

Perceptions of Smallholder Farmers on Determinants of Competitiveness of the Citrus Industry in Vhembe District, Limpopo Province, South Africa

Azwihangwisi E. Nesamvuni¹, Khathutshelo A. Tshikolomo^{2,3*},
Ndivhudzannyi S. Mpandeli^{1,4} and Lindelani Makhuvha¹

¹University of Venda, Private Bag X5050, Thohoyandou, 0950, South Africa

²University of South Africa, Private Bag X6, Florida, Johannesburg, 1710, South Africa

³Limpopo Department of Agriculture and Rural Development, Private Bag X9487, Polokwane, 0700, South Africa

⁴Water Research Commission of South Africa, Private Bag X03, Gezina, 0031, South Africa

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ABSTRACT The study analysed the extent to which various attributes served as determinants of competitiveness of the citrus industry based on perceptions of smallholder citrus farmers in Vhembe District of Limpopo Province, South Africa. Porter diamond model provided the framework for analysis. Only two of the six attributes of the model were perceived determinants of industry competitiveness, namely, related supporting industries (rating=3.71) and demand conditions (3.58). However, some ten factors from all the six attributes were perceived to be important determinants of competitiveness of the citrus industry, namely, market growth (rating=4.10), crime (3.82), electricity supply (3.79), financial institutions (3.76), labour policy (3.75), capital availability (3.71), interaction and support (3.68), fires (3.67), supply of packaging material (3.67), and pricing strategy (3.66). Investments in any industry in the agricultural sector should be based on its competitiveness. The respondents were in overall uncertain regarding the status of the rest of the attributes as determinants to increase competitiveness of the citrus industry.

INTRODUCTION

The perceptions of people on an issue reflect the amount of knowledge possessed and have a strong influence on decisions made regarding that issue (Tshikolomo 2012) and is therefore an important aspect of socio-economic research. A lot of expert scientific knowledge remains insufficiently used (Hermans 2008), and such should be explored and integrated with stakeholder perceptions to produce valuable knowledge for improved productivity. Stakeholder perceptions are influenced by local based traditional knowledge and are critical to respond appropriately to community needs (Tshikolomo et al. 2012). The acquisition of new knowledge and subsequent development of knowledge based perceptions may be achieved through approaches such as participatory process of social learning (International Council for Science

2002; Gunderson and Light 2006). As stated by Bandura (1977), the concept of 'social learning' refers to learning by observing others and their social interactions within a group. The study targeted smallholder farmers producing citrus in the Vhembe District which forms part of the Limpopo Province of South Africa. A comprehensive discussion of the perceptions of the farmers on factors determining competitiveness of the citrus industry requires understanding of the concept 'competitiveness' and availability of some framework that guides the structure of such a discussion.

Competitiveness

The word 'competitiveness' is a derivative of 'competitive' which means: (a) having to do with competition, (b) strongly wanting to be more successful than others, and (c) as good as or better than others of a similar nature (Oxford 2002). As documented in Oxford (2002), competition is defined as: (i) the activity of compet-

*Address for correspondence:
E-mail: sylvesterm@wrc.org.za

ing against others, (ii) the occasion in which individuals compete, or (iii) the person or people with whom one is competing.

The concept of competitiveness also includes (a) the ability to supply goods and services in the location (Freebairn 1986; Institute of Mathematical and Economical Sciences Applied 1999); (b) the capacity to develop and deliver goods and services to worldwide markets, while guaranteeing increasing levels of real income as well as investment (Petit and Gnaegy 1994); and (c) a situation where an industry acquires a bigger market share through increased earnings and persistent growth (Esterhuizen 2006).

Guiding Framework - Porter's Diamond Model of Competitiveness

The study adopted Porter's (1990) diamond model of competitiveness to guide the investigation. The model was built on four attributes, namely: (a) Firm strategy, structure and rivalry - the conditions in the nation governing how companies are created, organised and managed, as well as the nature of domestic rivalry; (b) Factor conditions - the nation's position in factors of production, such as skilled labour or infrastructure, necessary to compete in a given industry; (c) Demand conditions - the nature of home-market demand for the industry's products or service; and (d) Related and supporting industries - the presence or absence in the nation of supplier industries and other related industries that are internationally competitive.

