Fair Value Reporting Challenges Facing Small and Medium-Sized Entities in the Agricultural Sector in Kenya

by

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Dedications

This work is dedicated to my daughters, Val and Ven, my wife – Kate, and my mum – Nduta. Thank you all for the love that inspired this work. To all of you I say, success in life may mean hanging on long after others have given up and:

"… do not follow the path, instead go where there is no path and leave a trail."

Anonymous

"… it is better to be roughly right than precisely wrong."

John Maynard Keynes

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Declaration

Student Number 3594-432-3

I, **Peter Njuguna Maina**, declare that **Fair Value Reporting Challenges Facing Small and Medium-Sized Entities in the Agricultural Sector in Kenya,** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of a complete list of references.

P N Maina

Date 25th July 2010

Summary

Title of dissertation

Fair Value Reporting Challenges Facing Small and Medium-Sized Entities in the Agricultural Sector in Kenya

Recent developments, such as biotechnology, biofuel and the use of agriculture for carbon sequestration are promoting the commercialisation and globalisation of small-scale farming. The practical challenges of applying the entity principle, and the process of biological transformation limits the reliability of cost as a basis for the accounting of biological assets. The objective of this research was to identity the challenges in respect of fair value reporting on the part of SMEs, entities that publish general purpose financial statements but which do not have public accountability, in implementing the requirements of the IFRS for SMEs. This study established that in Kenya, the commodity markets operate in a simplified auction system with no clear price discovery mechanism. Consequently most farmers prefer to model the market information available. In light of the diverse nature of agricultural produce this study recommends virtual trading and development of commodity futures in order to reduce the market access cost, to improve accessibility to market information and to transform the role of middle traders to that of market linkages.

Key words: Agricultural sector, biological assets, fair value, biofuel, biotechnology, carbon sequestration, small and medium-sized entities, fair value hierarchy, commodity markets, commodity futures.

CHAPTER 1

INTRODUCTION

1.1 Background information

Agriculture has, for several years, been the mainstay of many African economies (FAO 2008: 46). In Kenya, the agricultural sector contributes approximately 22.7% of the gross domestic product (GDP). It also accounts for 80% of national employment, mainly in the rural areas, and it contributes 18% of the formal employment within the country (GRK 2008:27). In addition, the agricultural sector in Kenya contributes more than 65% of the total export earnings and approximately 45% of the government revenues. It also provides most of the country's food requirements. In addition, it is estimated that the sector makes a further indirect contribution of nearly 27% of GDP through its linkages with the manufacturing, distribution, and other service-related sectors (GRK 2008:110).

In other words, Kenya's agricultural sector influences the overall economic performance of the country directly through its contribution to the GDP. Periods characterised by high economic growth rates have been synonymous with increased agricultural growth (PWC 2009d). In Kenya there are more than five million small-scale farmers engaged in different types of agricultural activity and it is these small-scale farmers, together with a few large-scale plantations and listed companies, who accounts for the bulk of the output in the agricultural sector (GRK 2007:28). The government of the Republic of Kenya is a significant participant in the large-scale farming operations. In March 2009, International Public Sector Accounting Standards Board (IPSASB) (2009) issued an exposure draft (ED 36) inviting comments on the treatment of those agricultural activities in the public sector which require measurement "…at fair value … from initial recognition …to the point of harvest…" (IPSAB 2009:7). Agricultural

activities in the public sector have mainly been accounted for at cost in the past, and thus, the adoption of fair value accounting will have a significant influence on economic performance.

The agricultural sector in Kenya is made up of four major sub-sectors, namely; industrial crops, horticulture, food crops, and livestock and fisheries and other minor sub-sectors such forestry. Figure 1.1 below presents the activities involved in each sub-sector.

Table 1.1 The structure of the agricultural sector in Kenya

Sub-sector	Characteristics	Activities	Contribution (%GDP)
Industrial crops	Primary cash crops	Tea, coffee, sugar cane, cotton, tobacco, sisal, barley and fruits	17
Horticulture	Consumable and non-consumable	Vegetables , flowers, nuts, and spices	33
Food crops	Immediate consumption or staple food	Maize, wheat, rice, sorghum, millet and legumes	32
Livestock & fisheries	Meat, fish and livestock products	Poultry, goats, sheep, cattle and fish	14
others	Forestry	Timber	4

Source: Government of the Republic of Kenya (2007:40).

1.1.1 Small-scale commercial farming

The invention of bio-technology and the introduction of modern farming methods have resulted in the conversion of small-scale farming to commercial farming. This metamorphosis will be further enhanced as the attention shifts from fossil fuel to renewable bio-fuel in terms of the Kyoto protocol which nations are obliged to comply with. Japan, the third largest fuel consumer in the world, is considering a tax waiver on imports of bio-fuel (Masaki 2007). With its large arable land area Kenya will be one of the main beneficiaries of the shifts to bio-fuel and more so to the small-scale farmers who constitute the greater area. In its strategic plan the Kenyan

government is focusing on farming as a core economic pillar in order to realise its vision. "... Kenya aims to promote an innovative, commercially-oriented, and modern agricultural sector" (GRK 2007:44). It is essential that such innovations in the agricultural sector keep pace with global standards of reporting, which are to a large extent influenced by the work of the International Accounting Standard Board (IASB).

1.1.2 Fair value accounting

IAS 41 *Agriculture* (IASB 2009a:2345) was issued in February 2001. It was intended to encompass periods commencing on 1st January 2003 in prescribing accounting standards for agricultural activity – the management of the biological transformation of biological assets (living plants and animals) into agricultural produce. In IAS 41, *Agriculture*, a key reform introduced is the requirement of the fair valuation of biological assets, "… from initial recognition … up to the point of harvest" (IASB 2009a:2348).

In February 2007, the IASB issued an exposure draft of IFRS for small and medium-sized entities. Section 35 (1) of this exposure draft requires comments on the application of fair value by small and medium-sized entities engaged in agricultural activity, "…entity shall determine, for each of its biological assets, whether the fair value of that biological asset is readily determinable without undue cost or effort…apply the fair value model in paragraphs 10-29 of IAS 41 Agriculture.." (IASB 2007b:217). The exposure draft culminated in the issuing of IFRS for small and medium-sized entities in July 2009. This International Financial Reporting Standard (IFRS) for SMEs (IASB 2009c:201) is a stand alone document and it requires that if an entity is engaged in agricultural activity, then that entity should determine, for each of its biological assets, whether the fair value of that biological asset is readily determinable without undue cost or effort. Where the fair value is readily determinable the entity must use the fair

value model while, in cases in which the fair value is not readily determinable, the entity must use the cost model for the relevant biological asset.

This implementation of fair value reporting by small and medium-sized entities will result in various challenges for both the user and for those drafting financial statements. Studies carried out in Australia by Dowling and Godfrey (in Elad 2004:635) that investigated the measurement methods disclosed in the 1999 annual reports of Australian firms which were in possession of self-generating and regenerating assets, concluded that, although AASB 1037 prescribed the net market value approach, a variety of measurement methods had been used, with historic cost being the most preferred method. Similarly, research carried out in Europe (ICAEW 2007b:12) indicated a limited application of fair value and noted particularly that "… where companies are given an option as to whether to use cost or a fair value model, they typically choose a cost model".

Recent debates have called on full fair value accounting (Orlando 2010). In November 2006, the IASB issued the following discussion paper, Statement of Financial Accounting Standards No. 157 *Fair Value Measurements* (SFAS 157). The objective of SFAS 157 was to establish a single definition of fair value together with a framework for the measuring of fair value (IASB 2006d:5). The discussion paper, SFAS 157, elicited differing opinions, and, in May 2009, the IASB issued an exposure draft (ED/2009/5) that invited comments on the use of "exit value" as the dominant basis of the determination of fair value (IASB 2009b:5). The concept of exit value is discussed in detail under section 3.2.1.1.

Although globalisation will necessitate the international harmonisation of accounting practices, it is possible that fair value accounting might reduce the comparability of financial statements. In the absence of an actual transaction in an active market the exposure draft on fair value measurements (IASB 2009b:7) requires the use of a "… hypothetical transaction in the most

advantageous market. Most small and medium-sized entities in the agriculture sector do not have access to a direct and active market, but rely on brokers and intermediary traders. The unavailability of accurate market data and the volatility of sentiment-driven market prices may complicate the application of the "most advantageous market". As noted by Elad (2004:632) in the absence of an active market, "…the use of subjective judgments by practitioners in establishing estimates of fair value, such as the market price for similar assets, or net present values, might result in different treatments that hamper comparability and harmonisation."

The requirement, in terms of IASB (2009a:2354), that changes in fair value be recognised directly in the statement of comprehensive income might also elicit a different reaction as was noted by Ernst &Young in the following somewhat unorthodox implication of the standard in their comment letter that ". . . it is counterintuitive that an agricultural enterprise could literally sell nothing and . . . still report earnings" (IASC 2000: 229). The application of fair value reporting has elicited a number of challenges and controversies, and those drafting the financial statements for small and medium-sized entities will face similar challenges in the adopting of fair value accounting. This study seeks to identify these challenges and to propose ways in which to overcome them.

1.2 Problem statement and sub-problem areas

1.2.1 Problem statement

The main problem to be investigated in this study is the identification of the challenges of fair value reporting by small and medium-sized entities in the agricultural sector of Kenya. The aim of this investigation is to discover ways in which to overcome these challenges. The challenges will be investigated with reference to the IASB IAS 41, *Agriculture*, and the exposure draft on Fair Value Measurement.

1.2.2 Sub-problems

In order to identify the challenges associated with fair value reporting on the part of small and medium-sized entities this study will:

- discuss theoretical background for the accounting of biological assets, and the application of fair value in the accounting of these biological assets;
- investigate the changing user information requirements and ways in which the use of fair value may help to bridge the gap of information relevance. There is increased stakeholder financial information need, and this increased stakeholder awareness calls for higher quality financial statements that are more relevant and easy to understand. It is possible that the use of fair value may complicate the financial statements and compromise their comparability;
- discuss the debate on harmonisation of financial reporting and the need for the simplification of financial statements with reference to the IASB IAS 41, *Agriculture* and the IFRS for small and medium-sized entities;
- assess the application of fair value reporting by small and medium-sized entities in the agricultural sector. The focus of those drafting the financial statements of small and medium-sized entities should be to simplify financial statements and to minimise the cost of preparing and presenting these financial statements. The use of fair value in the preparation of financial statements may increase cost involved in the preparation of the financial statements;
- evaluate both various valuation techniques which are applicable to biological assets, and also ways in which the use of different methods may impact on the quality of financial statements. The absence of an active agricultural commodity market may result into use of unreliable valuation techniques and judgements, which may, in turn diminish the comparability and relevance of the financial statements.

1.3 Importance of the study

The study will analyse the effect of fair value reporting on the information which is available to various groups of external users in the agricultural sector. The study will also recommend possible improvements in order to enhance comparability, relevance and reliability of financial statements and in addition, it will recommend, in line with the global reporting standards, appropriate measures for simplifying the financial reporting and for harmonisation. The study will also identify the practical reporting challenges confronting small and medium-sized entities in the agricultural sector in the application of fair values, and, thus, recommend ways in which to overcome such challenges in a cost effective way. The study will also attempt to identify valuation techniques should there be no active markets available, and it is not possible to determine the cost of biological assets readily. Accordingly, this study will provide a reference for those drafting the financial statements for small and medium-sized entities in the agricultural sector. The study will also identify information gaps and recommend areas for further research.

1.4 Objectives of the study

The objective of the study is to establish the challenges in terms of the application of fair value reporting by small and medium-sized entities in the agricultural sector. The issue of the application of fair value in financial reporting is gaining momentum and current debates are moving in the direction of full fair value reporting. Small and medium-sized entities are not exempt in this regard. This study will seek to determine whether fair value reporting has any impact on the quality of information and on the usefulness of information for small and medium-sized entities in the agricultural sector.

The study will also recommend an appropriate valuation technique in the absence of any active markets, and it not being possible to determine the cost of biological assets readily. The

outcome of this study will help to simplify the application of fair value reporting and to minimise the cost of preparing and presenting the financial statements of SMEs in the agricultural sector in Kenya.

1.5 Scope of the study

The study will involve a literature review on the current reporting practices of small and medium-sized entities in the agricultural sector worldwide, and the information available to external users and the way in which this information is provided in order to lessen the information gap. The study will recommend ways in which to improve the quality of the information available to various groups of external users. It will also focus on the simplification of financial statements while, at the same time, maintaining the quality of these financial statements in line with global reporting standards.

The study will focus on the application of fair value reporting by small and medium-sized entities in the agricultural sector and the impact of this fair value reporting on the quality of information available to external users. In addition, the study will advance ways in which the application of fair value may be harmonised, by recommending valuation techniques which may be used in the absence of any active markets and where it is not possible to determine the cost of biological assets readily. Limited empirical research will be carried out in order to establish the practical challenges in terms of the application of the fair value concept facing SMEs in the agricultural sector in Kenya. However, in view of the fact that valuation is a specialised discipline requiring the services of an expert, the study is not an attempt to value biological assets. The empirical research will be limited only to agricultural activities in Kenya.

1.6 Research methodology

The study will involve both a literature review and limited empirical research. The literature review will focus on similar research carried out recently and it will highlight the effects of international financial reporting standards in respect of small and medium-sized entities. The empirical research will involve field research to collect data from those responsible for drafting financial statements of SMEs in the agricultural sector. As a result of the lack of SME listings a judgmental sampling technique will be used in the administering of the questionnaires.

1.7 Presentation structure

The remainder of this dissertation is organised into chapters as outlined below:

Chapter 2

Literature review: history of the reporting of biological assets

Chapter 2 will focus on the nature of agricultural activity in Kenya, and it will provide a brief overview of recent trends and technological innovations in the agricultural sector. The chapter will, thus, provide the theoretical background within which the research is carried out. A brief history of the financial reporting of biological assets in Australia, the United States of America (US), the United Kingdom (UK), China, Brazil and Kenya will be presented. This will, hopefully, enhance understanding of the diversity of the practices in the financial reporting of biological assets and, thus, place in perspective the need for harmonisation.

Chapter 3

Global trends and harmonisation in respect of fair value accounting

This chapter will focus on the meaning and use of the fair value measurement basis for financial reporting and the way in which it affects the performance and financial position of a farm. The chapter will also focus on various valuation methods which may be used for biological assets. In addition, the chapter will focus on the need for harmonisation and the application of accounting standards, specifically the IFRSs for small and medium-sized entities (SMEs) and

the move toward full fair value reporting. The chapter will also focus on the way in which the use of fair value impacts on the quality of financial statements.

Chapter 4

Application of fair value by small and medium-sized entities in the agricultural sector

This chapter will commence by defining SMEs and it will then proceed to identify the users of the financial statements of SMEs and their information requirements. This chapter will also focus on the changing users' information requirements and current efforts to meet the user information needs. In addition chapter 3 will attempt to identify the various challenges encountered in the application of the fair value concept and the way in which those challenges may apply to SMEs in the agricultural sector, and provide best practices in terms of meeting these challenges.

Chapter 5

Research design

This chapter will commence by defining the population used in the study and it will highlight the challenges encountered in the defining of such a population. This will be followed by an explanation of the sample design and the sampling techniques utilised in the study. The chapter will also explain the method of data collection used and the questionnaire design. The questionnaire will involve structured questions in order to obtain standard responses from the drafters of the relevant financial statements in respect of their views on possible challenges in applying the fair value concept.

Chapter 6

Analysis of research findings

This chapter presents an exposition of the coding of the data obtained in preparation for the analysis to follow. The analysis will involve the use of charts and statistical techniques. This chapter will culminate in a collating of the views obtained in order to draw a conclusion and to make recommendations.

Chapter 7

Summary, conclusion and recommendations

This chapter will provide a summary of the study as a whole as well as the conclusions drawn. The summary will provide the basis for the recommendations and the suggested areas of further research.

1.8 List of abbreviations

AASB: Australian Accounting Standards Board.

ASB: Accounting Standards Board

CICA: Canadian Institute of Chartered Accountants

CDM: Clean development mechanism

ED: Exposure draft

EFRAG: European Financial Reporting Advisory Group

EU: European Union

FAO: Food and Agriculture Organisation of the United Nations

FASB: Financial Accounting Standards Board

GDP: Gross domestic product

GRK: Government of the Republic of Kenya

IAS: International Accounting Standards

IASB: International Accounting Standards Board.

IASC: International Accounting Standards Committee

IASCF: IASC Foundation.

ICAEW: Institute of Chartered Accountants of England and Wales

IFAC: International Federation of Accountants

IFRIC: International Financial Reporting Interpretations Committee

IFRSs: International Financial Reporting Standards

NPAE: Non-publicly accountable entities

PAAinE: Proactive accounting activities in Europe.

PWC: PriceWaterhouseCoopers

SEC: Securities and Exchange Commission (United States)

SFAS: Statement of Financial Accounting Standards

SMEs: Small and medium-sized entities

US GAAP: Generally Accepted Accounting Standards (United States)

Chapter 2

History of the Reporting of Biological Assets

2.1 Introduction

Agriculture is the world's largest primary economic activity and it is, perhaps, the key to unlocking the desired sustainable global economic development. According to the World Bank Group (WBG) (2007:3), it is possible for agriculture to work together with other sectors in order to produce faster growth, reduce poverty, and sustain the environment. According to the WBG (2007:1), small and medium-sized entities are pivotal to growth in the agricultural sector and they are, thus, the pathways out of poverty. These small and medium-sized entities include small-scale farming and animal husbandry, employment in the "new agriculture" of high-value products, and entrepreneurship and jobs in the emerging rural, "non-farm economy".

In the past both the agricultural industry and the financial reporting in respect of this industry have received little, or inadequate, attention (Argiles & Slof 2000:2). The reason for this is that the agricultural industry is dominated by family-based small-scale holders, who pursue the industry as a subsistence activity and this in turn leads to lower levels of managerial sophistication. Most farms are of a hybrid nature and they tend to rely on non-farm income as an important contributor to their debt repayment capacity and the overall viability of the farming operation (Argiles & Slof 2000:2). The diversity of agricultural activity is neither understood nor appreciated although the WBG (2007:1) does note that "…while the worlds of agriculture are vast, varied, and rapidly changing, with the right policies and supportive investments at local, national, and global levels, today's agriculture offers new opportunities to hundreds of millions of rural poor to move out of poverty." Thus, as the interest shifts to agriculture, so will there be an increased focus on the financial reporting of biological assets.

Despite the fact that little attention has been focused on the primary activity of agriculture, there has been considerable attention directed at the artificial value addition of agricultural produce which, more often than not, is perceived as a more viable commercial activity and this explains why despite the relative importance of agriculture as a primary economic activity, there was no "industry specific" international accounting standards until 2002. Although the various setters of national accounting standards have made significant efforts to provide guidelines, nevertheless, the practices in respect of the accounting of biological assets have remained diverse. For example, in a study carried out to compare the application of the Farm Accountancy Data Network (FADN) with Exposure Draft 65, *Agriculture,* Argiles and Slof (2000:2) noted that "…so far there is no standard for biological assets whose valuation is difficult and controversial."

This chapter commences by placing in perspective the nature of agricultural operations and the platform on which these operations are carried out, together with a brief explanation of recent trends and technological advancement in the sector. This will then be followed by a brief overview of the various practices that were prevalent in Australia, the United States of America (USA), the United Kingdom (UK), China, Brazil and Kenya before the issue of International Accounting Standard 41, *Agriculture*.

2.2 Nature of agricultural activities

2.2.1 Agricultural activity

IAS 41, *Agriculture* (IASB 2009a: 2351) defines agricultural activity as "…the management by an entity of the biological transformation and harvest of biological assets for sale or for conversion into agricultural produce or into additional biological assets". IAS 41, *Agriculture* (IASB 2009a: 2351) appreciates the diversity of agricultural activities when it includes in these activities "… raising livestock, forestry, annual or perennial cropping, cultivating orchards and plantations, floriculture and aquaculture (including fish farming)." The common features that

exist within the diversity of agricultural activity and which distinguish it from other primary economic activities include (IASB 2009a: 2351):

- *Ability to change*

  Living animals and plants are capable of biological transformation

- *Management of change*

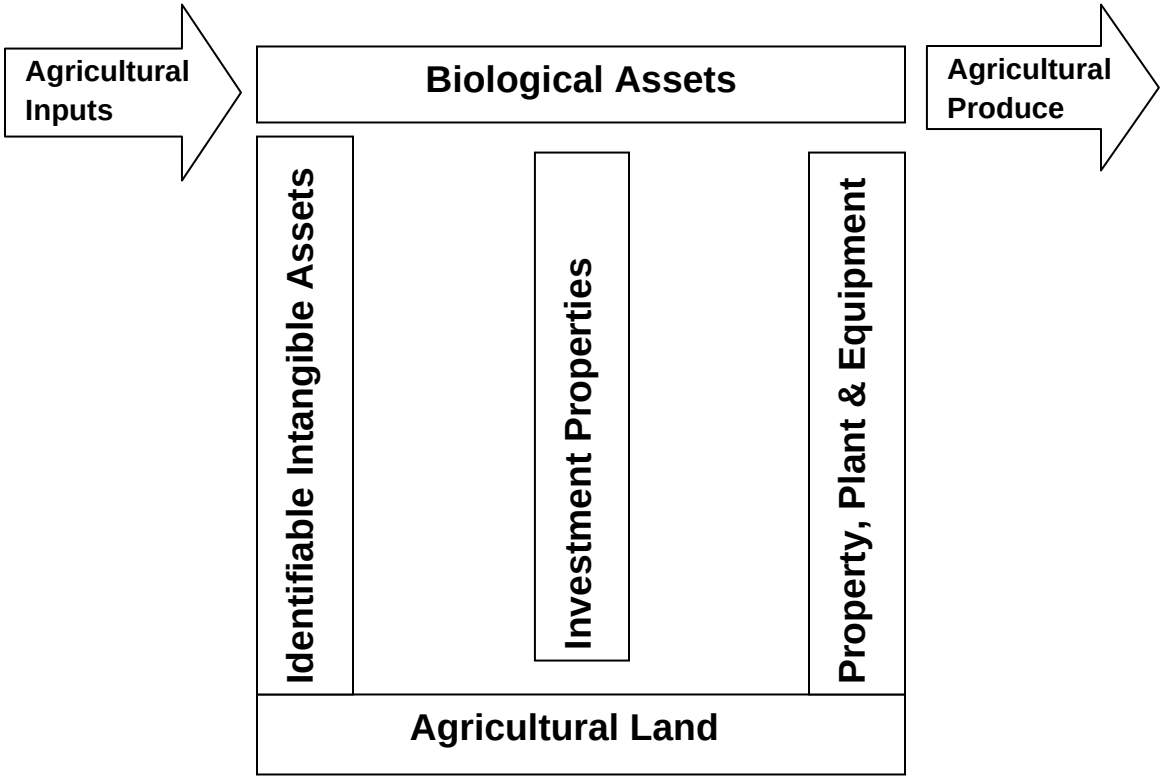
  Management facilitates biological transformation by enhancing, or, at least, by stabilising, those conditions which are necessary for the process of change to take place such as nutrient levels, moisture, temperature, fertility, and light. This type of management distinguishes agricultural activity from other activities. For example, the harvesting from unmanaged sources (such as ocean fishing and deforestation) is not an agricultural activity. According to the Accounting Standards Board (ASB 2008) a resource may be managed by government's using of mechanisms such as licensing and quotas but this does not, of itself, result in the activity's being classified as actively managed and, thus, as an agricultural activity. The World Bank Group (2007:2) also explains that agriculture consists of crops, livestock, agro-forestry, and aquaculture, but that it does not include forestry and commercial capture fisheries because they require vastly different analyses. In this context the scope of management is defined subjectively because certain activities, such as the management of native forest, private game farms and wild life conservancies and agro-tourism may not be classified as agricultural activities.

- *Measurement of change*

  The change in the quality, for example, genetic merit, density, ripeness, fat cover, protein content, and fibre strength, or the quantity, for example, progeny, weight, cubic metres, fibre length or diameter, and number of buds, brought about by biological transformation or harvest is measured and monitored as a routine management function (IASB 2009a: 2351).

According to World Bank Group (2007:1) agriculture operates in the following three distinct worlds; one agriculture-based, one transforming and one urbanised. In each of these three distinct worlds the agriculture-for-development agenda differs in both the pursuing of sustainable growth and reducing poverty. In view of the fact that agricultural activities have the potential to impact on both the developing and the developed economies the World Bank Group (2007:1), emphasises that in order to use agriculture as the basis for economic growth in agriculture-based countries, what is needed is a productivity revolution in small-scale farming. The management of biological transformation as facilitated by other categories of assets is illustrated in figure 2.1 below:

Figure 2.1 Illustration of the relationship between various assets in respect of agricultural activity



Source: Adapted from Sallmanns (2005:14).

It becomes clear in the figure above that biological assets are not managed in isolation and that they depend on various other categories of assets. Although in certain cases the biological assets may have an active market, the intrinsic value of these biological assets depends on the collective assets which are involved in the biological transformation process. Intrinsic value is the actual value of an asset based on an underlying perception which considers qualitative, quantitative, tangible and intangible aspects of the asset. In other cases the biological assets are permanently attached to land and it is, thus, not possible to consider them in isolation. In these cases the valuation is at farm level and the management processes engaged influences both the value of the farm and the biological assets to a significant extent. For example, the facilities available for the management of agricultural produce may reduce the post harvest losses and agricultural inputs, such as fertiliser, may enhance the quality of such produce.

2.2.2 Biological assets

IAS 41, *Agriculture* (IASB 2009a: 2351) defines a biological asset as a living animal or plant, that, as a result of past events is controlled by an entity. In addition, it is probable that future economic benefits associated with the asset will flow to the entity, and it is possible to measure the fair value or cost in a reliable way (IASB 2009a:2352). Biological assets differ from other types of assets because they are capable of biological transformation which comprises (IASB 2009a:2351) the processes of growth, degeneration, production, and procreation that bring about either qualitative or quantitative changes or both. Growth may be defined as either an increase in the quantity of the biological assets or an improvement in the quality thereof, while degeneration refers to either a decrease in the quantity or deterioration in the quality of the biological assets. The biological transformation process may also involve the creation of additional living animals or plants and/or the production of agricultural produce such as latex, tea leaf, wool, and milk. In order to facilitate the management and valuation (IASB 2009a:2353) of either the biological assets or agricultural produce the assets or produce should be grouped

in accordance with significant attributes such as age or quality. In the case of mixed farming biological assets with similar characteristics are grouped together. The IASB (2009a:2351) notes that a *group of biological assets* comprises an aggregation of similar living animals or plants.

In terms of agricultural activity, control may be evidenced by, for example, the legal ownership of cattle and the branding or otherwise marking of the cattle on acquisition, birth, or weaning (IASB 2009a:2352). This would enable either the lessee in a finance lease or the lessor in an operating lease to recognise the biological assets concerned. However, the classification between a finance lease and an operating lease is subjective and it may be problematic. The future economic benefits, associated to a biological asset, are normally assessed by measuring the significant physical attributes (IASB 2009a:2352). In certain cases where control of the biological assets is not an issue, the assessment of future economic benefits may pose a challenge in light of the uncertainties that may surround the biological assets. In this regard Sallmanns (2005:14) states that "…the actual growth cycle of the biological assets may be affected by factors such as weather, natural effect of growth, live ability, disease, management of the assets, environmental conditions".

According to the Accounting Standards Board (ASB 2008) animals or plants that are used primarily for non-productive purposes such as recreational parks or game farms, or in delivering a service to the public, for example dogs and horses used for policing are not biological assets. Also excluded according to the ASB are cultures, cells, bacteria and viruses used in the pharmaceutical and biotechnology industries, as these may be a product of a manufacturing process rather than the product of a biological transformation process. Depending on the biological transformation process biological assets may be classified as either consumable or bearer biological assets as explained hereafter.

2.2.2.1 Consumable biological assets

According to IAS 41, *Agriculture* (IASB 2009a:2356) consumable biological assets are those assets that may either be harvested as agricultural produce or sold as biological assets. Examples of consumable biological assets are livestock intended for the production of meat, livestock held for sale, fish in farms, crops such as maize and wheat, and trees grown for lumber. Consumable biological assets may be classified as either mature biological assets, if they have attained harvestable specifications or as immature biological assets (IASB 2009a:2356). Certain consumable biological assets attain harvestable specifications within one accounting period while others take longer.

2.2.2.1.1 Temporary consumable biological assets

Consumable biological assets that attain harvestable specifications within a period of 12 months are classified as temporary consumable biological assets, even if they remain longer, before harvesting, due to either market conditions or contract arrangements (IVSC 2003:332). The values of such biological assets do not involve many uncertainties other than in respect of the variances that may exist within the same species such as quality of produce or target markets. Immature biological assets such as green maize or wheat in the field may involve material uncertainties.

2.2.2.1.2 Permanent consumable biological assets

Consumable biological assets that attain harvestable specifications after more than one accounting period are regarded as permanent biological assets (IVSC 2003:332). An example of such a consumable biological asset is a forest plantation for the production of timber which may take as long as 30 years before maturity. The duration of time involved and the nature of the biological assets may cause material uncertainties.

2.2.2.2 Bearer biological assets

According to IAS 41, *Agriculture* (IASB 2009a:2356) bearer biological assets are those biological assets other than consumable biological assets; for example, livestock from which milk is produced, grape vines, fruit trees, and trees from which firewood is harvested while the tree itself remains. Bearer biological assets are not regarded as agricultural produce but are self-regenerating. Bearer biological assets may be classified as mature biological assets if they are able to sustain regular harvests, while immature bearer biological assets are those biological assets which have not yet attained the conditions necessary for harvesting (IASB 2009a:2356). Most bearer biological assets are perennial and last for more than one season.

2.2.3 Harvesting

Harvesting (IASB 2009a:2351) may be defined as either the detachment of produce from a biological asset or the cessation of the life processes of a biological asset. The harvesting decision may be informed by different factors which may include market conditions, for example beef animals when prices are favourable, or the nature of biological assets, for example fruits in an orchard that must be harvested when ripe, or the cutting of flowers after budding. The existence of a contract may also influence the harvest decision (IVSC 2003:332). According to Liang and Meng (1996:237) the harvest decision may be informed by a delicate balance between the loss of produce and the harvesting costs. In small and medium-sized agricultural businesses which are family controlled sentimental considerations may also influence the harvest decision.

2.2.3.1 Agricultural produce

Agricultural produce (IASB 2009a:2351) may be defined as the harvested product of the biological assets of the entity, at the point of harvest. After harvesting the produce is not considered as a biological asset as it may be possible to subject the produce to artificial procedures such as refrigeration and preservation procedures. The harvested produce does

not share the same risks and uncertainties as the biological assets and is, thus, considered separately. Produce that has not yet been harvested may be considered as a biological asset.

2.2.3.2 Processing of agricultural produce

The processing of agricultural produce refers to any artificial process after the point of harvest. For example, is the processing of grapes into wine by a vintner who has grown the grapes. The IASB (2009a:2350) notes that "…while such processing may be a logical and natural extension of agricultural activity, and the events taking place may bear some similarity to biological transformation, such processing is not included within the definition of agricultural activity".

Table 2.1 below depicts the relationship between biological assets, agricultural produce and products of further processing after harvesting.

Table 2.1 The relationship between biological assets, agricultural produce and the products that are the result of further processing

Biological assets	Agricultural produce	Products that are the result of processing after harvesting
Sheep	Wool	Yarn, carpet
Trees in a plantation forest	Felled trees	Logs, lumber
Plants	Cotton	Thread, clothing
	Harvested cane	Sugar
Dairy cattle	Milk	Cheese
Pigs	Carcass	Sausages, cured hams
Bushes	Leaf	Tea, cured tobacco
Vines	Grapes	Wine
Fruit trees	Picked fruit	Processed fruit

Source: IASB (2009a:2350).

2.2.4 Identifiable intangible assets

As the growing demand for knowledge-based products and services revolutionises the structure of the global economy, the role of intellectual capital in achieving competitive advantage assumes greater importance (Firer 2005:1). The pace of scientific discovery in agricultural

biotechnology has accelerated over the past few decades; while the use of patents and other intellectual property rights to protect these discoveries has increased tremendously. Sporleder and Moss (2004:17) note this increased growth in the importance of intangible assets in the agriculture sector when they state that "… agricultural biotechnology firms participate in a food system where rivalry continues to shift from tangible to intangible assets such as knowledge capital". The United States Department of Agriculture (USDA 2004) has established a database for the intellectual property rights in agriculture, for example, patents and plant variety protection certificates, which are used on a regular basis in order to protect technological advances. These rights allow their owners to exclude competitors from "making, using, offering for sale, or selling" an invention for a limited period of time (USDA 2004).

Even when they are related to bio-technology innovations or the development of a biological asset it is advisable to consider identifiable intangible assets separately. Other costs such as land preparation, cultivations and soil de-toxication should be defined in accordance with IAS 38, *Intangible assets* and not cost of biological assets. Under IAS 38, *Intangible assets* (IASB 2009a:1921) are defined as identifiable non-monetary assets without physical substance that are controlled by an entity and in respect to which the attributable, probable, future economic benefits will flow into the entity. If an item does not meet the definition, identification or recognition criteria of an intangible asset, then the expenditure either to acquire the item or to generate it internally is recognised as an expense at the time at which the amount is incurred.

2.2.5 Agricultural land and other properties and equipment

2.2.5.1 Agricultural land

Agricultural land is a vital resource as it constitutes the platform on which agricultural activities are undertaken. According to the International Valuation Standards Committee, (IVSC 2002: 1.4.1) ''… the soil is the principal agent in production, varying in its capacity to support a given

amount of a particular commodity or class of commodities''. Agricultural land may be classified as irrigated or dry land. Lands which are used to produce crops or forage for livestock, and which require the application of water other than that from natural rainfall, are termed irrigated crop farms or irrigated grazing lands. The irrigation and water supply network, including boreholes and water reservoirs, in irrigated land represents major capital investment. Lands which lack a water resource other than natural rainfall are referred to as dry land crop farms or dry land pasture. The agricultural land should be considered separately from any improvements, developments and biological assets which are attached to it on a permanent basis (IVSC 2003:332).

2.2.5.2 Property, plant and equipment

IAS 16 defines (IASB 2009a:1149) property, plant and equipment as tangible items that are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and which are expected to be used during more than one period. In this context irrigation networks, farm structures and developments, machinery and equipment and the farm houses used in agricultural activities may be classified as property, plant and equipment.

According to the Accounting Standards Board (ASB 2008) an entity may hold certain biological assets as property, plant and equipment for the supply of services, for example, police dogs or horses which are used in the delivery of safety and security services. Race horses used in the context of jockey clubs and animals and plants used in agro-tourism and other entertainment parks might also be classified as property, plant and equipment.

2.2.5.3 Investment properties

The IASB (2009a:2306) defines investment property as land or a building or part of a building held by either the owner or by the lessee under a finance lease (or operating lease accounted for as finance lease under specific circumstances) in order either to earn rentals or for capital

appreciation or both, rather than for use in the production or supply of goods or services or for administrative purposes or for sale in the ordinary course of business. Investment property generates cash flows which are largely independent of the other assets held by an entity. The farmhouse and labour quarters and in some cases the agricultural land may be accounted for as investment property.

2.3 Recent trends and the technological revolution in the agricultural sector

Agriculture remains the world largest primary economic activity (WBG 2007:3), and thus much focus has been placed on improving output per acreage. As land resources diminish due to the increase in population focus is shifting to small-scale farming and their adoption of technology in their farming practices. Sections 2.3.1 to 2.3.5 discuss some of the revolutions in the agricultural sector generally but which have also impacted on productivity of small and medium-sized entities.

2.3.1 The Green Revolution technology

Green Revolution usually refers to the transformation of agriculture that began in 1945. According to the Food and Agriculture Organisation of the United Nations (FAO 1986), the Green Revolution of the 1960s and 1970s, with its package of improved seeds, farm technology, better irrigation and chemical fertilisers, was highly successful in meeting its primary objective of increasing crop yields and augmenting aggregate food supplies. The term "Green Revolution" was first used in 1968 by former USAID director William Gaud (FAO 1986), who noted that the spread of the new technologies in the field of agriculture "… is not a violent Red Revolution like that of the Soviets, nor is it a White Revolution like that of the Shah of Iran." He termed this spread of new technologies the Green Revolution.

