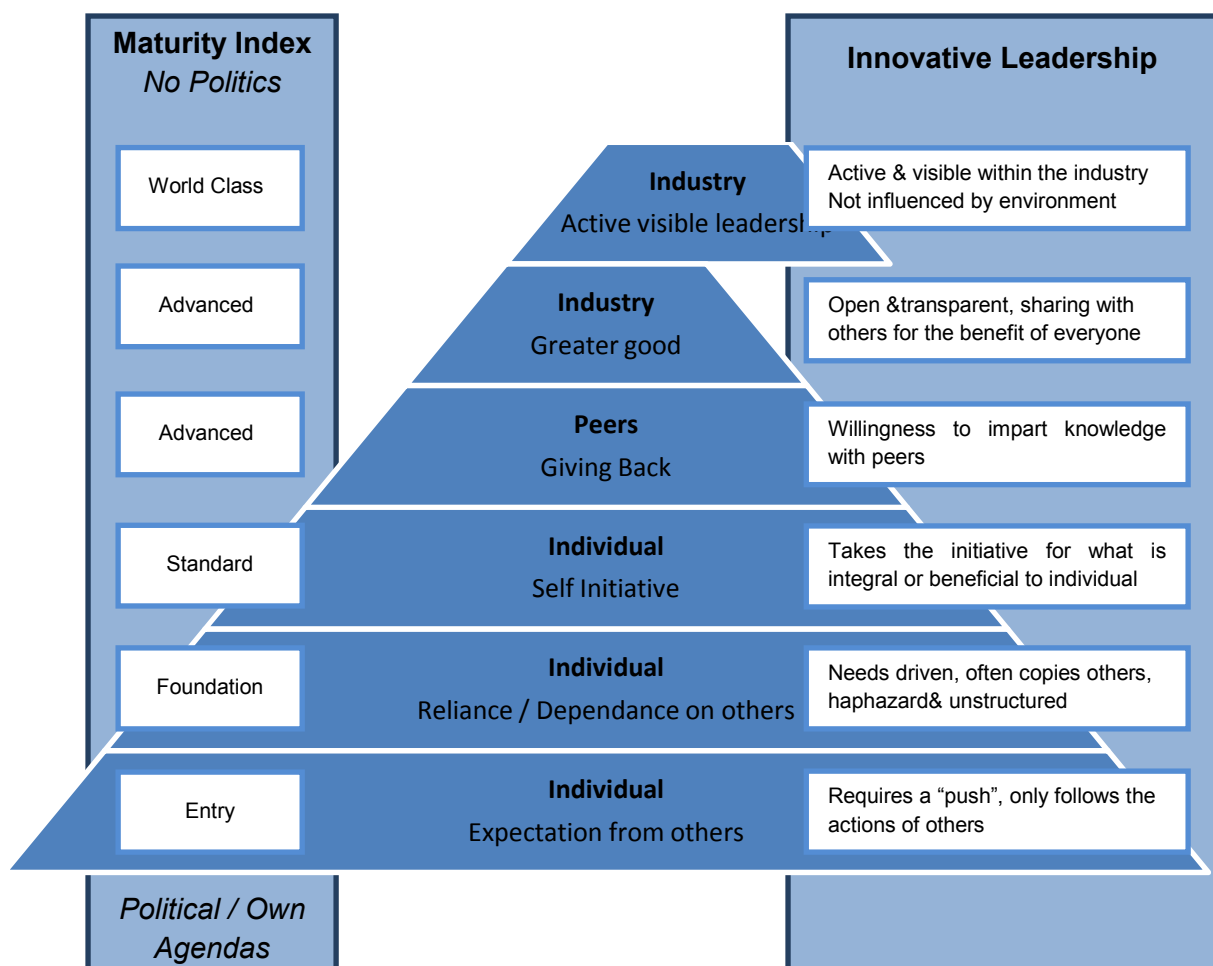
Table 2, demonstrates the complexity facing growers and the industry alike in an environment comprising of a variety of stakeholders with different opinions and agendas. It is important to note that there appears to be a common objective between the various stakeholders which is to have a profitable and sustainable industry. There does however seem to be a number of different roadmaps on how to achieve this and it is these differences of opinion that add further complexity to the macadamia nut industry and the behaviours of its stakeholders.