The role of government is best viewed in terms of its impact on the other determinants of competitiveness rather than a separate determinant. According to Porter (1990), government's appropriate responsibility is to be an enabler, to boost business to increase their targets, and to improve competitive performance. The inherent measure of being competitive belongs to entrepreneurs; government only provides the environment for business to thrive.

As explained by Esterhuizen (2006), each point on the diamond, and the diamond as system, affects essential ingredients for achieving international competitive success. Such ingredients include; (i) resources and skills necessary for competitive advantage in an industry, (ii) information that forms the opportunities that companies perceive, (iii) directions in which

companies position their resources and skills, (iv) goals of the owners, managers and individuals in companies, and importantly, (v) pressure on companies to invest and innovate. Perceptions of the citrus farmers with regards to these ingredients were investigated as part of the major attributes of the diamond model.

Porters (1990) model has been successfully used by several researchers to analyse determinants of competitiveness of various agricultural industries (Ndou and Obi 2013; Nesamvuni et al. 2014; Sinngu and Antwi 2014), and was therefore regarded appropriate for this study. The purpose of the study was to investigate the perceptions of smallholder citrus farmers in Vhembe District in Limpopo Province of South Africa on determinants of competitiveness of their industry.

METHODOLOGY

Research Approach

The study followed a mixed approach that synthesised and amalgamated multi-methods, the quantitative and qualitative approaches (Tashakkori and Teddlie 1998). Creswell (2003), affirmed by Leedy and Ormrod (2010), defined the quantitative approach as an enquiry into a social problem based on testing a theory made up of variables, measured with numbers and analysed using statistical procedures in order to determine whether the predictive generalisations of the theory hold truth. To the contrary, the qualitative approach was defined as an enquiry process of comprehending a social or human problem or phenomenon based on building a complex holistic picture formed with words, reporting detailed views of informants and conducted in a natural setting (Lincoln and Guba 1985; Creswell 2003).

Research Design

Research designs are techniques for collecting, analysing, interpreting and reporting data in research investigations (Mouton 2001) and provide guidelines and instructions to be followed in addressing the research problem (Welman et al. 2005). Central to decisions on research design is the fact that each study can be used to develop a general conclusion on the same challenge though in a different geographic area (Yin 1989; Egbu 2007).

The research designs used in this study included two methods of data collection (1) review of literature that presented mainly qualitative information from scientific journals, books and reports and (2) interviews of smallholder farmers producing citrus using a mainly closed-ended questionnaire associated with quantitative methods (Hurmerinta-Peltomaki and Nummela 2006; Leedy and Ormrod 2010). Based on the two methods of data collection, appropriate classification of the design, type of sampling and data analysis and interpretation were identified (Table 1) as guided by Mouton (2001).

Table 1 shows research design on the study of perceptions of citrus farmers in Vhembe District in Limpopo Province of South Africa on competitiveness of their fruit industry as guided by Mouton (2001).

Data Collection and Analysis

As revealed under research design, data was collected through (1) review of literature and (2) interviews of smallholder farmers producing citrus using a closed-ended questionnaire. A list of all smallholder citrus fruit farmers in Vhembe was obtained from the district database. The smallholder citrus farmers mostly had between 1 and 5ha of citrus fields. Convenience sampling was conducted to draw a representative sample from the entire population based on availability and ease to access. The questionnaire was used to obtain information on opinions, beliefs, convictions and attitudes and was therefore relevant for collecting information regarding perceptions of the farmers on determinants of competitiveness of the citrus industry (Welman et al. 2005).

The perceptions of the citrus farmers were measured using a 5-point Likert scale where a

rating of 1 reflected that the respondent strongly disagreed while 5 showed that the respondent strongly agreed that the factor analysed was a determinant of competitiveness of the citrus industry. As guided by Porter's (1990) diamond model of competitiveness, the questionnaire and the subsequent interviews covered the six attributes: (a) strategy, structure and rivalry, (b) factor conditions, (c) demand conditions (d) related supporting industries, (e) chance, and (f) government as prospective determinants of competitiveness.

Primary data analysis was done using excel and SPSS version. Information on questionnaires was transcribed to readable data into excel, and then transferred to SPSS for analysis. The data was summarised into relevant graphs and tables derived from SPSS. The summarised graphs and tables were discussed based on objective interpretations (Lee 1999; Leedy and Ormrod 2010). Qualitative data mostly from literature was summarised according to its content and main themes addressed and was discussed based on subjective interpretations.