Much of the increase in agricultural output was as a result of an increase in the yields per hectare rather than an expansion of the area under cultivation. For instance, FAO (1986) data

indicate that for all developing countries, wheat yields rose by 208% in the period between 1960 and 2000; rice yields rose 109%; maize yields rose 157%; potato yields rose 78%; while cassava yields rose 36% (Pingali & Raney 2005:3). However, FAO (1986) notes that despite its success in increasing the aggregate food supply, the Green Revolution as a development approach has not necessarily translated into benefits for the lower strata of the rural poor in terms of greater food security or greater economic opportunity and well-being.

2.3.2 Biotechnology

The United Nations Convention on Biological Diversity (FAO 2000), defines biotechnology as "…any technological application that uses biological systems, dead organisms, or derivatives thereof, to make or modify products or processes for specific use". The most significant revolution in biotechnology has been genetically modified organisms (GMOs), a technology that involves altering the genetic components of an organism using genetic engineering techniques (FAO 2000).

These genetic engineering techniques, generally known as recombinant Deoxyribonucleic acid (DNA) technology, use DNA molecules (hereditary material in an organism) from different sources, which are then combined into one molecule to create a new set of genes (FAO 2000). This DNA is then transferred into an organism, thus bestowing on this organism modified or novel genes. Transgenic organisms, a subset of GMOs, are organisms which contain inserted DNA that originated in a different species, while cisgenic organisms are organisms which have inserted DNA from the same species (HGP 2008).

According to Bunders, Haverkort and Hiemstra (1996:201), biotechnology is used in agriculture to:

- improve the yield from crops; by using the techniques of modern biotechnology; one or two genes may be transferred to a highly developed crop variety in order to impart a new character so as to increase its yield.
- reduce the vulnerability of crops to environmental stresses; crops containing genes that may enable them to withstand biotic and abiotic stresses may be developed. For example, the engineering of crops better able to withstand harsh environments such as drought and salinity. Researchers have also created transgenic rice plants that are resistant to the yellow mottle virus.
- increase the nutritional qualities and quantity of food crops; the proteins in foods may be modified in order to increase their nutritional qualities. For example, proteins in legumes and cereals may be transformed to provide the amino acids which are needed by human beings for a balanced diet.
- improve the taste, texture and appearance of food; modern biotechnology may be used to slow down the process of spoilage so that fruit may ripen longer on the plant and then be transported to the consumer with a still reasonable self life. This resultant reduction in spoilage may expand the market for farmers in developing countries.
- reduced dependence on fertilisers, pesticides and other agrochemicals; most of the current commercial applications of modern biotechnology in agriculture are aimed at reducing the dependence of farmers on agrochemicals.
- produce novel substances in crop plants; biotechnology is also being applied for novel uses other than food. For example, oilseed may be modified to produce fatty acids for detergents, substitute fuels and petrochemicals. Potatoes, tomatoes, tobacco, lettuce, safflowers, and other plants have also been genetically-engineered to produce insulin and certain vaccines (Bunders *et al* 1996:201).

Some of the key outputs of biotechnology include bananas that produce human vaccines against infectious diseases such as hepatitis B; fish that mature more quickly; cows that are resistant to mad cow disease; fruit and nut trees that yield years earlier than they would have done, and plants that produce new plastic with unique properties (HGP 2008). In 2006, the following countries were responsible for 97% of the global transgenic crops; the United States (53%), Argentina (17%), Brazil (11%), Canada (6%), India (4%), China (3%), Paraguay (2%) and South Africa (1%) (HGP 2008) . In addition, biotechnology innovation affects the value of biological assets by enhancing both productivity and genetic composition. In some cases genetically modified products are priced differently from other products in the same species as a result of effects of the genetic engineering on intrinsic values (HGP 2008).

2.3.3 Biofuel

According to Columbian Analytical Services (2009), biofuel may be defined as the solid, liquid or gaseous fuel that is obtained from relatively recently lifeless or living biological material. This biofuel is different from fossil fuels, which are derived from long dead biological materials. There are certain agricultural products which are grown specifically for biofuel production (AREO 2009). These include corn, switchgrass, and soybeans, (primarily in the USA); rapeseed, wheat and sugar beet (primarily in Europe); sugar cane in Brazil; palm oil and miscanthus in South-East Asia; sorghum and cassava in China; jatropha and pongamia pinnata in India; and pongamia pinnata in Australia.

There are two common strategies for producing liquid and gaseous biofuels. According to EMPRES (2009) the first strategy involves growing crops high in either sugar (sugar cane, sugar beet, and sweet sorghum) or starch (corn/maize), and then using the yeast fermentation to produce ethyl alcohol (ethanol). The second strategy involves growing plants that contain high amounts of vegetable oil, such as oil palm, soybean, algae, jatropha, or pongamia pinnata.

When these oils are heated, their viscosity is reduced, and they may either be burnt directly in a diesel engine, or else they may be chemically processed to produce fuels such as bio-diesel.

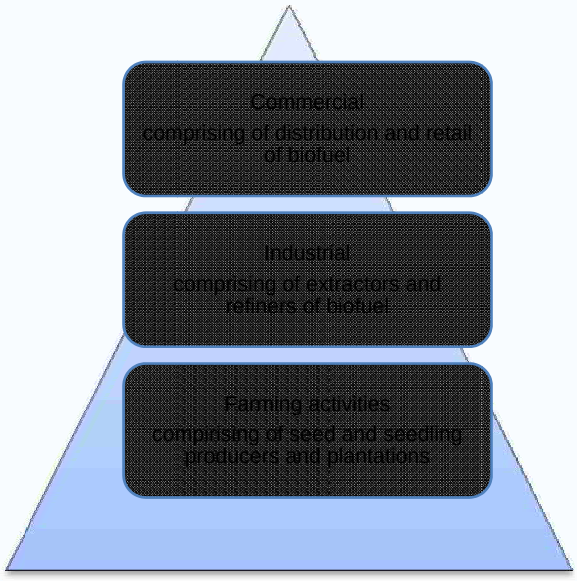
The world today is faced with an increased demand for fuel energy but, at the same time, it is threatened with a depletion of fossil fuel. According to Kojima and Johnson (2006:1) the recent surges in the world oil prices, the need for sustained energy security, and concerns about climate change as a result of greenhouse gas (GHG) emissions have prompted many countries to pursue avenues for commercialising biofuels. For the developing countries biofuels represents a way in which to stimulate rural development, create jobs, and save foreign exchange. In order to ensure sustainability, many countries are promulgating policies and legislation to promote biofuel production in what is seen as alternative fuel for transport.

The Australian government promotes alternative fuels as a means of diversifying Australia's fuel mix (APEC 2008). In order to support alternative fuels and their use the Australian government has committed substantial resources for grants and this, in turn, is being seen as presenting a new opportunity to the agriculture sector. In a joint initiative between, *inter alia,* Air New Zealand, Boeing and Rolls-Royce, Air New Zealand, on 3rd December 2008, was the first commercial airline to power one of its jets with a second generation non-food biofuel made from the jatropha plant (Chambers 2008). The aim of the joint initiative is to help find suitable replacements for the jet fuels of today that are sustainable and have a lighter impact on the environment. The American pipeline company Kinder Morgan Energy Partners (2009) has announced the first successful commercial shipment of bio-diesel to be transported through a pipeline.

According to a paper presented jointly by Kalumiana, Muchai and Lyewe (2008:7) the question is when and also the extent to which biofuel may revolutionise the less developed countries.

Kalumiana et al (2008:10) identify farming activities as both the primary and the core of the biofuel industry. An outline of this industry is summarised in figure 2.3 below:

Figure 2.3 Illustration of biofuel industry



Source: Kalumiana *et al* (2008:10)

The increased attention shifting to biofuel as alternative fuel will certainly affect the usage and value of those biological assets that may be employed directly for the purpose of biofuel, and it may also indirectly affect the value of the food crop. According to the Food and Agricultural Policy Research Institute (Dabson 2008:2) the expanding biofuel production has, contributed to significant increases in the grain and oil seed prices in the United States.

2.3.4 Organic and inorganic farming methods

Organic farming refers to a form of agriculture that relies on crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and to control pests (IFOAM 2009). This form of agriculture either excludes or strictly limits the use of both synthetic fertilisers and synthetic pesticides, plant growth regulators, livestock feed additives, and genetically modified organisms. According to the International Federation of

Organic Agriculture Movements (IFOAM 2009), organic agriculture sustains the health of soils, ecosystems and people by relying on ecological processes, biodiversity and cycles adapted to local conditions. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved (IFOAM 2009).

Inorganic farming, on the other hand, uses manufactured chemical products such as fertilisers, pesticides and herbicides. The proponents of organic methods of agriculture argue that this form of agriculture imposes fewer external costs on society through the minimising of pesticides, nutrient runoff, excessive water usage, and various other problems (IFOAM 2009). However, although the organically produced agricultural produce does reduce the agrochemical residues, there are no other proven qualities which are believed by the lay public to improve health (Magkos, Arvaniti & Zampelas 2003:365). However, these unsubstantiated beliefs cause disparities in product pricing in most commodities markets in favour of the organic product, which, to a significant extent, may also influence the value of the biological assets.

2.3.5 Carbon banking and forest sequestration

Carbon banking, or carbon sequestration, refers to the process of growing trees in order both to capture and to store carbon dioxide from the atmosphere. According to the Black Bear Conservation Coalition (BBCC 2009), when existing forests are conserved and sustainably managed, and cleared forests are replanted, such forest may become extremely effective, long-term carbon storage banks. Managed forests may provide society with much needed carbon banks, as well as with wood products, clean water, flood water storage, recreational opportunities, and fish and wildlife habitats. Energy companies pay money to landowners to create carbon banks so they may receive the carbon credits that are traded on the open market. Carbon banking is on the rise and it will, in all likelihood, become a driving force behind re-forestation.

CNN International (2008) explains the way in which carbon trading works: under the Emission Trading Scheme (ETS) system, approximately 12,000 polluting installations across the EU have been "capped" with the greenhouse gas quotas based on the host countries' Kyoto obligations. Those companies that exceed their “caps” have to buy "carbon permits" from other companies that operate below their own quota. In terms of the Clean Development Mechanism (CDM) scheme (CNN International 2008), companies in the developed world that have exceeded their “caps” are able to pay off their carbon debt by investing in CDM approved eco-projects in developing countries by using "carbon credits" – one credit equals one tonne of avoided carbon dioxide (CO_2) equivalent gases that would, otherwise, have been pumped into the atmosphere.

In Kenya, Carbon Manna Unlimited, a California based company, has pioneered carbon trading and according to Kiringa, the chairperson of the Kenyan operations, (in Ndwiga 2009:4) this will significantly improve farming income and farm values through re-forestation. According to a study carried out in the USA by Stavins and Richards (2005:17), the key factors that affect the estimates of the cost of forest carbon sequestration include the “…changes in forest and agricultural product prices…” as well as the opportunity cost of the land used.

2.4 History of the financial reporting of biological assets

In many countries, the accounting practices in respect of agricultural activities have traditionally received little attention from accounting researchers, practitioners and regulators. Argiles and Slof (2000:1) note that a gap existed between the importance accorded to the accounting function and the low level of bookkeeping and accounting practice in the agriculture sector. They also note that there are unique particularities in the agriculture sector that make the application of the general accounting rules both difficult and expensive (Argiles & Slof 2000:1). Until the issue of IAS 41, *Agriculture*, any pronouncements on agricultural accounting had emerged in an ad hoc fashion on a country-by-country basis. According to Herbohn (2005:1) “… the release of International Accounting Standard (IAS) 41, *Agriculture* by the International

Accounting Standards Board (IASB) changed agricultural accounting from a domestic issue dealt with by individual countries to a global issue". This explains the reason why IAS 41 was met with a mixed reaction from both accountants and reporting entities and why it was criticised for being too academic and removed from commercial reality (IASC 2000:CL45).

The Accounting Standards Executive Committee (AcSEC) of the American Institute of Certified Public Accountants (AICPA) (2000) commented on the IASC's July 1999 exposure draft *Agriculture* (ED 65) noting it did not agree with the basic premise of ED 65 that all biological assets, as defined in ED 65, should be measured and recognised in financial statements at fair value. The AcSEC believed that, for the most part, the historical cost model is more appropriate than fair value in the accounting of biological assets (AICPA 2000). Elad (2004:621) argues that in the absence of a fundamental revision in view of major conceptual differences between the notions of income, production and value added, it would be virtually impossible to implement IAS 41 in Francophone countries.

The following sections provide a brief overview of the evolution of the accounting practices for biological assets in Australia, the United States of America (USA), the United Kingdom (UK), China, Brazil and Kenya. The USA, the UK and China are classified by International Monetary Fund (IMF) (2009) as high income, advanced economies, while Kenya and Brazil are classified as emerging economies. Kenya, the background against which this research is conducted, is perceived as the gateway to the East and Central African regions. In addition, Kenya's free market policies have a significant influence on trade within the East and Central African regions. The USA and the UK remain key trading partners of Kenya (EPC 2009), while China is the emerging destination for Kenya's fresh produce. Australia is considered to be a representative of the Oceanic regions while Brazil represents the Latin America. The objective of selecting these countries was to achieve regional and trade balances.

2.4.1 Australia

In Australia, agriculture has, historically, played a dominant role in the economy. However, the relative importance of agriculture has declined in recent years, with much of this decline being occasioned by shifts in consumer demand, changes in government policies, technological advances and innovation, and emerging environmental concerns (AGPC 2005). In 2004, the agricultural sector generated 4% of GDP directly while it employed 4% of the workforce. Agriculture has become increasingly export oriented, with approximately two-thirds of production being exported. The agricultural exports accounted for approximately 22% of the total exports in 2004. Most of the agricultural productions are concentrated in the larger farms, which account for the bulk output. The small scale farming operations comprise mainly family businesses.

In Australia, a comprehensive agricultural accounting framework was introduced with the issue of AASB 1037, *Self-Generating and Regenerating Assets,* which became effective in 2001 (AASB 1998). This accounting regulation, which drew mixed reaction from both accounting professional as well as farmers, introduced the requirement of the valuation of Self-Generating and Regenerating Assets at Net Market Value (AASB 1998). Those opposed to this new accounting regulation sighted mainly the difficulty of the practical application of net market value to plantations and vines which are permanently attached to land. This opposition resulted in the Board suspending implementation by one year from June 2000 to June 2001 (Williams & Wilmshurst 2008:4). According to Ravlic (in Williams & Wilmshurst 2008:4) firms were experiencing problems in understanding the new rules and they needed more time to determine how they were going to gather the necessary information required under the standard.

AASB 1037 was reviewed and replaced with AASB 141, effective periods beginning on or after 1 January 2005 (AASB 2006:7). It was noted that the scope of AASB 141 was narrower than AASB 1037 because AASB 141 relates to those biological assets which are applied in

agricultural activity only and it excludes the following Self Generating and Regenerating Assets (ComLaw 2004):

- non-human living animals and plants that do not relate to agricultural activity, for example greyhounds, horses, pigeons, performing animals held in a theme park, investment in a forest as a carbon sink, and so forth
- non-human living assets other than animals and plants, for example viruses and blood cells (ComLaw 2004) .

AASB 141 (ComLaw 2004) requires biological assets which relate to agricultural activity to be measured at fair value less estimated point-of-sale costs from the time of initial recognition up to the point of harvest. AASB 141 (ComLaw 2004), which is consistent in all material respects with IAS 41, *Agriculture* which was issued by the IASB, presumes that it is possible to measure fair value of biological assets reliably but it, nevertheless, contains a rebuttal to the effect that if, on initial recognition, the market-determined price or value is not available and for which alternative estimates of fair value are clearly unreliable, then the entity is to measure assets at cost, to depreciate the asset and to subject the asset to impairment test screening. If the fair value of an asset becomes reliably measurable at some point after initial recognition, then that asset must be measured at net fair value (ComLaw 2004).

2.4.2 The United States of America

Historically, rural America has been the basin of agriculture and it has contributed significantly to the national economy. However, according to Hara and Naipaul (2008:2), as the USA became an industrialised nation, so the role of agriculture in the American economy diminished, and consequently, rural America, which is the source of 90% of American agricultural production, has lost its economic base. However, according to the Farm Financial Standards Council (FFSC) (1997:2) production agriculture has played a major role in the overall US economy since its inception. In addition, as an industry, it is unique because of the large number of participants

comprising mainly small, family-owned firms, the diversity of individual firm production, and its financial and marketing characteristics.

According to FFSC (1997:I–2) the decade from 1973 to 1983 spans a period in the history of American agriculture which started with optimism; bordering on euphoria; and ended with discouragement and disillusionment, bordering on depression. During the subsequent period of 1983 to 1987, agriculture suffered through what has now been termed the “farm debt crisis”. Although, according to Harl (1990:13), this “farm debt crisis” could be attributed mainly to the low rate of return on farm assets, the high level of capital intensity and sensitivity to changes in export supply and demand, the experiences of this period highlighted the fact that the methods used to determine, measure and analyse the financial position and the financial performance of agricultural producers had been either totally inadequate or seriously underutilised. It is this “farm debt crisis”, the increasing complexities of financial transactions, and the volatility of market prices that has dramatically increased the focus on farm financial reporting.

In the USA the diversity of accounting practices within the agriculture sector may be related to the fact that many farm operations are single-family operations of a hybrid nature, mixing the personal and business, and with the owners possessing limited accounting knowledge (FFSC 1997:II–1). The basic design objectives of the recordkeeping systems, predominantly cash-based, that had developed over the years had been simplicity and ease of use. The focus had been to generate tax information as well as to ascertain farm production information. The efforts of money lenders, accountants, academicians, and others in the agricultural finance field who had responded to the need for improved information, with countless educational programmes, software packages, forms, and other tools to assist the farmer in providing more complete information, had resulted in still more abbreviated financial reports (FFSC 1997:II-1). Although the definitions and processes used by these interest groups were, at a basic level sufficiently consistent to each other, to achieve accrual basis income, they had not been

subjected to any formal attempt at the consistency and standardisation required by the FFSC (1997:II.1).

The FFSC (1997:II–3) represents the most extensive and the most aggressive effort in terms of a consistent process for production agriculture financial reporting. Its main objectives are affirmations of GAAP, the identification of instances where GAAP differs from the practices currently in use by certain money lenders and analysts; the provision of guidelines for the treatment of certain types of transactions unique to agriculture in order to be in conformity with GAAP; as well as suggestions for alternative approaches to financial analysis in areas in which the FFSC is of the opinion that it is not possible for several of the agricultural producers currently to achieve GAAP conformity.

The only industry specific guidance for agricultural issues is the *Statement of Position (SOP) 85-3, Accounting by Agricultural Producers and Agricultural Cooperatives*, which was issued by the American Institute of Certified Public Accountants (AICPA) in April, 1985 (Jarnagin 2008:1268). This statement prescribes the accounting treatment for inventories, development costs of land, perennial crops, and breeding livestock, and, in the main, advocates historical cost as an appropriate asset measurement basis except in rare circumstances in which realisable value may be considered as an alternative.

Despite the SOP 85-3 preferring the historical cost approach it would appear that the market value approach was more dominant (FFSC 1997:II–2) as a result of the money lender's need to determine the reasonableness of collateral values; the lack of records in terms of which to track and to accumulate historical costs; the hybrid nature (personal and business) of many farm financial statements; and the dramatic increase in the investment in capital assets during a period in which the value of these assets was appreciating substantially, thus causing the true value of the assets to bear little resemblance to their historical cost, adjusted for depreciation.

2.4.3 The United Kingdom

According to Lisa (2006), there is an accounting practice prevalent in the UK agricultural industry which is termed the "gross margin" and which was innovated through government sponsored agricultural extension programmes in the post-war period in Britain. Juchau and Hill (1998:166) note that, prior to this, there were three men, Daniel Hall, Charles Orwin and James Wyllie, who, at different periods from the 1890s through the two World Wars, had promoted change and development in the agricultural accounting in Britain and who had provided leadership in terms of the use of accounting information in efficient farm management. Hall, a proponent of the full costing method, had "… for some time … advocated that the business side of farming was as important as the scientific side, and that cost determinations were critical for judging farm success" (Juchau & Hill 1998:166).

According to Juchau and Hill (1998:171) the principal critic of full costing was J.S. King who had believed that it was not possible to use the accounting records of farmers as a basis for the kind of full costing and analysis that was emerging in other sectors of British industry. King (in Juchau & Hill 1998:171) points out that the joint costs of mixed farms, which, in turn, benefited a succession of crops, often amounted to 40% or more of the total costs. The allocation of these costs to separate products would be too arbitrary to be of value in assessing the profitability of individual activities and the likely results of changes in the scale of each individual activity.

King (in Juchau & Hill 1998:171) suggests that it would be possible for farmers to estimate the prime costs of an enterprise of a certain size, and then to calculate the probable profit margin between these prime costs and the receipts for the separate enterprises. This suggestion lay dormant for a quarter of a century, until it was taken up in the 1950s, at which time, it was developed into a form of analysis which became known as "margin analysis" and which was used by advisers to assess the enterprise performance of mixed farms.

This practice of "margin analysis" is not maintained primarily by the farmers but rather by both actors within Government agencies and by agricultural service industries advisors (Lisa 2006). According to the ICAEW (2007a), companies in UK are allowed to report under either IFRSs or UK GAAP. There is no equivalent Standard in UK GAAP for the accounting treatment related to agricultural activity (FRAB 2007:5). As an example of existing practice, the Forestry Commission (FRAB 2007:5) does not account separately for biological assets (trees). These biological assets are included in the land values, which in turn, include bare land, any trees which may be growing on land and roads, and which are valued in terms of an existing use basis. In instances in which forest is owned by a body such as the Forestry Commission is for non-agricultural activity, such as recreational purposes, such forest would fall within the scope of IAS 16, Property, plant and equipment (FRAB 2007:5).

2.4.4 China

China is one of the world's economic giants; the fourth largest in 2007 in terms of GDP, and it has had an annual growth rate exceeding 9% for nearly three decades (MAP 2008). Trade in agri-foods has expanded significantly, especially in terms of the imports of soybeans and cotton and the exports of fruits and vegetables. In fact, in 2003, China became a net agricultural importer with a deficit of over $6 billion by 2006, importing mainly commodities and exporting final products. China is now the third largest trader after the European Union (EU) and the USA (MAP 2008). However, the importance of agriculture has declined with its share in overall GDP declining from 27% in 1990 to below 12% in 2006 in an economy in which industry and services are the main drivers of growth. These main drivers of growth together accounted for over 88% of GDP in 2006 (MAP 2008). Nevertheless, agriculture is still a key employer of 39% of total employment, with paddy rice constituting the top in the agricultural sector followed by fresh vegetables (MAP 2008).

In China the authority for formulating, promulgating and administering accounting standards is not the Accounting Society of China (ASC) or the Chinese Institute of Certified Public Accountants (CICPA), but rather the Ministry of Finance (MOF) (InterChina 2009:2). However, the ASC and the CICPA are responsible for regulating, governing and monitoring the reform and development of the accounting profession in China. In 2006 the Chinese Government issued the Accounting Standards for Business Enterprises (ASBEs). These rules, which are mandatory for all listed Chinese companies and which are gradually being phased in for all other enterprises, have resulted in significant changes to China's previous Generally Accepted Accounting Principles (InterChina 2009:3).

According to Deloitte (2006), ASBE 5 requires that the cost model be used to measure biological assets unless there is evidence that it would be possible to obtain the fair value of biological assets reliably on a continuing basis. ASBE 5 also provides more guidance on the way in which to account for different types of biological assets using the cost model. In terms of the cost model, impairment losses in respect of consumable biological assets may be reversed provided certain conditions are met; impairment losses in respect of bearer biological assets may not be reversed; and impairment losses shall not be recognised for welfare biological assets (biological assets held primarily for providing shelter or for environmental protection purposes) (Deloitte 2006).

2.4.5 Brazil

Brazil's agriculture plays an important role in the overall economy of the country and in easing the country's balance of payments problems (MAP 2006:1). Primary agriculture accounts for 8% of GDP and approximately 30% of exports which means that it ranked as the third largest agricultural exporter in 2002 with lead products of sugar cane, maize and soybean. The agricultural area in Brazil is surpassed only by China, Australia and the USA (MAP 2006:3).

The northern area of Brazil comprises the Amazon tropical rainforest. The infrastructure in this region is poor while the agriculture activities are small-scale and predominantly subsistence. The north east is part tropical and part semi-arid with limited agricultural potential. Traditional crops such as sugar cane and cocoa dominate (MAP 2006:2). In the southern part of the country, soybeans and wheat farming are dominant, and they cover between half and two thirds of the area. This area is characterised by a semi-temperate climate, good soils, modern inputs and technology, reasonable infrastructure and generally efficient farms (MAP 2006:5).

In Brazil the accounting guidelines (UNCTAD 2006:20) are developed by industry regulators and they are influenced by both tax and the corporate law (PWC 2009c). As a result of the specific standards which are issued by industry regulators such as the Central Bank of Brazil (BACEN), the Superintendence of Private Insurance (SUSEP), the National Electric Energy Agency (ANEEL), and the National Telecommunications Agency (ANATEL) the practices in respect of companies in one industry may differ from those of companies in other industries. This would explain why, according to PWC (2009c), there are no specific rules for the accounting of biological assets in Brazil, although, in the main, historical cost is used. However, in certain operations, measuring at fair value is permitted (PWC 2009c).

2.4.6 Kenya

Agriculture remains the most important economic activity in Kenya, despite the fact that less than 8% of the land is used for crop and feed production (Alila & Atieno 2006:3). Less than 20% of the land is suitable for cultivation, of which 12% only is classified as high potential agricultural land with adequate rainfall. Approximately 8% is classified as medium potential land with the remainder of the land being either arid or semiarid. Approximately 80% of the work force is engaged in either agriculture or food processing (Alila & Atieno 2006:3).

Farming in Kenya is typically carried out by small producers who usually cultivate no more than two hectares using limited technology (Kimani 2010). The farming in Kenya is predominantly a subsistence activity. These small farms, which are operated by about five million farming families, contribute approximately 75% of total production, although there are still important coffee, tea, and sisal plantations. It was not until recently when the government introduced reforms and subsidies, aimed at encouraging an increasing number of small-scale farmers to grow cash crops that focus shifted to small-scale farming as a commercial activity (Kimani 2010).

The Kenya Accounting Standards (KAS) did not make any provision for the accounting of biological assets. Despite the fact that the Kenya Accounting Standards have been replaced with International Accounting Standards (currently IFRSs) (FSF 2009), compliance with these standards is largely voluntary and there is no research data available to assess the degree of compliance beyond that of the 67 listed companies (FSF 2009). The small-scale commercial farmers, in terms of whom surpluses only are sold, employ mainly a cash-basis of accounting. The practices of the valuation of agricultural land, on an existing use basis, without separation of the biological assets and the land also being prevalent.

2.5 Summary and conclusions

The relative importance of small-scale farming in what may be described as small and medium-sized entities continues to take the centre stage as a key pillar for poverty reduction and economic development. As highlighted in the introduction it may be possible to achieve economic development through the commercialisation of small-scale, family based and culturally practised farming activities.

The second part of the chapter highlighted some of the most significant trends in farming and the way in which these trends affect the value of biological assets. The most phenomenal

evolution in the agricultural sector may be seen as the innovation in biotechnology in terms of which agricultural productivity may be enhanced. Although biofuel is criticised for affecting the natural ecosystem, it also presents new opportunities for farmers in a world which is threatened by the depletion of fossil fuel. Another evolution in the agricultural sector is its role in the management of climate change in terms of which it is perceived as a carbon store.

The third part of the chapter provided a brief overview of the diverse practices in respect of the accounting of biological assets. The vast majority of farms and ranch operations are organised as either family business or as sole proprietorships. Most farms are of a hybrid nature and they tend to rely on non-farm income as an important contributor to their debt repayment capacity and the overall viability of the farming operation. Furthermore, the segregation of assets and liabilities for proprietorships between farm businesses, other businesses, and/or personal activities may often be a complex task. Own labour is also often not properly costed, and neither is the family consumption from the farm. The application of the entity concept will remain a significant challenge in the streamlining of the accounting for small and medium-sized entities in the agriculture sector and, as already explained, this challenge has contributed to the diversity of accounting practices in terms of biological assets.

The application of historical cost as a basis for the valuation of biological assets is, in itself, inhibiting because, as a result of biological transformation, biological assets are unique and, therefore, there may be little or no cost available to attribute to these biological assets. For example, consider the case of a farmer with two bulls, one of which has been reared from stock with, thus, no costs “attached”. The other bull was purchased in a market with, thus, a substantial cost attached to it. Although the reared animal may be more valuable than the one that was purchased the historical data may indicate otherwise. Whereas certain guidelines in the USA and China require the historical cost of biological assets to be determined by

accumulating costs, this may require rigorous record-keeping as well as complex cost allocation techniques to track down the costs should more than one agricultural activity be involved.

In certain other cases, such as the cultivation of forests and orchards or the freelance rearing of animals, there may be no cost to accumulate. It is, thus, obvious that historical cost involves uncalled for and unnecessary complexities and that a more simple method of valuation of biological assets, such as the fair value may be appropriate. Chapter three will focus on the use of fair value as the basis for the valuation of biological assets. It will also assess the way in which use of fair value may influence the quality of financial statements.

Chapter 3

Global Trends and Harmonisation in respect of Fair Value Accounting

3.1 Introduction

In exploration of the history of the reporting of biological assets, it was noted in chapter 2 that there has been considerable diversity in the accounting of biological assets. This diversity has included cash-based accounting, historical cost and net market values. Clearly, the cash-based accounting obviously violates fundamental accounting principles and it may not necessarily result in complete and accurate financial statements. The difficulties in terms of the application of historical cost were highlighted and it was pointed out that these difficulties stem mainly from the complexity of recording keeping, cost allocation and, in certain cases, the absence or immaterial amounts for cost of biological assets, which implies that the biological assets are not being recognised. However, the main rift has between the application of historical cost and fair value. The small and medium-sized entities (SMEs) which comprise over 90% of the global entities are not left beside in this discussion.

When making representations to the House of Commons Treasury Committee (HCTC) (2009:89), Sir David Tweedie, the Chairman of the International Accounting Standards Board (IASB) argued that fair value accounting recognised current problems more rapidly than alternative valuation methods would have done. These sentiments were echoed by Michael Izza, the Chief Executive of the ICAEW, when he stated that "…painful though fair value may be, it has got the news out much faster than other methodologies might have done, leading to speedier actions to deal with the situation" (HCTC 2009:89).

Chapter 3 highlights the application of fair value to biological assets. In view of its comparability and relevance the application of fair value is regarded as a preferred alternative in terms of both harmonisation and convergence of the financial reporting. Chapter 3 commences by placing the

fair value concept into perspective in line with the proposals of the fair value measurement exposure draft. The chapter will then elaborate on the various pronouncements that regulate the reporting of biological assets and investigate the way in which such pronouncement may be influenced by the proposal of fair value measurements. The remainder of the chapter will focus on the fair value of biological assets, the way in which it influences the information available to various groups of external users and the main issues involved in its application. The IFRS for SMEs requires fair value to be applied if determinable without undue cost or effort. Section 3.2 discusses the concept of fair value in details as it would apply to SMEs.

3.2 The concept of fair value

3.2.1 Definition of fair value

The framework for the preparation and presentation of financial statements does not define fair value although it does define the realisable (settlement) value (IASB 2009a:95), in respect of assets as the amount of cash or cash equivalents that may currently be obtained by selling the assets in an orderly disposal, while liabilities refer to the undiscounted amounts of cash or cash equivalents which are expected to be paid in order to satisfy the liabilities in the normal course of business. In terms of IAS 41 (IASB 2009a:2352) fair value is the amount for which an asset may be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. As and when the exposure draft on fair value measurement is approved for adoption it is expected to over-shadow, but not to delete these definitions (IASB 2009b:62). In terms of the exposure draft on fair value measurement (IASB 2009b:13) fair value is the price that would either be received in selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The definitions contained in the framework, the IAS 41, *Agriculture* and the exposure draft on fair value measurement are consistent and they would appear to emphasise the 'exit value' as the bench-mark basis in the determination of fair value. This exit value must be determined in a

current and orderly transaction. The Committee of Chief Risk Officers (CCRO), a coalition of energy companies (Marck 2003:36), recommends that mark-to-market be used "when there is a liquid market in which the underlying commodities or instruments are being actively traded which can be reached when the market is sufficiently deep to accommodate exchange of the positions being evaluated". Ernst & Young (2007:4) in their response to the discussion paper on fair value measurement, argue that fair value is a term of art which is not informative in view of the fact that it encompasses a number of current value measurement bases. Ernst & Young (2007:4) propose the use of the term market-based exit price.

3.2.1.1 The exit value

The fair value based on exit value is either asset or liability specific and, in accordance with the exposure draft on fair value measurement, it takes into account the characteristics of the relevant asset or liability (e.g. the condition and location of the asset and restrictions, if any, on its sale or use) if market participants should consider these characteristics when determining the price for the asset or liability at the measurement date (IASB 2009b:14). This definition is similar to the requirement of IAS 41, *Agriculture* (IASB 2009a:2352) which indicates that the fair value of an asset is based on its present location and condition. Accordingly, the fair value of cattle on a farm is the price for the cattle in the relevant market less the transport and other costs of transporting those cattle to that market.

A fair value measurement shall assume that the transaction either to sell the asset or to transfer the liability takes place in the most advantageous market to which the entity has access (IASB 2009b:16). The most advantageous market is that market that either maximises the amount that would be received in selling the asset or minimises the amount that would be paid to transfer the liability, after taking into account transaction costs and transport costs. Although transaction costs are taken into account when determining the most advantageous market, the price used to measure the fair value of the asset or liability should not be adjusted in terms of these costs.

Transaction costs refer to the incremental direct costs either to sell the asset or transfer the liability. Transaction costs are not a characteristic of the relevant asset or liability; but rather, they are specific to the transaction and will differ depending on the way in which an entity enters into a transaction for an asset or liability. Transaction costs do not include the costs that would be incurred to transport an asset to or from its most advantageous market. According to the IASB (2009b:16) if location is a characteristic of the asset (as might be the case for a commodity), the price in the most advantageous market shall be adjusted for the costs, if any, that would be incurred to transport the asset to or from that market.

In view of the fact that different entities with different activities enter into transactions in different markets, the most advantageous market for the same asset or liability might be different for different entities. Accordingly, the most advantageous market shall be considered from the perspective of the reporting entity. The IASB (2009b:17) explains that the market in which the entity would normally enter into a transaction for the asset or liability is presumed to be the most advantageous market and, in the absence of evidence to the contrary, an entity may assume that the principal market for the relevant asset or liability is the most advantageous market, provided that the entity is able to gain access to the principal market. The principal market is that market with the greatest volume and level of activity for the asset or liability. The IASB (2009b:17) explains that an exit price is not a liquidation value which may be a forced transaction, but rather, the price in an arm's length transaction which has been concluded in the normal course of business between knowledgeable, willing parties.

3.2.1.2 Current market transaction

Although it is essential that an entity have access to the market at the measurement date, it is not essential that the entity be able to sell the particular asset or transfer the particular liability on that date, for example if there is a restriction on the sale of the asset. However, such restrictions are not relevant in the determination of fair value and the fact that the asset is not on

sale not withstanding, the proposed standard on fair value measurement requires the value at measurement date to be the basis of determination of fair value. According to the IASB (2009b:14) the transaction either to sell an asset or to transfer a liability occurs at the measurement date, taking into account both market conditions at that date and the market's expectations about future economic events related to the asset or liability. The IASB (2009b:14) explains that a fair value measurement is a market-based measurement, and not an entity-specific measurement. Accordingly, a fair value measurement uses the assumptions the market participants would use when pricing the asset or liability, including assumptions in respect of risk.

3.2.1.3 Orderly transaction or arm's length

A fair value measurement assumes that the asset or liability (IASB 2009b:14) is exchanged in an orderly transaction between market participants at the measurement date. An orderly transaction is a transaction that assumes exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities. In other words, an orderly transaction is not a forced transaction, for example, a forced liquidation or distress sale. The market information and pricing mechanism are freely accessible to all market participants equally and there is sufficient level of market activities both to allow for free choice on the part of buyer and seller and to promote competitiveness.