A further barrier to this is the perception that information is not shared equally throughout the industry or community. Even if there are roadmaps or plans, the macadamia community do not necessarily know what they are and there is no synergy between them.

Before innovation can be addressed within the macadamia industry, this research has demonstrated that some underlying issues need to be addressed. Among the identified inhibitors there are a number of procedural and structural concerns that growers and the industry need to take cognisance of. More importantly are the behavioural aspects that drive many of the identified issues, preventing the required level of leadership and innovative behaviour within the macadamia nut industry.

Based on the research data the researcher has developed a pictorial model, Figure 15 which provides an insight on how growers perceive innovative leadership in the context of the growers and the industry and the level of maturity required of the industry and its stakeholders.

Figure 15: Behavioural Model for Innovative Leadership



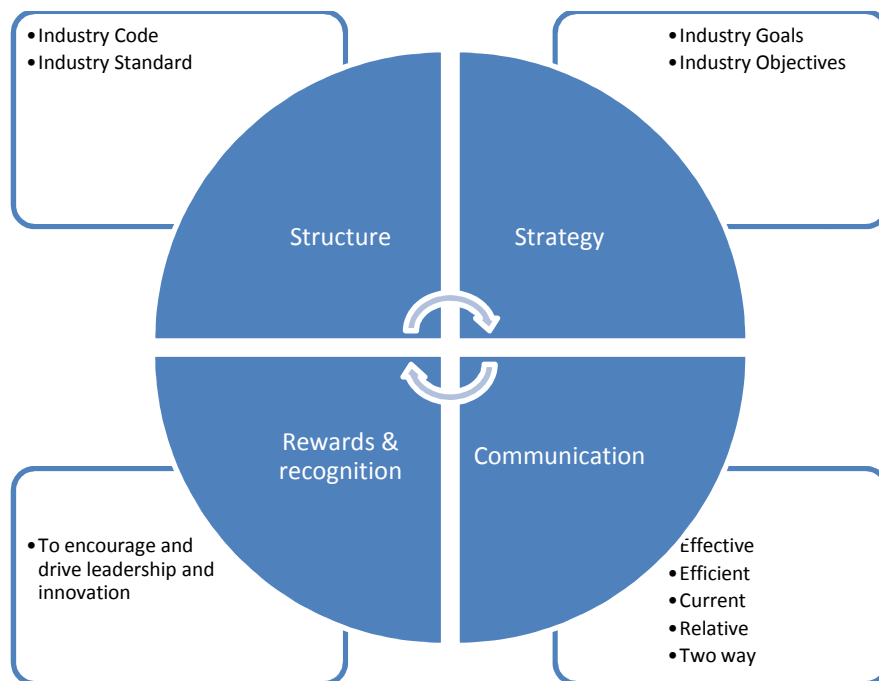
According to the research undertaken, to enable effective leadership and innovation within the macadamia nut industry, growers and the industry alike need to address these inhibiting factors.

The objective of the recommendations is to move the grower up the maturity matrix from the entry and foundation level as described in Figure 15, to a more advanced or world class position. To achieve this, growers need to be enlightened regarding the benefits and value of innovative leadership to both themselves and the industry and need to be developed in a sustainable method that can evolve with the industry.

Some fundamental basics are however required within the industry to provide a foundation that will motivate individuals to embrace and follow the concept.

The fundamentals required by industry have been segmented into four key areas defined in Figure 16. Although each area will be discussed individually they are not mutually exclusive and as such the reader should review them holistically in order to realise the full benefit.

Figure 16: Focus areas for the Macadamia nut Industry regarding innovative leadership



7.1 Structure

In an industry perceived to be political and driven by self-agendas there is a threat of fragmentation, which could destabilise the industry and affect its long term sustainability. These behaviours are seldom intentional but are typically as a result of a lack of cohesion or common understanding within the industry sectors where there is no clear direction. Hassan et al. (2008) suggests that behavioural characteristics of this nature often discourage existing, new or emerging leaders from embracing leadership roles as individuals or within the industry and erodes confidence in leadership as a concept.