RESULTS AND DISCUSSION

Perceptions on Attributes of Porters (1990) Model as Determinants of Competitiveness of the Citrus Industry

The six attributes of Porters' model were analysed and ranked by smallholder citrus farmers based on the extent to which they served as determinants of competitiveness of the citrus industry. Smallholder citrus farmers agreed on two attributes that served as determinants of competitiveness of the citrus industry in Vhembe District, namely: (1) related supporting industries (rated 3.71) and (2) demand conditions (3.58) (Porters 1990).

Table 1: Research design for study of perceptions of citrus farmers in Vhembe District in Limpopo Province of South Africa on competitiveness of their fruit industry as guided by Mouton (2001)

<i>Method of data collection</i>	<i>Design classification</i>	<i>Type of sampling</i>	<i>Data analysis and interpretation</i>
<i>Literature Review</i>	Non-empirical, secondary, textual data	Non-probability, literature selected based on theoretical considerations	Mainly qualitative analysis with subjective interpretation
<i>Structured Interviews of Citrus Farmers</i>	Empirical, primary, textual data	Non-probability, purposive sampling of employees in supervisory positions	Mainly quantitative analysis with objective interpretation

For competitiveness of the citrus industry to improve, the roles of both the related supporting industries and the demand conditions as determinants of competitiveness should be improved. According to Porter (1990), the farmers were rather indifferent with regards to the roles of the other attributes as determinants of competitiveness of the citrus industry in the district, namely: government support (3.49), chance (3.47), factor conditions (3.30), and firm strategy, structure and rivalry (3.28).

It was noted that the respondents never disagreed on any of the six attributes serving as determinants of the competitiveness of the citrus industry in the study area. Based on the ratings, the smallholder farmers never regarded any of the attributes to be clearly unimportant as a determinant of competitiveness of the industry (the respondents were rather uncertain with some of the attributes).

Detailed Analysis of Attributes of Porter's Model

In order to gain a comprehensive knowledge of the aspects determining the nature of an attribute, the perceptions of the respondents on each of the aspects and hence the perception on the attribute, a detailed analysis was conducted on each of the attributes presented in Porter's model. Based on smallholder citrus farmer perceptions on each aspect, the analysis provided guidance on the aspects of each of the attributes to be improved to induce a positive influence on the attribute as a determinant of competitiveness of the citrus industry in the area under study (Porter 1990).

Firm Strategy, Structure and Rivalry

An appropriate, firm strategy and structure is necessary for any industry to be competitive. The strategy and structure for promotion of competitiveness should take into account issues such as goals of the market and competition with domestic companies (Porter 1990; Nesamvuni et al. 2014). Also, the strategy and structure for promoting competitiveness should include aspects such as price strategy, managerial capabilities, market power of suppliers and market power of buyers (Nesamvuni et al. 2014).

Generally, the respondents were uncertain of the strength of strategy, structure and rivalry (rated: 3.28) as a determinant of competitiveness

of the citrus industry in Vhembe District (Table 2). The respondents agreed on one factor of strategy, structure and rivalry being a determinant of competitiveness of the citrus industry, namely: pricing strategy (rated 3.66). Improvement of pricing strategy would therefore result in improved competitiveness of the citrus industry.

Table 2: Smallholder farmer perceptions on factors of firm strategy, structure and rivalry as determinants of competitiveness of citrus industry in Vhembe District

<i>Firm strategy, structure and rivalry</i>	<i>Rate</i>
Adaptability	3.21
Culture	3.26
Structure	3.46
Flexibility	3.40
Pricing strategy	3.66
Market power of suppliers	3.36
Market power of buyers	3.31
Threat of substitute	2.94
Threat of entrants	2.88
Average rating: firm strategy, structure and rivalry	(3.28)

Key: 1. Strongly disagree; 2. Disagree; 3. Indifferent; 4. Agree; 5. Strongly agree

As affirmed by the general perception of the smallholder citrus farmers on the effect of strategy, structure and rivalry on competitiveness, they (the farmers) were uncertain of the strength of the rest of the factors of this attribute as determinants of competitiveness of the citrus industry. The factors for which the respondents allocated ratings that suggested indifference were adaptability (rated 3.21), culture (3.26), structure (3.46), flexibility (3.40), market power of suppliers (3.36), market power of buyers (3.31), threat of substitutes (2.94) and threat of entrants (2.88).