3.2.1.4 Un-orderly transactions

According to KPMG (2009:2) an entity must consider whether the information available indicates that an observed transaction was not orderly. The reason for this stipulation is the fact that a transaction price that is associated with a transaction that was not orderly is not determinative of fair value or the risk premiums of market-participants. An entity should use judgement to

determine whether the evidence indicates that a transaction was not orderly. In this respect the entity should take into account factors such as the following:

- the exposure to the market for a period prior to the measurement date was not adequate.
- the seller marketed the asset or liability either to a single market participant or to cartels.
- the seller is in, or near bankruptcy, which occasioned the distressed or forced transaction.
- the transaction is isolated when compared to other recent transactions in respect of similar assets or liabilities (KPMG 2009:2).

3.2.1.5 Market participants

According to the IASB (2009b:15) the term "market participants" refers to buyers and sellers in the most advantageous market for the asset or liability and these buyers or sellers are:

- *independent of each other* - In terms of IAS 24, *Related Party Disclosures*, the IASB (2009a:1418) explains that the party relationship may have an effect on the profit or loss arising from the transaction and the financial position of an entity as related parties may enter into transactions into which unrelated parties would not enter. In addition, transactions between related parties may not be concluded at the same amounts as transactions between unrelated parties. For example, an entity that sells goods to its parent at cost might not have sold on those same terms to another customer;
- *knowledgeable*, that is, they are sufficiently informed to make an investment decision and they are presumed to be as knowledgeable as the reporting entity in terms of the asset or liability;
- *able to enter into a transaction for the asset or liability;*
- *willing to enter into a transaction for the asset or liability.* In addition they are motivated but not forced or otherwise compelled to enter into the transaction.

3.2.1.6 The valuation premise

The valuation premise provides information about the "hypothetical" exchange that forms the basis for the fair value measurement, and it takes into account the way in which marketplace participants would use the asset (FASB 2004:8). However, according to the IASB (2009b:17) a fair value measurement considers the ability of the market participant to generate economic benefit either by using the asset or by selling it to another market participant who would use the asset in its highest and best use. Highest and best use refers to the use of an asset by market participants in such a way that would maximise the value of the asset or the group of assets and liabilities within which the asset would be used, taking into account the uses of the asset that are physically possible, legally permissible and financially feasible at the measurement date (IASB 2009b:17).

It would appear that the IASB is steering a middle course compared to the pioneer work that was undertaken by the FASB. The FASB (2004:2) had proposed different valuation premises for financial and for non-financial assets. In respect of a financial asset, the FASB proposes an in-exchange valuation premise to be used, while for a non-financial asset, either an in-exchange or in-use valuation premise may be used to estimate fair value. Accordingly, an in-exchange valuation premise should be used if the highest and best use of the asset is to exchange it. A going-concern or in-use valuation premise should be used if the highest and best use of the asset is to continue to use it in the same way as it was being used by the reporting entity at that time. According to FASB (2004:2) this measurement would take into account the costs involved in converting the use of the asset to its highest and best use and the effects of other related factors. For example, legal restriction on the highest and best use of an asset would preclude consideration of the highest and best use in the measurement.

3.2.2 The use of hypothetical transaction to estimate the fair value

In the absence of an actual transaction either to sell the asset or to transfer the liability at the measurement date (IASB 2009b:15), a fair value measurement assumes a hypothetical transaction at that date, with the hypothetical transaction being considered from the perspective of the market participant either holding the asset or owing the liability. In the absence of an observable market to provide pricing information, an entity may consider the characteristics of those market participants who would enter into a transaction for the asset or liability, and then use the assumptions that the market participants would use in pricing either the asset or the liability.

The hypothetical transaction notion establishes a basis for estimating the price either to sell the asset or to transfer the liability. In view of the fact that the transaction is hypothetical, it is necessary to consider the characteristics of the market participants who would enter into a transaction for the asset or liability. According to Ernst & Young (2007:3) the application of the concept of market participants involves piling hypothesis upon hypothesis and these hypotheses may be detached both from the actual transaction and from the real future cash flows.

3.2.3 Entry price approximate to exit price

According to the IASB (2009b:22), a distinction between entry price and exit price is not necessary because a current entry price and a current exit price would be equal when they relate to the same asset or liability on the same date in the same form in the same market. Although conceptually entry prices and exit prices do differ (IASB 2009b:22), in many cases the entry price of an asset or liability would equal the exit price, for example, when, on the transaction date, the transaction to buy the asset would take place in the market in which the asset would be sold. In such cases, the fair value of an asset or liability at initial recognition equals the entry price.

When an asset is acquired or a liability is assumed in an exchange transaction for either that asset or liability, the transaction price refers to the price either paid to acquire the asset or else received to assume the liability, also termed as entry price (IASB 2009b:22). In contrast, the fair value of the asset or liability represents the price that would be received to sell the asset or paid to transfer the liability, also termed as exit price. Entities do not necessarily sell assets at the prices that were paid to acquire those assets. Similarly, entities do not necessarily transfer liabilities at the prices received to assume them. In determining whether fair value at initial recognition equals the transaction price, an entity should consider factors specific to the transaction and to the asset or liability (IASB 2009b:22).

3.2.4 Hierarchy of fair value determination

In order to increase consistency and comparability the IASB (2009b:25) seeks to establish a fair value hierarchy that prioritises into three levels the inputs to the valuation techniques used to measure fair value. The highest priority is accorded to the unadjusted quoted prices for identical assets as outlined below:

- *Level 1 inputs* refer to quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity may access at the measurement date (IASB 2009b:26).
- *Level 2 inputs* refer to inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from the prices). If the asset or liability has a specified (contractual) term, then a Level 2 input must be observable for the full term of the asset or liability (IASB 2009b:27).
- *Level 3 inputs* refer to inputs for the asset or liability that are not based on observable market data (unobservable inputs). The unobservable inputs should be used to measure fair value to the extent that relevant observable inputs are not available, thereby allowing for situations in which there was little, if any, market activity for the asset or liability at the measurement date. However, the objective of the fair value

measurement remains the same, that is, an exit price from the perspective of the market participant who either holds the asset or owes the liability. Accordingly, unobservable inputs should reflect the assumptions that the market participants would use when pricing the asset or liability, including assumptions in respect of risk (IASB 2009b:28).

At level 3 it is supposed that the entity model is using unobservable inputs to estimate fair value, but, according to Liu (2009), mark-to-market is real while mark-to-model has meaning only if the model reflects reality. Despite the fact that models are operative over the long term, the market may often cause the model to fail at any one specific point for any number of reasons. As Keynes so famously said (Liu 2009) the market may stay irrational longer than market participants are able to stay liquid. Figure 3.1 depicts the order in which observable variables should be applied at level one and non-observable variable at level three as adapted from Marck (2003:37). Marck had only emphasised the differences between mark-to-market and mark-to-model while this study added the variables at the respective levels.

Figure 3.1 Illustration of the fair value hierarchy from mark-to-market to mark-to-model

Source: Adapted from Marck (2003:37)

3.3 Stipulation of different accounting pronouncements on biological assets

3.3.1 IAS 41, Agriculture

IAS 41, *Agriculture* requires biological assets to be valued at fair value less point of sale cost both on initial recognition and subsequent measurement except where it is not possible to measure the fair value reliably (IASB 2009a:2352). The initial recognition criteria for a biological asset or for any agricultural produce are basically the same (Pretorius, Venter, Von Well & Wingard 2008:680), as all other forms of assets and include the following:

- The entity controls the asset as a result of past events which may be indicated by legal ownership or branding on acquisition or birth;
- It is probable that the future economic benefits associated with the asset will flow to the entity. The economic benefits is assessed by measuring the significant physical attributes.; and
- The fair value or cost of the asset may be measured reliably (IASB 2009a:2352).

According to Pretorius *et al* (2008:681), current market for immature consumable biological assets and all bearer biological assets does not exist because such assets are retained for a long period of time in order to enhance their value. Likewise (IASB 2009b:34), there is sometimes no exchange transaction possible for an asset or a liability, for example when biological assets regenerate.

3.3.2 IFRS for Small and Medium-Sized Entities

The IFRS for SMEs (IASB 2009c:200) stipulates that, if an entity is engaged in agricultural activity, then the entity should determine, for each of its biological assets, whether the fair value of that biological asset is readily determinable without undue cost or effort. Where the fair value is readily determinable the entity uses the fair value model, while, in instances in which the fair value is not readily determinable, the entity uses the cost model for the relevant biological asset.

The IFRS for SMEs was issued as a standalone standard of which the main objective was to ease the reporting burden of SMEs and it contains the same requirements for the application of fair value as IAS 41, *Agriculture*. As per section 34.6 of the IFRS for SMEs (IASB 2009c:200), in determining fair value, an entity must take into account the following:

- If an active market exists for a biological asset or agricultural produce in its present location and condition, the quoted price in that market is the appropriate basis for determining the fair value of that asset. If an entity has access to different active markets, the entity shall use the price existing in the market that it expects to use.
- If an active market does not exist, an entity will use one or more of the following, when available, in determining fair value:
    - The most recent market transaction price, provided that there has not been a significant change in economic circumstances between the date of that transaction and the end of the reporting period;
    - Market prices for similar assets with adjustments to reflect differences; and
    - Sector benchmarks such as the value of an orchard expressed per export tray, bushel, or hectare, and the value of cattle expressed per kilogram of meat.
- In some cases, the information sources listed above may suggest different conclusions as to the fair value of a biological asset or agricultural produce. An entity must consider the reasons for those differences in order, to arrive at the most reliable estimate of fair value within a relatively narrow range of reasonable estimates.
- In some circumstances, fair value may be readily determinable without undue cost or effort even though market-determined prices or values are not available for a biological asset in its present condition. An entity must consider whether the present value of expected net cash flows from the asset discounted at a current market-determined rate results in a reliable measure of fair value (IASB 2009c:200).

For those biological assets in respect of which fair value is not readily determinable without undue cost or effort an entity must measure at cost less any accumulated depreciation and any accumulated impairment losses. The entity must measure agricultural produce harvested from its biological assets at fair value less estimated costs to sell at the point of harvest. Such measurement is the cost at that specific date when applying Section 13, Inventories of the IFRS for SMEs. Inventories include assets:

- held for sale in the ordinary course of business;
- in the process of production for such sale; or
- in the form of materials or supplies to be consumed in the production process or in the rendering of services (IASB 2009c:76).

3.3.3 Pronouncements of the International Financial Reporting Interpretation Committee (IFRIC)

The IFRIC has disseminated several issues relating to the valuation of biological assets. Such issues have ranged from accounting for obligation to replant biological assets, to the treatment of biological transformation when fair value is estimated on the basis of future cash flow and the application of highest and best use to agricultural produce. The IFRIC had initially decided that it would not issue any guidance on the way in which to account for an obligation to replant a biological asset after harvest (Deloitte 2009d). However, the IFRIC subsequently concluded that, in instances in which the restoration obligation would create an additional asset for the entity, the obligation should be capitalised as part of the asset. However, should the restoration provision not result in an additional asset for the entity, for example, restoring leased land at the end of the operating lease, the cost should be expensed (Deloitte 2009d).

In respect to IAS 41, *Agriculture* "additional biological transformation" was initially excluded from fair value determination when the present value of cash flow was used. The IFRIC considered in particular the implication of this exclusion where a valuation was based on forecast future

cash flows which would be achieved only after future biological growth. The IFRIC members supported removing the prohibition against taking into account the future growth on biological assets in view of the fact that market participants would take into account future growth when valuing these items. In addition, the IFRIC members also commented that there were risk factors in future growth that should be considered when measuring these assets (Deloitte 2009d). This discussion culminated in the amendment to IAS 41 in May 2008 (PWC 2009b:29).

Another concern of the IFRIC is the application of highest and best use of biological assets in the determination of fair value and whether agricultural assets should be measured according to its "highest and best use in the most advantageous market". The IFRIC also focused on the determination of the relevant market for immature biological assets (IASB 2007a:3). The majority of the IFRIC members appeared to agree that an active scrap market would not constitute the relevant market for immature biological assets if it were expected that the biological asset would be grown to maturity and be sold in a market for mature biological assets. In this case a market for mature biological assets would be the relevant market (Deloitte 2009d).

3.3.4 Public sector accounting standards

The International Public Sector Accounting Standards Board (IPSASB) (2009:20) issued an exposure draft in an effort to produce accrual based International Public Sector Accounting Standards (IPSAS) that are harmonised with IFRSs. The requirements of this exposure draft are the same as those of IAS 41, *Agriculture* except for the fact that the exposure draft (IPSASB 2009:28) has been expanded to include both non-exchange transactions and biological assets held for the supply of services. IAS 41, *Agriculture* includes requirements for government grants relating to biological assets measured at fair value less costs to sell which are provided for under IPSAS 23, *Revenue from Non-Exchange Transactions*.

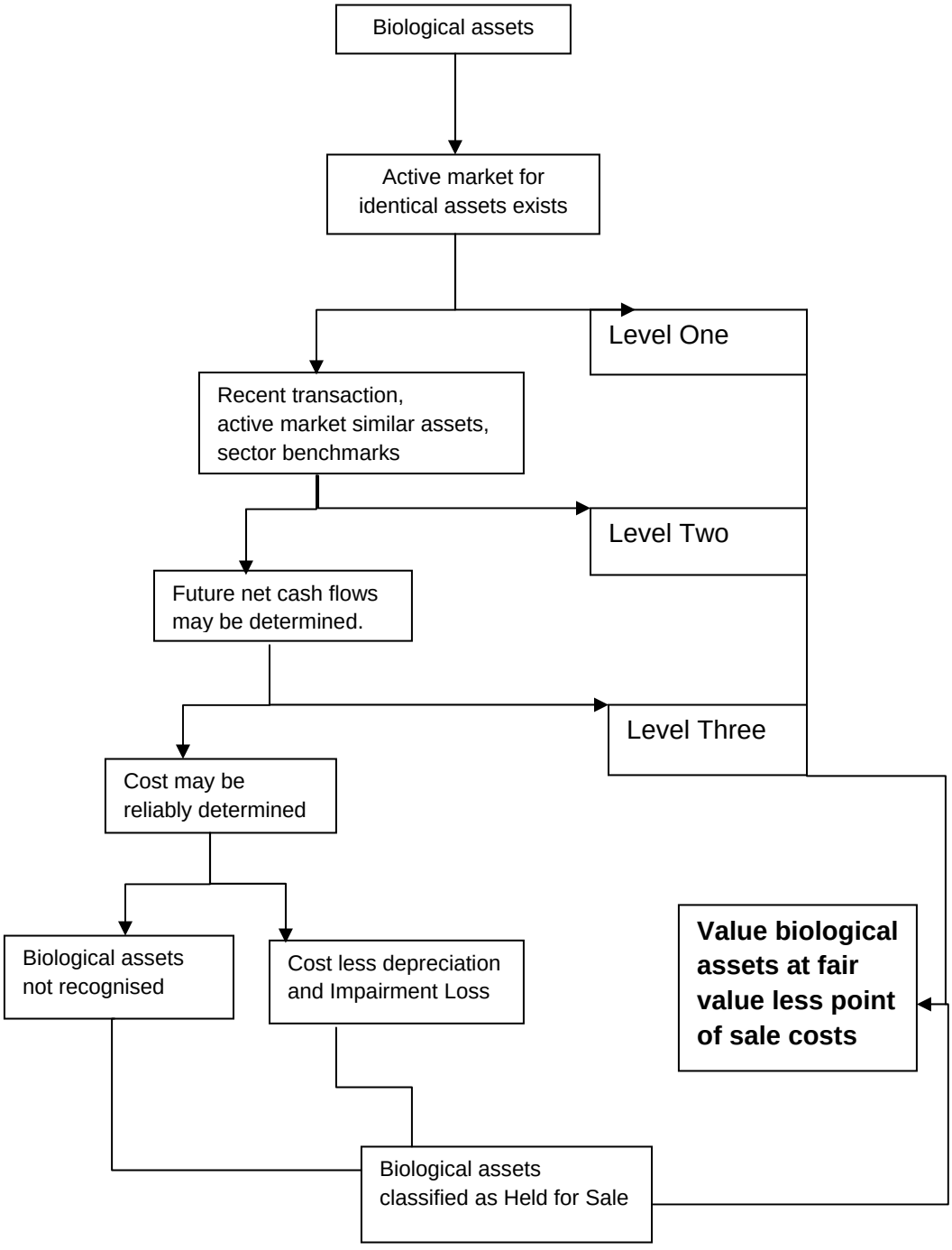
3.4 Valuation of biological assets

Agricultural entities are burdened with several kinds of risks, including price volatility (Pretorius *et al* 2008:681). However, based on the pronouncements of the various accounting standards, it would seem that biological assets should be valued at fair value less point of sale costs only if an active market exists. Much of the active market discussions have surrounded accounting for financial assets and liabilities of which the usages have expanded in the recent past. Financial markets in most parts of the globe are also well developed and are now moving to the level of integration.

Although some financial instruments are linked to commodity prices there does remain a significant disconnect between the efficiency of financial instrument trading and the related commodities, for example agricultural product futures (FASB 2004:8). Whereas the FASB preferred to isolate financial and non-financial assets when estimating fair value, the IASB sought to clarify that it would be possible to ascertain fair value for any type of asset within the same conceptual framework.

The following section discusses methods of estimating the fair value of biological assets in the light of the proposed standard for fair value measurement which is depicted in figure 3.2 as adapted from Deloitte (2004:12). Deloitte had provided a thematic view of the valuation path. This study added the level at which fair value is determined, and circumstances in which biological assets accounted for at cost are held for sale. It is assumed that when biological assets are held for sale the fair value less cost to sell can readily be determined and therefore the cast basis should be abandoned.

Figure 3.2 Illustration of biological assets valuation path



Source: Adapted from Deloitte (2004:12).

3.4.1 Fair value

The determination of fair value is based on either market observable inputs (level 1 and level 2) or non-observable inputs (level 3). In order to enhance comparability it is essential that an entity place greater emphasis on the observable variable. According to the IASB (2009b:2353), if an active market exists for a biological asset or agricultural produce, then the quoted price in that market is the appropriate basis for determining the fair value of that asset. The fair value of an asset may also be estimated on the basis of an alternative market, sector benchmarks or expected future cash flows.

3.4.1.1 Active market

According to IAS 41, *Agriculture* (IASB 2009a:2352) an active market is a market in which the items traded are homogeneous, willing buyers and sellers may normally be found at any time, and prices are available to the public. An active market is characterised by a high volume of transactions and market liquidity with narrow ask bid prices. If an entity has access to different active markets, then the entity will make use of the most relevant of these active markets. It is, therefore, clear that an organised market may exist for mature, consumable biological assets or for harvested agricultural produce only. Even should an active commodities market exist such a market would not capture the diversity of agricultural produce and the market may be seasonal with variation influenced by qualitative aspects, for example, nutritional content. Thus, even in the case of mature, consumable biological assets an entity may need to model the prices based on that entity's own estimation and assumption.

According to Adukia (2006:1443), it becomes increasingly difficult to establish the fair value of a biological asset when the asset is a bearer asset which, itself, will not eventually become agricultural produce. This difficulty in establishing the fair value of biological assets also increases the more long-lived the asset is. For example, in the established vineyards in France,

grapevines have long lives and it is not uncommon to find productive vines that are over 100 years old and which are capable of continued production for a another 100 years.

3.4.1.2 Commodities exchanges

According to the African Union (2005:5) a commodity exchange market is defined as any platform for organised trade between multiple buyers and sellers, or for facilitating transactions between commodity producers and finance providers. Commodity exchanges fulfil three basic functions: price transparency in terms of which everyone has access to a neutral reference price; price discovery in terms of which demand and supply developments are easily reflected in price levels; and reduced transaction costs because it is easier to find both buyers and supplier in a centralised market place. Should the exchange offer forward or futures contracts, this means that it also fulfils a risk transfer function.

In addition, exchanges normally help to define better quality standards, they speed up the process of product standardisation, and they improve the discipline in the market place. Exchanges create incentives for market participants to produce commodities that meet exchange specifications, and to behave according to exchange rules. Exchanges are dynamic tools with which to overcome some of the weaknesses which are inherent in the market place (African Union 2005:6). The less-organised trading system that provide functions similar to those of exchanges, but without an independent entity organising the trade, is termed as over-the-counter trade (OTC).

The key characteristics of a commodity exchange market include the following (African Union 2005):

- There are, at any time, multiple buyers and sellers and, thus, a simple auction system would not qualify as a commodity exchange market, and
- Trade is organised in the following two major respects:

- The exchange provides a fairly comprehensive framework of disciplines within which trade takes place: not only does it provide a trading forum, but it also sets the rules and criteria to which those using the market have to conform. Normally, one of the elements of this framework is that buyers and sellers do not intervene directly in the markets, but rather through brokers, who, *inter alia*, act as gatekeepers to the system by vetting their clients. Another element of the exchange is that market users agree to abide by arbitration if contractual conflicts should arise, and this makes it possible to sidestep the often cumbersome, and even inappropriate, legal framework.
- There is some form of specialisation and standardisation in respect of the commodities that are sold through the exchange – sellers may not just sell anything that they wish to sell.

The African Union (2005) views a commodity exchange as a powerful instrument of economic integration which provides security to the transactions that take place on its trading platform and which enables buyers and sellers to discover new regional and international markets. The fact that commodity exchange signal opportunities to traders for profitable price arbitrage through regional trade, and provide farmers with a better opportunity to choose their cropping patterns in order to meet market demand, means that a commodity exchange is able to act as catalyst for more valuable agricultural products and investments in terms of physical market infrastructure, for example, grading facilities, information systems and warehousing structures (IFPRI 2008).

As a source of information, commodity exchanges may help level the playing fields between farmers, who may be poorly informed in respect of market conditions, and traders, and they reduce wastage in the commodity trade. Commodity exchange also provide a common platform for information sharing which, in turn, lead to improved access on the part of producers, processors, traders and distributors of commodity finance. In addition, commodity exchanges

may reduce market inefficiencies such as excessive price differentials between regions or from one season to the other (IFPRI 2008). However, for most agricultural commodities, production is seasonal and volatile, and the underlying commodity may be perishable, it is these factors that make the markets for these products susceptible to supply and pricing distortions and to manipulation. Empirical evidence (Karpoff 1987:109) indicates that a higher trading volume is generally accompanied by strong price reactions and volatility instead of the expected price stability.

However, despite the relative importance of commodity markets and the concerted efforts which stemmed from the Abuja Treaty of 1991, the African Union (2005:1) regrets the underdevelopment of exchange markets in developing economies. In Africa it is only in the economies of South Africa and Nigeria that exchange markets have made significant contributions. In the advanced economies a commodity exchange market is a place where commodity securities such as derivatives and futures are traded. The Chicago Board of Trade, the first organised commodity futures exchange, was created in order to reduce wastage by helping farmers to time their supplies in accordance with the needs of their buyers (African Union 2005:3).

3.4.1.2.1 Commodities derivatives and futures

A derivative refers to a forward, future, option or any other hybrid contract of pre-determined fixed duration, which is linked for the purpose of contract fulfilment to the value of a specified real or financial asset or to an index of securities. A derivative has no independent value and its value is "derived" entirely from the value of the underlying asset (Fabozzi, Modigliani & Jones 2003:163). This underlying asset may be securities, commodities, bullion, currency or livestock. A forward or future contract is an agreement to buy or sell an asset at a certain future time for a certain price (Hull 2008:5).

A forward contract is extremely valuable in both hedging and in speculation because it may help a farmer to hedge against any unfavourable movement of prices by forward selling his harvest at a known price. A speculator, on the other hand, relies on seasonal price fluctuations and, if the speculators forecast an upturn in a price, they go long on the forward market instead of the cash market only to take a reversing transaction after the price has gone up (Hull 2008:13). Future contracts are normally traded on an exchange which specifies certain standardised features of the contract and which provides transaction security. Some of the basic differences between the futures and forward contracts include the following:

- While futures contracts are traded on the exchange market, forwards contracts are traded on an over-the-counter market.
- In the case of futures contracts the exchange specifies the standardised features of the contract, while there are no pre-determined standards in forward contracts.
- Exchange market provides the mechanism that gives the two parties with a guarantee that the contract will be honoured, whereas in the case of a forward contract, there is no surety/guarantee of the trade settlement (Hull 2008:39).

In the futures market hedgers are often commercial traders who are actually involved in the economic activity related to the underlying commodity, and who thus, have an intrinsic interest in protecting themselves against adverse price movements (Hull 2008:10). Speculators seek trading profits which arise from price changes between the selling and buying points in the futures market. Speculators, therefore, assume price risks in the hope that prices will move in their favour. They also act as counter parties to the futures contract, so that hedgers may shed unwanted risks. The participation of speculators in the futures markets contributes to market liquidity and diversity. Markets with a large pool of speculators who have both diverse expectations and diverse risk profiles function more efficiently by allowing the hedgers with specific needs to unload the risks at lower costs. As any other market, the futures market is

subject to asymmetric information between the seller and buyer (Hull 2008:30). In order to discover the true value of the products involved, traders rely on trading volume and prices in order to deduce the correct information through a price-discovery process. Any arrival of new information triggers the process of price discovery which, in turn, leads to an increase in trading volume and price volatility as traders filter out the relevant information from the "noise" through vigorous trading activities.

Although agricultural commodity futures were initially designed to help farmers to reduce post-harvest losses by matching demand and supply, the empirical evidence on the stabilising effect of futures trading and speculation on spot price movements, remains largely mixed. According to Hull (2008:36) the futures market operates efficiently most of the time but it may happen that a group of investors may "corner the market" by taking a huge long futures position and then proceed to try to exercise control over the supply of the underlying commodity.

Exogenous information shock, together with an increase in futures trading could heighten the level and volatility of spot prices in the short term (Slade & Thille 2006:252). Moreover, increased speculative activities in the futures markets provide easier hedging and inventory-adjustment opportunities to help reduce the financial risks and, according to Slade and Thille (2006:247), this enables producers to increase output and it leads to lower and more stable prices. However, in an empirical study, Slade and Thille (2006:252) determined that, although futures trading influence the spot commodity prices, the market structures play a more significant role in price stabilisation. For example a producer in an imperfect competitive market may hesitate to increase prices in order to prevent a price war even where there have been changes in cost.

3.4.1.2.2 Contracts with customers

IAS 41, *Agriculture* (IASB 2009a:2353) explains that, in the case of contracts in terms of which the biological assets or agricultural produce will be sold at a future date, such contract prices are not necessarily relevant in determining fair value, as fair value should reflect the current market in which a willing buyer and seller would enter into a transaction. As a result, the fair value of a biological asset or agricultural produce is not adjusted because of the existence of a contract. In terms of the discussion paper on contract-based revenue recognition (IASB 2008a:25) a contract is an agreement between two or more parties that creates enforceable obligations. Such a contract confers both a right (asset) and an obligation (liability) and the proposal is to recognise the net position. In a joint project the IASB and the FASB proposed that performance obligations should initially be measured at the transaction price – the customer's promised consideration (IASB 2008a:24). If a contract comprises more than one performance obligation (multiple deliverables), then an entity would allocate the transaction price to the performance obligations on the basis of the relative stand-alone selling prices of the goods and services underlying those performance obligations (Deloitte 2003:2).

IAS 41, *Agriculture* (IASB 2009a:2353) requires that such a contract be accounted for if it is an onerous contract. An onerous contract is a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under the contract (IASB 2009a:1896). The unavoidable costs under a contract reflect the least net cost of exiting from the contract, that is, the lower of the cost of fulfilling the contract and any compensation or penalties arising from failure to fulfil the said contract.

According to the IASCF (2009:33) the proposals in the discussion paper on contract-based revenue recognition are intended to improve practice by clarifying the principles for revenue recognition and by ensuring that entities in different industries recognise revenue more consistently. The discussion paper also seeks to harmonise the principle of revenue recognition

to the definition of assets or liabilities (IASB 2008a:24). The boards propose that a revenue recognition model should focus on a single asset or liability – an entity's contract with a customer. The reason for this proposal is to be found in the fact that contracts to provide goods and services are important economic phenomena and they are the lifeblood of most entities – any entity providing goods or services to customers enters into contracts, either explicitly or implicitly, with its customers (IASB 2008a:24).

However, the IASB and the FASB sought to make it clear that this proposal would not affect situations in which revenue is recognised before the existence of a contract, for example in the agricultural industry. This is because the obtaining of a contract may be a trivial matter if buyers are readily available in an active market (IASCF 2009:33). The IASB and the FASB propose to focus on changes in value of contract with a customer. In other words, the contract with the customer is the economic phenomenon for which an entity should account in order to determine revenue recognition.

3.4.1.3 Bid-offer spread

A bid-offer spread refers to the amount by which the offer price exceeds the bid price (Hull 2008:522). The offer price is the amount that a dealer is willing to take to sell an asset while the bid price is the amount a dealer is prepared to pay for an asset. The trading in most commodities markets in developing countries are open outcry in which the price discovery process is characterised by wide bid-offer spread. In other cases, the markets are dominated by a few market participants in the form of brokers and intermediaries and prices are determined by factors other than market forces.

The changes in transaction prices that are used to calculate spread estimates may either be the result of "noise" trading, or the result of new information arriving in the marketplace (Bryant & Haigh 2002:5). According to Bryant and Haigh (2002:5) isolating the "true" price changes and

those price changes that, result from information arrival in the marketplace would require a detailed analysis of market information which may not be available in an open outcry system. It would, therefore, seem reasonable to assume that the relative proportions of these two types of trading in a market will have an impact on the accuracy of spread estimates. The FASB (2004:2) permits an estimate within the bid-ask spread that best approximates an exchange-equivalent price in the circumstances, provided that the technique used for the estimate is consistently applied.

3.4.1.4 Use of alternative markets and sector benchmarks

IAS 41, *Agriculture* (IASB 2009a:2353) states that, if an active market does not exist, an entity should use one or more of the following, when available, in determining fair value:

- The most recent market transaction price, provided that there has not been a significant change in economic circumstances between the date of the transaction and the balance sheet date.
- Market prices for similar assets with adjustments to reflect differences.
- Sector benchmarks such as the value of an orchard expressed per export tray, bushel, or hectare, or the value of cattle expressed per kilogram of meat (IASB 2009a:2353) .

The estimate obtained should be adjusted to reflect any differences between transactions and to ascertain fair value within a narrow range of reasonable estimates (IASB 2009a:2353). An entity should maximise the use of market observable inputs at level 2. As a result of the diversity of agricultural activities, homogeneity of products may be impossible to attain and, thus, most valuation involves modelling the market prices of similar products.

3.4.1.5 Present value of future cash flows

In certain circumstances, market-determined prices or values may not be available for a biological asset in its condition at the time. In such circumstances (IASB 2009a:2353), an entity should use the present value of expected net cash flows from the asset discounted at a current market-determined pre-tax rate in determining fair value. The cash flows used should reflect the expectation of market participants in respect to the asset in its most relevant market.

In the case of bearer biological assets, the present value of expected future cash flow generally represents a going concern value of all the assets involved in the farming activity. The valuation department of Sallmanns (2005:15) proposes the use of the business residual valuation method in the estimation of the value of biological assets. In terms of this method, the market value of the operation derived from the biological assets is determined. The value of the land, equipment and machinery, other assets and identifiable intangible assets such as brand names are then deducted from the market value of the operation. The resultant residual value may then be allocated as the market value of the biological assets. In instances in which biological assets are attached permanently to land (IASB 2009a:2354) the market value should be estimated for the entire package and then the value of the raw land and land improvement deducted to ascertain the value of the biological assets.

3.4.1.6 Cost of biological assets approximate to fair value

In certain cases (IASB 2009a:2354) the cost of the biological assets may approximate to fair value, particularly if little biological transformation has taken place since the initial cost incurrence or when the impact of the biological transformation on price is not expected to be material.

3.4.1.7 Valuation techniques

Any valuation techniques used to measure fair value shall maximise the use of observable inputs and minimise the use of unobservable inputs (IASB 2009b:25). The IASB (2009b:24) further notes that an entity should use valuation techniques that are appropriate in the circumstances and for which sufficient data is available. Should an input not be observable the measurement objective remains the same – inputs should reflect market views and should be adjusted to exclude any entity specific views that are inconsistent with the market participant expectations.

Although the proposed standard on fair value measurement prioritises quoted market prices, such a market may not exist for non-financial assets such as biological assets. The IASB (2009b:23) explains that the objective of using a valuation technique is to estimate the price at which an orderly transaction would take place between market participants on the measurement date. Valuation techniques consistent with the market approach, income approach or cost approach should be used to measure fair value. The main characteristics of those approaches are summarised below (IASB 2009b:25):

- The market approach uses prices and other relevant information generated by market transactions which involve identical or comparable assets or liabilities. Examples of valuation techniques which are consistent with the market approach include matrix pricing which relies on the relationship of the securities to other benchmark quoted securities.
- The income approach uses valuation techniques in order to convert future cash flows or income and expenses to the present amount. The valuation techniques include present value techniques option pricing models, such as the Black-Scholes-Merton formula (a closed form model), the binomial lattice model, which incorporates present value

techniques and reflects both the time value and the intrinsic value of an option; as well as the multi-period excess earnings method.

- The cost approach reflects the amount that would be required at that particular point in time in order to replace the service capacity of an asset which is referred to as the current replacement cost. From the perspective of a market participant (seller), the price that would be received for the asset is based on the cost to a market participant (buyer) either to acquire or to construct a substitute asset of comparable utility, adjusted for obsolescence. In the main the current replacement cost approach is appropriate for measuring the fair value of tangible assets using an in-use valuation premise because a market participant would not pay more for an asset than the amount for which that market participant could incur to replace the service capacity of that asset (IASB 2009b:25).

3.4.2 Cost less accumulated depreciation

In terms of IAS 41, *Agriculture* (IASB 2009a:2354) there is a presumption that it is possible to measure fair value reliably for a biological asset. However, that presumption may be rebutted only on the initial recognition of a biological asset for which market-determined prices or values are not available and for which alternative estimates of fair value are determined to be clearly unreliable. In such a case, such a biological asset shall be measured at its cost less any accumulated depreciation and less any accumulated impairment losses. Once the fair value of such a biological asset becomes reliably measurable, an entity should measure the biological asset at its fair value less costs to sell. Once a non-current biological asset meets the criteria in order to be classified as held for sale (or is included in a disposal group that is classified as held for sale) in accordance with IFRS 5, *Non-current Assets Held for Sale and Discontinued Operations*, then, it is presumed that fair value may be measured reliably.

3.4.3 Grants

In light of the role played by agriculture in both the economy and in food security, farmers often receive various forms of support from government and from other donors. *Government grants* refer to assistance by government in the form of the transfers of resources to an entity in return for past or future compliance with certain conditions relating to the operating activities of the entity (IASB 2009a:1350). Grants exclude both those forms of government assistance which cannot reasonably have a value placed upon them and transactions with government which cannot be distinguished from the normal trading transactions of the entity (IASB 2009a:1350).

In the agricultural sector subsidisation involves providing financial support to farmers in order to supplement the farmers' incomes, guarantee product supply and maintain price stability. Through such programmes farmers receive marketing support, as well as training and technical support through the offices of government extension officials. In other cases farmers may receive subsidised inputs such as machinery and fertiliser. The government and other donor agencies may offer direct financial support for development of the farm infrastructure such as irrigation networks and their maintenance, the supply of electricity, and the maintenance of roads and rail (FAO 2009).

An unconditional grant related to a biological asset which is measured at its fair value less costs to sell should be recognised in profit or loss when the grant becomes receivable unless there are conditions to be complied with in the future (IASB 2009a:2355). If a grant which is related to a biological asset measured at its fair value less costs to sell is conditional it is not recognised as income until the conditions attached to the grant are met. For example, a grant may require an entity to farm in a particular location for a period of five years (IASB 2009a:2355).

However, in accordance with IAS 20 (IASB 2009a:1352), grants in respect of biological assets which are measured at cost less any accumulated depreciation should be recognised in profit or

loss on a systematic basis over the periods during which the entity recognises as expenses the related costs for which the grants were intended to compensate. A grant that becomes receivable as compensation for expenses or losses already incurred or for the purpose of providing immediate financial support to the entity with no future related costs shall be recognised in the profit or loss pertaining to the period in which the grant become receivable (IASB 2009a:1353).

Subsidies affect the cost structure and therefore the pricing of the agricultural produce. For example, in the USA farmers grow approximately 67 million acres of corn each year, and they sell it below the cost of production because corn is heavily subsidised in terms the US Farm Bill (USDA 2008). In Kenya the government promotes farm subsidies in order to transform small scale and subsistence farming to commercially viable activities. Through a programme dubbed the National Accelerated Agricultural Inputs Programme the government give vouchers to farmers which may be redeemed for farm inputs such as seeds, fertilisers and chemicals (Ondari 2008).