To address these behavioural attributes it is proposed that a behavioural framework be developed containing several aspects that will hold individuals accountable for their behaviour and conduct:

Table 3: Behavioural Framework

Aspect	Description	Outcome
Behavioural	Code of conduct	To set a level defining the ethos and integrity of the industry
	Code of trade	To define the trading environment of the industry and all its stakeholders
Quality	Local Standard preferably linked to international standards	To set the benchmark for the industry on how quality is defined, measured and achieved
Processing	Defined methodologies, calibration standards,	To have defined processes where the method is understood and the parameters measurable to ensure reliability and consistence to the industry

The behavioural framework should provide guidelines to the industry and its stakeholders, in order to encourage fair and ethical behaviour within the industry by its members thereby creating a more pleasant and cohesive environment. The framework should set guidelines for role-players on how to manage conflict and differing opinions so that politics and self-agendas are minimised for the emergence of a more constructive and effective industry that demonstrates unification. Through this process stakeholders should begin to hold one another accountable for their behaviour and with that create an increased sense of responsibility within the industry.

A behavioural foundation enables the building of respect and a need by individuals to engage others and where trusting relationships are built amongst the stakeholders free of retribution. This should create an environment that will encourage active participation by individuals and invoke innovative leadership.

A quality standard is required within the industry to provide a baseline benchmark for operational standards such as nut quality and approved processes.

Defining these methodologies through a standard will provide clarity to the industry and its stakeholders, minimising disputes and conflict within industry segments while still allowing organisations the opportunity to produce nuts to a higher quality. Against such a standard organisations will be entitled to analytically differentiate themselves and their level of quality in the market place but will provide consistency regarding operating processes and practices within industry.

A benchmark of this nature helps develop the maturity of the industry allowing growers and the industry to continuously improve. Innovative leadership plays a key role, as the maturity of the industry increases so does the willingness to share and impart knowledge for the great good rather than for the pursuit of self-gain.

7.2 Strategy

Setting a strategy that defines the goals and objectives for the industry is a difficult and complex task as each stakeholder and organisation within the industry will have their own strategy or ideas on strategy. There should however be an industry strategy of where everyone is headed and where the South African Macadamia industry wants to position itself with for example, government, with foreign countries and with global organisations like GAP (Globally Accepted Practices) amongst others.

The strategy needs to look at the bigger picture issues regarding for example, food quality, climate change, innovation and leadership amongst others and not necessarily to look at which markets need to be targeted. An industry strategy is important to provide the stakeholders with an understanding of what the industry wants to accomplish and how it intends to achieve it.

This is an important aspect of developing innovative leadership within the industry as it would be preferred to have industry leaders that are conversant in the industry's direction and who are motivated to work for the common good of the industry. A lack of such clarity can result in a differing of agendas amongst the leadership which could be perceived as fragmentation.

7.3 Communication

Communication is vital to increasing the maturity level and leadership within any industry and in the macadamia nut industry where it is perceived to be politically driven by self-agendas it may be perceived as an indictment on their communication network. It is therefore important for the industry to assess its communication network with respect to its strategy and mechanisms for information transfer and dissemination.

Peer groups are currently perceived as the preferred mechanism for this and although they are respected by most stakeholders, one might question their effectiveness if a person is not a peer group member or attendee.

It must be considered that the dissemination of information needs to be freely available and accessible wherein stakeholders can elect what information they seek.

Information must be current and relevant to stakeholders if they are to derive any real benefit or value and the industry must remain vigilant of its ethical responsibility to ensure that information is factual and not speculative.

For an industry to increase its level of maturity and invoke strong leadership, efficient and effective information and knowledge transfer is critical. The mechanisms used need to encourage feedback in order to increase validity and promote internal discussions amongst its stakeholders in a constructive manner.

An effective communication strategy will keep industry stakeholders informed regarding the industry and its developments, as well as how it is addressing and meeting the challenges facing it. Information transfer can be seen as the critical component to developing the maturity of the industry through encouraging knowledge and skills development in a transparent and constructive manner. The development of stakeholders builds the level of confidence within the industry and its leadership.

7.4 Reward and recognition

All people are motivated in one form or another. This research emphasises profitability as one of the motivators to growers, which is important to the long term sustainability of the industry. Other motivators, in the form of rewards and recognition, need to be identified in order to recognise accomplishments within the industry which involve the development of the industry.