The factors for which respondents were uncertain of their strengths as determinants of competitiveness may not be accorded priority attention to improve the competitiveness of the citrus industry.

Production Factor Conditions

Production factor conditions provide industries with competitive power over their competitors (Sinngu and Antwi 2014). The production factors include infrastructure, cost of production, sources of water, and labour, and were rated by smallholder citrus farmers based on the extent to which they were perceived to be deter-

minants of competitiveness of the citrus industry. As revealed under discussion of perceptions on attributes, the average score of factor conditions was 3.30, suggesting that farmers were uncertain about the strength of factor condition as a whole as a determinant of competitiveness of the citrus industry. Understanding the type of transformation necessary for production factor conditions to be perceived a determinant of competitiveness of the citrus industry requires a detailed analysis of this attribute (Table 3).

Table 3: Smallholder farmer perceptions on production factor conditions as determinants of competitiveness of citrus industry in Vhembe District

<i>Production factor</i>	<i>Rating</i>
<i>Cost of Production</i>	3.57
<i>Labour</i>	-3.09
▪ Cost of unskilled labour	3.33
▪ Quality of unskilled labour	3.14
▪ Availability of unskilled labour	2.99
▪ Cost of skilled labour	3.24
▪ Availability of skilled labour	2.57
▪ Administration cost associated with labour matters	3.24
<i>Insufficient Source of Water</i>	3.01
<i>Infrastructure</i>	-3.56
▪ Quality	3.58
▪ Availability	3.54
<i>Capital</i>	-3.64
▪ Cost	3.56
▪ Availability	3.71
<i>Lack of Knowledge</i>	3.27
<i>Lack of Technology</i>	3.45
<i>Average Rating</i>	-3.37

Key: 1.Strongly disagree; 2. Disagree; 3.Indifferent; 4.Agree; 5. Strongly agree

Although respondents were indifferent on production factor conditions in general being determinants of competitiveness of the citrus industry in Vhembe District, they perceived some of the individual production factors to be determinants, namely: cost of production (rated 3.57), infrastructure (3.56) and capital (3.64). The strength of these production factors as determinants of competitiveness of the citrus industry was probably increased by the status of the economy that was characterised by a depreciating currency and high inflation. The cost of production escalated and infrastructure became more expensive to acquire and to maintain. Factors hindering the accessibility of capital by these farmers could be associated with lack of

collateral as they owned small sizes of land for which they only had permission to occupy. Improvement of the competitiveness of the citrus industry would be enhanced by economic recovery that would result in transformation of the status of these factors.

The respondents remained uncertain of the strength of the rest of the factors as determinants of competitiveness, namely: labour (rated 3.09), insufficient source of water (3.01), lack of knowledge (3.27), lack of technology (3.45), and availability of labour, both skilled (2.57) and unskilled (2.99) labour.

It would be expected, however, for availability of skilled labour to be a challenge, especially for smallholder agriculture in rural districts such as Vhembe. Respondents' ratings on availability of skilled labour was probably influenced by their subjective understanding of what it means to be a skilled labourer. These factors that were not clearly affirmed by respondents as determinants should not be accorded priority attention for improvement of competitiveness of the citrus industry.

Demand Conditions

The reason for establishment of any business enterprise is to address the demands for specified goods and services and therefore the condition of demand may be regarded the critical factor that determines whether a business has to be started or not (Nesamvuni et al. 2014). The demand conditions are therefore important determinants of the competitiveness of a business enterprise (Porter 1990) (Table 4).

Table 4: Smallholder farmer perceptions on demand conditions as determinants of competitiveness of citrus industry in Vhembe District

<i>Demand conditions</i>	<i>Rate</i>
<i>Market Size</i>	3.13
<i>Market Information</i>	-3.56
▪ Quality	3.58
▪ Availability	3.57
▪ Cost	3.54
<i>Quality of Products</i>	3.56
<i>Market Growth</i>	4.1
<i>Average Score for Demand Conditions</i>	-3.58

Key: 1.Strongly disagree; 2. Disagree; 3.Indifferent; 4.Agree; 5.Strongly agree

The respondents generally agreed (average rating: 3.58) on demand conditions being a de-

terminant of competitiveness of the citrus industry in the area under study. The smallholder citrus farmers were indifferent on the strength of market size (rated 3.13) as a determinant but agreed that the rest of the factors of demand conditions (market information- 3.56, quality of products- 3.56, and market growth- 4.10) were determinants of competitiveness of the citrus industry.