3.4.4 Borrowing cost

Borrowing costs refer to the interest and other costs that an entity incurs in connection with the borrowing of funds as ascertained at the effective rate of interest (IASB 2009a:1396). An entity should capitalise borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. An entity should recognise other borrowing costs as expenses in the period in which the entity incurs these costs (IASB 2009a:1397). A qualifying asset is an asset that necessarily takes a substantial period of time before it is ready for its intended use or sale. Certain bearer or consumable biological assets may take a considerable period of time before they are ready for sale.

However, in terms of IAS 41, *Agriculture* (IASB 2009a:2354), an entity does not include any cash flows for the financing of the biological assets, taxation, or the re-establishing of biological assets after harvest for example, the cost of replanting trees in a plantation forest after harvest. Although some biological assets require a considerable period of time to mature, the effect of biological transformation is recognised as income as it happens and likewise the borrowing cost relating to these biological assets should be expensed when incurred and not capitalised.

3.4.5 Biological assets under leases

A lease refers to an agreement (IASB 2009a:1182) in terms of which the lessor conveys to the lessee the right to use an asset for an agreed period of time in return for a payment or series of payments. The classification of leases follows the pronouncement of IAS 17, *Leases* (IASB 2009a:1185), which is based on the extent to which risks and rewards incidental to the ownership of a leased asset lie with either the lessor or the lessee.

These risks include the possibilities of losses which may arise from idle capacity or technological obsolescence and of variations in return because of changing economic conditions. Rewards may be represented by the expectation of a profitable operation over the economic life of the asset and of gain from either an appreciation in value or the realisation of a residual value. After the classification of biological assets the initial and subsequent measurement of those biological assets is based on IAS 41 (IASB 2009a:1182).

3.4.5.1 Biological assets under finance leases

A finance lease refers to a lease that substantially transfers all the risks and rewards incidental to ownership of an asset (IASB 2009a:1185). Title may or may not eventually be transferred. The lessee capitalises the agreement by initially recognising both the biological asset and the obligation at fair value less estimated point of sale cost (IASB 2009a:1182). The lessor recognises the net lease rental receivables.

3.4.5.2 Biological assets under operating leases

An operating lease is any lease other than a finance lease. A lease is classified as an operating lease (IASB 2009a:1185) if the lease does not substantially transfer all the risks and rewards incidental to ownership. The lessor recognises the biological asset and measure at fair value less point of sale cost on initial recognition and at each reporting date (IASB 2009a:1182). The lessee accounts for the lease rentals payable as an expense on a systematic basis so as to reflect the benefits utilised from the lease agreement.

3.4.6 Deferred tax and fair value change

IAS 41 requires biological assets to be valued at fair value less cost to sell. According to IAS 12, *Income taxes* (IASB 2009a:1096), in certain jurisdictions, the fair value change affects the taxable profit or loss in the same period they arise. As a result, the tax base of the asset is adjusted and no temporary difference arises. In other jurisdictions, the fair value change of an asset does not affect taxable profit in the same period, and, consequently, the tax base of the asset is not adjusted. Nevertheless, the future recovery of the carrying amount will result in a taxable flow of economic benefits to the entity and the amount that will be deductible for tax purposes will differ from the amount of those economic benefits.

The difference between the carrying amount of an asset at fair value and its tax base is a temporary difference and it gives rise to either a deferred tax liability or deferred tax asset. This holds true even if:

- the entity does not intend to dispose of the asset. In such a case, the revalued carrying amount of the asset will be recovered through use and this, in turn, will generate taxable income which will exceeds the costs that will be allowable for tax purposes in future periods; or

- tax on capital gains is deferred if the proceeds of the disposal of the asset are invested in similar assets. In such cases, the tax will ultimately become payable on sale or use of the similar assets (IASB 2009a:1096).

3.5 Usefulness of fair value information

The framework for the preparation and presentation of financial statements highlights the attributes that render the information contained in the financial statements useful (IASB 2009a:82). The four principal qualitative characteristics are relevance, reliability, comparability and understandability. Although it is argued that it is not possible to achieve the qualitative attributes in an absolute way and, achieving one may negate the other qualitative attribute, ACCA (2006) sought to rank them in order of priority in which they override each other, with reliability being ranked the highest. It is proposed that reliability, be replaced by faithful presentation (Deloitte 2005).

3.5.1 Relevance of fair value to users

Information possesses the quality of relevance when it influences the economic decisions of users by helping them to evaluate past, present or future events or by confirming, or correcting, their past evaluations (IASB 2009a:82). The information about the current level and structure of asset holdings has value to users when the users endeavour to predict both the ability of the entity to take advantage of opportunities and its ability to react to adverse situations (IASB 2009a:82).

In an investigation conducted by Argiles, Bladon and Monllau (2008:20), empirical evidence indicated that the use of fair value for biological assets neither discloses significant differences in earnings and revenues, nor does it increase volatility of those earnings. According to Argiles *et al* (2008:20), the use of fair value does not indicate any evidence of differences in profitability caused by accounting manipulation. Accordingly, farm cash flows are not less predictable with

fair valuation than with historical cost. Argiles *et al* (2008:21) concluded that there are no differences in the relevance of accounting information brought about by fair valuation. As a result of the nature of agricultural activities, it is not feasible to expect accurate and reliable cost calculations. Farmers also often perceive accounting procedures as unnecessary, other than for tax purposes. Accordingly, farmers prefer to use a simplified model such as an average of insurance companies' valuations to estimate the value of biological assets.

3.5.2 Reliability

Information has the quality of reliability when the information is free from material error and bias and users may depend on it to represent faithfully that which it either purports to represent or may reasonably be expected to represent (IASB 2009a:83). However, not all relevant information is reliable. In their comment on the discussion paper on fair value measurement, Ernst & Young (2007:2) raised the question as to the reason why exit price may provide more useful information about the timing, amount and uncertainty of cash flows than the value in use of the relevant asset, unless the asset is held for sale.

Another concern was in a situation where the highest and best use of an asset is different from current use in which case the asset is valued at alternative use. According to Ernst & Young (2007:2), this alternative use may involve other assets and obligations and there is a pile up of assumptions. The reliability of fair value estimates using models is dependent not only on how well a model replicates accepted market pricing processes, but also on the reliability of the model's data inputs. A fair value model should be based on the inputs and assumptions that marketplace participants would use.

In their response to the discussion paper on the fair value reporting of biological assets Deloitte (1997:5) noted that the standard for the reliability of fair value measures as proposed was not sufficiently rigorous and that fair value constitutes a reliable measure only if:

- the asset is readily convertible to cash,
- the asset has a high certainty of realisation,
- there is a ready market for the asset; and
- there is a readily determinable market price for the asset.

In addition, Deloitte (1997:5) observes that, in the absence of any of these conditions, assets should be measured at cost. According to D'Souza (2008), despite the fact that fair valuation may, at times, be subjective and display a degree of potential unreliability to the values, such values are still extremely useful in terms of decision-making because they represent the economic reality as opposed to an accounting "fiction" in the form of historical cost. Accordingly, the use of fair values for decision-making remains relatively difficult, but probably less difficult compared to the historical model.

According to Chasan (2008), the critics of fair value argue that fair value provides a realistic view when price quotes are readily available, but, when there is no market, or a market disappears as it did during the credit crunch, then, companies are forced to use complex mathematical models to come up with values that may be just as confusing to investors. In his citing of the multibillion-dollar write-downs on sub-prime-related asset-backed securities and the other hard-to-price assets, that companies such as Citigroup Inc and Merrill Lynch & Co Inc posted, Chasan (2008) notes that fair value is not worth the earnings volatility it creates. However, proponents of fair value argue that such volatility is a true reflection of reality.

3.5.3 Comparability

The exposure draft of an improved conceptual framework for financial reporting defines comparability as that quality of information that enables users to identify similarities in and differences between, two sets of economic phenomena (IASB 2008b:39). The measurement and display of the financial effect of like transactions and other events must be carried out in a

consistent way throughout an entity and over time for that entity as well as in a consistent way for different entities (IASB 2009a:85). Comparability should not be confused with mere uniformity and it should not be allowed to become an impediment to the introduction of improved accounting standards.

It is essential that accounting policies be continuously reviewed for both relevance and reliability with full disclosure of any change and the effects of such changes. D'Souza (2008) argues that fair value is a market-based measure that is not affected by factors specific to a particular entity; and, accordingly, it represents an unbiased measurement that is consistent from period to period and across entities. The fair value, according to D'Souza (2008), would in that respect appear to enhance comparability.

3.5.4 Understandability

It is assumed that users possess a reasonable knowledge of business, economic activities and accounting and that they are willing to study information with reasonable diligence. However, information about complex matters that should be included in the financial statements because of its relevance to the economic decision-making needs of users should not be excluded merely on the grounds that such information may be too complex for certain users to understand (IASB 2009a:82).

In an effort to enhance understandability, D'Souza (2008) notes that fair value measure eliminate the hundreds of rules underlying historical cost accounting. D'Souza (2008) further argues that, in order to remove control of the reported numbers from corporate management, it should be required that the reported numbers for assets and liabilities be reported on a fair value basis. The revenues, expenses, gains and losses are accounting constructs and, thus, the starting point of eliminating manipulations must be assets and liabilities and the statement of comprehensive income should then reflect the movement of these assets and liabilities.

3.6 Fair value and the cost of preparing and presenting financial statements

The benefits derived from information should not exceed the cost of providing that information. The evaluation of benefits and costs is, however, substantially a judgemental process (IASB 2009a:85). Furthermore, the costs do not necessarily accrue to those users who enjoy the benefits. Benefits may also be enjoyed by users other than those for whom the information is prepared; for example, the provision of further information to lenders may reduce the borrowing costs of an entity. For these reasons, it is difficult to apply a cost-benefit test to any particular case. Nevertheless, those setting standards in particular, as well as the drafters and users of financial statements, should be aware of this constraint (IASB 2009a:85).

While acknowledging that the reporting of biological transformation when it occurs does provide relevant information, Deloitte (1997:2) regretted that this may, in fact, compound cost, for example, the cost of recognising and reporting the biological transformation of a crop of wheat from the initial sowing of a field through the various stages of growth, that is, sprouted seeds, standing wheat plants at various stages and the ripe crop just prior to reaping, may outweigh the benefits that such information would provide.

3.7 Issues in respect of the application of fair value to biological assets

The appropriateness of fair value in respect of non-financial assets, such as biological assets, has been questioned particularly with regard to the need to include the fair value change in revenue. There are many issues that must also be considered in determining the “true” fair value as discussed in section 3.7.1 to section 3.7.3.1.

3.7.1 Emission and environmental impacts

Agricultural activities have certain externalities or undesirable effects. It is estimated that agricultural activities are a substantial contributor to global greenhouse gas (GHG) emissions (Beach, DeAngelo, Rose, Li, Salas & DelGrosso 2005:109). According to Elad (2007:8) fair

value accounting ignores both the social and environmental effects of production that lie beneath market exchanges, and the risks to legitimise unjust socio-economic impacts. For example, agricultural activities may affect the hydrology which could, in turn, strain the downstream community relationship. The uses of chemicals that are washed away may increase the cost of water treatment downstream and the chemical residual may cause human disease, thus imposing, undesirable social costs (Elad 2007).

According to the Institute of Directors in South Africa (IODSA) (2009:12), integrated sustainability reports, may mean that a company increases the trust and confidence of its stakeholders and the legitimacy of its operations. These reports may increase the company's business opportunities and improve its risk management. The issuing of an integrated sustainability report means that, internally, a company evaluates its ethics, fundamental values, and governance while, externally, it improves the trust and confidence of its stakeholders (PWC 2009a:63). The Institute of Directors in South Africa (2009:109) notes that sustainability reporting has become increasingly formalised and sophisticated, and thus, valuation of biological assets, while taking into account sustainability may pose a challenge.

3.7.2 Fair value as an organisation political tool

Proponents of fair value, or mark-to-market, accounting maintains that this is the most accurate and independent way in which to price assets. According to Elad (2007:7) the fair value accounting paradigm reduces the “manager's voice” in favour of the “market's voice”. In an economic setting of perfect and complete markets the “market's voice” takes its power from the measurement, valuation and reporting of assets, liabilities and consequently, income, at fair values, which are independent of the influence of management.

However, unless a perfect market exists and all assets possess available market values, fair valuation introduces aspects of subjectivity, verifiability and accountability to an extent beyond

what is generally perceived to be a problem in terms of historical cost accounting. Perhaps, that explains why the FASB prefer to take a cautious stance especially on the revaluation of non-financial items, although, the IASB implements the fair value paradigm in a more consequent and progressive manner than the FASB.

The immense variation in the level and structure of prices and interest rates constitute some of the factors which cause distortions to the financial statements when fair value is used. According to Fisher (2009) management is happy to mark-to-market when markets are rising, but when the market declines there is usually an outcry that the market values do not, necessarily, represent intrinsic fair value. The Nobel prize-winning economist, Joseph Stiglitz (HCTC 2009:8), argues that the fair value system may be used to manipulate compensation. While commenting on the way in which fair value had contributed to the global financial crisis, Stiglitz notes that fair value should encourage risk-taking and not gambling. Managers tend to take excessive risks because, when things turn out well, they receive huge bonuses. However, when things go badly, they do not share in the losses and, even if they lose their jobs, they do leave with large sums of money (HCTC 2009:9).

Historical cost accounting is the paradigm that places a greater premium on reliability rather than relevance and it applies the convention of conservatism (Argiles *et al* 2008:7). On the other hand, fair value accounting favours relevance for decision making, downplays reliability and recognises unrealised profits. In early April 2008, the U.S. Financial Accounting Standards Board under, intense pressure from Wall Street and demands from Congress, pledged to backtrack on fair value accounting. The resulting FASB rule changes allowed banks to use judgment rather than market prices, in their valuing of financial instruments (Mavin 2009). When commenting on the FASB decision to dilute the controversial accounting rule unilaterally, Tom Jones, vice-chair of the International Accounting Standards Board (IASB), warned of "a loss of credibility" (Mavin 2009). Bank lobbyists and politicians are damaging the credibility of

corporate reporting and hurting the interests of investors around the world by pulling back on mark-to-market accounting (Mavin 2009).

However, bankers maintain that fair value accounting has exacerbated the current financial crisis by unfairly forcing them to take huge write downs. They are of the opinion that illiquid markets for certain securities have led to fire sale prices that do not represent appropriate valuations, and they have, thus, lobbied to be allowed to value certain troubled securities based on their own estimates (Mavin 2009). In October 2008, the IASB hurriedly effected an amendment to IAS 39 and IFRS 7 to allow for the reclassification of financial instrument effective 1st July 2008 and this without even following the normal due process (FCAG 2009:15). Even though it claims to be independent, the IASB was yielding to pressure to create a level playing field for financial institutions within the EU (Gelard 2009).

3.7.3 Fair value – unrealised gain through the statement of comprehensive income

The simplicity of "fair value" reporting ceases at the conceptual level and it becomes far more complex in its implementation. Elad (2007:3) notes the most contentious aspect of IAS 41 is the requirement that increments or decrements in the fair value of biological assets, less estimated point-of-sale costs, be recognised as revenues or expenses in the statement of comprehensive income for the financial year in which the increments or decrements occur. Even in instances in which fair value is readily determined there are many concerns about the inclusion of the fair value change in the statement of comprehensive income.

Ernst &Young noted this somewhat unorthodox implication of the standard in their letter of comment when they state that ". . . it is counterintuitive that an agricultural enterprise could literally sell nothing and . . . still report earnings" (IASC 2000: 229). Should the fair value change arise on the initial recognition of agricultural produce which remains unsold, the recognition of the revenue might be misleading to the users of the financial statements. The

same problem may be cited in respect to bearer biological assets that last for a long period as the fair value change recognised in the statement of comprehensive income may not be relevant.

3.7.3.1 Day one gains and losses

Day one gains or losses refer to the difference between the entry and exit price which arise on initial recognition. Despite the fact that the existing guidelines and debate are about the background of financial assets the IASB (2006a:6) argues that day one gains or losses should be recognised only if based on observable market variables and forces the initial measurement if not based on observable variable, to be on the transaction price, even if this is not consistent with the reporting entity's fair value measurement for the financial asset or liability. According to Herbohn and Herbohn (2006:188) proponents of this approach argue that it is important that measures be correct, and that the measure of success is not driven merely by short-term profit but by measures that include the quality of the business, the risk management in the business.

3.8 Globalisation and need for harmonisation

According to Gelard (2009) the world of finance has been globalised, for better or worse, but without necessary regulations. Despite the fact that there are specific benefits to the harmonisation of accounting practices, the debate rages on although this debate is skewed in favour of IFRSs. Willemain (2009), notes that the rest of the world is not adopting US GAAP and, thus, the United States will need, eventually to convert to IFRSs over time. In December, 2007 the SEC issued its final rule to eliminate the US GAAP reconciliation requirement for foreign private issuers that file their financial statements with the SEC using IFRS as issued by the International Accounting Standards Board (IASB).

It is expected that the harmonisation of accounting practice will both enhance the comparability of financial statements and promote cross border investments. In respect of the multinationals

in terms of which the securities are traded worldwide, a high degree of financial reporting efficiency would require fairly extensive common regulations in order to ensure the much sought after level playing field (Frost, Henry & Lin 2009). Such a level playing field does, in fact, not exist, and there has been no serious attempt to realise it in the various regulatory fields that would need to be addressed if the markets were to be given a chance to work efficiently (Gelard 2009).

In the discussion paper on fair value measurement submitted by the Basel Committee on Bank Supervision (BCBS) (2007:1), the committee notes the urgent need for convergence when it states "… as internationally active banks continue to increase their cross-border activities – and as a substantial percentage of assets and liabilities of such banks are measured, either initially or on a recurring basis, at fair value – it is important to ensure consistent fair value measurement guidance". In sharp contrast Niemeier (2008:3), argues that switching to IFRSs would not enhance the comparability of financial reports, and that IFRSs would not improve investor protection. It is, instead, the intentions of managers and auditors that exert a powerful influence on the quality of financial reporting. In other words, high quality financial reporting standards will not assure high quality financial reports. Niemeier (2008:2) concludes that a common reporting framework would not eliminate reporting differences.

While citing the recent pressure from the EU to amend IAS 39 to allow for limited reclassification of financial instruments, Gelard (2009) concludes that the biggest challenges are not technical but political. It would take considerable determination to overcome the general perception that the IFRSs constitute European standards and to guarantee the independence of the standards setting process.

The International Accounting Standards Committee Foundation (IASCF) (2009:29) describes its Memorandum of Understanding (MoU) with the FASB as part of the major effort underpinning

the development of a single set of global standards for financial reporting. This Memorandum of Understanding comprises an agreement that is guiding the collaborative effort on the part of both the IASB and the FASB to effect the greatest possible improvements to financial reporting by combining their resources. It is expected that, by challenging each other these two boards will achieve common financial reporting standards and, also create more robust and sustainable solutions (IASCF 2009:29).

According to the IASCF (2009) this MoU, which aims to complete all major projects by June 2011, has worldwide implications. Firstly, the target date of June 2011 is important because several jurisdictions, including Canada, India, Japan and Korea, have announced plans either to adopt or to converge with IFRSs in 2011. Mexico has announced plans to adopt IFRSs for all listed entities from 2012. The setting of the 30 June 2011 deadline ensures that all the major changes to IFRSs will be in place in time for these jurisdictions and, secondly, this target date will obviate the need for them to make major changes shortly after they will have adopted IFRSs (IASCF 2009).

The two alternative methods for convergence are fair value and historical cost accounting. According to the ICAEW (2009:2) there are two major differences between fair value accounting and historical cost accounting. Firstly, fair value recognises unrealised gains, when asset values rise above their cost, whereas historical cost recognises only realised gains, such as gains arising from the sale of an asset. Secondly, whilst both methods recognise a fall in the value of an asset, fair value implies that the assets are written down to their new fair value, while, in terms of historical cost accounting the asset remains at historical cost and an impairment provision is made, based on management's estimate of current net losses. In terms of fair value, the market price used will reflect expectations of both current and future gains and losses.

The ICAEW (2009:3) commented that historical cost valuations might, therefore, provide a higher valuation than fair value because these historical cost valuations did not take account of expected future losses, which the market, and, thus, fair value, would take into account. In short, the ICAEW (2009:4) commented that, when calculating the extent of write downs, there is a risk under fair value that prices from "unduly depressed" markets will be reflected in the accounts. While under historical cost, there is a risk that the accounts will reflect undue managerial optimism. The debate surrounding the relative merits of fair value measurement vis-à-vis historical cost accounting has become particularly pertinent as the financial crisis has developed (ICAEW 2009:4).

While making a submission to the House of Common Treasury Committee (HCTC) Cronin (HCTC 2009), argued that, because historical cost accounting was "backward-looking" and subject to management judgement, whereas fair value accounting uses market opinion, investors prefer accounting information based on fair value accounting. Chisnall (HCTC 2009) notes that the problem with fair value accounting, was that it presumed the existence of deep and liquid markets, and that this approach, had clearly proved to be inappropriate for certain classes of asset.

However, Chisnall (HCTC 2009), disputes that the historical cost model was "backward-looking", and he maintains strongly that historical cost accounting is appropriate in the valuing of instruments to be held over the longer term, because, unlike fair value, the historical cost model does not require a spot price, which is of little relevance unless the instrument is being sold (HCTC 2009). Elad (2007:8) explains that, for biological assets the use of surrogates for market value in cases where fair values cannot be determined reliably, for example market price for similar assets, sector benchmarks or the present value of expected net cash flows that the asset will generate, in the agricultural sector involves considerable subjective judgement and may be more subject to bias and manipulation than historic cost-based information.

3.9 Issues in respect of harmonisation

The emergence of a global economy has impacted significantly on the accounting profession, and the need for a single reporting framework has become more pressing than ever before. The creation of credibility in respect of the accounting standards has always been a challenge and it was for this reason that the IASB was established as independent body in order to prevent accountants from developing self serving rules, a classic perception of conflict of interest. It is, however, significant that, while the success of the IASB definitely modifies the roles of the various national standard setters in various degrees, it does not negate either their existence or their usefulness.

The relative importance of the national standard setters depends on the extent of adoption or adaptation and according to Gelard (2009), these two are worlds apart. The following three typical situations may be described:

- Full adoption, in terms of which countries abandon their national standards for example South Africa, Kenya, Australia and New Zealand;
- The option for companies either to adopt fully or to remain under their local standards. This requires of the national standard setter that it maintains the local accounting system in good order, for example, the European Union countries; or
- Adaptation instead of adoption which, in turn, involves the modifying of the local standards to suit the IFRS (Gelard 2009).

Even in instances in which countries have adopted the IFRSs in full it has been essential that a national standard setter be involved in the due process. For instance, national standard setters, such as the Australian national standards setter, which are involved early on in the research phase that precedes the agenda decision by the IASB. Such early involvement is vital in order to assess the need for and the scope of a project and also to provide preliminary orientations (Gelard 2009). In addition, the vigilance in respect of both the debates and the due process is

far greater in a constituency in which the entities are aware that they will be directly affected by the IASB's ultimate decisions. For example, in Europe, the process of adoption, which is termed endorsement, is an ongoing process in which a body known as the European Financial Reporting Advisory Group (EFRAG) plays a key technical role.

Although the EFRAG is not a standard setter, some of the major standard setters in Europe (France, UK, and Germany) attend the monthly meetings of the EFRAG, at which they have observer status with no voting rights. A research group has been formed by the national standards setters within the EFRAG that assist the EFRAG in its proactive role in putting forward papers under the acronym of Proactive Accounting Activities in Europe (PAAinE) (Gelard 2009).

3.9.1 Needs of developing economies

The use of fair value as an accounting tool requires the existence of both active and liquid markets. In most developing countries such markets are either ill-developed or non-existent. Globalisation works its way through local economies via deregulation (Heinemann 2006:2) and modern market reforms, but, in order to achieve greater transparency worldwide, it is essential that the fundamental institutions of a modern market economy be put in place before convergence becomes effective (UNCTAD 2002). Despite the fact that in developing countries, institutions are not deeply rooted, the move to the new reforms may meet with less resistance than in countries in which those institutions are more highly developed.

Nevertheless, in view of the fact that such fair value models are proposed from the perspective of the developed countries implementation of fair value paradigm faces with numerous challenges in developing countries. The United Nation Conference on Trade and Development (UNCTAD) (2002) found the need for common ground since reliable, transparent and

comparable financial information is deemed necessary for growth and development in general, as well as in terms of attraction of foreign direct investment and for successful privatisation.

3.9.2 Cultural and religious practices

It so happen that modernisation and globalisation sometime proceed by way of the exploitation by governments, companies, and individuals, of land, cultural practices, religious customs, traditional knowledge, or the biological assets of traditional societies (Gibson 2005). Nevertheless, despite the influences of modernisation, communities in certain areas still continue to make use of biodiversity for cultural purposes and they remain connected to their surrounding environment.

This cultural practice may be reflected in a number of ways, for example, according to Cocks and Dold (2008:14) the *amaXhosa* and the *Mfengu* of the Eastern Cape in South Africa continue to use plant and animal species for religious practices, and cultural rituals as well as medicine for traditional healers. This example depicts the practices in many developing countries in which the farming land is owned collectively by communities and the biological assets are held with sentimental attachments. In Kenya, for example, pastoralists make the largest contribution to the beef farming in the country and, hence, their cultural practices distort the market factors.

3.9.3 Enforcement of accounting standards

Although the use of IFRSs remains largely voluntary, in certain countries, such as Australia and China, the accounting standards are integrated with the legal systems, thus making their application mandatory for all companies. According to the Committee of European Securities Regulations (CESR) (2002:3) the harmonisation of enforcement systems is an effective tool with which to create both efficient capital market and a level playing field. The IASB (2006b) outlines the enforcement criteria in the following hierarchy:

- The primary responsibility to prepare and to publish IFRSs compliant financial statements rests with management;
- The auditors have the sole responsibility for stating whether or not the financial statements comply with IFRSs; and
- It is the responsibility of the securities commissions to protect both investors and lenders by ensuring that companies publish the correct IFRSs financial statements (IASB 2006b).

The lack of clear guide lines for implementation of IFRSs and an enforcement mechanism opens the door for abuse in terms of which management implement only the favourable clauses which are based on predetermined motives.

3.10 Summary and conclusions

It would appear that the debate around the basis of determination for fair value revolves around the issue of exit value. However, there are questions being raised on the reason why exit value is a better measure of fair value even in situations in which the asset is either held for use or it is not ready for sale. A further controversy involves the use of "surrogate" markets which may involve piling assumption upon assumption in order to estimate the "highest and best use" of an asset particularly where that "highest and best use" differs from current use of the asset. The majority of accounting pronouncements and standards for the accounting of biological assets are skewed in favour of fair value and historical cost less accumulated depreciation and impairment losses, which is applicable only in situations in which it is not possible to obtain reliable estimates of fair value.

The proponents of fair value argue that fair value provide more relevant information to the decision makers by reflecting the reality of the market dynamics. It is also argued that fair values are more comparable than cost because they take away the "manager's voice" and give

the “market voice”. This is, however, true only in instances in which level 1 inputs; unadjusted quoted market prices in an active and liquid market, are available. In addition, in situations in which the market prices reflect volatility or a wide ask-bid spreads the appropriateness of the fair values may only be as good as the model used which has been determined by the management. The situation is exacerbated in instances in which level 2 and level 3 variables are to be used in order to estimate the fair value because, as with the historical cost, the estimates used overly reflect management optimism.

Fair value is opposed when it is put to test by market volatility and where the market is illiquid. The appropriateness of fair value in respect of non-financial assets, such as biological assets, is also being questioned particularly as regards the need to include the fair value change in revenue. The agriculture commodity markets world-wide remain largely underdeveloped and non-transparent and this poses the biggest challenge in the application of fair value to biological assets, which are also subject to the vulgarity of nature.

As a result of the global integration of the financial sector, the need for the harmonisation of accounting standards on a global scale has become appropriate for both developing and developed economies. However, it is essential that developing economies establish institutions and develop human skills if they are to catch up with the developed countries. The fact that the Security Exchange Commission has issued a road map to US issuers of financial statements in respect of the possible use of IFRSs means that, the convergence of financial reporting is, undoubtedly a reality. The next chapter focuses on the application of fair value by small and medium-sized entities in the agricultural sector in Kenya.

Chapter 4

Application of fair value by small and medium-sized entities in the agricultural sector

4.1 Introduction

Chapter 3 focused on the concept of fair value and its application to biological assets which constitutes, in turn, the base of the world's largest primary economic activity, the agriculture. The agricultural sector also constitutes the bedrock for several economic sectors such as manufacturing. The majority of agricultural operations comprise small and medium-sized entities (SMEs), which are, in the main, family based, and of a hybrid nature with no clear distinction between business and personal activities. Despite the fact that most of these entities lack public accountability, their financial performance and position are, nevertheless, of extreme importance to a variety of different external users.

It is worthwhile to note that most SMEs prepare customised reports for compliance purposes. However, as a result of their role in the global economy, the need for the harmonisation of financial reporting is both vitally important and urgent. In the first place, SMEs are eager to assess themselves in terms of their competitors and to benefit from the easier communication which would result from a common set of accounting principles. Secondly, SMEs have to compete for opportunities at a global level.

Chapter 4 commences by exploring the nature of SMEs and their role in economic development. The chapter also aims at identifying the users of the financial information pertaining to SMEs and their information requirements. The final section of the chapter will focus on the challenges that the use of fair value poses to SMEs in the agricultural sector in Kenya.

4.2 Nature of small and medium-sized entities

SMEs in different countries are referred to by a variety of terms, which include private entities, and non-publicly accountable entities (NPAE). The definition of SME depends on the purpose for the need of definition, and this purpose may include the prescribing of financial reporting obligations. On the other hand, national or regional definitions may include quantified criteria based on revenue, assets, employees or other factors. The IASB (2009c:10) defines SMEs as entities that publish general purpose financial statements for external users but which do not have public accountability. According to the IASB (2009c:10) an entity is publicly accountable if:

- its debt or equity instruments are traded in a public market or it is in the process of issuing such instruments for trading in a public market, or
- it holds assets in a fiduciary capacity for a broad group of outsiders as one of its primary businesses, for example, banks or savings and loan societies. Where resources are held for reasons incidental to the primary business, for example, power utility company or real estate agents, this does not render an entity publicly accountable.

Deloitte (2009b:1) explains that, ultimately, the decision regarding those entities which should use the IFRS for SMEs rests with the national regulatory authorities and standard-setters, and these bodies will specify more detailed eligibility criteria, including quantified criteria based on revenue, assets or number of employees. For example, in the United Kingdom the Companies Act states that a company is "small" if it satisfies at least two of the following criteria:

- a turnover of not more than £5.6 million;
- a balance sheet total of not more than £2.8 million; or
- not more than 50 employees (in Deloitte 2009a:3)

A medium-sized company must satisfy at least two of the following criteria:

- a turnover of not more than £22.8 million;
- a balance sheet total of not more than £11.4 million; or

- not more than 250 employees (in Deloitte 2009a:3).

In South Africa, the first country to adopt the IFRS for SMEs, the IFRS for SMEs would apply to the "private" and "personal liabilities" companies which were previously referred to as limited interest companies (SAICA 2007:4). The Companies Act Number 71 of 2008 (ROSA 2009:74) Section 29 Subsection 1 makes it mandatory for all companies to prepare financial statements that fairly present the financial position and the results of the operations of the company in accordance with the accounting standards as issued by the IASB. The Companies Act Number 71 of 2008 (ROSA 2009:44) Section 8, Subsections 2 (b) recognises a company as private if:

- the company is not a state-owned company; and
- its Memorandum of Incorporation
    - prohibits it from offering any of its securities to the public; and
    - restricts the transferability of its securities.

A company is classified as a personal liability company if:

- the company meets the criteria for a private company; and
- its Memorandum of Incorporation states that it is a personal liability company.

There is no standard definition of SMEs in Kenya. The definition employed by lenders' varies, but, typically, they define SMEs as businesses with six to 50 employees or with annual revenues of less than 50 million Kenyan shillings (FSD 2008:1).

The objectives of the financial statements of SMEs are the same as those of other publicly accountable entities, to provide information about the financial position, performance and changes in the financial position of an entity that would be useful to a wide range of users in their making of economic decisions (IASB 2009c:12). Financial statements also reveal the results of the stewardship of management, or the accountability of management in respect of the resources entrusted to it.

Mirkovic, the Senior Policy Adviser at Association of Chartered Certified Accountants' (ACCA) SME Unit, argues that, big firms tend to take time to get to know their business but that smaller companies are often too preoccupied with the day-to-day running of their businesses actually to take stock of what they have and the need to protect what they have (ACCA 2008). A significant number of SMEs in developing countries remains in traditional activities generally with low levels of productivity, poor quality products and serving small, localised markets (ACCA 2008). According to ACCA (2008) such SMEs barely manage to survive and they have little or no technological dynamism. Only a few of such firms, "graduate" into large size SMEs or embrace modern technologies. Even as the world responds positively to the IFRS for SMEs, the question remains as to whether SMEs should prepare financial statements. Table 4.1 presents the arguments both in favour and against financial reporting for SMEs at a regulatory level.

Table 4.1 Arguments in favour and against SMEs financial reporting

	Arguments in favour	**Arguments against**
Accountability	Assist owners in holding management accountable	No separation of ownership and management
Transparency	Make available information to outside parties such as banks, creditors and employees	Relationship based on personal interest and other considerations, as well as financial status
Evaluation	Provide a record of financial performance	
Governance	Impose financial discipline	
Others		Cost benefits considerations Expertise and experience

Source: MED (2005).

4.3 Role of small enterprises in the global economy

According to the United Nations Industrial Development Organisation (UNIDO) (2007:4) SMEs comprise over 90% of business and they account for approximately 50% to 60% of employment.

The globalisation of business has increasingly drawn SMEs into global value chains through different types of cross-border activities. This access of SMEs to global markets offers a host of business opportunities such as:

- larger and new niche markets;
- possibilities to exploit scale and technological advantages;
- upgrading of technological capability;
- ways of spreading risk; and the lowering and sharing of costs, including research and development costs; and
- improved access to finance (UNIDO 2007:4).

The harmonisation of accounting practice would anchor the role of SMEs within the global economy. According to the Strategic Business Advisors (Africa) Ltd (FSD 2008:1) in Kenya, there are approximately 2.2 million micro, small and medium-sized entities (MSME) in Kenya of which 88% are not registered. In a joint programme termed Assistance to Micro and Small Enterprises (AMSEP) Kenya, through both the ministry of trade and generous European Commission funding, targets SMEs as a key pillar in its economic development. AMSEP targets three areas that are all critical to the development of the SMEs sector:

- the institutional and capacity building needs of business associations that are involved in the promotion and development of SMEs, business development services and microfinance institutions;
- the dissemination of business information through support to business information centres; and
- specific sectoral support which primarily targets agro-processing, packaging and value addition particularly in horticulture and in fisheries (MOT 2009:6).

Other initiatives which constitute a key deliverable of the Private Sector Development Strategy (PSDS) include the launch of District Business Solution Centres (DBSCs) in all districts

countrywide to help promote entrepreneurship (MOT 2009:13). These DBSCs, which are an initiative of the Ministry of Trade and the United Nations Development Programme (UNDP), are intended to facilitate the sustainable development of both micro and small enterprises (MOT 2009:13). SMEs make a significant contribution in the transition of agriculture-led economies to industrialised economies.

4.4 Users of the financial information of SMEs

There are several different users of corporate reports, all of whom have different information requirements. The framework for the preparation and presentation of financial statements (IASB 2009a:78) identifies the users of financial statements to include present and potential investors, employees, lenders, suppliers, customers, governments and the public. For those companies with public accountability this imposes a transparency requirement in terms of which all their undertaking must be consistent with the interests of all stakeholders. Consequently, those who draft financial statements are under severe pressure from all sides to ensure that financial statements meet all the needs of every potential stakeholder. However, according to the Financial Reporting Council (FRC) (2009:10), in reality, it is impossible for the financial reports to fulfil this requirement without running the risk that they will ultimately, be okay for many but ideal for no one.