The objective of such a program should be linked to the goals and objectives of the industry strategy where organisational and individual accomplishments are recognised. Such achievements should be targeted towards improving the maturity of the industry encouraging and motivating industry members to raise the benchmark.

Rewards of this nature can pull an industry together where individuals and industry alike can constructively compete or work together to the overall benefit of the industry. Strong programs of this nature will help grow the maturity of the industry, encourage innovative leadership amongst its members and increase the desire of complimentary industries to get involved through the emergence of new opportunities.

7.5 Implementation

The recommendations provided in the four areas above address the factors inhibiting innovative leadership within the macadamia nut industry as defined in this research and provide a guideline for the industry to increase its maturity level.

Identifying the key areas is one aspect, implementation is another. We know that growers need to step up to the plate as leaders and actively take responsibility for their future and that they require the assistance of industry to achieve this. We also understand that the industry is perceived to be fragmented and politicised with no clear leadership and associations are often criticised for not adding value to the industry. Respondents were however clear in their opinion that a strong value adding association is vital to the industry.

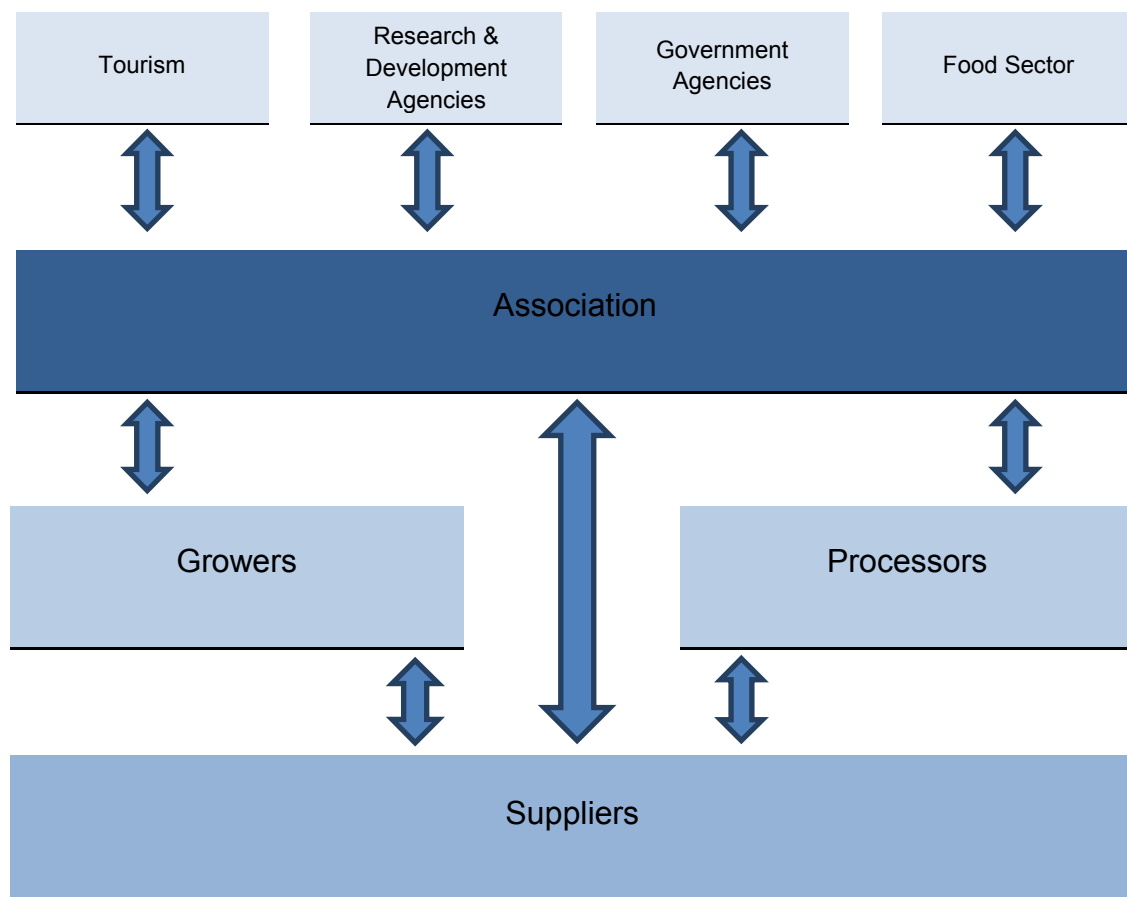
Using the research data to understand the most effective mechanism industry could use to implement these recommendations the research agent was able to identify the industry as having a number of key areas:

- a) Growers – farms where the nuts are grown
- b) Processors – organisations that process the nuts as either a kernel or product
- c) Suppliers – service, material or equipment providers to the industry
- d) Associations – a representative body of the industry
- e) Interested Parties – other enabling industries that service the industry

The objective is to have an independent representative body where there is an independent representative on the committee who is respected and supported by all the stakeholders and, who can introduce new research in this area.