As perceived by the smallholder citrus farmers, improving the competitiveness of the citrus industry requires improvement of demand conditions, more so market information, quality of products and market growth. Market information should be of improved quality, easily available, and more affordable.

The quality of citrus products should also be improved, and the fruit for fresh produce and export markets require improved production practices, especially with regards to management of pest and diseases such as citrus black spot. Expansion of markets will allow for uptake of increased quantities of the produce and will increase the competitiveness of the citrus industry.

Related and Supporting Industries

The availability of related and supporting industries in an area determines the competitiveness of business enterprises in that area (Nesamvuni et al. 2014), and the same can be said of the citrus industry in Vhembe District. Such related and supporting industries may include those involved in the supply of inputs such as packaging materials and energy and those providing financial and research services (Porter 1990). Analysis of the perceptions of respondents on related and supporting industries as determinants of competitiveness of the citrus industry is therefore important (Table 5).

Table 5: Smallholder farmer perceptions on related and supporting industries as determinants of competitiveness of citrus industry in Vhembe District

<i>Related and supporting industries</i>	<i>Rate</i>
Financial institutions	3.76
Research institutions	3.63
Suppliers of packaging material	3.67
Electricity suppliers	3.79
Average score for related and supporting industry	(3.71)

Key: 1. Strongly disagree; 2 .Disagree; 3. Indifferent; 4.Agree; 5.Strongly agree

Related and supporting industries had an average rating of 3.71 and this indicates that respondents regarded them as determinants of competitiveness of the citrus industry. The smallholder farmer perceptions on related and supporting industries as determinants of competitiveness of citrus was consistent for all the identified institutions, namely: financial institutions (rated 3.76), research institutions (3.63), suppliers of packaging materials (3.67) and electricity suppliers (3.79).

The perception of the respondents on financial institutions was probably influenced by the economy that had not been performing well. For instance, higher interest rates made it rather costly for the smallholder farmers and other industry role players to make loans from financial institutions (majority of them did not even qualify for such loans as they did not have the required collateral). The perception on research institutions was probably a result of their research focusing on large commercial farming systems to the neglect of the smallholders. Suppliers of packaging materials may have been inaccessible as they were located in towns away from the rural based small scale farmers. The negative effect of electricity supply was likely based on such issues as the limited power generation that resulted in power shedding in the country and the billing system that made farmers highly indebted.

Guided by the perceptions of the respondents, the roles of the identified related and supporting industries should be transformed for the citrus industry in the study area to be competitive. Financial institutions should be innovative and design products that are accessible to the smallholder farmers. Research institutions should include the small scale farming systems in their research agenda in order to generate knowledge that is valuable to these farmers. Suppliers of packaging materials should establish satellites in major shopping centres in rural areas to improve access to the smallholder farmers, while Eskom as the electricity supplier should design a billing system that is friendly to small businesses.

Chance

According to Porter (1990), chance is an important determinant of industry competitiveness. Important factors related to chances that are like-

ly to influence competitiveness include: (1) issues affecting stability (economic stability, political stability, and price stability), (2) health and security (HIV/AIDS infections and crime), and (3) disasters (drought, floods, frost, and fires) occurring in the area of location of the industry (Nesamvuni 2014). Investigation of perceptions of smallholder farmers on the strength of these factors as determinants of industry competitiveness is important (Nesamvuni et al. 2014) and was therefore conducted (Table 6).

Table 6: Smallholder farmer perceptions on chance factors as determinants of competitiveness of citrus industry in Vhembe District

<i>Chance factor</i>	<i>Rate</i>
Economic instability	3.64
Aids	2.79
Political stability	3.31
Price stability	3.54
Crime	3.82
Drought	3.60
Floods	3.24
Fires	3.67
Frost	3.58
Average score for chance	(3.47)

Key: 1.Strongly disagree; 2. Disagree; 3.Indifferent; 4.Agree; 5.Strongly agree

Smallholder citrus farmers regarded chance (rated 3.47) nearly a determinant of competitiveness of their industry. The aspects of chance that were perceived determinants of competitiveness of the citrus industry included all the three factors highlighted by Nesamvuni (2014), namely: (1) those affecting stability - economic stability (3.64) and price stability (3.54); (2) health and security - crime (3.82); and disasters - drought (3.60), fires (3.67) and frost (3.58). Improvement of the competitiveness of the citrus industry would be promoted through relevant transformation of these factors. For instance, aspects under stability and those under health and security should be improved while disasters should be minimal (or eliminated where possible).

The respondents were rather uncertain of the negative effects of some of the chance factors on the competitiveness of their industry, and those were HIV/AIDS (2.79), political stability (3.31), and floods (3.24). With the improved government supply of antiretroviral drugs, HIV/AIDS had become more manageable and was there-

fore not perceived a threat to the competitiveness of the citrus industry. Also, with the maturing democracy in South Africa, political views were fiercely contested through political parties in parliament without posing a threat to national political stability. Climate had tended to be characterised by lower rainfall that often occurred later in the summer season, and indeed floods had not been a common occurrence, hence the respondents' perception that floods were not a threat to citrus industry competitiveness.

Government Support

Government plays a significant role in the competitiveness of various industries, and that also include the agricultural industries such as the citrus industry (Porter 1990). The role played by government can hinder or enhance the competitiveness of the industry and accordingly influence its growth. Government role can either be direct or indirect, and is mainly through instruments such as policies and implementation strategies. As stated by Nesamvuni (2014), government influence on the citrus industry could be in the form of regular interaction with the business enterprise, development of support policies on issues such as trade, land reform, labour, and fiscal aspects, and indirect support through other services. Analysis of perceptions of smallholder farmers on government support as determinants of competitiveness remained important (Table 7).

Table 7: Smallholder farmer perceptions on government as a determinant of competitiveness of citrus industry in Vhembe District

<i>Government</i>	<i>Rate</i>
Interaction and support	3.68
Indirect support	3.46
Trade policy	3.31
Land reform policy	3.21
Labour policy	3.75
Fiscal policy	3.51
Average rating	(3.49)

Key: 1.Strongly disagree; 2. Disagree; 3.Indifferent; 4.Agree; 5.Strongly agree

Smallholder farmers almost agreed (rating: 3.49) that government was a determinant of competitiveness of the citrus industry in Vhembe District. The role of government regarding determinants of competitiveness of the citrus industry were mainly on interactions between

government and the industry and the subsequent support (3.68) and on policies, specifically labour (3.75) and fiscal (3.51) policy. With regards to the role on interaction, the respondents probably felt that consultation was inadequate, and that could have resulted in some policies not adequately addressing the needs of the industry. A perception on labour policy being a determinant of competitiveness could have resulted from aspects such as regulation of minimum wage and hours of work while that on fiscal policy could have resulted from aspects such as tax regulation. Announcements of upward adjustment to the minimum wage of farm workers resulted in massive retrenchments in the agricultural sector. Improvement of the competitiveness of the citrus industry may therefore be promoted through improvement of these roles of government as a strategic support agent.

The respondents were uncertain of three of the aspects of government support being determinants of competitiveness of the citrus industry, namely: indirect support (3.46), trade policy (3.31) and land reform policy (3.21). Trade policies tend to be strict on produce quality, more so for the export market. The fact that smallholder citrus farmers were uncertain of this policy determining competitiveness probably reflects the extent of their non-participation in this highly-regulated market. Respondents would be expected to be critical of the land reform policy as they could be hungry for more land, and the noted perception of indifference probably suggests that the farmers had enough challenges with the small plots of land on which they farmed.

Important Factors Determining the Competitiveness of the Citrus Industry

According to Nesamvuni (2014), it is necessary to determine the important factors that in-

fluence the competitiveness of an industry. Accordingly, the ten most important factors perceived to be determinants of competitiveness of the citrus industry in Vhembe District had to be identified, and such was based on the level of rating and considered the number of respondents who regarded the factor important (Table 8).

The attributes of Porter's model were regarded too broad to provide focused strategies for increasing the competitiveness of the citrus industry, hence the focus of the analysis on the specific factors of the attributes. Based on ratings by farmers (Table 8), factors perceived to be the ten most important determinants of competitiveness of the citrus industry in Vhembe District were market growth (rating=4.10), crime (3.82), supply of electricity (3.79), financial institutions (3.76), labour policy (3.75), capital availability (3.71), interaction and support (3.68), fires (3.67), supply of packaging material (3.67), and pricing strategy (3.66).