It is generally argued that investors, lenders and their advisors are the primary users of financial statements. However, as the debate on the simplification of financial statements intensifies, the capital providers are being viewed as the primary users of financial statements (IASB 2009d:8), as large creditors, such as banks and the tax authorities, do have the right to more specific and tailored information. According to the IASB (2009a:80) financial statements prepared in accordance with the IFRSs, meet the common information needs of most users. The IASB also notes that there are inherent limitations to financial statements. In addition, financial statements do not provide all the information that users may need in order to make economic decisions

because, in the main, financial statements portray the financial effects of past events and they do not necessarily provide non-financial information (IASB 2009a:80).

The Ministry of Economic Development (MED) of New Zealand (2005) noted that the majority of SMEs lack any form of separation between ownership and management, and that, in most cases, the managements of SMEs is appointed by the owner on the basis of personal relationships. However, according to the MED (2005), this does not only eliminate the accountability and transparency reporting requirements, but it also significantly reduces the range of potential users of the financial statements of SMEs. This, in turn, explains the reason why, in most countries, SMEs are not burdened with rigorous reporting requirements as long as they are able to produce basic tax returns. According to IFAC (2006:2) the main users of the financial statements of SMEs are the owner managers and owner non-managers, lenders, venture capitalists, grant-awarding bodies and well-wishers.

4.5 User information needs

In a survey conducted by Proactive Accounting Activities in Europe (PAAinE) (2009:6) users were almost unanimous in finding both financial statements and management commentary the most useful sources of financial information. The survey also indicated that information in respect of the cash flow generating capacity of an entity is the key to all major user decisions, including management assessment. It would appear that users are of the opinion that information about the cash generating capacity of an entity is the key to hold/buy/sell, management evaluation and credit assessment decisions (PAAinE 2009:18). It may be that an appreciation of the nature of the operating environment of SMEs (IASB 2009c:42), may result in the drafter of the financial statements being required to disclose, in the notes, information about key assumptions concerning the future, as well as other key sources of estimation uncertainty at the reporting date, both of which carry a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the subsequent financial year. The most

important information for external users concerns the liquidity of the entity and the ability of the entity to generate cash flow. The management commentary is preferred in order to provide prospective financial information, more information on the risk management process and the competitive analysis. According to the IASB (2009d:4) management commentary provides a context within which to interpret the financial position, financial performance and cash flows of an entity. It also provides an opportunity to understand the objectives of management and management's strategies in terms of achieving those objectives.

According to IFAC (2006:2) banks use financial statements of SMEs mainly to determine the capacity of the entity to repay and to assess profitability, security and liquidity. On the other hand, owners utilise financial reports for a variety of functions including, ascertaining remuneration awards and dividend payouts, monitoring performance and capital expenditure, budgeting, planning, assessing loans and financing, as a confirmatory tool and, in some countries, as a means of minimising tax liabilities. Tax authorities also tend to be the key recipients of SME accounts, mainly for tax assessments.

The increased use of fair value accounting has resulted in lengthy valuation assumption disclosures. Management often uses its commentary either to dispel or to elaborate on the market factors reflected by the fair value. In terms of the IFRS for SMEs the small and medium-sized entities have been spared most of the fair value measurements as well as segment information analysis (IASB 2009c). The segmental disclosures provide a greater disaggregation of core business results in line with the information available to management. It would be interesting to investigate the characteristics of those disclosures that users find the most useful and whether these disclosures are consistent with the information needs of small and medium-sized entities. As a result of the increased disclosure requirement which was developed on an intermittent basis, the Pozen Committee of the SEC (2007) has addressed this issue and has recommended the development of a disclosure framework in order to bring the disclosure

requirements down to a single source, based on consistent objectives and principles (SEC 2007).

Even as the rigorous financial reporting obligations for SMEs is eased by the IFRS for SMEs, most of the drafters of the financial statements for such entities lack either the requisite skills or the resources to employ full-time experts. According to the FRC (2009:17) those who draft financial statements are of the belief that the process of compiling a corporate report is too complex, as are the reports themselves. According to ACCA (2008) accountants are the first advisers whom small firm owners consult.

4.6 Use of modern reporting tools (XBRL)

Electronic media presents an opportunity to facilitate corporate reporting. Electronic communication has the potential for a "drill-down" approach to reporting which allows users to start with a high-level summary in the annual report and progressively to drill-down to more detail (XBRL 2009). This may improve the accessibility of reports as readers will not be swamped by too much detail at the outset. However, it does require companies to generate data for the website, design the information in a way that is appropriate for a web environment and translate the information into appropriate formats. Accordingly, while it may provide a partial solution for users, the price may be increased complexity for preparers of the corporate reports.

The SEC recently published a final rule that requires registrants to provide XBRL-tagged financial reports and schedules (an "interactive data file") as exhibits to certain periodic filings, registration statements, and transition reports that contain financial statements (Bolton & Zelic 2009:1). The SEC adopted this rule in order to improve the ability the users of financial statements both to access and to analyse financial data. This interactive data, means that currently static, text-based information can be dynamically searched and analysed, thus

facilitating the comparison of financial and business performance across companies, reporting periods and industries (Bolton & Zelic 2009:1).

The eXtensible Business Reporting Language (XBRL) is an open data standard for financial reporting (IASB 2008c:99). The XBRL allows information modelling and the expression of the semantic meaning which is commonly required in business reporting. In addition, XBRL is a standards-based way in which to communicate business and financial information. These communications are defined by metadata set out in taxonomies (IASB 2008c:99). These taxonomies capture the definition of individual reporting concepts as well as the relationships between concepts and other semantic meanings. According to AICPA (2007) internal management reports, financial statements for publication, tax and other regulatory filings and credit reports may be reliably generated, thus resulting in both time and cost savings. Data may be retrieved and automatically transferred through different applications thereby reducing or eliminating the manual processes associated with the accessing, consolidation and reporting of business information (AICPA 2007). The XBRL platform offers a frontier to simplify the financial reporting of SMEs further (XBRL 2009). In addition, through this interactive data, both the analysis and interpretation of the financial statements are rendered easier to understand.

4.7 Issues in the financial reporting by small and medium-sized entities

Despite the tangible benefits of financial information, the financial reporting of SMEs remains subdued with most small enterprises preparing management reports for the purpose of internal decision making only. Most of the owner managers of SMEs are reluctant to share with external users, information about what they perceive to be their private wealth. It is this reluctance as well as other factors that hinder the financial reporting of SMEs. These issues will be discussed in the following section.

4.7.1 Confidentiality

Dekker (2006) explains that transparency is cited as the biggest obstacle to the financial reporting on the part of SMEs. Financial transparency refers to the provision of financial information that honestly and clearly reflects the operational and financial performance of a business and which is the outcome of the entire business process, ranging from the recording of transactions to external disclosures. Although, as Dekker (2006) explains, in some cases the lack of disclosures by SMEs may be attributed to a lack of understanding about the role of a sound accounting system, owner managers perceive their businesses as their private wealth which they are not obliged to disclose.

While delivering a personal presentation to the national press Herz, the Chairman of the FASB, noted that the investing public both expects and deserves unbiased and transparent financial information that is not skewed to favour particular transactions, companies or industries (Herz 2009:15). Most SME's objectives in financial reporting relate either to compliance or to tax assessment. In many countries there is a strong link between the results presented in the financial reports and the income which is liable for tax (Martin 2005). This raises concerns about taxation standing in the way of good financial reporting in terms of other users. Dekker (2006) explains that, in view of the fact that SMEs cite tax as a significant business burden, they prefer unclear and complicated bookkeeping in an effort to underestimate profit and to reduce tax liability.

4.7.2 Family-owned entities

According to Stephanou and Rodriquez (2008:21), the intrinsic characteristics of SMEs that result in both the unavailability and the unreliability of financial statements include the heterogeneity in the activities of the SMEs, informality, the low managerial capacity of owners and family interests in the business. Most farming businesses are family owned and of a hybrid nature mixing personal and business affairs. The separation of personal and business activities

in order to determine the fair performance of a farming activity would be a tedious and rigorous exercise. The separation of business and personal activities is particularly difficult in respect of bearer biological assets in terms of which fair value may be estimated on the basis of agricultural produce only.

4.8 The simplification debate

The IFRS for SMEs was issued as a stand-alone document to address some of the concerns regarding the interpretations of the full IFRSs and the cost of implementation. In order to enhance stability the standard will not be amended within the first three years from issue, after which the IASB (2009c:8) expects to undertake a comprehensive review based on the experience of SMEs in respect of the requirements of the document. In particular, the focus of the IFRS for SMEs is on simplifying the standard so as both to ensure that financial reporting is less of an administrative and cost burden for the preparers of financial statements and to balance the reporting requirements of the smaller SMEs and to still remain relevant to the larger SMEs.

In an investigation carried out by the Financial Reporting Council (FRC) (2009:4), the complexity of financial statements refers to anything that renders corporate reporting regulations or the reports themselves unnecessarily difficult to understand, implement or analyse. These complexities include either information which is missing or else irrelevant detail that obscures the overall picture. The FRC (2009:12) further explains that complexity in corporate reporting is a multi-faceted problem that will require changes in the behaviour of all the members of the corporate reporting community. The FRC (2009:12), further, recommends that the best route to better reporting and the regulation of reporting is a route which emphasises principles rather than rules. The causes of complexity are interlinked and should not be considered individually as this may have unintended knock-on effects in other areas. In addition, the FRC (2009:19) notes with concern, that regulators are deviating and making requirements that, although,

theoretically correct do not result in the provision of useful information. The deviations are further exacerbated by the unintended consequences or misinterpretation of such provision and regulations.

The codification of accounting standards is seen as one way of simplifying the interpretation and implementation of accounting standards. The Pozen Committee of the US Security Exchange Commission supported the FASB's Accounting Standards Codification project, which aimed to condense the body of literature that comprises US GAAP into a single, online source (Johnson 2008). The Chartered Institute of Management Accountants (CIMA) (2009:1) notes that, to management accountants, the changes in accounting standards create the challenge of reconciling the information which the management of an entity uses to monitor, run and evaluate its performance with the data required for published financial reports. Stakeholder participation in the due process of development of accounting regulations is a further point of focus in order to ensure that accounting standards embrace practicability. According to a report by One World Trust (IASCF 2007), the IASB has the best developed capabilities to engage stakeholders in the due process of development of accounting standards. Nevertheless, increased consultation and engagement with the stakeholders may help to simply the financial reporting.

In the recent past accounting standards have undergone several changes, in fact, to a point of almost causing confusion. In a survey conducted by PAAinE (2009:25), the users ranked extremely high the stability of reporting standards, improved comparability and simplifications in presentation. Some users would also prefer prospective financial information to be incorporated in the financial statements, for example, business plans, cash flow forecasts, prospective capital expenditure, debt forecasts, market outlook and additional segmental information. As a result of the differences in both the nature of operations and risk profiles certain experts have focused on sector specific accounting standards as the sure way to further simplification (SEC 2007).

Although IAS 41, *Agriculture* focuses on biological assets, the drafters of financial statements of entities in the agricultural sector still have to consult a myriad of other accounting standards and regulation.

4.9 Challenges to the fair value reporting by SMEs in the agricultural sector in Kenya

Fair value reporting has been faced by a number of challenges and controversies and it has been widely criticised for taking away the verifiability of financial statements and replacing this verifiability with the so-called "market voice" (Elad 2007:7). This may explain the reason why despite the proclaimed simplicity of fair value reporting, most farmers, if given the choice between fair value and historical cost would prefer either historical cost or a modest blend of the two. According to the World Bank Group (2007:12), a major concern is the way in which to contain the price volatility of agricultural produce, to improve access to markets and to develop modern market chains in order to reduce the cost of market access of small and medium-sized entities. Section 4.9.1 to 4.9.5 highlights the possible challenges confronting fair value reporting in the agricultural sector in Kenya.

4.9.1 Availability of active commodity markets and derivatives

The commodity markets in most developing countries have been characterised mainly by information asymmetry and price manipulation (African Union 2005:1). As a result of the nature of agricultural produce, farmers are aided significantly by commodity futures in order to time supply and demand. This is particularly true in instances in which the agricultural produce comprises perishables and storage facilities are inadequate. The Nairobi Stock Exchange (NSE) has, for many years, focused on developing agricultural commodity futures although there has been little progress reported so far (Wangunyu 2008:2).

Although it is generally argued (ECMI 2008:3) that future prices do not influence the spot price which is driven by market fundamentals, nevertheless, future prices helps farmers to minimise on storage costs and they stabilise the demand and supply. However, the roles of speculators, insider trading, and inadequate regulations have not aided the situation. According to the European Capital Markets Institute (ECMI) (2008:3), over 85% of commodity-derivative trading worldwide takes place over-the-counter (OTC) and information regarding both the fundamentals of commodity markets and the pricing mechanisms of commodity derivatives is, at best, inconsistent (ECMI 2008:1). Although the existence of exchange markets have facilitated the matching of buyers and sellers thereby increasing the liquidity, the ECMI (2008:1) notes that, in effect, commodity prices have always been extremely volatile as a result of unpredictable trends, events such as floods, droughts, and war, technological improvement, fluctuations in economic activity and disruptions in distribution or production.

In order to impose integrity and discipline on the exchange market different nations have been formulating speculative limits as well as anti-fraud and anti-manipulation policies so as to enhance market transparency. While noting the under-utilised potential of agricultural commodity markets in most developing economies, Goggin (2007:10) explains that, in order to survive, it is essential that agricultural commodity exchanges provide new and innovative services to the market. These services include:

- silo/warehouse receipts
- risk mitigation
    - buyer deposit (letter of credit facility)
    - margin deposit (performance bond facility)
    - collateral management
- courier service
- regional documentation to be incorporated into the information base.

The commodity markets in Kenya remain overly depressed and illiquid and this is, in part due to inefficient government policies. There are three visible commodity markets; the Kenya Agricultural Commodity Exchange, the Nairobi Coffee Exchange and the Mombasa Tea Auction. According to Wahome (2009:25), the price discovery and transparency processes are fallacious in these markets. It is viewed that, the proposal by the Ministry of Finance to allocate Ksh 1.8 billion to establish commodities markets at a grassroots level (GRK 2009:12) may provide farmers with a better opportunity to fairly "pricing" their produce, and therefore their biological assets. Sections 4.9.1.1 to 4.9.1.3 highlight the operations of the only visible agricultural commodities markets.

4.9.1.1 The Kenya Agricultural Commodities Exchange

The Kenya Agricultural Commodities Exchange (KACE) (2009) is a private sector initiative that facilitates linkages between the sellers and buyers of agricultural commodities. It also provides relevant and timely marketing information and intelligence, and transparent and competitive market price discovery mechanisms as well as harnessing the application of information and communication technologies (ICTs) for rural value addition and empowerment. In addition the KACE also provides market linkage mechanisms to enable the farmers to sell their produce or purchase needed inputs on time and at competitive prices (KACE 2009).

The company initially commenced with a trading floor, on which samples of products were displayed for bidding. However, following the closure of the trading floor in 2008 as a result of political instability the company has now established a virtual trading floor through the use of FM radio. Through an interactive radio programme buyers and sellers are provided with timely market information to facilitate market linkages for the farmers (KACE 2009). Although there is no data available to support price discovery or market security the KACE (2009) explains that franchised Market Resources Centres (MRCs) provide or solicit for commodity and service

offers from sellers and bids from buyers. These MRCs must verify the veracity of an offer or bid, in terms of the commodity or service availability, quantity, quality and whatever other characteristics are deemed necessary. The MRCs submit these verified offers and bids to the KACE in either written-form, telephonically, or by fax, mobile phone short message service, interactive voice response (IVR) or e-mail message. The offers and bid are then announced over radio in an attempt to match buyers and sellers. According to the World Bank Group (2007:12) this model of commodity market is suitable for small-scale farmers who require promising innovations which includes commodity exchanges, market information systems based on rural radio and short messaging systems, warehouse receipts, and market-based risk management tools.

4.9.1.2 The Nairobi Coffee Exchange

In Kenya, coffee is sold mainly through the Nairobi Coffee Exchange once a week, under a Central Auction System (CAS). This coffee exchange, which is owned by Kenya Planters Cooperative Union (KPCU), mobilises 70% of the national coffee production into the market, and it provides samples of every coffee lot to the Trade Sample Room, in order to accord the buyer an opportunity to verify the quality aspects of the coffee before the coffee is offered for auction (KPCU 2009). These are the samples that the coffee dealers dispatch to international roasters and traders for quality assessment. It is after this quality assessment that, the roasters confirm their orders and mandate the dealers to procure the coffee at the central auction. The KPCU adds value to the product through the management of post-harvest handling and branding which would not be cost effective on small scale (KPCU 2009).

During the coffee auction, registered coffee buyers are invited to buy the coffee lots of their preference through an electronic bidding process. The system provides a price discovery mechanism. However, the licensing of market participants has been riddled by controversy and corruption with the Ministry of Agriculture accusing the Nairobi Coffee Exchange of cartel-like

practices and threatening to close down the coffee auction (Wahome 2009:25). Small and medium-sized coffee farmers who are frustrated by the bureaucratic process have resorted to the farm-gate selling of their product to brokers for immediate cash payments.

4.9.1.3 The Mombasa Tea Auction

According to the African Tea Brokers Ltd (2009) the Mombasa Tea Auction is the largest Crushed, Turned and Curled (CTC) auction centre in the world and it offers up to 9.5 million kilograms per week. According to estimates by the Kenya Tea Development Agency (KTDA) (2009), 75% of Kenyan tea is sold at the Mombasa auction, with direct sales to overseas totalling 15% of the tea production and the Kenya Tea Packers processing approximately 7%. The KTDA (2009), notes that, despite the Mombasa auction being the largest in the world, the prices are not stable and that they fluctuate on a weekly basis depending on demand and supply. According to statistics available to African Tea Brokers Ltd (2009), the prices do not reflect market stability or predictability and this has resulted in the farmers becoming extremely vulnerable to both cartel-like practices and market insider trading. The statistics also indicate a consistent oversupply which, in turn, burdens farmers with storage costs and post-harvest losses.

Most of the small and medium-sized farmers in Kenya, market their tea through KTDA, as a legal regulation, with fixed quota of output. Although the regulation may help to improve quality and improve the post-harvest handling, most farmers have resorted to hawking their produce in an attempt to fetch better prices. According to Odhiambo (2009) there is a perceived lack of transparency in the auction system with both buyers and brokers being accused of collusion and a conflict of interest and, thus, denying the tea growers fair pricing. The government has proposed the enactment of legal reforms, in an attempt to contain both the price volatility and the price manipulation. As part of such reforms the government is considering direct marketing in order to enhance competitiveness.

4.9.2 Knowledge on the part of the preparer of financial statements

The framework for the preparation and presentation of financial statements (IASB 2009a:79) identifies the management as being responsible for the preparation and presentation of financial statements. Accordingly, the level of financial reporting knowledge on the part of the management goes a long way in determining the content of the financial statements. Most small and medium-sized entities are managed by owners who may not have the requisite skills for preparing financial statements. A study conducted by the Professional Oversight Board (POB) (2006) found out that the limited financial expertise available in many small businesses in the United Kingdom caused such businesses to turn to external accountants for assistance. Although management may depend on consultants, the opinion of any expert depends on the information provided by the owner managers.

Argiles and Slof (2000:7) noted that the Accounting Standard on Agriculture presented an acceptable conceptual framework for professional accountants only. However, in respect of farmers, it was unlikely to provide any assistance in overcoming the barriers to the implementation of farm accounting practices or change the economic and managerial limitations of farmers. Argiles and Slof (2000:11) proposed an enhanced mechanism for transferring the accounting, economic and managerial know-how to farmers. In addition, according to Argiles and Slof (2000:12), farmers are of the opinion that the benefits of accounting reports do not outweigh the cost and effort of preparing them, or of learning how to prepare them.

4.9.3 Cost of the preparation and presentation of financial statements

The cost of the preparation of financial statements is cited as one of the main limitations of financial statements (IASB 2009a:85). The balance between cost and benefits has also been the subject of various debates. One point of perspective is to focus on the information that management uses internally to manage the business (IASB 2006c). However, it may not always be the case that the information which management uses will always be either sufficient

or appropriate for external reporting purposes. In addition, the question arises as to whether the information that management does not need would actually be useful. Any disclosure that requires management to reformat existing information in a slightly different way compounds the cost of presenting financial statements (IASB 2006c).

IFAC (2006:10) identifies the elements of the costs as follows:

- the cost of producing financial accounting information, including the direct costs of preparing the information either from within the business or by hiring an accountant, printing and publishing the information and possibly attesting or auditing the information;
- the cost of the valuation of assets and liabilities where fair value is a requirement;
- the opportunity costs as managers divert limited resources to prepare such information;
- the potential cost of disclosing information to a competitor; and
- the costs of complying with legal requirements.

According to the FRC (2009:27) the cost of preparing financial statements may be significantly reduced if there were a coordinated process in terms of developing the regulations. The FRC (2009:27) provides an example of the United Kingdom where publicly traded companies must comply with numerous sources of regulations when preparing their corporate report. These regulations can be listed as follows:

- The Companies Act (BERR)
- IFRS for consolidated financial statement and EU regulations (IASB)
- UK GAAP for separate financial statements (ASB)
- The Disclosure and Transparency Rules (FSA)
- The Listing Rules (FSA)
- The Combined Code on Corporate Governance (FRC 2009:27).

Burdened with all these different sources of regulations which may often overlap, most preparers of financial statements tend to resort to a checklist to ensure they are compliant, rather than focusing on how best to communicate to external users.

4.9.4 Changing user information needs

It is widely acknowledged that financial statements currently aim to meet the needs of too many types of users whose needs are dynamic. The IASB and the FASB have jointly embarked on a major project to redefine the users of financial statements (IASB 2008b). According to these joint boards, the focus is shifting to the providers of capital and to the information they need in order to make their resource allocation decisions and to assess the stewardship role of management. The FRC (2009:5) suggests that regulators and companies should reconsider the way in which they address the needs of other stakeholders other than capital providers. For example, stakeholders with specialist interests in environmental issues and in employee diversity issues. Although this may help to eliminate the complexity of financial statements the user information requirements differ from one situation to another. In order to address these situational disparities many experts have advocated principles-based accounting standards as opposed to rule-based standards (Schipper 2003).

4.9.5 Diversity of agricultural activities

According to Sullivan (2003), diversity is a key issue in agriculture in a range of different ways: within-field diversity (intercropping or mixed cropping is perceived as preferable to monoculture), diversity in crops and livestock (several crop and livestock types are perceived as better than few), production diversity (mixed farming is perceived as more harmonious than specialised farming) while organic farms with a diversity of activities (both agricultural and non-agricultural) are perceived as desirable in connection with short market chains (Sullivan 2003). Most SMEs pursue agriculture as a traditional and subsistence activity, in terms of which the surplus only is available for sale.

In certain other cases farming takes place with-in a traditional land system with sentimental attachment to certain activities. The interdependence of such activities where the outputs of one activity constitutes the inputs to another activity without relevant market pricing complicates the valuation of the related biological assets. Mixed farming and crop rotation practices as soil fertility management are prevalent in most small and medium-sized entities (Sullivan 2003). These traditional practices also rely on natural ecological systems which are subject to the vulgarity of nature such as drought, and thus, increasing uncertainty in valuation of biological assets. The notion of the improved internal function of the farm with higher diversity has been documented. For example, a more efficient nutrient recycling on farms with crops and livestock production, improved resource efficiency by grazing more types of animals and crop rotations decrease the risk of pests and diseases. In addition, the diversity of income generating activities beyond the agricultural production increases the stability of the farm by risk dispersion for most farmers (Sullivan 2003).

Product homogeneity is a pre-condition for an active market although this may never exist within commodity markets. Any fair value estimation will be modelled on the information available from such markets. The major agricultural products may be broadly grouped into foods, fibres, fuels, raw materials, pharmaceuticals and stimulants, and an assortment of ornamental products (Sullivan 2003). There are also certain unique agricultural activities which may be undertaken in order to enhance the productivity of the main activity, for example, natural pesticides and micro-biological organisms, ornamental products such as cut flowers, tropical fish and birds for the pet trade (Sullivan 2003). Such a symbiotic relationship may further complicate valuation of biological assets.

4.10 Lesson from the credit crunch

According to Herz (2009:2) the lack of basic supporting infrastructures in terms of timely and accurate information flows, clearing mechanisms and price discovery compounded the problems of the global financial crisis which, in turn, lead to freezing of credit markets, plummeting equity markets, and significant downward pressure on economic growth. It emerged clearly from the economic crisis that management does not always have at its disposal all the correct information. Even where the management does have the information, the regulatory regime may not be favourable to allow the management to act on such information. As highlighted in section 3.4 much of the discussion on fair value focuses on the accounting in respect of financial instruments, and how accounting treatment of financial instrument may have contributed to global financial crisis. Whereas IAS 39 is under review in order to reduce complexity, one of the significant reforms is the proposal to change from incurred loss and to consider other valuation methods such as the expected loss approach of fair value determination and dynamic provisioning (Deloitte 2009c:2).

The IASB (2009e:2) explains that, in terms of current practice, the requirements is that impairment loss be recognised only when an impairment loss has been incurred. If losses are expected to arise from future events, then such losses are not recognised. According to the IASB (2009e:2), the incurred loss approach is criticised as a result of the fact that it is internally inconsistent, this is because expected losses are implicit in the initial measurement of the asset, but are not taken into account in determining the effective interest rate used for subsequent measurement. In addition, incurred losses lag behind probable losses, which, in turn, creates an information deficiency, while, in some cases, a loss is recognised either in profit or loss even though the original expectations have not changed. Smith (2009:4) notes the complexity of fair value accounting by highlighting that there are 12 different measurement methods for financial instruments, including three for impairment, and also in excess of 22 ways of reaching one of

the measurement methods based on a combination of criteria which may include the type of instrument, the activity in marketplace and intentions of management (Smith 2009:4).

Going forward, the discussion on the application of fair value to non-financial assets such as biological assets is expected to intensify. More particularly is the application of exit value in determination of fair value of a non-financial asset that is held for use and is therefore not available or ready for sale. The concept of expectation of market participants in the absence of an active market is also expected to generate a lot of concerns in respect to biological assets. According to Deloitte (2009d:2) the focus in valuation of non-financial assets held for use should be the management intentions (business model) and not the proposed exit value.

4.11 Summary and conclusions

Most countries have adopted a quantified criteria based on revenue, assets, number of employees or some other factor in defining small and medium-sized entities (SMEs). However, as a sharp contrast, the IASB has focused on qualitative aspects to define small and medium-sized entities, as entities that publish general purpose financial statements although they lack public accountability. It will therefore be essential for different nations and regions to realign their definitions toward the common definition of SMEs as stipulated by the IASB. Although large SMEs do have the option to adopt the full IFRSs the biggest challenge in respect of a qualitative definition lies in meeting the needs of both small and large SMEs.

It can also be concluded that most SMEs are managed by owners and, thus, control of the entity depends on their personal trust and interaction with management. Lenders and tax authorities are also in a position to request particular financial reports. This significantly reduces the interested parties with the financial statements of SMEs. However, it is essential that those SMEs that wish to evolve evaluate themselves in terms of similar organisations and that they realise that they will be expected to share information with trading partners if they are to

participate in global business. These factors justify the need for a common platform in respect of the financial reporting of SMEs.

The debate on fair value has focused mainly on financial instruments which are traded in well established financial markets. The commodity market in developing countries remains underdeveloped with no clear regulations and no clear price discovery mechanism. The role of speculators in such markets has also been cited as an impediment to market transparency. The fluctuation of commodity prices world-wide also poses a significant challenge to fair value estimation.

In Kenya, the three commodity markets operate in a simplified auction system with no clear regulations or transaction security. The licensing of market participants is riddled with corruption which, in turn, casts aspersions on the integrity of market-determined prices. These factors, together with the diversity of agricultural activities and the level of financial reporting skills of farmers that are expected to pose the biggest challenge to fair value determination in Kenya. The remainder of this dissertation will focus on an empirical investigation which will be conducted to establish whether the theoretical findings are sufficient to justify the conclusions made and thus make recommendations.

Chapter 5

Research design

5.1 Introduction

Chapter 2 focused on the nature and history of the reporting of biological assets while chapter 3 focused on the application of fair value to biological assets and the global trends in respect of full fair value accounting. Chapter 4 highlighted the application of fair value by small and medium-sized entities (SMEs) and outlined the challenges which may be expected in fair value accounting. This chapter presents an empirical investigation into those challenges in order either to confirm or to refute them. The chapter commences by defining the population used and by identifying the challenges involved in defining this population. The chapter also discusses the sample design. It then explains the data collection method, the research instruments and the questionnaire design. The final section of the chapter discusses the limitations of the empirical investigations, and the factors that must be taken into consideration in the application and interpretation of the inferences drawn.

5.2 The population

The population refers to the entire collection of entities under consideration (Frees 1996:23). According to Mugenda (2008:181) a statistical population consists of the set of all elements in the universe of interest. As such it comprises the entire groups of individuals, objects, items, cases, articles, or things with common attributes or characteristics existing in space at a particular point of time (Majumdar 2005:151). The characteristics of each member or element of the population defines the universe and, thus the term population may also be used to refer to the universe, canvas or supply (Majumdar 2005:151). In certain situations it is possible to enumerate the population in its entirety. Such a complete listing of observations is termed a census. A population may be either finite or infinite (Frees 1996:23). The target population

comprises all individuals, objects or things to which the research may reasonably generalise the findings (Mugenda 2008:181), while the accessible population is that part of the target population which the research may, for practical purposes, reach (Mugenda 2008:182).

For the purpose of this study the population comprises all the SMEs in the agricultural sector in Kenya. Although SMEs in Kenya are defined by the acreage of the farm, this study will focus on those entities that publish financial statements even though such entities do not have public accountability. As a result the study will take into account both "small" and "big" SMEs.

5.2.1 Problems in defining the target population

SMEs in Kenya are defined quantitatively and this research is interested in a qualitative definition. The target population of this study comprises of SMEs within the agricultural sector, which publishes financial statements even though they do not have public accountability (IASB 2009c:10). The information of the SMEs that publish financial statements is not always available and this posed a challenge in defining the target population. In order to overcome this problem, the study will take into account those SMEs in the agricultural sector that either displays an interest in sharing information with the public, participate in public surveys or reflect a receptive attitude to change. Highly secretive firms that do not display or share information with the public will not be considered despite the fact that they do affect the market profile of SMEs. The sample will, therefore, be selected based on those entities from the agricultural sector that participated in the KPMG 2009 Top 100 SMEs survey, the 2009 Institute of Certified Public Accountants of Kenya Financial Reporting Award and the 2009 Nairobi Agricultural Society of Kenya Trade Fair.

5.2.1.1 Diversity of the agricultural sector

Agricultural activities in Kenya are extremely diverse and encompass in excess of 100 particular activities, each of which is unique. Although there are more than 5 million small scale farmers

(GRK 2007:28) the AGRA-Alliance (2009:2), list approximately 2.5 million farmers who have access to low interest loan guarantees through Equity Bank. As discussed in chapter 1(section 1.1), the agricultural activities are classified into five categories by the Ministry for Agriculture. This study will adopt the same categorisation in defining the sample size. However, it is important to note that each category is not homogeneous and that the characteristics of each category may differ from those of other categories depending on the market structure and the level of market development.

5.2.1.2 Lack of SME listing

As noted in chapter 4 (section 4.3) more than 80% of the over 5 million small and medium-sized entities in Kenya are both informal and unregistered. The majority of these entities are found in the agricultural sector. As a result of a lack of management sophistication, most entities in the agricultural sector prepare financial statements on a cash basis for compliance purposes only. Much of the research into SMEs in Kenya is sponsored by financial institutions which have to do with access to finance and, for the purposes of that research, SMEs are defined quantitatively, as was discussed in chapter 4 (section 4.2). This, in turn, created problems in defining the population for this study because, in terms of this study, SMEs are to be defined qualitatively.

5.2.1.3 Poor knowledge of IFRSs

Although the listing regulations in Kenya stipulate that the listed companies comply fully with IFRSs, the Companies Act Cap 486 of 1973 (KLR 2009:179) does not impose any obligation on companies to comply. The Institute of Certified Public Accountants of Kenya promotes transparent and accountable financial reporting. However, the adoption of IFRSs remains largely voluntary and is, therefore, at an extremely low level as even the listed companies opt not to comply but to disclose the reason for non-compliance. This may be attributed largely to both a lack of enforcement and poor knowledge of IFRSs.

5.2 The sample design

A sample is a subset of the population. In many situations a complete census of the population is impractical (Frees 1996:23). The accuracy of the generalisations of research findings depends largely on the degree to which the sample, the accessible population and the target population are similar in respect of salient characteristics (Mugenda 2008:182). According to Mugenda (2008:182), should the sample, the accessible population and the target population be similar in respect of salient characteristics, the population validity exists and the research findings from the sample may be generalised to the target populations (induction) with confidence. However, if population validity does not exist, then any generalisations will be limited to the sample only, a condition which exists when both the accessible and the target populations are poorly defined (Mugenda 2008:182).

5.2.1 Sampling method

This study used a purposive sampling method. Purposive sampling method selects a sample that conforms to certain criteria and is thus non-probabilistic (Cooper & Schindler 2003:201). A non-probability or purposive sampling method was considered because there is no access to a full listing of all the units in the target population as required under probability sampling (Mugenda 2008:182). The research problem is of a technical nature and, thus, the study employed the expert sampling method in respect of each category. Expert sampling is a branch of purposive sampling that involves identifying those respondents who are likely to provide certain information (Mugenda 2008:198). This study was interested in small and medium-sized entities that publish financial statements.

In view of the fact that the small and medium-sized entities that publish financial statements are not listed this study also employed the snowballing sampling technique, also known as, the chain referral sampling method. Snowballing involves identifying a subject who displays the qualities the researcher is interested in investigating and then asking the respondent to suggest

another person (Mugenda 2008:196). Majumdar (2005:202) argues that, although snowballing sampling is prone to bias, it may, with proper control, yield highly reliable results. In snowballing sampling the problem of non-response is not significant since the investigator has the freedom to select another respondent. In order to improve representativeness a branch of purposive sampling, which is known as quota sampling, was used. Quota sampling involves grouping the small and medium-sized entities in the agricultural sector into five categories. The essence of such a classification lies in the fact that the challenges open to one category may not be significant to other categories.

5.2.2 Sample size

Sample size determines the precision with which population values may be estimated. However, according to Mugenda (2008:186) the specification of a sample size for a survey is largely guesswork. Where the population is homogeneous a small sample will produce accurate estimates but, where the population is heterogeneous, a large sample will provide more accurate estimates of the population parameters. According to Mugenda (2008:186), the sample size must be determined by the availability of resources and the ability of the sample to capture all sources of variation within the population. According to Majumdar (2005:204) a large sample is appropriate:

- Where the relationship to be detected between the variables is assumed to be weak among the variables;
- If the significance level is stringent;
- Where several control variables are built into the study;
- If a categorical variable has many levels with some levels expected to be poorly represented in the population; and
- Where the population is highly heterogeneous (Majumdar 2005:204).

According to Kothari (2004:174) there are two approaches to determining the size of the sample. In terms of the first approach the sample size depends on the precision of the estimate desired while the second approach involves the use of Bayesian statistics to weigh the cost of additional information against the expected value of the additional information. There is extreme variability between the different sub-sectors and between small and big SMEs in the agricultural sector in Kenya. This study seeks to generalise the challenges facing the fair value determination of biological assets. This would, in essence, require a large sample, but, as a result of limited resources and the lack of similar research, a smaller sample will be used to indicate the challenges, and to provide a sound basis for further research.

Accordingly, the sample will be selected based on firms from the agricultural sector participating in the KPMG 2009 Top 100 SMEs survey, the 2009 Institute of Certified Public Accountants of Kenya Financial Reporting Award and the 2009 Nairobi Agricultural Society of Kenya Trade Fair. The farms selected from the above category formed the basis of snowballing or chain referral. Out of all the entities identified, the study administered questionnaires to 30 farms distributed as follows:

Table 5.1 Determination of sample size

Sub-sector	Characteristics	Activities	Contribution (%GDP)	Number of entities
Industrial crops	Primary cash crops	Tea, coffee, sugar cane, cotton, tobacco, sisal, barley and fruits	17	5
Horticulture	Consumable and non-consumable	Vegetables , flowers, nuts, spices	33	10
Food crops	Immediate consumption or staple food	Maize, wheat, rice, sorghum, millet, legumes	32	10
Livestock and fisheries	Meat and fish and livestock products	Poultry, goats, sheep, cattle, fish	14	4
Other sub-sector	Forestry	Timber, beam	4	1

Table 5.1 illustrates the distribution of the sample size in respect of the various sub-sectors in the agricultural sector. The number of farms per sub-sector is based on contribution to the GDP as per table 1.1. In view of the diverse distribution of the target population and limited resources, a small sample size of 30 farms was adopted randomly.