It is suggested that the industry associations should be an entity to facilitate the recommendations due to its independent position within the macadamia nut industry and reposition itself as a pinnacle to the industry as defined in Figure 17 to ensure it is the primary conduit to the industry.

Figure 17: Proposed operating model for the Macadamia Nut industry



From a position of independence the association can push and pull information from the industry and its stakeholders communicating current and relevant information through its feedback. It can solicit resources from interested parties whether it is to promote leadership or innovation, to facilitate research and development or lobby government to support or promote initiatives within the industry.

For this to be achieved the association would need to address the perceptions that the industry and growers have of it and its leadership. It would need to demonstrate its commitment to the industry and its stakeholders and gain their support as its membership.

It is the researcher's conclusion that with the interest shown in participating in the research and the discussion and debate raised as a result, this research would fill the gap identified.

There are a number of barriers that growers have identified that inhibit the process toward strong leadership and innovation within the industry. Although growers believe that the industry needs to address these barriers they do realise that they also have a responsibility but lack the skills to address them, and as such are looking to the industry for the solution.

If the industry elects not to address the inhibiting factors identified, it is feared that over time the politics and self-agendasevident through the research will create a rift in the industry. Elements such as the association that are perceived not to be providing sufficient value may not be able survive an industry rift. The industry may begin to regress on the maturity scale and loose its credibility as an industry and with it its leadership.

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Annexure 1

Request for research assistance

9th January 2012

To whom it may concern

The macadamia nut industry is a young and developing market with a lot of opportunities. As such I have elected to do a dissertation looking at leadership within agriculture with specific focus on innovation leadership in the macadamia industry.

It is the intention of this research to understand the environment within which growers operate in order to provide insight into the leadership practices required to support innovation and the role of the grower as a leader in identifying and developing process or product innovation. As such the focus of this study is to explore innovative leadership in macadamia nut farming through the sub current practices of access to information and readiness.

To achieve these objectives I will be investigating the following elements:-

Understand the perceptions of macadamia nut growers to innovative leadership

Determine the direct effect that the accessibility of information has on innovative behaviour or thinking by the macadamia nut grower

To explore the readiness of leaders to embrace innovative behaviour

As a perceived leader and expert in the macadamia industry it would be appreciated if you could assist me in this research.

I would appreciate it if you could assist me with the following:

A listing of growers within the Mpumalanga and KwaZulu Natal region that I could approach to interview

To ensure fair representation and reduce bias it would be preferred that the list is randomly compiled across a broad spectrum of growers

I would only require the contact name and contact details (Phone number and email address)

The list should contain no more than 20 growers per region

Contact details and your company's written approval of a representative that I can interview from one of your facilities within each of the two regions.

It would be imperative that the candidate interacts strongly with growers and can provide insight towards the elements being investigated.

To ensure the integrity of the research and the findings the identity of all the participants and their specific opinions will remain confidential and not form part of the final document.

As there is a limited time frame within which I have to operate could you please confirm your willingness to assist at your earliest possible convenience as I would require the relevant listing by the 27th January 2012.

I firmly believe that this research will positively contribute to the industry and look forward to a favourable response and the opportunity to work with your company through this process.

Kind Regards

A handwritten signature in black ink, appearing to read 'Robert Carlton-Shields', written over a light blue horizontal line.

Robert Carlton-Shields

E-mail: Robert.fairview@w2k.co.za

Annexure 2

Interview / Questionnaire - Growers

General information

Growers Name:

Farm Name:

Contact Details

Email:

Tele No:

Background information

What is your background experience in farming? [**Family farm / different crop / brand new farmer**]

What qualifications / education do you have in farming? [What they consider is important]

How did you get into farming macadamias?