The perception of market growth being most important determinant of competitiveness was probably because the district broadly falls under a Citrus Black Spot (CBS) area and has high prevalence of oriental fruit fly (*Bactrocera dorsalis*), and these reduce fruit quality and hence market access, more so for the small holder farmers who struggle to implement effective control measures. The perception of crime being the second most important determinant of competitiveness was probably based on the common occurrence of theft in the study area, mostly of electrical transformers, cables, and water pumps, and these negatively affect major electricity dependent farm and pack house activities. The rating of electricity supply as the third most important determinant of competitiveness might have

Table 8: Smallholder farmer ratings of important factors that determined the competitiveness of the citrus industry in Vhembe District

S. No.	Factor	Rating	Important (% Respondents)	Less important (% Respondents)	Uncertain (% Respondents)
1	Market growth	4.1	80.85	7.15	10
2	Crime	3.82	83.33	9.72	6.94
3	Supply of electricity	3.79	77.78	12.5	9.72
4	Financial institutions	3.76	86.11	12.5	1.39
5	Labour policy	3.75	76.06	15.49	8.45
6	Capital availability	3.71	70.9	2.8	26.3
7	Interaction and support	3.68	84.51	16.9	9.86
8	Fires	3.67	75	18.06	6.94
8	Supply packaging material	3.67	73.62	8.33	19.4
10	Pricing strategy	3.66	73.24	5.6	22.2

been a result of the need for repairs of electricity infrastructure (where components were stolen) and of high prices that are unaffordable to the farmers.

Financial institutions and labour policy were respectively perceived as the fourth and fifth most important determinants of competitiveness of the citrus industry, mainly because the small holder farmers struggle to obtain capital from the financial institutions while their operations are supposed to be adequately profitable for them. The lack of access to finance from the financial institutions is mainly a result of small holder farmers not having collateral since even the land they work on is under a Permission to Occupy (PTO) arrangement. The sixth most important determinant of competitiveness of the citrus industry was perceived to be capital availability associated with the lack of access to finance. Interaction and support was ranked seventh and this relates at least partly to stakeholder engagement of which government plays a major role. The facilitation of support industries to the citrus smallholder farmers remains important across the value chain from production to value added products.

Fire and supplies of packaging materials were both rated number eighth (8) most important determinants of competitiveness. Occurrence of uncontrolled fire results in the destructions of orchards, a situation that would be more severe under lack of fire belts. Inadequate supplies of packaging materials leads to poor packaging that affects the price of citrus in the market place. Ultimately, pricing strategy was rated the tenth (10) most important determinant of competitiveness of the citrus industry in the area under study. The ten most important determinants of competitiveness of the citrus industry were all perceived important by the majority of respondents. Three of the determinants of competitiveness were perceived important by at least four in five respondents, namely: market growth (80.5%), crime (83.3%) and financial institutions (86.1%). As shown in Table 8, the rest of the determinants were regarded important by 70.9 - 77.8 percent of the respondents

CONCLUSION

Investments in any industry of the agricultural sector should be based on its competitiveness. Only two of the six attributes that consti-

tute the diamond model were in overall perceived by smallholder citrus farmers to be determinants of competitiveness of their industry, and those were (1) related and supporting industries and (2) demand conditions. The respondents were in overall uncertain regarding the status of the rest of the attributes as determinants of competitiveness of the citrus industry.

Some ten factors from all the six attributes were perceived to be important determinants of competitiveness of the citrus industry, namely: market growth (rating=4.10), crime (3.82), supply of electricity (3.79), financial institutions (3.76), labour policy (3.75), capital availability (3.71), interaction and support (3.68), fires (3.67), supply of packaging material (3.67), and pricing strategy (3.66). Based on the perceptions of the respondents, these ten factors affected the majority of farmers and should therefore be accorded to priority attention in improving competitiveness of the citrus industry.

RECOMMENDATIONS

Based on the results analysed, it is recommended that a comprehensive plan should be developed to improve the situation regarding these factors to improve the competitiveness of the citrus industry in Vhembe District. Vhembe district is well known for having well fertile soils, good climatic conditions etc. if farmers are getting good technical and financial support, the citrus industry in the Vhembe district can be competitive and also be able to create job opportunities, reduce poverty and also export citrus commodities to international markets.

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