5.3 Data collection method

The study involved administering questionnaires to each respondent identified. Each respondent was required to answer a set of structured questions. The researcher did consider the use of a schedule in terms of which the researcher himself would complete the questionnaire based on the responses of the respondent (Majumdar 2005:251). Such a schedule would provide the researcher with the opportunity to explain the meaning of each question to each respondent. However, in view of the time constraints, a questionnaire was considered more appropriate. The questionnaire was administered either personally or through electronic mail. A mail questionnaire was considered but this idea was abandoned due to the probable lower response rates and the time duration for postage.

A personally administered questionnaire provides the researcher with an opportunity for follow up and it establishes contact with the respondent. The study also considered the use of telephonic interviews but this idea was also abandoned because it was considered too costly. Telephonic interviews are also limited because they do not produce a record of the responses. In addition, interviews may also lead to non-standard responses which are difficult to analyse. The interviewer may also ask leading questions, intimidate the respondent or indicate the answer expected (Boyce & Neale 2006:3).

5.4 Questionnaire design

The study used closed-ended or structured questions. A structured or closed response questionnaire specifies alternatives for the respondents. Such responses are categorised as

dichotomous, multiple-choice, checklist, rating or ranking (Cooper & Schindler 2003:373). The study considered providing explanations to each question in order to guide the respondents in terms of the technical areas of the study. However, it was then decided that, it would be more appropriate to administer the questionnaire personally and to provide explanations where required. This would also ensure that the questionnaire does not have to include unnecessary details.

Open-ended questions were considered but this idea was abandoned in the light of accuracy and the need for standard responses. Open-ended questions or free-response require of the respondent to express unaided ideas on a particular issue in own words (Cooper & Schindler 2003:375). According to McBurney and White (2004:239) open-ended questions permits respondents to provide more complete answers and to reveal the reasoning behind their answers. However, they are both time consuming and costly for the respondent and they may also result in a lower response rate. According to Majumdar (2005:255) open-ended questions are appropriate only when testing a respondent's attitude, belief, understanding, or recollection of a past experience in terms of which individual responses may show a high degree of variation.

Closed-ended questions or fixed-alternatives are better suited for more objective and factual ideas because they are easy both to code and to analyse (McBurney & White 2004:240). However, structured questions are self limiting because the respondent may give the answer simply for the sake of providing an answer (Cooper & Schindler 2003:367). In other words, in their desire to impress respondents may assume that giving any answer is more helpful than denying knowledge of the subject. Kothari (2004:103) recommends that, each section of the questionnaire commence with a filter or control question in order to overcome this problem while, according to Cooper and Schindler (2003:367), filter questions are used to qualify the

knowledge of the respondent. In view of the small sample involved in this study, a filter question would not be appropriate as it would limit the responses available.

McBurney and White (2004:240) outline the principles of questionnaire construction, which were taken in consideration in the questionnaire included in Appendix A to this research, as follows:

- each issue should be addressed separately in order to eliminate ambiguity;
- the questions should not be biased, in other words, the questions posed to the respondent should be neutral and not leading;
- alternatives should be clear; the options should be distinctly different from one another and should cover all possibilities, the questions must be mutually exclusive and exhaustive;
- each question should be worded in such a way so as to appear equally socially desirable in order to avoid the situation in which, as a result of social desirability, a respondent may choose an alternative even if that alternative does not represent the respondent's true opinion;
- the sequence of questions should be in a logical order; and
- the format of each question should be determined depending on the magnitude of opinions, for example the use of Likert rating scales (McBurney & White 2004:242).

5.4.1 The Questionnaire

The questionnaire which was developed for the purposes of this study is included in Appendix A to this research. The questionnaire consists of six sections, each with a different objective. The first section of the questionnaire aims to categorise the farm of the respondent concerned, while the second section seeks to establish the purpose for which financial statements are prepared. The main objective of the third section is to establish a situation in which an active market exists and whether the farmers have confidence in market established prices. The fourth section

seeks to establish the most popular basis of the valuation of biological assets and the way in which the valuation method may be influenced by the market factors. The fifth section aims to determine the challenges or limitations of the fair value determination while the sixth section establishes the significance of each challenge and, thus, forms the basis of the conclusions and recommendations.

5.5 Data analysis method

5.5.1 Pie Charts

A pie chart is a way of summarising a set of categorical data. A circle is divided into segments with each segment representing a particular category. The area of each segment is proportional to the number of cases in that category (Lind, Marchal & Wathen 2008:23). Pie charts are generally considered to be the most illustrative method of presenting categorical data and it is for this reason that the researcher adopted this method for the purpose of this research.

5.5.2 Statistical Package for the Social Sciences (SPSS)

The Statistical Package for the Social Sciences (SPSS) is a statistical package for performing quantitative research in social science. Other statistical computer applications that were considered include Microsoft Excel and MINITAB. However, SPSS was selected because it is the easiest to use for the most widely used statistical techniques (Neter, Kutner, Machtsheim & Wasserman 1996:915). Many of the widely used social science data sets may easily be translated into SPSS and this significantly reduces the preliminary work needed to explore the data. The only limitation of SPSS is that users have no control over the statistical output and there may be a weak lag function on transforming the data across cases. SPSS will be used in the ranking procedures in section 2 and section 6 of the questionnaire.

5.6 Limitation of the empirical investigation

The empirical investigation is expected to face certain challenges ranging from a small sample to a poor understanding of IFRS on the part of the respondents. According to Mugenda (2008:150) limitations refer to those characteristics of design or methods that set boundaries on the application or interpretation of the results. However, since this is an exploratory study, the limitations are not expected to influence the research findings and the inferences in any significant way. The limitations of the study include the following:

5.6.1 Small sample size

A small sample is appropriate only where the population is homogeneous and the characteristic of the population may easily be described. The agricultural sector in Kenya is extremely diverse and this factor would normally have called for a large sample that would be representative of the population. It would also have been appropriate to separate large and small non-publicly accountable entities that publish financial statements. However, in view of the limited resources, all the inferences made will be based on a small sample. In this respect Majumdar (2005:209) does argue that, if the level of precision is not a critical factor of consideration, then size of the sample does not matter.

5.6.2 Poor knowledge of IFRSs and the technical nature of the subject

In Kenya, as a result of a lack of management sophistication many private entities prepare financial statements for compliance purposes only and most of these entities rely on external auditors to finalise the financial statements. This situation is further exacerbated by the fact that the main users of financial statements are often the providers of capital who are interested mainly with physical collateral, and not in the potential of the firm. In the agricultural sector in which most firms are family owned, the situation is even worse because agriculture is pursued as a traditional or a cultural practice. There is a widespread belief that family land may not be pledged as collateral and, thus, such farms exist within a closed system and are not interested

in sharing information. This may be attributed to a failure on the part of the farm owners to appreciate both the benefits of IFRSs and the adoption of IFRSs.

5.6.3 Inaccessibility of respondents

Certain of the respondents identified were inaccessible as a result of both location and widely spread activities. The study was also conducted during a period of severe drought which may possibly have affected the attitude of the respondents toward fair value measurement by lowering their expectations and optimism. However, as this research is also seeking information about the farmers' expectation in respect of the impact of climatic conditions and the way in which this, affects the fair values, the drought and famine conditions might also have resulted in their being more honest on other factors. In other cases, cultural practices such as pastoralism do not allow any valuation as it is believed to cause a bad omen.

5.6.4 Diversity of farm practices

As discussed in section 4.9.5 most farmers practice mixed farming activities. This, in turn, makes it difficult to establish the value of each activity on its own as a result of interdependence between such activities. It also makes quality controls in respect of each activity impractical. In addition, organic and traditional farming practices affect the valuation of the related biological assets in an unconventional or unusual manner, with the result that it becomes necessary to make even more assumptions. However, the empirical part of this study will focus only on SMEs in the agricultural sector which are involved in formal activities which may influence the inferences made from analysis of the responses.

5.7 Summary and conclusions

The empirical part of this study is critical in helping to establish the reality in the field in order either to accept or to refute the theoretical findings. For the purpose of this study small and medium-sized entities are defined qualitatively as those entities that publish financial statements

even though they do not have public accountability. However, in Kenya, most SMEs operate in an informal way and this creates a challenge in the definitions of both the population and the sample design. It is for this reason that the study will adopt a purposive sampling technique in order to target only those respondents who are likely to provide information relevant to the purpose of this study.

The selection of the respondents was based on five categories of agricultural activities, namely, cash crops, horticulture, food crops and livestock, and fisheries. The number of respondents in each category was based on their contribution to GDP. In view of the fact that the population is heterogeneous, this would have required a large sample, however, due to limited resources a sample of 30 respondents was used. This smaller sample size, in addition to other limitations, may hinder the application and interpretation of the empirical findings. However, as noted earlier, this study is exploratory and, thus, the level of precision is not a critical factor. The remainder of this study will involve an analysis of the findings of the empirical investigation, conclusions and recommendations.

Chapter 6

Analysis of research findings

6.1 Introduction

Chapter 5 discussed in detail the research design, data collection method, the research instrument and the sample design. It is important to analyse the responses in order either to accept or to reject the theoretical findings which were outlined in chapters 2, 3 and 4. Chapter 6 focuses on analysing the questionnaire responses in order to draw conclusions. The questionnaire, of which the responses are analysed, is included as appendix A to this research.

6.2 Responses

The empirical investigations comprised personally administering questionnaires to 30 farms. In view of the fact that there is no listing of the small and medium-sized entities that publish financial statements in Kenya the researcher adopted a snowballing sampling technique. A list of the respondents is included as appendix B, while a summary of the responses is included as appendix C to this research. The snowballing sampling technique accounted largely for the high level of responses at 90%. This high response rate may also be attributed to the personal administration of the questionnaire as, most of the respondents preferred to complete the questionnaire in the presence of the researcher and, thus, to make enquiries directly. There was also much of excitement with farmers arguing that, most of the policies were imposed on them without prior solicitation of their views and that the research was, thus, very welcome. However, it is important to note that the research was carried out after an extended drought period, and this may have dampened the spirits of the farmers and influenced their responses. The responses to sections 1, 2, 3, 4, 5 and 6 of the questionnaire attached in appendix A, and whose responses are summarised in appendix C, are analysed in sections 6.3, 6.4, 6.5, 6.6, 6.7 and 6.8 respectively.

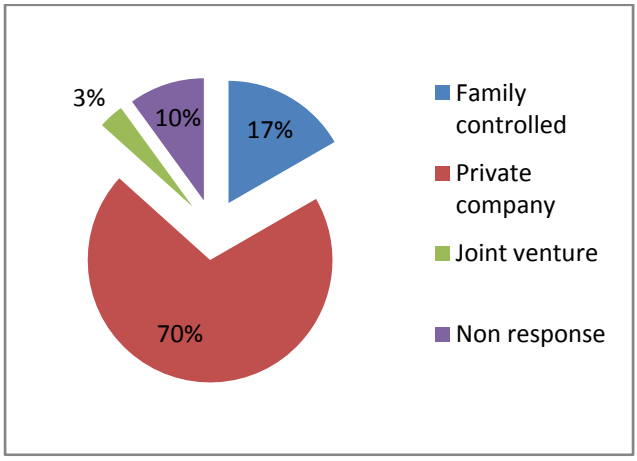
6.3 Farm profile

Section 1 of the questionnaire focused on the profile of the farming activities. The objective of the section was to highlight the fact that farming activities are heterogeneous and may even be influenced by farming methods.

Figure 6.1 Section 1 Question 1 *Tick the box that describes the organisation of the farming operation*

As highlighted in section 2.1, there is a widespread belief that most farming activities are family controlled. The objective of the question was to establish the ownership structure of the farming entities.

Figure 6.1 Organisation of farming activities

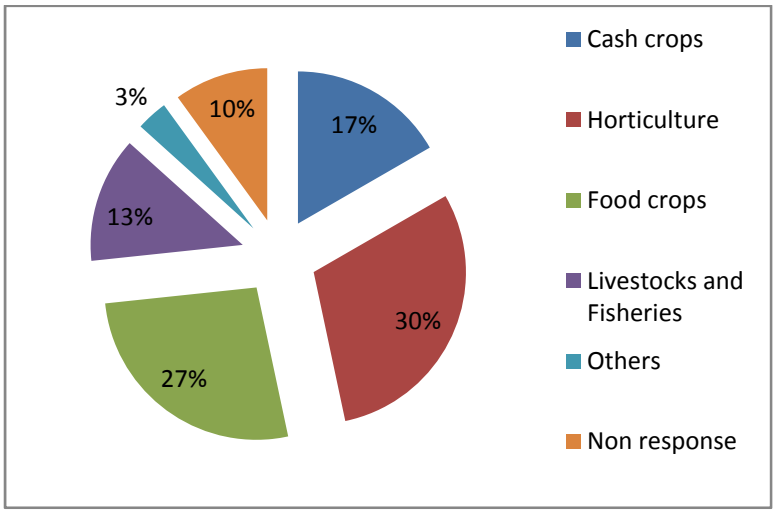


As per the analysis in figure 6.1, 70% of the respondents were private companies with 17% only being family controlled. This is contrary to the theoretical assertion that most SME farming activities are family based. It is, however, important to point out that, the study targeted those entities that publish financial statements only. In addition, the sampling method was non-statistical and this may have influenced the outcome.

Figure 6.2 Section 1 Question 2 *Tick the box that best explains the main farming activities:*

As discussed in section 1.1 the government groups farming activities in four categories namely: industrial crops; horticulture; food crops; and livestock and fisheries. The study sought to generalise all the agricultural activities. The objective of the grouping was to ensure that the sample was as representative as possible. The aim of the question was, therefore, to establish the category of farming activities depending on the government national economic survey.

Figure 6.2 Nature of farming activities

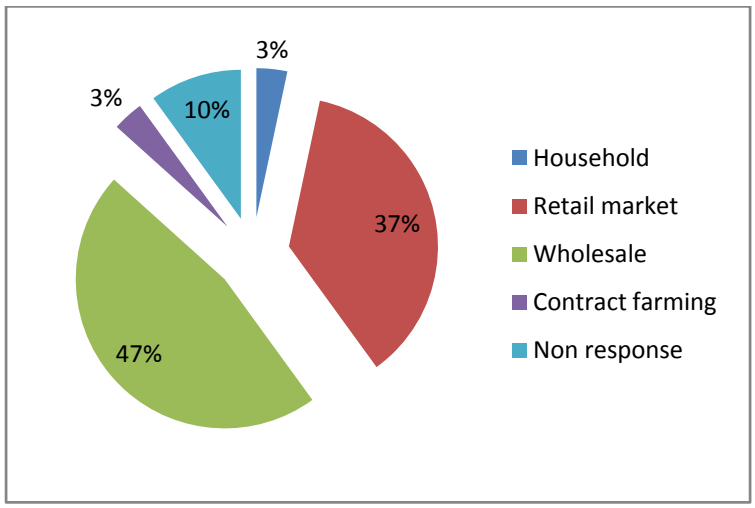


As indicated in figure 6.2, 30% of the respondents were from the horticultural sub-sector compared to a target of 33% (refer to table 5.1), 27% of the respondents were from the food crops sub-sector compared to a target of 32%, 17% of the respondents were from industrial crops while 13% only were from livestock and fisheries. If the responses are compared with the targets, they reflect the diversity of the agricultural sector in Kenya and, thus, form a sound basis for both the analysis and the generalisation.

Figure 6.3 Section 1 Question 3 *Select one alternative that best explains your target market*

This question aimed at establishing the target market which, to a large extent, influences fair value determination.

Figure 6.3 Target market



As indicated in figure 6.3, 47% of the respondent indicated that, they target the wholesale and export market in mainly the horticultural sector and industrial crops. Farmers who market their products through cooperative societies prefer to be classified as wholesalers. In addition, 37% of the respondents target the retail market mainly for food crops that do not require any further processing while 3% only of the respondents are producers on a contract basis and for household purposes respectively.

Figure 6.4 Section 1 Question 4 *Select the method that best explains your farming methods*

As explained in section 3.4 farmers who rely on natural climatic patterns face intense uncertainty and are vulnerable to climatic condition changes. This question sought to ascertain the extent to which farmers rely on natural climatic patterns and the level of mechanisation.

Figure 6.4 Farming methods

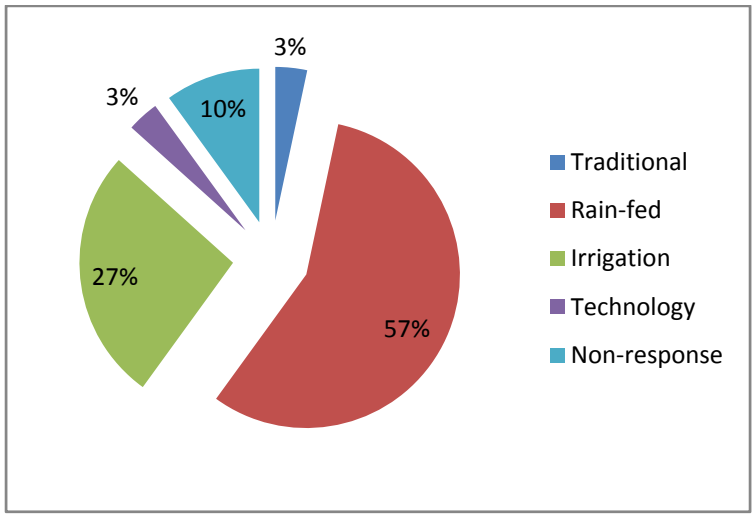


Figure 6.4 indicates that 57% of the respondents rely on natural climatic conditions and 27% only depends on irrigation and mechanisation. The climatic patterns in most parts of Kenya are unpredictable which may indicate the extent of the uncertainty in respect of future expectations. This, in turn, may, to a great extent, influence the valuation of biological assets. Contrary to the assertion in section 2.3.2 that biotechnology may be used to improve productivity in agriculture, 3% only of the respondents have adopted biotechnology. Figure 6.4 also indicates that 3% of the respondents are engaged in the traditional farming practices.

6.4 Objectives in preparing financial statements

The financial statements represent the single most important tool in respect of management's sharing of information with the various stakeholders of an entity. Section 2 of the questionnaire sought to establish the purpose of published financial statements, and the basis on which farmers prefer to prepare financial statements.

Table 6.1 Section 2 Question 1 *Rank the following components of financial statements in order of their importance to your farm*

Section 4.5 alleged that management use management commentary either to dispel or elaborate on the market factors which are reflected by the fair value. This question aimed at establishing which components of the financial statements those drafting the financial statements accord the most significance. The respondents were required to rank from 1 (the most important) to 4 (the least important) and 5 for not sure. In order to analyse the findings it was necessary to code the components of financial statements and then to compute the statistical values using the Statistical Package for Social Sciences (SPSS).

The results of the statistical analysis are presented in table 6.1 below with the coding having been done as follows:

- STCOMINC – Statement of comprehensive income;
- STFINPOS – Statement of financial position;
- STECAFLW – Statement of cash flows;
- STECEEQT – Statement of changes in equity; and
- NOTEXPLA – Notes and explanations to the financial statements.

Table 6.1 Importance of the components of financial statements

	N	Minimum	Maximum	Mean	Std. Deviation
STCOMINC	27	1	4	2.70	.869
STFINPOS	27	1	5	3.59	.888
STECAFLW	27	1	4	2.41	.694
STECHEQT	27	5	5	5.00	.000
NOTEXPLA	27	1	4	1.33	.784

In table 6.1, the most important (minimum) is represented by 1 while the least or of no importance (maximum) is represented by 5. The statistical analysis of the responses, which is presented in table 6.1, indicates that most of the respondents were in agreement that the notes and explanations to the financial statements were the most significant, with a highest mean score of 1.33 and a standard deviation of 0.784. These notes and explanation, which consist mainly of disclosures of accounting policies, as well as a schedule and explanation of non-financial factors, enable farmers to explain the financial statements and, thus, provide them with flexibility to explain their expectation about the future.

This finding is in accordance with the theoretical findings in section 4.5 that management commentary and an evaluation of future expectation and strategies comprise the most important information in respect of the users of financial statements. Ranked second in importance was the statement of cash flows with a mean score of 2.41, with the statement of comprehensive income in third position of importance with a mean score of 2.70. The statement of financial position was considered as the least important while the respondents were unanimous in not being sure about the importance of the statement of changes in equity. This corresponds with the assertion in the IFRS for SMEs that, in the case of SMEs, a single statement of income and retained earnings may be prepared in place of the two components being presented separately.

Table 6.2 Section 2 Question 2 *Rank your reasons for preparing published financial statements*

As discussed in section 4.7.1 the objective of the majority of SMEs in respect of financial reporting is compliance with legal regulations or the ascertaining of their tax liability. This question aimed at establishing the main reasons why farmers prepare financial statements. The respondents were required to rank the importance with 1 as the most important to 4 as least important and 5 for not sure. In order to analyse the responses it was necessary to code those objectives and to compute the statistical values using Statistical Package for Social Sciences (SPSS).

The statistical analysis of the responses indicated the result summarised in table 6.2 below where the coding was done as follows:

- LOANREQU – Loan requirements;
- SHAREHOL – Shareholders;
- TAXCOMPL – Tax compliance;
- DECISINF – Decision making information; and
- COMPSTAN – Compliance with accounting standards.

Table 6.2 Reasons for preparing financial statements

	N	Minimum	Maximum	Mean	Std. Deviation
LOANREQU	27	1	4	2.15	.602
SHAREHOL	27	1	5	1.33	.832
TAXCOMPL	27	1	5	3.07	1.107
DECISINF	27	1	5	3.85	.770
COMPSTAN	27	3	5	4.56	.698

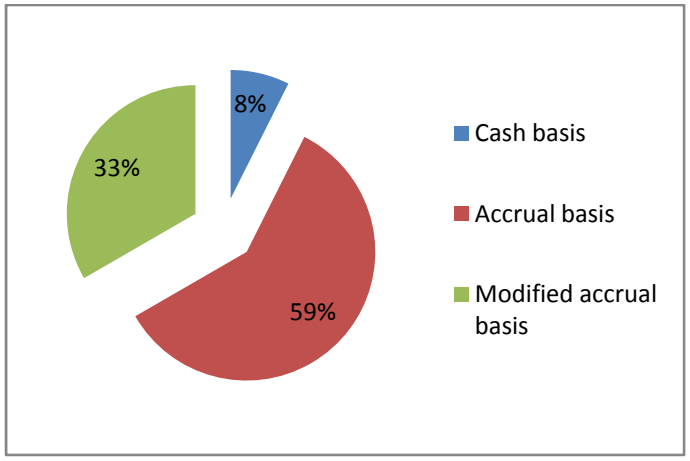
In table 6.2 the most important (minimum) is represented by 1 while the least important or of no importance (maximum) is represented by 5. The statistical analysis of the responses, as summarised in table 6.2, indicates that the majority of farmers prepare financial statements for use by shareholders with a mean score of 1.33 and a standard deviation of 0.832, both of which indicate a high degree of agreement. This is contrary to the theoretical assertion that SMEs prepare financial statements for compliance purposes.

The loan requirement is in the second position with a mean score of 2.15 and a standard deviation of 0.602. It is, thus, obvious from this ranking that SMEs prepare financial statements for capital providers. Tax compliance and the ascertainment of tax liability ranked third in importance. The respondents identified compliance with accounting standards and information for decision making as the least important, in this order. This is consistent with the theoretical observation that most SMEs in Kenya are not obligated to comply with accounting standards.

Figure 6.5 Section 2 Question 3 *Select, by ticking, the most relevant basis of accounting for agricultural produce on your farm*

In section 2.4.6 it was alleged that most SMEs in Kenya prepare financial statements on a cash basis. This question sought to establish the most common basis of preparing financial statements.

Figure 6.5 Basis for preparing the financial statements



According to figure 6.5 an overwhelming 59% of the respondents prefer to prepare financial statements on an accrual basis while 33% prefer a modified accrual basis of accounting. Although this research had adopted a snowballing sampling technique, this finding indicates a high prevalence of the accrual basis for the accounting of biological assets which may, in turn, be an indication of a transition state from cash basis of accounting for biological assets. Contrary to the theoretical findings 8% of the respondents only prefer to prepare financial statements on a cash basis.

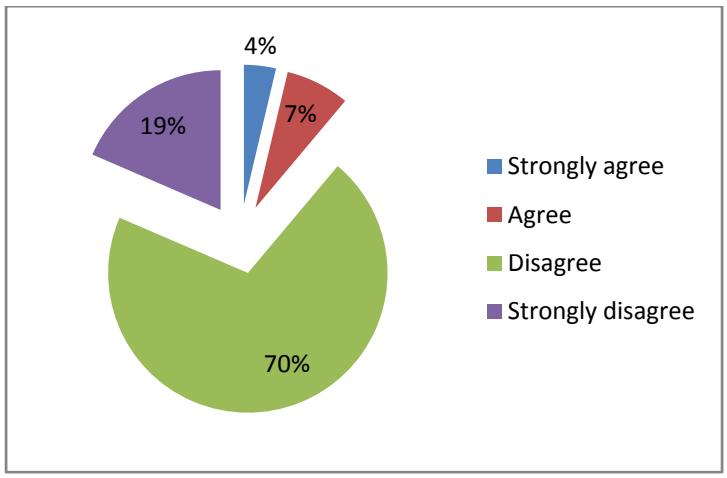
6.5 Access to market

In the valuation of biological assets, market determined prices are accorded the highest priority. Accordingly, it was considered necessary to evaluate the form in which farmers access the market.

Figure 6.6 Section 3 Question 1 *A principle market exists and is readily determinable*

This question sought to establish the respondents' perception of the existence of an active market for agricultural produce. This is because the unadjusted quoted price in the principal market is the preferred basis for the valuation of biological assets.

Figure 6.6 Existence of principal market



According to figure 6.6, 70% of the respondents disagree that a readily determinable principal market does exist while 19% strongly disagree. In other words, at an overall disagreement rate of 89%, the respondents do not belief that a principal market exists while 11% of the respondents agree that a principal market may exist and that it would, therefore, be possible to obtain a quoted market price.

Figure 6.7 Section 3 Question 2 *It is not possible to market the agricultural produce before further processing*

This question aimed at establishing both the form in which agricultural produce is marketed and the way in which farmers deal with post harvest losses. The processing is necessary particularly for perishable products in terms of which storage and post harvest losses poses a huge challenge. This question was included in order to ensure that the issue of principal market was understood clearly and not confused with the market for processed commodities.

Figure 6.7 Need for further processing

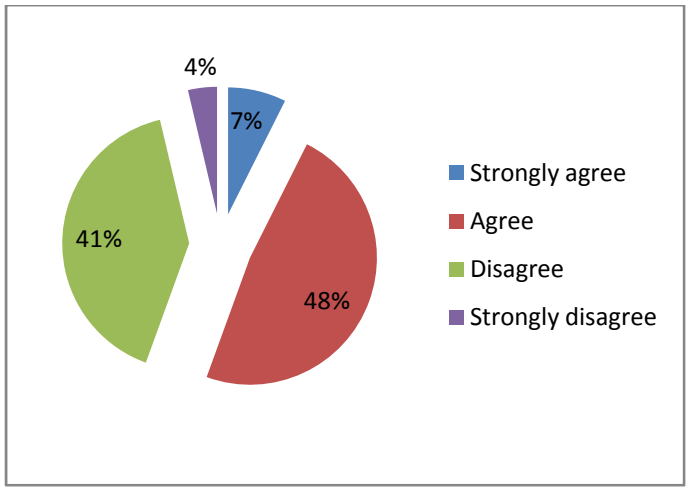
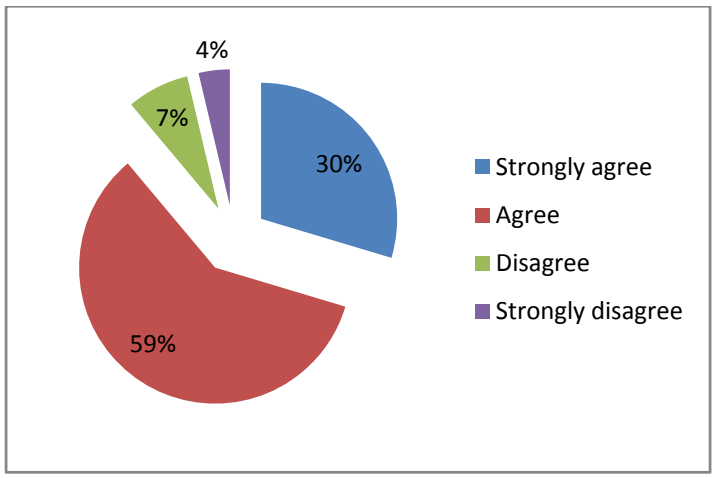


Figure 6.7 indicates that 48% of the respondents agreed that agricultural produce does require further processing before marketing, while 7% of respondents strongly agreed and 41% disagreed. This concurs with the assertion that farmers are not able to hoard their products for better market prices. Accordingly, most farmers prefer to transfer the risk for post harvest loss to middle traders who, in turn, take advantage of this position.

Figure 6.8 Section 3 Question 3 *The principle market is accessible only through middle traders or brokers*

The question sought to establish the role of middle traders and cartels in the market place. The general belief is that, unless a farmer is associated with a certain broker, it will be impossible for them to access markets.

Figure 6.8 Role of middle traders



According to figure 6.8, 59% of the respondents agree that the role of middle traders is significant while 30% strongly agreed. This gives an overall agreement rate of 89% of respondents who depend on middle traders to provide market information and access. In view of the fact that farmers prefer to transfer the risk of post harvest loss, the middle traders take advantage by factoring a huge margin. Figure 6.8 also indicates that only 11% of the respondents do not consider the role of middle traders in marketing their produce. This dependence on middle traders, leads to the question as to whether farmers believe their products to be fairly priced.

Figure 6.9 Section 3 Question 4 *The market prices are fairly determined*

The question aimed at establishing whether farmers have confidence in the prices offered in the market as these prices form the basis of the valuation of biological assets.

Figure 6.9 Reliability of market price

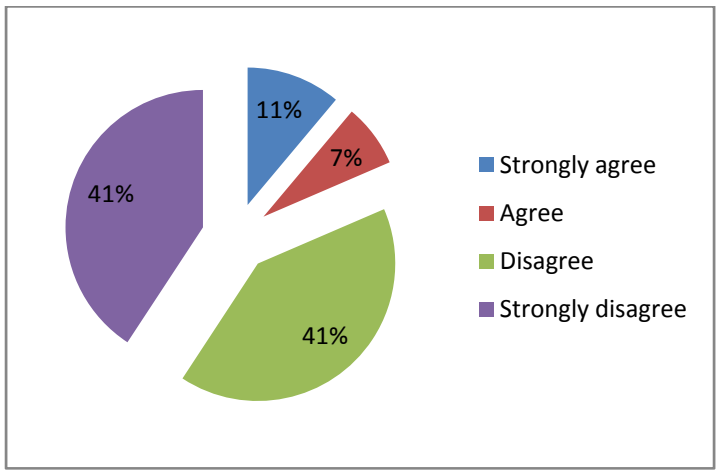
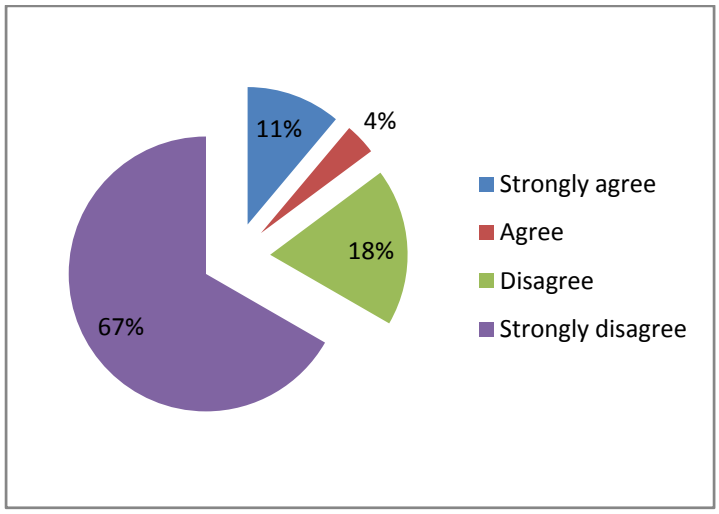


Figure 6.9 indicates that 41% of the farmers strongly disagree that market prices are fairly determined while 41% disagree. The figure also indicates that only 18% of the respondents appear to have confidence in the market determined prices. This lack of confidence with market determined prices leads to the question whether the farmers understand the pricing mechanism.

Figure 6.10 Section 3 Question 5 *The pricing discovery process is transparent and understandable*

This question sought to establish whether the farmers understand the pricing mechanism of their products.

Figure 6.10 Price discovery



According to figure 6.10, 67% of the farmers strongly disagree that the process of price discovery is transparent and understandable while18% disagree. This is a clear indication that the farmers neither understand the markets, nor do they have access to market information on a timely basis. The figure indicates that only 15% of the respondents consider the price discovery mechanism to be both understandable and transparent.

Figure 6.11 Section 3 Question 6 *A market exists for the harvested produce only*

The aim of the question was to establish the form in which the agricultural produce is marketed. The question was considered relevant in order to assess the farmers, understanding of their target market, particularly in respect of bearer biological assets.

Figure 6.11 Market for harvested produce

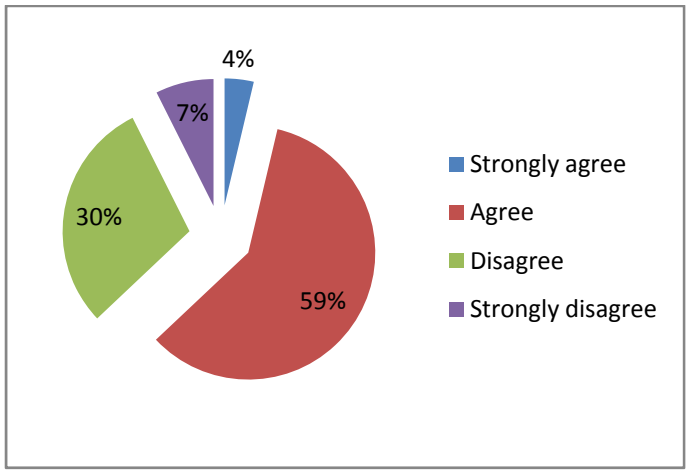
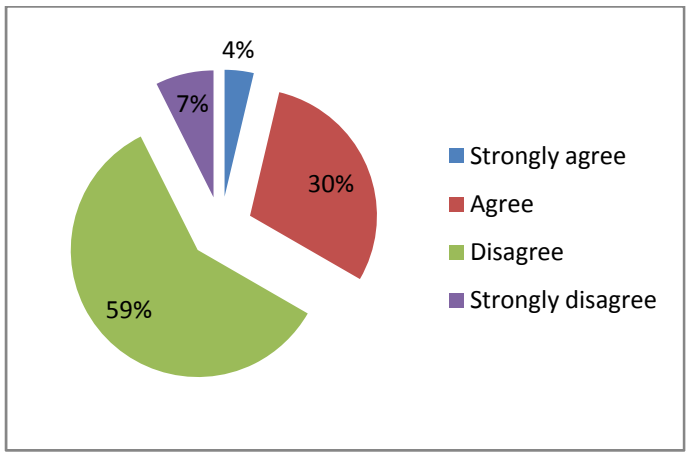


Figure 6.11 indicates that 59% of the respondents do agree that a market exists for agricultural produce only and not for the biological assets while 4% strongly agree. The figure also indicates that 37% of the respondents are of the belief that it is possible to market biological assets. The same question, but posed in a more direct way, followed.

Figure 6.12 Section 3 Question 7 *A market exist for bearer biological assets (scrap market)*

The question sought to establish whether farmers have access to a market for bearer biological assets.

Figure 6.12 Market for the bearer biological assets

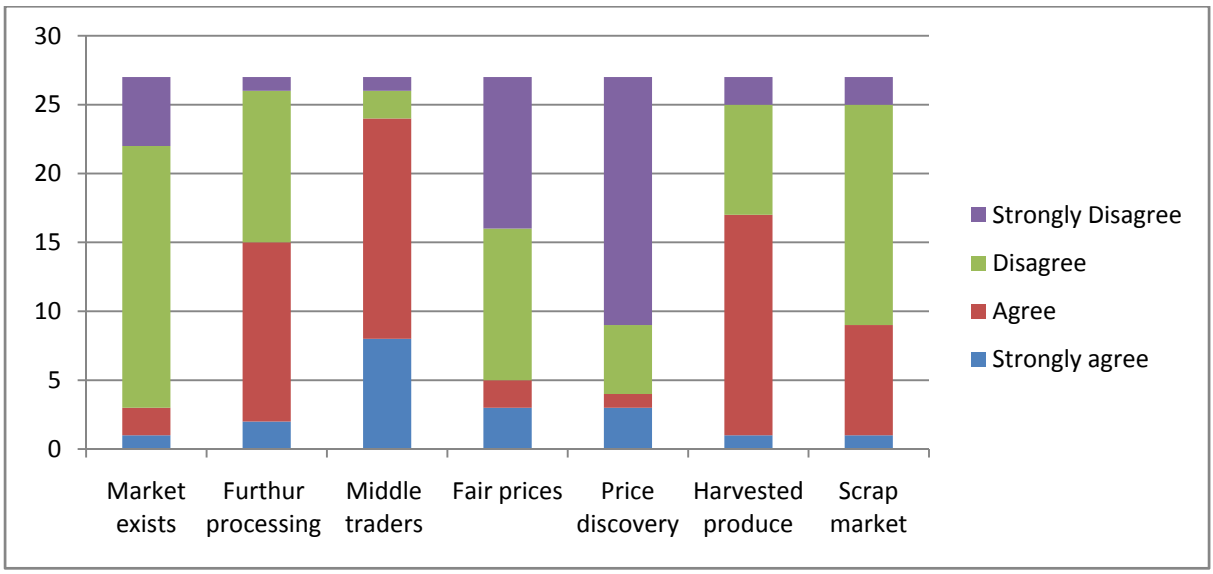


According to figure 6.12, 59% of the respondents disagree that there is a market for bearer biological assets while 7% strongly disagree. The figure also indicates that 34% of the respondents appear to be aware of a market for bearer biological assets. This is in agreement with the outcome of analysis in question 6 in section 3.

Figure 6.13 Summary of market access

As explained in section 3.2.4, the unadjusted quoted market prices are the preferred basis for the determination of fair value. Section 6.4 focused on the farmers' knowledge of the existence and functioning of an active market. The consolidated results of this section are presented in figure 6.13 below.

Figure 6.13 Summary of market accessibility



The results of the evaluation of market accessibility are summarised in figure 6.13. These results indicate that it may generally be argued that most farmers do not have access to market information. This is also a very clear indication that farmers do not play a role in the pricing of their produce in the market place. This, in turn, to a great extent, reduces the number of market players and erodes the reliability of market determined prices. Section 6.6 will now address the basis for the valuation of biological assets as adopted by farmers.

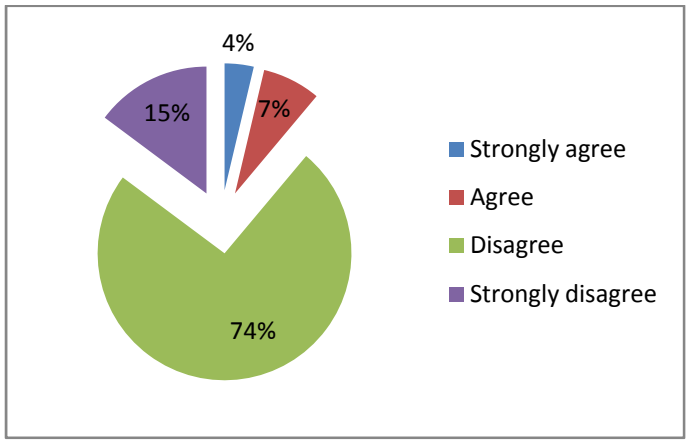
6.6 Valuation of biological assets

Having taken into account the farmers' attitude to market inputs variables, section 6.6 will present an evaluation of the basis for valuation of biological assets.

Figure 6.14 Section 4 Question 1 *A quoted price in the principle market exists and is the most reliable basis of valuation of biological assets.*

This question aimed at identifying those farmers who consider quoted price to be the most reliable basis for the valuation of biological assets. As highlighted in section 3.2.4 quoted price is considered to be the most reliable basis for fair value determination.

Figure 6.14 Valuation on basis of quoted price

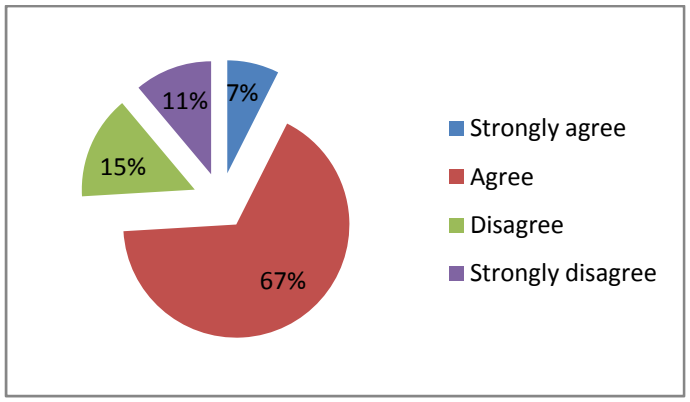


According to figure 6.14, 74% of the farmers disagree that market prices constitute a reliable basis for the valuation of biological assets while15% strongly disagree. The figure also indicates that 11% of the respondents prefer the quoted market price as a basis of valuation for the biological assets.

Figure 6.15 Section 4 Question 2 *There is no principal market for biological assets and the valuation of biological assets is modelled on the basis of similar products.*

This question sought to establish which of the farmers model the value of biological assets based on similar products or sector benchmarks. As explained in section 3.4.1.7 it is recommended that the valuation model optimise the use of observable market information and, in the absence of such information, section 3.2.2 highlights the application of a hypothetical transaction.

Figure 6.15 Valuation based on sector benchmarks

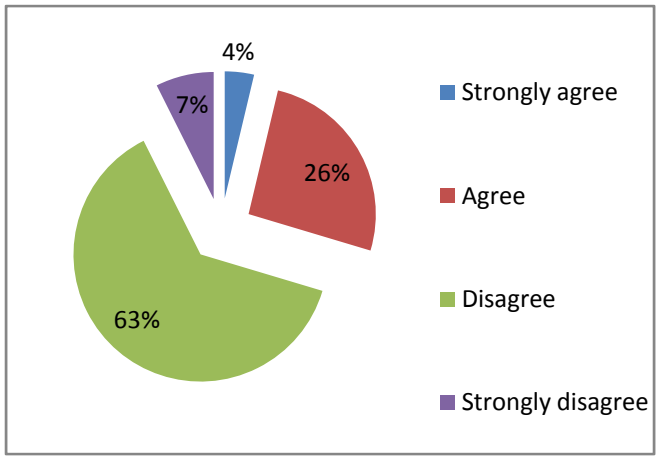


According to figure 6.15, 67% of the respondents prefer model market information as a basis for the valuation of biological assets while 7% strongly agree that valuation is modelled on the basis of sector benchmarks. The figure also indicated that 26% of the respondents disagree that modelling is not an appropriate basis for the valuation of biological assets. The approach of modelling market variable as a basis for the valuation of biological assets is preferred because it enables management to make certain assumptions and to consider factors which are specific to the entity as opposed to the quoted market prices that reflect the voice of the market only. This is also in agreement with the theoretical observation in section 3.4.1.4 that most agricultural produce lacks homogeneity and, thus, may be impossible to obtain a direct market price quotation in respect to biological assets.

Figure 6.16 Section 4 Question 3 *A market exists for scrap biological assets and this market is the most reliable basis for the valuation of biological assets*

This question aimed at establishing whether the respondents prefer to value biological assets on the basis of a scrap market. As explained in section 2.2.2.2 immature biological assets are not in a position to sustain regular harvests and, thus, any attempt to predict future outcomes may be difficult. However, it is appropriate to reiterate that the scrap market is not a recommended basis for the valuation of immature biological assets if the entity has the intention and the ability to grow the immature biological assets to maturity.

Figure 6.16 Valuation on the basis of scrap market

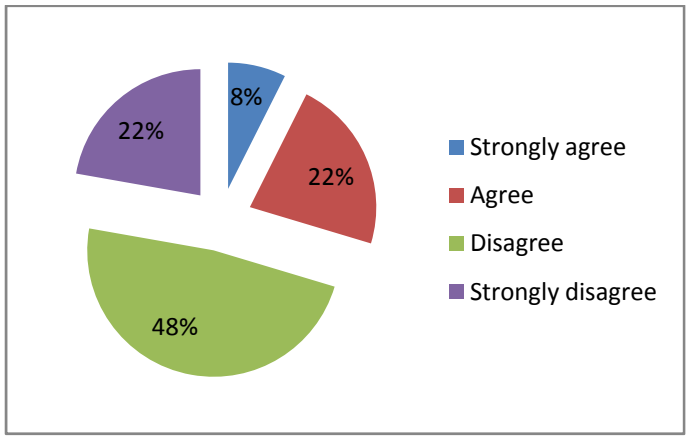


According to figure 6.16, 63% of the respondents disagree that a scrap market exists for biological assets while 7% strongly disagree. The figure also indicated that only 30% of the respondents would prefer to value biological assets using the scrap market. It is important to highlight that most immature biological assets are valued on the basis of cost which does not reflect the effect of biological transformation.

Figure 6.17 Section 4 Question 4 *There is no reliable market information and the valuation of biological assets is based on projected cash flows*

This question aimed to establish the proportion of respondents who prefer to value biological assets on the basis of projected future cash flows. As explained in section 3.4.1.5, in situations in which there is no market observable information, fair value is estimated on the basis of future cash flows by reflecting the expectation of market participants in the most relevant market.

Figure 6.17 Valuation on basis of projected cash flows

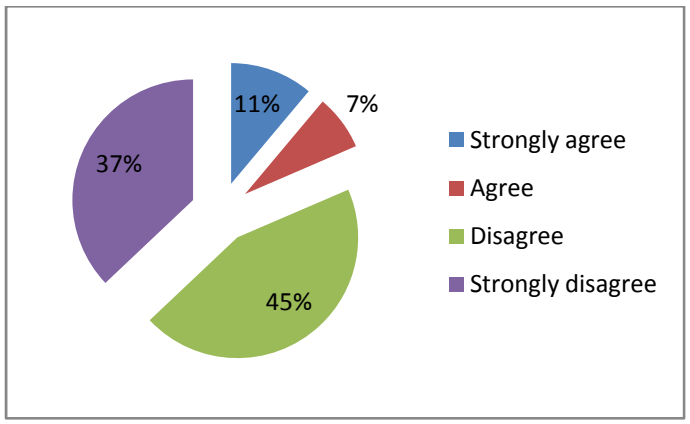


According to figure 6.17, 48% of the respondents disagree that they would rather use projected cash flows as a basis for establishing the fair value of biological assets while 22% strongly disagree, an overall agreement of 70%. The figure also indicates that only 30% of the respondents apply projected future cash flows as a basis for the valuation of biological assets. The projection of future cash flow involves making assumptions about both future climatic conditions and the expected useful life of the biological assets which might be difficult to predict.

Figure 6.18 Section 4 Question 5 *it is possible to determine the cost of biological assets reliably and this cost may approximate to fair value*

The objective of this question was to establish which farmers prefer the use of historical cost as the basis for the valuation of biological assets and, specifically, to the extent they regard the cost to approximate to fair value.

Figure 6.18 Valuation on basis of cost

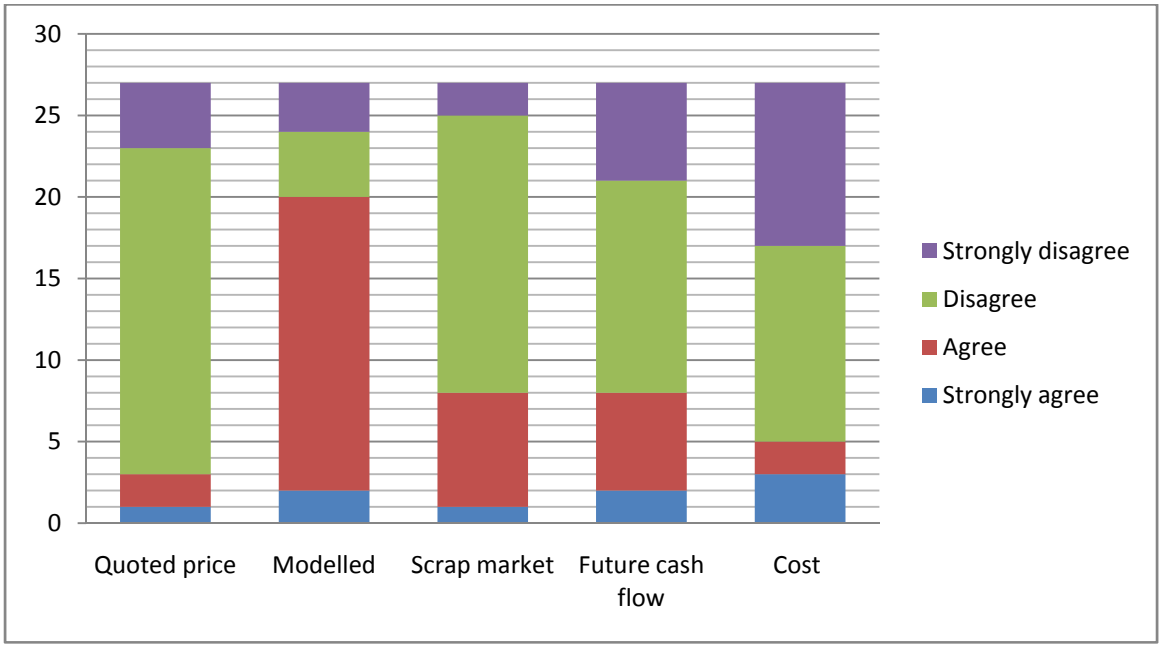


According to figure 6.18, 45% of the respondents disagree that the cost of biological assets as a basis for the valuation of biological assets is reliable while 37% strongly disagree, an overall disagreement rate of 82%. The figure also indicates that only 18% consider cost to be a reasonable basis or approximation to fair value. This agrees with the assertions in section 3.3.1 that biological assets are held for a lengthy duration either to regenerate or to undergo biological transformation and, thus, cost of such biological assets cannot approximate to their fair value.

Figure 6.19 Summary of the methods of valuation

The main objective of this section was to establish a common basis for the valuation of biological assets. The results of the section is consolidated in figure 6.19

Figure 6.19 Summary of the methods of valuation



According to figure 6.19, a majority of the respondents prefer to model fair value using market information which pertains to similar biological assets and sector benchmarks. Although the valuation of biological assets is outside the scope of this research it would have been interesting to ascertain what specific information the farmers reach out for, and the models that are used. This will be proposed as an area for further research.

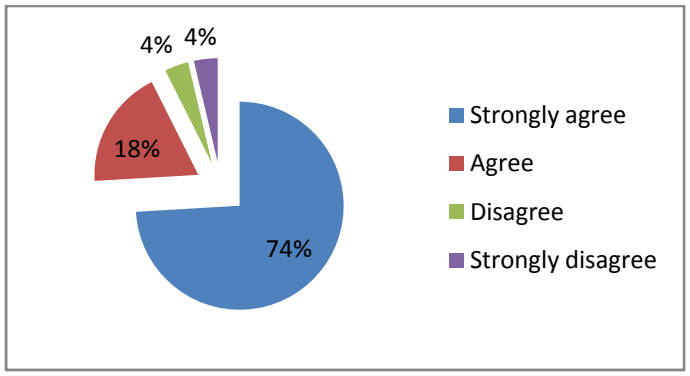
6.7 Challenges in fair value estimations

The aim of section 6.7 is to guide the farmers in identifying those challenges that confront them as they attempt to estimate fair value. It is hoped that this will assist them to rank the challenges in section 6.8**.**

Figure 6.20 Section 5 Question 1 *Price volatility and unpredictability render quoted price an unreliable basis for the valuation of biological assets*

The aim of this question was to determine whether farmers are in a position to predict the prices of their produce. Should there be price stability, it would be possible to rely on the market information for valuation purposes. As explained in section 4.9.1 commodity markets in most developing countries are characterised by information asymmetry and by manipulations.

Figure 6.20 Price volatility as a challenge



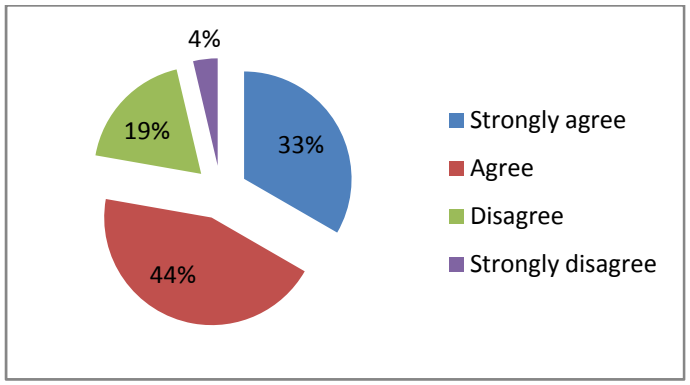
According to figure 6.20, 74% of the respondents strongly agreed that market prices are volatile and unpredictable and, thus, they do not constitute a reasonable basis for the valuation of biological assets while 18% agreed that it is because of price volatility and unpredictability that they do not use quoted market prices, an overall agreement rate of 92%. This agrees with the theoretical assertions in section 4.9.1 that the market determined prices for agricultural produce are not reliable. This would explain why most farmers prefer to model prices to reflect their

expectations as the analysis in figure 6.19 indicated. The figure indicates that only 8% believe that prices are stable and reliable and that they should be used as the basis of valuation of biological assets.

Figure 6.21 Section 5 Question 2 *The need for the grading of agricultural produce makes quoted price an unreliable basis for the valuation of biological assets*

Unlike various other forms of assets, biological assets are unique because their quality may greatly influence the prices. This quality may not necessarily be visible and, in some cases, detailed analysis may be required before grading. As explained in section 3.4.1.1 the quality of biological assets is influenced by multiple factors such as the nurturing of the biological assets and post harvest handling. The objective of this question was to establish the extent to which farmers consider the grading process to be a hindrance in the establishing of the market value of agricultural produce.

Figure 6.21 Grading of agricultural produce



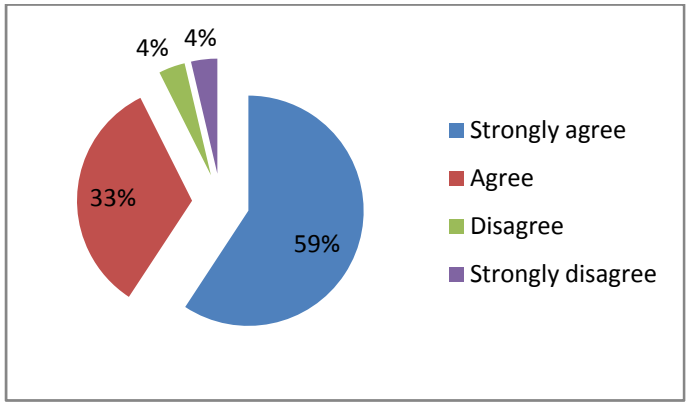
According to figure 6.21, 44% of the respondents agree that the results of grading do cause a considerable variability in pricing, even for the same product, while 33% strongly agree, an overall agreement rate of 77%. The fact that the quoted price in an active market is applicable only to homogenous products explains why farmers may not prefer the market prices and,

instead, prefer to model such market price. The figure also indicated that only 23% of the respondents do not consider the grading of products as an obstacle to valuation.

Figure 6.22 Section 5 Question 3 *Highest and best use of biological asset is not appropriate for the valuation of biological assets*

As explained in section 3.2.1.6 fair value is not entity specific but, rather, it represents the expectations in respect of the ability of the market participant to generate economic benefits. The aim of the question was to establish whether farmers support this notion.

Figure 6.22 Application of highest and best use

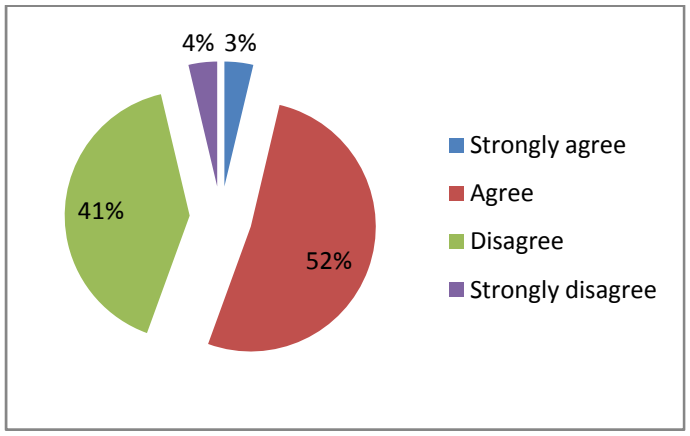


According to figure 6.22, 59% of the farmers agree that the highest and best use of biological assets is not an appropriate basis of fair value determination while 33% of the respondents strongly agreed, an overall agreement rate of 92%. Although some farmers appeared not to appreciate the concept of highest and best use of biological assets, most of the respondents did argue that the concept of market participants detaches the reality of the business as it is not possible to specify precisely the expectation of the market participants. The figure also indicates that only 8% of the respondents concur with the notion of the highest and best use of biological assets.

Figure 6.23 Section 5 Question 4 *The interrelation between different products makes it impossible to value biological assets using quoted prices*

Biological assets, but not biological produce, involve considerable interdependence, some of which is symbiotic and synergetic. This interrelation may improve or enhance the value of the relevant biological assets. As noted in figure 2.1 the biological transformation process is also facilitated by other forms of assets which create a web of interdependence. The objective of this question was to establish the extent to which farmers consider such interrelations between different agricultural products or activities to be a challenge in estimating fair value.

Figure 6.23 Interrelation between different products

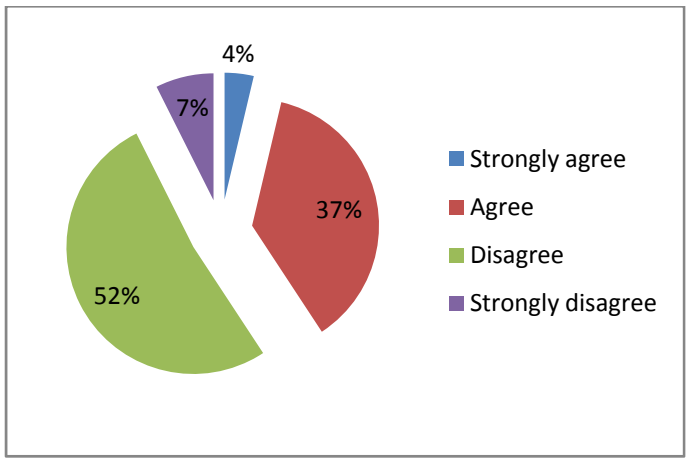


According to figure 6.23, 52% of the respondents strongly agree that the interrelation between different products results in the valuation of biological assets becoming a challenge while 41% agreed with the notion. In other words, an overall agreement rate of 93% of the respondents concur that the interdependence and diversity of agricultural activities and assets contribute to the challenges as noted in section 4.9.5. The figure also indicated that only 7% of the respondents do not consider such relationships between different activities to be a hindrance in the determination of fair value.

Figure 6.24 Section 5 Question 5 *The modelling of sector benchmarks and prices for similar biological assets is impractical due to the diversity of agricultural products*

The modelling of market prices and sector benchmarks is greatly influenced by management's understanding of their business. This question sought to establish whether farmers consider that modelling is hindered by the diversity of agricultural activity.

Figure 6.24 Diversity of product

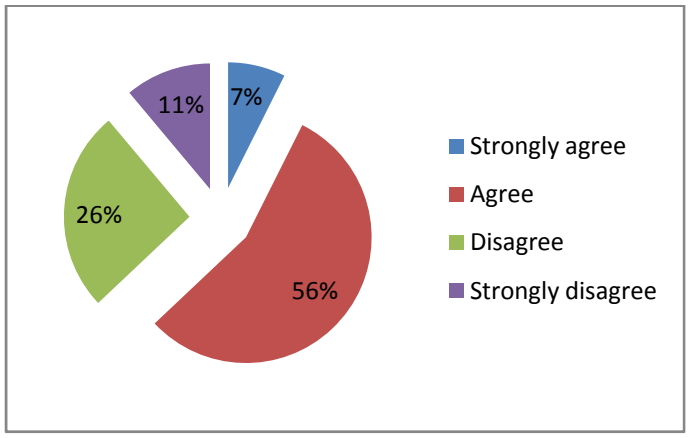


According to figure 6.24, 52% of the respondents do not consider that diversity constitutes an obstacle to the use of modelling as a tool in the estimation of the fair value of biological assets while 7% of the respondents strongly disagree with the assertion. However, a significant 41% does consider that diversity is an obstacle in the estimation of the fair value of biological assets.

Figure 6.25 Section 5 Question 6 *Predicting future cash flows is difficult as a result of uncertainty about future expectations*

As noted in section 3.3.1 most bearer biological assets are held over the long-term and, in some cases, the scrap market is not an appropriate basis for the valuation of such assets. It was further highlighted in section 3.4.1.5 that the valuation in such a situation would depend on the expectations of the market participants about the ability of the biological assets concerned to generate future cash flows in the most relevant market. The objective of this question was to establish whether it would be possible to predict such cash flows with any ease.

Figure 6.25 Prediction of future cash flows

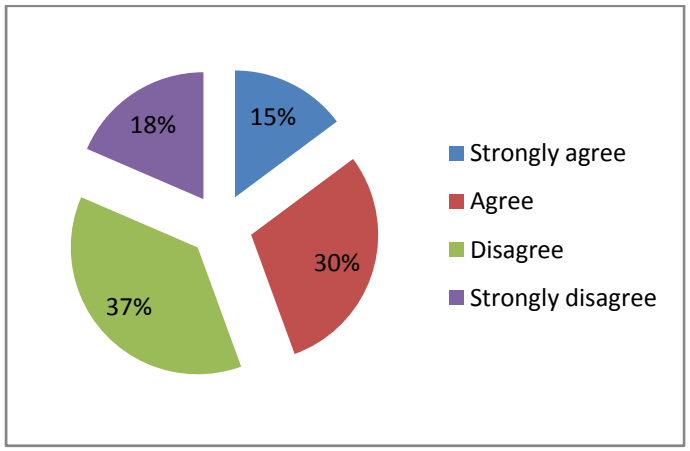


As indicated in figure 6.25, 56% of the respondents agree that uncertainty about future cash flows represents a challenge in the estimation of fair value while 7% strongly agree, an overall agreement rate of 63% of respondents who would prefer not to make the simplistic assumptions about the climatic conditions remaining constant over a lengthy period of time. The figure also indicated that 37% of the respondents consider it is possible to estimate future cash flows reliably.

Figure 6.26 Section 5 Question 7 *Ascertaining the cost of biological assets is impossible or else cost may be immaterial and unreliable*

As explained in section 2.2.1 biological assets undergo a process of biological transformation and the historical cost may, therefore, not reflect a true value of such biological assets. This question aimed at establishing the extent to which it may be impossible to determine cost or whether cost may be an unreliable basis of estimating the value of biological assets.

Figure 6.26 Cost of biological assets

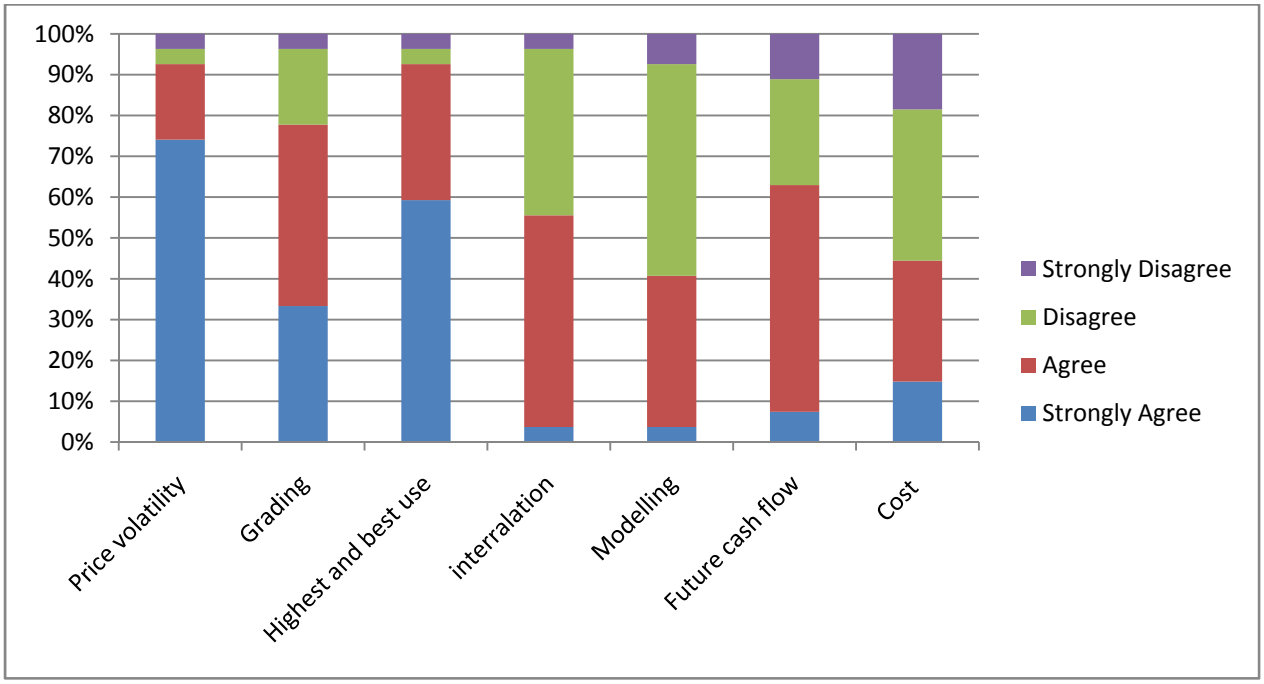


According to figure 6.26, 37% of the respondent disagree that it is impossible to ascertain the cost of biological assets while 18% strongly disagree, an overall disagreement rate of 55%. This indicates that, despite the practical difficulties of determining cost, some farmers still prefer cost as the basis of the valuation of biological assets. The figure also indicated that only 45% of the respondents are of the opinion that it is impossible to determine the cost of biological assets and that this may not constitute a reliable basis for the valuation of biological assets.

Figure 6.27 Summary of the challenges in respect of the valuation of biological assets

The aim of this section was to establish the challenges in respect of fair value estimation. The results of section 6.6 are summarised in figure 6.27.

Figure 6.27 Summary of challenges of valuation of biological assets



According to figure 6.27, price volatility and highest and best use factors are considered to be most significant challenges in respect of the valuation of biological assets.

6.8 Ranking of the challenges

Table 6.3 Section 6 *Rank the following factors in the order you consider them to constitute a challenge in respect of fair value determination – 1 for the highest challenge to 6 for the lowest challenge*

The aim of this section was to establish the order in which respondents would rank the different factors in terms of these factors constituting a challenge in the determination of fair value. The respondents were required to rank the factors from 1 for the most challenging to 6 for the least challenging. In order to analyse the results it was necessary to code the factors and then to compute the statistical values using the Statistical Package for Social Sciences (SPSS). The results of the statistical analysis are represented in table 6.3 below with the coding as follows:

- PRINMARK – Principal market is inaccessible and establishing the highest and best use of biological assets is impractical;
- USERGRPS – The information requirement of the different user groups is dynamic and ever changing;
- COSTPREP – The cost of preparing and presenting financial statements on the basis of fair value is higher than it would be using any other basis;
- PREKNOWL – As a result of limited knowledge, we rely on consultants or external experts in the estimation of the value of biological assets;
- DIVERSIT – The diversity and interrelationships of agricultural activities impede the valuation of biological assets;
- CULTTRAD – The cultural and traditional practices of agricultural activities impede the valuation of biological assets (sentimental attachment or taboos).

Table 6.3 The challenges for the valuation of biological assets

	N	Minimum	Maximum	Mean	Std. Deviation
PRINMARK	27	1	3	1.07	.385
USERGRPS	27	2	6	5.37	1.214
COSTPREP	27	1	4	2.48	.643
PREKNOWL	27	2	6	2.85	1.027
DIVERSIT	27	3	6	4.15	.602
CULTTRAD	27	3	6	5.07	.675

In table 6.3 the highest challenge (minimum) is represented by 1 while the least challenge (maximum) is represented by 6. According to the results presented in table 6.3, the accessibility of the principal market and the use of the highest and best use in the valuation of biological assets are considered to be the most challenging with an average score of 1.07 and standard deviation of 0.385. Ranked second is the impact of fair value on the cost of preparing and presenting financial statements with a mean score of 2.48 and a standard deviation of 0.643 while ranked third is the knowledge of the drafter of the financial statements with an average score of 2.85 and a standard deviation of 1.027. Ranked in fourth position is the diversity of agricultural activities with a mean score of 4.15 and a standard deviation of 0.602. Ranked fifth and last are the changing information needs and cultural practices.

6.9 Summary and conclusions

Chapter 6 presented an analysis of the questionnaire responses where the results of each section were analysed and presented separately. The high response rate may be attributed to both the snowballing sampling technique and the personal administration of the questionnaire by the researcher. Section 6.3 refuted the assertion that most SME farming businesses are family controlled. However, it is important to highlight that this study targeted formal SME farming activities that present financial statements only and this may have influenced the outcome. It was also observed in view of the challenges of dealing with post harvest losses, most farmers tend to target wholesale markets. The results also indicated a low level of technology in the agricultural sector in Kenya.

In section 6.4 the analysis confirmed the fact that, on the whole, SMEs prepare financial statements for the benefit of capital providers. There was also a very clear indication that the notes and explanations to the financial statements constitute the most preferred basis of sharing financial information. It became clear in section 6.5 that, most farmers do have access to both markets and market information. However, it is this fact that renders most farmers to be vulnerable to speculation by middle traders and brokers. It also became extremely clear that most farmers do not understand their market and, thus, do not play any role in the marketing process.

In section 6.6 an analysis of the responses indicated clearly that the majority of farmers prefer to model the market information by making specific assumptions. This finding was consistent with the observation that the availability of market information constitutes the highest challenge to the valuation of biological assets. The impact of fair value on the cost of preparing and presenting financial statements was considered significant ahead of the knowledge of those preparing the financial statements. This finding was also deemed to be consistent in light of the fact that farmers are able to rely on expert valuation and, thus, their own understanding is not

necessarily a limitation. Chapter 7 will present a summary of the research, the conclusions, recommendations and a highlighting of areas for further research.

Chapter 7

Summary, conclusions and recommendations

7.1 Introduction

The objective of this research was to identity the challenges in respect of fair value reporting on the part of small and medium-sized entities in implementing the requirements of the IFRS for SMEs. In respect of the agricultural sector the requirements of the IFRS for SMEs are much the same as those contained in IAS 41, *Agriculture*. The two standards embrace the concept of fair value and make it mandatory for entities involved in agricultural activities to value biological assets using fair value less cost to sell. For the purpose of this study the concept of fair value was investigated in line with the requirement of the exposure draft of the IASB on fair value measurement. The sole relief granted by the IFRS for SMEs is that SMEs are entitled to apply fair value if only it is possible to determine the fair value without undue cost or effort, otherwise the SMEs are required to apply cost.

Chapter 7 presents a summary of the research findings. Accordingly, section 7.2 will summarise the theoretical findings and the results of the analytical investigation while section 7.3 presents the conclusions followed by recommendations. The final section will identify areas for further research.

7.2 Summary of the research

7.2.1 Revisiting the research problems and objectives

The objective of the study was to establish the challenges in respect of the application of fair value reporting by SMEs in the agricultural sector of Kenya in order to propose possible ways to overcome these challenges. In order to achieve the objective as discussed in section 1.2.2, this study set out to achieve the following:

- prepare a theoretical background for the accounting of biological assets, and the application of fair value in the accounting of biological assets;
- investigate the changing information requirements of users and the way in which the use of fair value may help to bridge the gap;
- discuss the harmonisation debate and the need for the simplification of financial statements with reference to the IASB's IAS 41, *Agriculture* and the IFRS for small and medium-sized entities;
- assess the application of fair value reporting by small and medium-sized entities in the agricultural sector in Kenya;
- evaluate various valuation techniques applicable to biological assets, and how the use of different methods impacts on the quality of financial statements.

As highlighted in section 1.4 the application of fair value in financial reporting is becoming more significant and current debates are moving in the direction of full fair value reporting. As discussed in section 3.2.1.2 fair value is a market-based measurement and it is, thus, considered to be more objective as it obviates the issue of management optimism. The study also sought to determine whether fair value reporting has any impact on the quality of financial information and the decisions usefulness of information for small and medium-sized entities in the agricultural sector.

The study also aimed at recommending an appropriate valuation technique in the absence of an active market, and in instances in which it is not possible to determine the cost of biological assets readily. The main benefit of the research is to be found in the simplification of the application of fair value reporting to biological assets and in minimise the cost of preparing and presenting financial statements.

7.2.2 Literature review

The research involved both theoretical and analytical investigations. The results of the theoretical investigation were presented in chapter 2, 3, 4 and 5 and may be summarised as follows:

Chapter 2

The study, as a whole, focuses on the agricultural sector and it reflects on the way in which the use of fair value may impact on information sharing. Chapter 2 highlighted the importance of agriculture, not merely as a commercial activity, but also as a tool for economic development. However, the relative importance of small-scale farming in the context of SMEs continues to assume a vitally important role in the reduction of poverty and in economic development with section 2.1 highlighting the fact that, the key may lie in the commercialisation of small-scale farming activities. As more SMEs in the agricultural sector become increasingly commercially oriented, so will the need for sharing financial information and the application of fair value in the valuation of biological assets become more urgent.

Section 2.3 highlighted some of the most significant trends in the agricultural sector. The most phenomenal revolution in this sector has been the biotechnology innovations by means of which agricultural productivity has been enhanced. Although biofuel is criticised as affecting the natural ecosystem, it does also present new opportunities for farmers as the world becomes increasingly threatened by the depletion of fossil fuel. Another emerging evolution in the agricultural sector is its role in the management of climate change in terms of which it is perceived as a carbon store.

Section 2.4 provided a brief overview of diverse practices in the accounting for biological assets in Australia, the United States, the United Kingdom, China, Brazil and Kenya. It emerged that, due to the traditional role of agriculture as a social activity, the application of the entity concept

constituted a major challenge in streamlining the accounting of agricultural activities. The most critical challenge involves segregating household resources and farm resources. As explained in section 2.5 this has contributed to the diversity of practices in the accounting for biological assets.

The inherent difficulties involved in the application of historical cost are yet another critical factor in the diversity in the accounting for biological assets. The historical cost, as a way of accounting for biological assets, requires rigorous record keeping as well as complex cost allocation techniques in order to track down the costs if more than one agricultural activity is involved. In certain other cases, such as the cultivation of forests and orchards or the freelance rearing of dairy animals, there may be no cost to accumulate. As explained in section 2.4, it is an irrefutable fact that historical cost involves unnecessary complexities and, thus, the call for simpler methods in the valuation of biological assets, for example, fair value.

Chapter 3

This study, as a whole, aimed at investigating the practical difficulties in applying fair value to biological assets and hence this chapter involved an evaluation of the concept of fair value. It would appear that the debate about the basis for the determination of fair value revolves around the exit value. However, there are questions being raised as to the reason why the exit value is a better measure of fair value even in instances in which the asset is held for use or is not ready for sale. Another controversy involves the use of 'surrogate' markets which may involve heaping assumption upon assumption in order to estimate the "highest and best use" of an asset, particularly where this "highest and best use" differs from current use. Most accounting pronouncements and standards for the accounting for biological assets are skewed in favour of fair value with historical cost less accumulated depreciation and impairment losses being applicable only in cases in which it is not possible to obtain reliable estimates for fair value.

The proponents of fair value argue that fair value provides more relevant information to decision makers by reflecting the reality of the market dynamics. It is also argued that the fair values are more comparable because they take away the "manager's voice" and give the "market voice". This may be true only where level 1 input, unadjusted quoted market prices in an active and liquid market, are available. However, where the market prices reflect, either, volatile prices or a wide ask-bid spread then the appropriateness of the values used may only be as good as the model which had been determined by the management. This situation is exacerbated should the level 2 and level 3 variables be used to estimate the fair value because, like the historical cost, they overly reflect management optimism.

Fair value is criticised when it is put to test by market volatility and in cases in which the market is illiquid. The appropriateness of the application of fair value to non-financial assets, such as biological assets, is also being questioned particularly in view of the need to include the fair value change in revenue. The agriculture commodity markets in developing countries remain largely underdeveloped and non–transparent and this poses the most significant challenge in the application of fair value to biological assets, which are also affected by climatic changes.

As a result of the global integration of financial sectors, the need for the harmonisation of accounting standards on a global scale has become appropriate for both developing and developed economies. However, it is essential that developing economies establish institutions and develop human skills if they are to catch up with the developed countries. In light of the SEC's having issued a road map to the issuers of financial statements in the United States in respect of the possible use of IFRSs, the convergence of the accounting standards has, without a doubt, become a reality.

Chapter 4

This study, as a whole, focuses on SMEs in the agricultural sector and, thus, it was critical to consider the nature of SMEs in general and specifically in Kenya. Chapter 4 endeavoured to establish a common ground for the definition of the term SMEs. In most countries, SMEs are defined on the basis of a quantified criterion by taking into account revenue, assets, employees or other quantifiable factors. However, the IASB focuses on qualitative aspects in defining SMEs as entities that publish general purpose financial statements for external users, but which do not have public accountability. It will be interesting to see the way in which different nations and different regions realign their definitions of SMEs in terms of a common basis of the definition. Although large SMEs have the option of adopting the full IFRSs the most significant challenge in terms of qualitative definition lies in meeting the needs of small and large SMEs alike.

It may also be concluded that most SMEs are managed by owners and control depends on the owners' personal trust and interaction with management. Lenders and tax authorities are also in a position to request a particular report. This significantly reduces the number of interested parties in respect of the financial statements of SMEs. However, it is essential that SMEs that wish to evolve evaluate themselves against similar organisations and realise that they will be expected to share information with trading partners if they are to participate in global business. These factors justify the need for a common platform in respect of the financial reporting by SMEs.

The debate on fair value has focused mainly on the financial instruments which are traded in well established financial markets. However, the commodity markets in developing countries remain underdeveloped with no clear regulations and no price discovery mechanisms. The role of speculators in such markets has also been cited as an impediment to market transparency. The fluctuation of commodity prices world-wide poses a major challenge to fair value estimation.

In Kenya, there are three commodity markets which operate in a simplified auction system with no clear regulation and no transaction security. The licensing of market participants is riddled with corruption which, in turn, casts doubt on the integrity of market-determined prices.

7.2.3 Analytical investigation

Chapter 5

Chapter 5 presented a research design for empirical investigation which was critical in helping to get the reality on the ground in order either to accept or to refute the theoretical findings. For the purpose of this study SMEs are defined qualitatively as those entities that publish financial statements even though they do not have public accountability. However, in Kenya, most SMEs operate informally and this created challenges in defining the population and the sample design. It is for this reason that the study adopted a purposive sampling technique in order to target those respondents only who were most likely to provide relevant information for the purpose of this study.

The selection of the respondents was based on four categories, namely, cash crops, horticulture, food crops and livestock, and fisheries. The number of respondents in each category was based on their contribution to GDP. The fact that the population is heterogeneous, would normally have necessitated a large sample, however, as a result of limited resources a sample of 30 respondents was used. It is possible that this small sample size, as well as other limitations, may hinder the application and interpretation of the empirical findings. However, as noted earlier, this study is exploratory and, thus, the level of precision is not a critical factor.

Chapter 6

Chapter 6 presented an analysis of the questionnaire responses. The results of each question were analysed as summarised in appendix C and presented separately. Section 6.3 refuted the

assertion that most farming businesses are family controlled. However, the conclusion that most SMEs are not family owned was based on a sample that was selected on a judgemental criterion and, may have influenced the outcome. The fact that the study targeted only those farmers who operate formally and who publish financial statements may have influenced the outcome. It was also observed that, in view of the challenges of dealing with post harvest losses, the majority of farmers tend to target wholesale markets and, as a result, most of them become vulnerable to speculation by middle traders and brokers. It also became extremely clear that most farmers do not understand their market and, therefore, do not play any role in the marketing process. The analysis also confirmed the assertion that SMEs prepare financial statements for the benefit of capital providers.

The analysis of the responses also indicated clearly that most farmers prefer to model the market information to suit their circumstances by making specific assumptions. This finding is consistent with the observation that the most significant challenge to the valuation of biological assets is the availability of market information. The impact of fair value on the cost of preparing and presenting financial statements was also considered to be significant, ahead of knowledge on the part of those preparing the financial reports. This finding is also deemed to be consistent because farmers are able to rely on expert valuation and, thus, their understanding is not a limitation.

7.3 Conclusions

The objective of this study was to ascertain the challenges in respect of the application of fair value reporting by SMEs in the agricultural sector in order to propose ways in which to overcome these challenges. The study involved both literature and analytical investigations. The study established that fair value is the preferred basis for the valuation of biological assets. It is also maintained that fair value is the basis for the harmonisation of accounting practice. However, the application of fair value depends on the existence of an active and liquid market.

The use of unadjusted quoted prices in an active market forms the hallmark for the effective and cost-efficient application of fair value.

This study established that, in Kenya, commodity markets remain underdeveloped and are characterised by a non-transparent price discovery mechanism. In addition, the role of speculators and middle traders do not help the situation. The commodity market instability causes price volatility and leads to a wide ask-bid spread. As ascertained in this study, the commodity price volatility renders it appropriate to model the market information available as a basis for estimating the fair value of biological assets.

Faithful presentation is critical in terms of the quality of information which may be of benefit to the various users of the financial statements. Fair value provides more relevant information for decision making by reflecting the reality of the market dynamics. Fair value is also more comparable because it takes away the “managers voice” and gives the “market voice”. It is, therefore, important to note that information based on fair value provides improved value to the various groups of users.

It was established that the most significant challenge in terms of the application of fair value to biological assets in the agricultural sector in Kenya is the lack of an active and transparent market. As a result of the lack of market-determined prices, fair value estimates are based on a model. Should management be accountable and transparent then the fair value estimates will not only be relevant, but they will also provide a reliable basis for quality decisions on the part of all the users of the financial statements. It was also established that, fair value does not require elaborate recording keeping and, thus, it may reduce the cost of preparing and presenting the financial statements by SMEs.

7.4 Recommendations

7.4.1 Development of virtual trading commodity markets

As noted in section 3.4.1.2 commodity markets in Kenya remain largely underdeveloped. Previous efforts by the government to develop commodity markets were frustrated by cartels and middle traders for short-term gains. However, in view of the diverse nature of agricultural produce, a physical market is also frustrated by market accessibility cost. As discussed in section 4.9.1.1 this study recommends virtual trading as an alternative to the physical market which is now being explored by the government of Kenya.

It is also recommended that the price discovery mechanism under a virtual trading platform be investigated. This would not only reduce the cost of market access, but it would also ease the sharing of market information. In addition, the technological frontier also offers an opportunity for enlightening farmers about new farming methods. Mechanisation and technology adoption are enhancing the environment in which biological assets are managed and this will, to a great extent, minimise the risks and uncertainties associated with natural climatic conditions. This, in turn, would enhance the reliability of fair value estimates of biological assets. The use of the virtual trading commodity market would also transform the role of the middle traders to that of market linkage.

7.4.2 Development of commodity futures

As explained in section 3.4.1.2.1 commodity futures are contracts that were originally designed to match supply and demand. Such contracts are more critical in situations in which agricultural produce are perishable, because they assist the farmer in coping with post harvest losses. Contract farming may also be enhanced by means of commodity forwards and futures. The future or forward contract also enhances farmers understanding of their markets and offers a forum for market information sharing. In Kenya, the farmers of certain industrial crops, such as

barley and tobacco, are contracted by manufacturers. However, such contracts do not have predetermined pricing and may not be traded.

Despite the fact that the Nairobi Stock Exchange has undertaken preliminary studies on the development of agricultural commodity futures, there has been very little progress. As discussed in section 3.4.1.2.2 the existence of such future or forward contracts does not influence the valuation of biological assets. However, the future or forward contract is largely believed to have a price stabilising effect in addition to minimising both the market access cost and post harvest losses.

7.4.3 Development of a valuation model

In light of the diversity of agricultural commodities, in most cases, the estimation of the fair value of biological assets involves the modelling of market information. Agricultural products are heterogeneous, and, thus, the use of unadjusted quoted market prices may not be appropriate. Although the fair value of biological assets is considered up to the point of harvest, in the case of consumable biological assets, the value of the produce directly influences the value of the biological assets. In the case of bearer biological assets, fair value is influenced by the expected cash flows on such produce because the use of scrap market is not recommended.

In order to enhance comparability, there is a need to ensure that the market information used is modelled on a similar platform and a similar assumption. Although this study did not involve the valuation of biological assets, the use of a market approach and income approach valuation techniques, as discussed in section 3.4.1.7 are recommended.

7.4.4 Enlightening the farmers

As discussed in section 4.4 the users of financial statements of SMEs are, in the main, the capital providers. Nevertheless, the importance of standard financial reporting must not be overemphasised. As more small-scale farmers appreciate farming as a commercial activity it is

essential that an awareness of the benefits of standard financial reporting and access to global markets need be enhanced.

7.5 Areas of further research

7.5.1 Factors considered in the modelling of market information in different sub-sectors

This study has recommended a model for fair value estimation. However, it is important to emphasise that different sub-sectors in the agricultural sector may consider different factors as more important than others. In order to establish the most significant assumptions as input variables in the valuation of biological assets for the different sub-sectors it is recommended that further sub-sector specific studies be carried out.

7.5.2 Impact of fair value on performance and financial position

As discussed in section 3.5.1 there are mixed indications in respect of the impact of the use of fair value on financial performance and position. It would be interesting to investigate the way in which the use of fair value impact on financial performance and financial position. Although the study established that, the application of fair value has an impact on the cost of preparing and presenting the financial statements, a specific study may be carried out to investigate the extent of such increase.

7.5.3 Fair value and corporate governance (manipulation)

IAS 41, *Agriculture* does not make it mandatory to involve an expert in the valuation of biological assets and, thus, the valuation premise used may be determined entirely by management opinion. Although the position of management does require an independent attestation by the external auditor, in most cases, the auditor prefers to qualify their opinion as “subject to” the management valuation assertion. It would, therefore, be interesting to determine whether the techniques in valuation and assumption involved in such techniques has any bearing on the

corporate governance practices of transparency and accountability. This would involve estimating the extent to which fair value may be employed in creative accounting.

7.5.4 Valuation of biological assets involved in carbon sequestration and carbon trading

As discussed in section 2.3.5 certain biological assets are used as carbon stores. Although carbon sequestration and carbon trading are not considered as agricultural activities, the use of biological assets does influence their value. It would be interesting to ascertain the extent to which such activities influence the fair value of biological assets as well as considering the impact of biological assets on the environment and what was described in section 3.7.1 as full fair value accounting.

Appendix A – Letter to respondents and questionnaire

Peter Njuguna Maina

PO Box 56808 Nairobi 00200

29th October 2009

Dear Respondent

Your company has been considered for participation in an academic research study whose research topic is to establish:

Fair Value Reporting Challenges Facing Small and Medium-Sized Entities in the Agricultural Sector in Kenya

The attached questionnaire aims to elicit the opinion and perspectives of preparers of financial statements for small and medium-sized entities in the agricultural sector. All the information provided by the respondents is for academic purposes and shall be treated with utmost confidentiality. The name of the participating companies will also not be divulged in any way.

You are requested to complete the attached questionnaire on behalf of your company by filling the spaces provided which will take about 15 minutes. Your participation in this study is highly valued and your timely and sincere response will be highly appreciated. In the event you choose not to participate in this study you are requested to return the attached questionnaire by mail through the address listed above, and where possible indicate the reason for decline.

Participants who will be interested with the outcome of the study will be offered a free electronic copy on request. I thank you in advance for taking time to complete the attached questionnaire. Should you require further information or explanations please contact petnmaina@yahoo.ie or call +254 20 722 608 618.

Yours Sincerely,

Peter Njuguna Maina

Consent

I understand that the information I have provided below is for academic purposes and will not be used to my disadvantage and I therefore do so and give my permission under informed consent.

Tick as appropriate: Yes ☐ No ☐

If your responses above is no, you are requested to provide a brief explanation in the space provided: ……..

Section 1: Farm Profile

1. Tick the box that describes the organisation of the farming operation:

   Family controlled ☐

   Private company ☐

   Joint venture ☐

2. Tick the box that best explains the main farming activities:

   Cash crops ☐

   Horticulture ☐

   Food crops ☐

   Livestock and Fisheries ☐

3. Select one alternative that best explains the target market:

   Household consumption ☐

   Retail market ☐

   Wholesale markets ☐

   Contract farming ☐

4. Select the method that best explains the farming methods:

Traditional intercropping	☐
Rain-fed agriculture	☐
Irrigation	☐
Technological farming	☐

Section 2: Objectives in preparing financial statements

In 1 and 2 below rank as follows: A – Most important B – Important C – Least important

D – Not important E – Not sure

1. Rank the following components of financial statements in order of their importance to your farm:
   - ☐ Statement of comprehensive income
   - ☐ Statement of financial position
   - ☐ Statement of cash flows
   - ☐ Statement of changes in equity
   - ☐ Notes and explanations to the financial statements
2. Rank your reasons for preparing published financial statements:
   - ☐ Loan requirements
   - ☐ Shareholders
   - ☐ Tax compliance
   - ☐ Decision making information
   - ☐ Compliance with accounting standards
3. Select by ticking the most relevant basis of accounting for agricultural produce on your farm:
   - ☐ Cash basis
   - ☐ Accrual basis
   - ☐ Modified accrual basis

For each of the following statements in sections 3 to 5 indicate the degree of agreement or disagreement, by filling the appropriate alphabet in the spaces provided to the right, in the following order: A – Strongly agree B – Agree C – Disagree D – Strongly disagree

Section 3: Access to market

1. A principle market exists and is readily determinable.	
2. It is not possible to market the agricultural produce before further processing.	
3. The principle market is accessible only through middle traders or brokers.	
4. The market prices are fairly determined.	
5. The pricing discovery process is transparent and understandable.	
6. A market exists for the harvested produce only.	
7. A market exists for bearer biological assets (scrap market).	

Section 4: Valuation of biological assets

1. A quoted price in the principal market does exist and it is the most reliable basis for the valuation of biological assets.	
2. There is no principal market for biological assets and the valuation of biological assets is modelled on the basis of similar products.	
3. A market exists for scrap biological assets and this market is the most reliable basis for the valuation of biological assets.	
4. There is no reliable market information and the valuation is based of biological assets on projected cash flows.	
5. It is possible to determine the cost of biological assets reliably and this cost may approximate fair value.	

Section 5: Challenges in fair value estimations

1. Price volatility and unpredictability render quoted price an unreliable basis for the valuation of biological assets.	
2. The need for the grading of agricultural produce makes quoted price an unreliable basis for the valuation of biological assets.	
3. Highest and best use of biological asset is not appropriate for the valuation of biological assets.	
4. The interrelation between different products makes it impossible to value biological assets using quoted prices.	
5. The modelling of sector benchmarks and prices for similar biological assets is impractical due to the diversity of agricultural products.	
6. Predicting future cash flows is difficult as a result of uncertainty about future expectations.	
7. Ascertaining the cost of biological assets is impossible or else cost may be immaterial and unreliable.	

Section 6: Ranking of the challenges

Rank the following factors in the order you consider them to constitute a challenge in respect of fair value determination – 1 for the highest challenge to 6 for the lowest challenge:

	Principal market is inaccessible and establishing the highest and best use of biological assets is impractical.
	The information requirement of the different user groups is dynamic and ever-changing.
	The cost of preparing and presenting financial statements on the basis of fair value is higher than it would be using any other basis.
	As a result of limited knowledge, we rely on consultants or external experts in the estimating of the value of biological assets.
	The diversity and interrelationships of agricultural activities impede the valuation of biological assets.
	The cultural and traditional practices of agricultural activities impede the valuation of biological assets (sentimental attachment or taboos).

Appendix B – List of respondents

Code	Name of company	Response
H – Horticulture		
H1	All Fresh Produce Ltd	Yes
H2	Homegrown (K) Ltd	Yes
H3	Golden Fleece Ltd	Yes
H4	Beverly Flowers Ltd	Yes
H5	HomeFresh Horticulture Exports Ltd	Yes
H6	Kentmere Flora Ltd	Yes
H7	Cianda Flowers Ltd	Yes
H8	Zena Roses Ltd	Yes
H9	Ocean Agriculture (E.A) Ltd	Yes
	Org Fresh (K) Ltd	No
F – Food crops		
F1	Wanje Ltd	Yes
F2	Deneside Ltd	Yes
F3	Kisima Farm Ltd	Yes
F4	Sawa Development Ltd	Yes
F5	Gicheha Farm Ltd	Yes
F6	Alpha Fine Foods Ltd	Yes
F7	The Breakfast Cereal Company (K) Ltd	Yes
F8	Bio Food Products Ltd	Yes
	Boffar Farm Ltd	No
	Dodhia Foam Ltd	No
C – Industrial crops		
C1	Fian Green K Ltd	Yes
C2	Jakai Ltd	Yes
C3	Wangu Investments co Ltd	Yes
C4	James Finlay (K) Ltd	Yes
C5	Kangaita Coffee Estate Ltd	Yes
L – Livestock & Fisheries		
L1	Marahaba Farm & Fishing Services Ltd	Yes
L2	Solio Ranch Ltd	Yes
L3	Anirita Poultry Farms Ltd	Yes
L4	Kapiti Dairies Ltd	Yes
O – Other sub-sectors		
O1	Farmlands Co. Ltd	Yes

Appendix C – Summary of responses

Appendix C

Section 1: Farm Profile

1. Tick the box that describes the organisation of the farming operation:

	Respondents
Family controlled	5
Private company	21
Joint venture	1
Non response	3

2. Tick the box that best explains the main farming activities:

	Respondents
Cash crops	5
Horticulture	9
Food crops	8
Livestock and Fisheries	4
Others	1
Non response	3

3. Select one alternative that best explains the target market:

	Respondents
House hold	1
Retail market	11
Wholesale	14
Contract farming	1
Non response	3

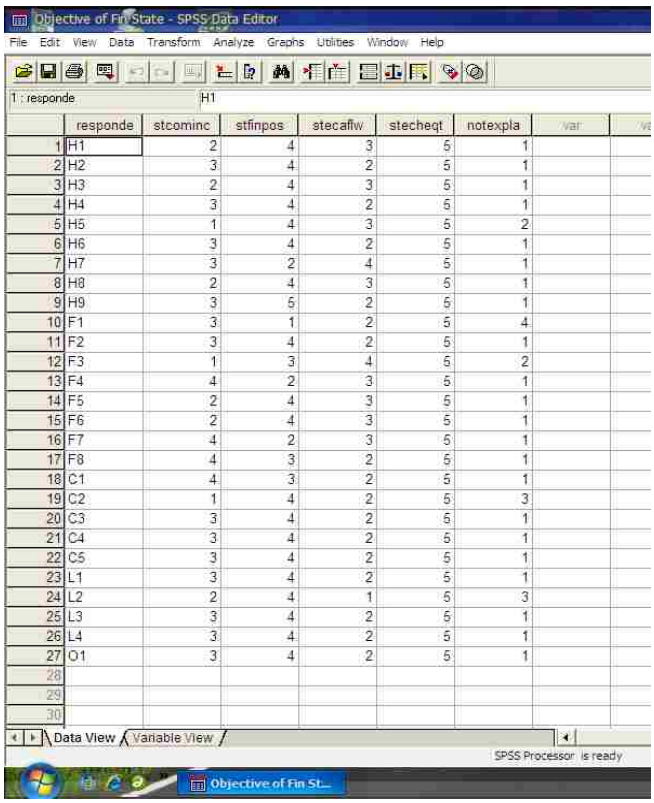
4. Select the method that best explains the farming methods:

	Respondents
Traditional	1
Rain-fed	17
Irrigation	8
Technology	1
Non-response	3

Section 2: Objectives in preparing financial statements

In 1 and 2 below rank as follows: A – Most important B – Important C – Least important D – Not important E – Not sure

1. Rank the following components of financial statements in order of their importance to your farm:

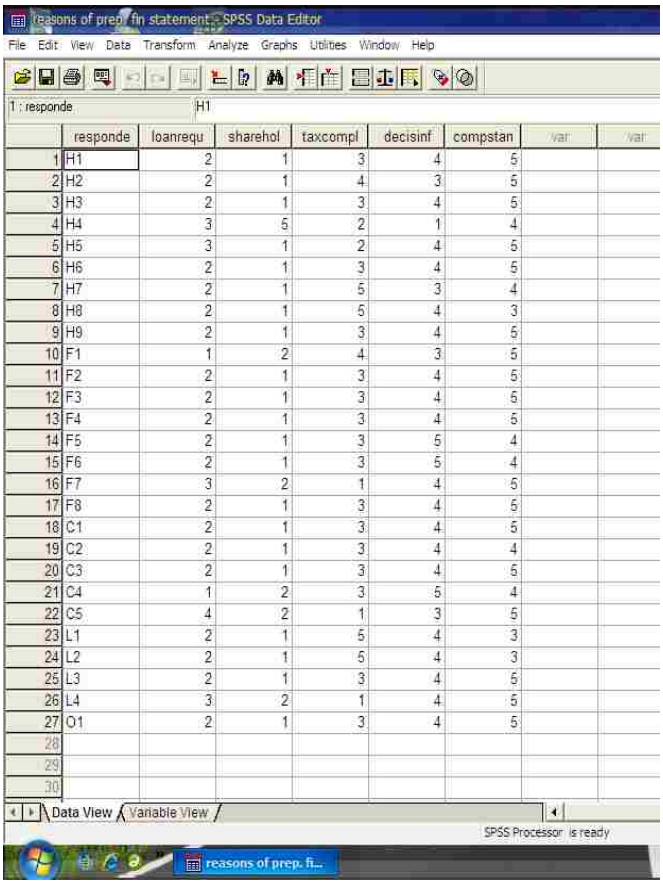


	responde	stcominc	stfinpos	stecaflw	stecheqt	notexpla
1	H1	2	4	3	5	1
2	H2	3	4	2	5	1
3	H3	2	4	3	5	1
4	H4	3	4	2	5	1
5	H5	1	4	3	5	2
6	H6	3	4	2	5	1
7	H7	3	2	4	5	1
8	H8	2	4	3	5	1
9	H9	3	5	2	5	1
10	F1	3	1	2	5	4
11	F2	3	4	2	5	1
12	F3	1	3	4	5	2
13	F4	4	2	3	5	1
14	F5	2	4	3	5	1
15	F6	2	4	3	5	1
16	F7	4	2	3	5	1
17	F8	4	3	2	5	1
18	C1	4	3	2	5	1
19	C2	1	4	2	5	3
20	C3	3	4	2	5	1
21	C4	3	4	2	5	1
22	C5	3	4	2	5	1
23	L1	3	4	2	5	1
24	L2	2	4	1	5	3
25	L3	3	4	2	5	1
26	L4	3	4	2	5	1
27	O1	3	4	2	5	1
28						
29						
30						

The components of financial statements have been abbreviated as follows:

- STCOMINC – Statement of comprehensive income;
- STFINPOS – Statement of financial position;
- STECAFLW – Statement of cash flows;
- STECEEQT – Statement of changes in equity; and
- NOTEXPLA – Notes and explanations to the financial statements.

2. Rank your reasons for preparing published financial statements:



	responde	loanrequ	sharehol	taxcompl	decisinf	compstan	var	var
1	H1	2	1	3	4	5		
2	H2	2	1	4	3	5		
3	H3	2	1	3	4	5		
4	H4	3	5	2	1	4		
5	H5	3	1	2	4	5		
6	H6	2	1	3	4	5		
7	H7	2	1	5	3	4		
8	H8	2	1	5	4	3		
9	H9	2	1	3	4	5		
10	F1	1	2	4	3	5		
11	F2	2	1	3	4	5		
12	F3	2	1	3	4	5		
13	F4	2	1	3	4	5		
14	F5	2	1	3	5	4		
15	F6	2	1	3	5	4		
16	F7	3	2	1	4	5		
17	F8	2	1	3	4	5		
18	C1	2	1	3	4	5		
19	C2	2	1	3	4	4		
20	C3	2	1	3	4	5		
21	C4	1	2	3	5	4		
22	C5	4	2	1	3	5		
23	L1	2	1	5	4	3		
24	L2	2	1	5	4	3		
25	L3	2	1	3	4	5		
26	L4	3	2	1	4	5		
27	O1	2	1	3	4	5		
28								
29								
30								

The factors have been abbreviated as follows:

- LOANREQU – Loan requirements;
- SHAREHOL – Shareholders;
- TAXCOMPL – Tax compliance;
- DECISINF – Decision making information; and
- COMPSTAN – Compliance with accounting standards.

3. Select by ticking the most relevant basis of accounting for agricultural produce on your farm:

	Respondents
Cash basis	2
Accrual basis	16
Modified accrual basis	9

For each of the following statements in sections 3 to 5 indicate the degree of agreement or disagreement, by filling the appropriate alphabet in the spaces provided to the right, in the following order: A – Strongly agree B – Agree C – Disagree D – Strongly disagree

Section 3: Access to market

1. A principle market exists and is readily determinable.

	Respondents
Strongly agree	1
Agree	2
Disagree	19
Strongly disagree	5

2. It is not possible to market the agricultural produce before further processing.

	Respondents
Strongly agree	2
Agree	13
Disagree	11
Strongly disagree	1

3. The principle market is accessible only through middle traders or brokers.

	Respondents
Strongly agree	8
Agree	16
Disagree	2
Strongly disagree	1

4. The market prices are fairly determined.

	Respondents
Strongly agree	3
Agree	2
Disagree	11
Strongly disagree	11

5. The pricing discovery process is transparent and understandable.

	Respondents
Strongly agree	3
Agree	1
Disagree	5
Strongly disagree	18

6. A market exists for the harvested produce only.

	Respondents
Strongly agree	1
Agree	16
Disagree	8
Strongly disagree	2

7. A market exists for bearer biological assets (scrap market).

	Respondents
Strongly agree	1
Agree	8
Disagree	16
Strongly disagree	2

Section 4: Valuation of biological assets

1. A quoted price in the principal market does exist and it is the most reliable basis for the valuation of biological assets.

	Respondents
Strongly agree	1
Agree	2
Disagree	20
Strongly disagree	4

2. There is no principal market for biological assets and the valuation of biological assets is modelled on the basis of similar products.

	Respondents
Strongly agree	2
Agree	18
Disagree	4
Strongly disagree	3

3. A market exists for scrap biological assets and this market is the most reliable basis for the valuation of biological assets.

	Respondents
Strongly agree	1
Agree	7
Disagree	17
Strongly disagree	2

4. There is no reliable market information and the valuation of biological assets is based on projected cash flows.

	Respondents
Strongly agree	2
Agree	6
Disagree	13
Strongly disagree	6

5. It is possible to determine the cost of biological assets reliably and this cost may approximate fair value.

	Respondents
Strongly agree	3
Agree	2
Disagree	12
Strongly disagree	10

Section 5: Challenges in fair value estimations

1. Price volatility and unpredictability render quoted price an unreliable basis for the valuation of biological assets.

	Respondents
Strongly agree	20
Agree	5
Disagree	1
Strongly disagree	1

2. The need for the grading of agricultural produce makes quoted price an unreliable basis for the valuation of biological assets.

	Respondents
Strongly agree	9
Agree	12
Disagree	5
Strongly disagree	1

3. Highest and best use of biological asset is not appropriate for the valuation of biological assets.

	Respondents
Strongly agree	16
Agree	9
Disagree	1
Strongly disagree	1

4. The interrelation between different products makes it impossible to value biological assets using quoted prices.

	Respondents
Strongly agree	1
Agree	14
Disagree	11
Strongly disagree	1

5. The modelling of sector benchmarks and prices for similar biological assets is impractical due to the diversity of agricultural products.

	Respondents
Strongly agree	1
Agree	10
Disagree	14
Strongly disagree	2

6. Predicting future cash flows is difficult as a result of uncertainty about future expectations.

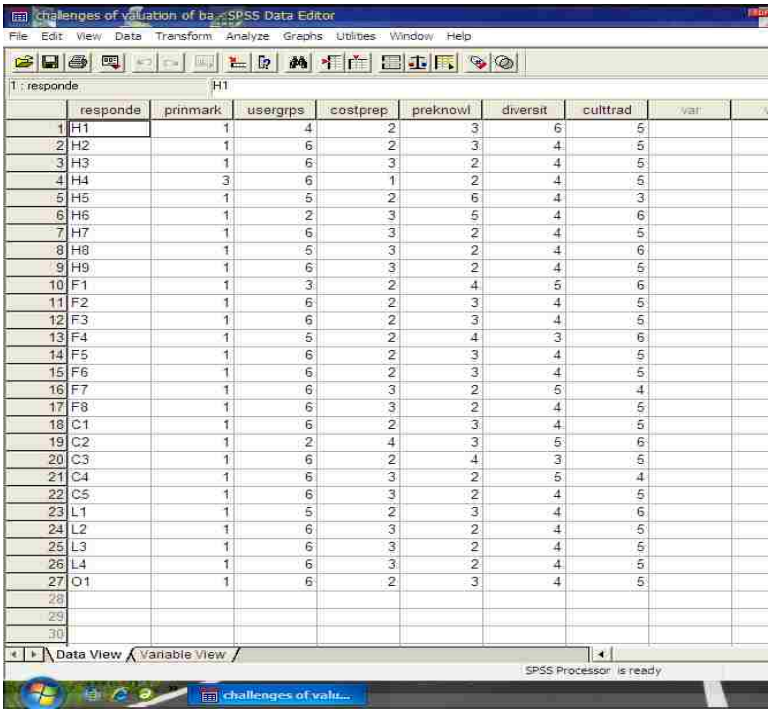
	Respondents
Strongly agree	2
Agree	15
Disagree	7
Strongly disagree	3

7. Ascertaining the cost of biological assets is impossible or else cost may be immaterial and unreliable.

	Respondents
Strongly agree	4
Agree	8
Disagree	10
Strongly disagree	5

Section 6: Ranking of the challenges

Rank the following factors in the order you consider them to constitute a challenge in respect of fair value determination – 1 for the highest challenge to 6 for the lowest challenge.



	responde	prinmark	usergrps	costprep	preknowl	diversit	culttrad
1	H1	1	4	2	3	6	5
2	H2	1	6	2	3	4	5
3	H3	1	6	3	2	4	5
4	H4	3	6	1	2	4	5
5	H5	1	5	2	6	4	3
6	H6	1	2	3	5	4	6
7	H7	1	6	3	2	4	5
8	H8	1	5	3	2	4	6
9	H9	1	6	3	2	4	5
10	F1	1	3	2	4	5	6
11	F2	1	6	2	3	4	5
12	F3	1	6	2	3	4	5
13	F4	1	5	2	4	3	6
14	F5	1	6	2	3	4	5
15	F6	1	6	2	3	4	5
16	F7	1	6	3	2	5	4
17	F8	1	6	3	2	4	5
18	C1	1	6	2	3	4	5
19	C2	1	2	4	3	5	6
20	C3	1	6	2	4	3	5
21	C4	1	6	3	2	5	4
22	C5	1	6	3	2	4	5
23	L1	1	5	2	3	4	6
24	L2	1	6	3	2	4	5
25	L3	1	6	3	2	4	5
26	L4	1	6	3	2	4	5
27	O1	1	6	2	3	4	5
28							
29							
30							

The factors are abbreviated in the figure above as follows:

- PRINMARK – Principal market is inaccessible and establishing the highest and best use of biological assets is impractical;
- USERGRPS – The information requirement of the different user groups is dynamic and ever changing;
- COSTPREP – The cost of preparing and presenting financial statements on the basis of fair value is higher than it would be using any other basis;
- PREKNOWL – As a result of limited knowledge, we rely on consultants or external experts in the estimating of the value of biological assets;
- DIVERSIT – The diversity and interrelationships of agricultural activities impede the valuation of biological assets;
- CULTTRAD – The cultural and traditional practices of agricultural activities impede the valuation of biological assets (sentimental attachment or taboos).

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