Categorising

Location of Farm:	KZN	Mpumalanga	
Size of Farm:	Small	Medium	Large
	<50ha	51-99ha	>100ha
Ave Age of Trees:	0-8Yrs	8-12Yrs	>13Yrs
Dehusking Facilities:	Yes	No	
Storage Facilities:	Yes	No	
Drying Facilities:	Yes	No	
Other Facilities:	Yes	No	

Definitions

Innovation

An innovation is something new. For example, it can be a new cultivar variety, composting, or the use of new tools. Some innovations are developed by the farmers themselves, like herbicide made from local plants and others may come from outside, like chemical fertilizers. We also call it an innovation if you try new planting times or change the spacing of crops compared to what you used to do. So an innovation is anything new you are doing on your farm and we are interested in both self-developed and obtained innovation. (Reij & Waters-Bayer 2001)

Leadership

...the process of influencing the activities of an organised group in efforts towards goal setting and goal achievement (Khalil et al. 2008)

Innovative leadership

An *innovative* leader is a person who is a dedicated, passionate, and visionary individual who can think and act boldly. They enable maximum effective creativity from followers to achieve remarkable breakthroughs getting people to attack things they've previously only longed for and dreamt of (Anthony 1998).

Questionnaire

Understand the perspective of macadamia nut growers to innovative leadership

Leadership - Individual level

- Using the definition above how would you relate being a **leader** to yourself as a grower? [give examples of why it does or does not apply to you]

- Using the definition above how would you relate being **innovative** to yourself? [give examples of why it does or does not apply to you]

- Using the definition above how would you relate being an **innovative leader** to yourself? [give examples of why it does or does not apply to you]

Leadership - organisational level

- What do you believe, makes a grower a leader or not?

- Is it necessary to be a leader as a grower?

- Do you believe the industry has adequate leadership? [give examples]

- What recommendations would you make to the development of leaders in the Macadamia nut industry?

Innovation

- Do you believe growers are currently being innovative? [give examples]

- Do you believe the industry is currently being innovative? [give examples]

- In what areas is innovation required for the Macadamia Nut industry?

Innovative Leadership

- Do you see a grower's responsibility to be either as a leader or an innovator, or can they be both? [explain]

- How would you propose that innovative thinking be developed in farmers?

To determine the direct effect that the accessibility of information has on innovative behaviour or thinking by the macadamia nut grower

- On a scale of 1-5 what type of information do you as a grower depend on when making decisions?

1	2	3	4	5
None	Low	Moderately	High	Very High

	Rating
Processes & procedure information	
Existing Technology	
New technology	
What others are doing	

Management or leadership information	
Behavioural information	

- On a priority scale of 1-3 from where do you typically obtain information on (new) ideas or concepts?

	Order of Priority
Print Media	
Suppliers	
Internet	
Peer groups	
Associations	
Customers	

- How would you rate the value of information received from the following sources: [useful – neutral – not useful] [have access to or not]

	Access / not	Useful	Neutral	Not useful
Print Media				
Internet				
Peer Groups				
Associations				
Suppliers				
Customers				
Other				

- How do you currently stay abreast of current technology?

- Having gathered initial information on a new technique or technology – (i) do you gather additional research; and if so (ii) as a percentage how often would you say you then implement the new technique or technology?

To explore the readiness of leaders to embrace innovative behaviour

Interest in Innovation - Individual

- Does hearing about innovations interest you?

Yes	No
-----	----

- Is there value in innovative behaviour for you as a grower?

Yes	No
-----	----

- How would you describe your appetite for innovation?

1	2	3	4	5
None	Low	Moderately	High	Very High

- How ready or prepared do you feel you are to pursue new innovations (either with further research or investing in new techniques or technologies)?
-
-
-

Leadership

- Do you believe that you have what it takes to lead your organisation?
-
-
-

- Do you see areas for improvement within yourself regarding your leadership ability?
-
-
-

- Do you believe you are sufficiently knowledgeable and practiced in the latest leadership techniques?

Innovative Leadership

- If innovative leadership is becoming more important to the future sustainability of this industry – how prepared are you for the challenge? [knowledge / practice]

- How would encourage other farmers in the Macadamia nut industry to behave in more innovative ways?

Comments:
