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RELEASE FORM

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FOR SUSTAINABLE SOCIO ECONOMIC DEVELOPMENT IN
ZIMBABWE

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APPROVAL FORM

This serves to confirm that the undersigned has read and recommended to the Midlands State University for acceptance of a dissertation entitled:

“An analysis of the uptake of agricultural insurance services by the agricultural sector for sustainable socio economic development in Zimbabwe”

Submitted by Topoya Trevor in partial fulfillment of the requirements for the Bachelor of Commerce (Hons) degree in Insurance and Risk Management.

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Dedication

I dedicate the completion of this dissertation to my beloved parents who selflessly empty themselves in a quest to make me whole: may the almighty God bless you abundantly and meet your every need in life.

Acknowledgements

Firstly, I would like to be thankful to the righteous Almighty Living God who bought me by His son's precious blood and awarded me the opportunity to continue enjoying his grace and has blessed me in the accomplishment of the degree at the appointed time. It would not have been accomplished if it was not because of Him and His love.

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Abstract

The purpose of this research was to analyse the uptake of agricultural insurance services by the agricultural sector for sustainable socio economic development in Zimbabwe. The research covered the period of 2000 to 2015. The research focused on A1 and A2 farmers which consisted of subsistence and small-medium scale commercial farmers. Agriculture is a risky enterprise due to its cyclical nature, risk of loss from fires and natural disasters. The researcher established that agricultural insurance is an important complement to a wholesome, development-oriented agriculture risk management strategy. Furthermore, the advent of innovative agriculture insurance products such as index-based and microinsurance has provided new ways of countering the risks that would otherwise thrust farmers and many other households into poverty and deprivation. The benefits of agriculture insurance contribute positively towards socio economic development. Ironically, the uptake of agriculture insurance by farmers in Zimbabwe is low. Farmers cited various reasons for not taking up agriculture insurance chief among them are affordability and lack of knowledge on how the insurance operates. On the other hand, the local insurers are reluctant to provide comprehensive cover and the policies offered exclude risks such as drought, which affect farmers the most. The rationale for this stance is to protect the insurers' bottom line against anomalies such as moral hazard, adverse selection and fraud. Random sampling was used to select 10 short term insurance companies out of a total of 20 short term insurance companies registered with IPEC. More so, non-random sampling particularly convenience sampling was used to come up with the sample of farmers. Data was collected through the use of questionnaires and interviews. The data was then analyzed and presented using tables, graphs and charts. The researcher presented conclusions from the research findings and made recommendations aimed at addressing them such as educate farmers on the importance of agricultural insurance on farm operations and insurance products and how the insurance market operates in general, insurers should locate closer to their market and increase their branch network, especially in agricultural thriving areas, to enhance service delivery and the government should subsidise agriculture insurance premiums to enhance uptake by farmers.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

It is the aim of this research to analyse the uptake of agricultural insurance services by the agricultural sector in Zimbabwe and its contribution to socio economic development. This chapter introduces the research. It gives the background of the study which gives an insight to the problem being investigated. The statement of the problem, research questions and objectives of the study are also discussed. In addition, assumptions, scope of the study, limitations and significance of study are outlined. Lastly the definitions of key terms and acronym used in the study are given.

1.1 Background of the study

Millions of people in Zimbabwe depend on agriculture for their livelihood and other related economic activities especially those in rural areas. However, they are vulnerable to various risks and constraints, some of which they have no control over such as drought, floods, hail and storm to mention but just a few. Agriculture insurance comes into play as one of the tools to manage the financial consequences of loss, hence foster development in the economy. However, farmers in Zimbabwe view insurance as an unnecessary expense rather than an investment to curtail future risk especially given the small size of their holdings (Tsikirayi, Mazwi, Makoni and Matiza, 2013). This has led to the manifestation of deteriorating standards of living of the people in the farming sector as they are exposed to various risks because most of them have no insurance cover.

Agriculture forms the backbone of most African countries' economies. Zimbabwe fits perfectly in the bracket of such economies. In fact Zimbabwe was, at some point, labelled the 'bread basket' for Africa (World Bank, 2002). However, this status has been eroded by the prevalence of unfavourable conditions in this sector. Agriculture has since ceased to be a force to reckon with as farmers are confronted with risks that impede productivity. Farmers in Zimbabwe are experiencing droughts owing to the negative effects of climate change.

Despite the fact that farmers in Zimbabwe face numerous risks, uptake of agriculture insurance is very low. On the other hand, insurers are reluctant to provide cover, even though underwriting capacity is not a constraining factor. The poor uptake of agriculture insurance is indicated by the table below which shows the gross premium written (GPW) for the period (2012 - 2015). The contribution of agricultural insurance premium to the gross premium written is low given the fact that Zimbabwe is a predominantly agro-based economy. The relative contribution of agricultural insurance to gross premium written is not commensurate with the high level of contribution of agriculture to gross domestic product (GDP) (Mujeyi, 2009). As illustrated in the table below, GPW from 2012 to 2013 increased by 22,61% and in the years 2014 and 2015 fell by -2,55% and -29,19% respectively. This clearly indicates that agricultural insurance is not growing, actually it is declining.

Table 1.1: Agriculture Insurance Business Written: 2012-2015

Year	Premium (\$)	Contribution to GPW (%)	Growth (%)
2012	2 761 000	1.42	(30.14)
2013	3 392 033	1.62	22.61
2014	3 305 430	3.82	(2.55)
2015	2 340 712	1.09	(29.19)

Source: Adapted from IPEC reports

Comparatively, other countries have devised successful schemes and models of agriculture insurance aimed at fostering socio economic development. These include, in addition to the traditional agriculture insurance products, public-private sector partnership schemes, agricultural micro-insurance, weather index insurance and state-subsidized agriculture schemes targeted at ensuring consistent income for farmers (Mahul and Stutley, 2010).

Agricultural insurance contributes to socio economic development directly through the indemnification mechanism and indirectly through championing sound agricultural infrastructure which is pro- development. In fact, an agriculture system backed up by an effective risk transfer mechanism is one means to activate a chain of economic activity. Government of Zimbabwe (2002) asserts that the Zimbabwean agriculture sector provides employment to 70 percent of the population and 60 percent of all raw materials for the industry. It also contributes 15-18 percent of annual GDP and 45 percent of the country's

exports are of agricultural origin. Evidently, agriculture is the backbone of socio economic development and poverty alleviation in Zimbabwe.

1.2 Statement of the problem

Zimbabwe is lagging behind in terms of development, with about 70 percent of the population living in the rural areas. These people rely heavily on agriculture for their livelihood. However, they face numerous risks and constraints that hamper productivity in this sector. Some of these include lack of funds to buy inputs, lack of collateral to secure loans, drought, hail, poor risk management practices, and inadequate support from the government and the finance sectors. This has impacted negatively on the wellbeing of many Zimbabweans. Many authors have identified agriculture insurance as one of the key strategic interventions that can cushion farmers from the vagaries of these misfortunes, hence foster development. However, the uptake of agriculture insurance by farmers is low.

1.3 Research objectives

This study seeks to accomplish the following objectives:

- (a) To evaluate different agriculture insurance products and their use as tools for socio economic development.
- (b) To identify and analyse factors affecting the uptake of agriculture insurance by farmers.
- (c) To find strategies that can be employed to improve the uptake of agriculture insurance by farmers.

1.4 Research questions

The study will answer the following questions:

- (a) What covers are available in agriculture insurance and how effective are these as tools for socio economic development?
- (b) What factors affect the uptake of agriculture insurance by farmers?
- (c) What strategies can be employed to improve the uptake of agriculture insurance by farmers?

1.5 Assumptions of the study

The following assumptions were made in this study:

- (a) The respondents will co-operate and respond within reasonable time to enable the researcher to complete the research within time stated by the university.

- (b) Accurate and reliable information will be supplied by the respondents.
- (c) Information from other countries on agriculture insurance will be obtainable.
- (d) The sample selected is a true representative of the total population whole field.

1.6 Scope of the study

The study is limited to the analysis of the uptake of agricultural insurance by farmers for socio economic development in Zimbabwe. The study focused on A1 and A2 farmers which consist of subsistence and small-medium scale commercial farmers. The sample being used will be drawn from Midlands Province. Farmers in Midlands Province are chosen to represent all the farmers in Zimbabwe for convenience purposes and because of the homogeneity of the farmers all over the country. The study shall also focus on short term insurance companies in Harare where the headquarters of most companies are located to obtain some information that cannot be accessed at branch level. The research is conducted in a period of 3 months. The study will cover the period of 2000 to 2015. The researcher opted for this period because the fast track land reform programme (FTLRP) which allocated land to A1 and A2 farmers was initiated in 2000. The FTLRP have led to changes in the agricultural sector to this day, as the newly resettled indigenous farmers with little or no resources now occupied the greater part of agricultural land, with dire implications for the agricultural insurance industry.

1.7 Limitations of the study

(a) Financial constraints

The researcher is a fulltime student and has limited finance to carry out a proper and extensive research, for example travelling to rural areas, accommodation, typing and photocopying expenses. The researcher however has had to rely on the use of less expensive methods such as questionnaires, interviews, email and other relevant technologies available.

(b) Access to information

Some of the information proved difficult and expensive to acquire. Some of the information is very sensitive and of a strategic nature and the researcher may have not possessed the capacity to get it had they not guaranteed the respondents that the information is going to be used for academic purposes only.

(c) Time

The time for the research is limited to less than three months. Thus makes it difficult for the researcher to exhaustively deal with the study in greater detail as it was conducted in a very short space of time and in concurrent with other modules at the university.

1.8 Significance of the study

The research is important to the following stakeholders:

(a) To the Researcher

The study is done in partial fulfilment of the requirements of the Bachelor of Commerce Insurance and Risk Management (Honours) Degree at Midlands State University. It also adds a deep understanding of agriculture insurance to the researcher.

(b) To the University

The research will provide reference material for use by other students and academics researching in a similar field.

(c) To the Government and Farmers

Zimbabwe used to be a 'bread basket' for Africa. However, this status has been eroded by the prevalence of unfavourable climatic conditions and when farmers are confronted with risks that impede productivity. As such, this research centres on an initiative to mitigate effectively some of the risks faced in agriculture in order to revitalize this sector, propel economic activity and bring about socio economic development.

(d) To the short term insurance industry

The research project will provide alternative strategies that can be employed by short term insurers to boost the uptake of agriculture insurance. The study will also highlight gaps in the provision of agriculture insurance that can be fulfilled by products not available on the local insurance market.

1.9 Definitions of terms

(a) Uptake refers to the acceptance or adoption of something. Thus agricultural insurance uptake is defined as the acceptance or adoption of agricultural insurance by farmers (Tsikirayi et al, 2013).

(b) IPEC- an acronym for Insurance and Pensions Commission.

1.10 Summary

This chapter introduced the study. It discussed the background of the study, the statement of problem, research questions, objectives, scope of the study, limitations, assumptions and significance of the study. Lastly the definitions of key terms used in the study are given.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Agriculture, the backbone of most developing economies, is characterized by high exposure to a wide spectrum of risks. Inevitably, farmer's incomes fluctuate extensively from time to time, the bottom line impact of which is solemn underdevelopment. The subsequent quest for sustainable socio economic development has championed the relevance of, and need for agricultural insurance. This chapter therefore dwells on the theoretical and empirical fundamentals of agricultural insurance as a means of fostering socio economic development in Zimbabwe. The literature used is from published textbooks, business journals, magazines and the Internet.

2.1 Definition of terms

2.1.1 Agriculture insurance

Wenner (2005) define agriculture insurance as a financial contingency that transfer production risks from the farmer to the insurer in exchange for a premium that reflects a true long term cost of the insurer assuming those risks. Itturioz (2009) argues that rather than transfer production risk, agriculture insurance is the transfer of the financial consequences of losses from the insured to the insurer in exchange for a premium. Basically, agricultural insurance is designed to provide covers for financial losses incurred due to the reduction in the expected outputs from agricultural products. The implication therefrom is that it stabilizes farmer's incomes, smoothen consumption and protects assets (wealth), thereby fostering socio economic development in so doing.

2.1.2 Socio economic development

Tatum and Harris (2009) define socio economic development as a process that seeks to identify both the social and the economic needs within a community, and seek to create strategies that will address those needs in ways that are practical and in the best interest of the community over the long run. The general idea is to find ways to improve the standard of living within the area while also making sure the local economy is healthy and capable of sustaining the population present in the area. Sen et al. (2009) refer to socio economic development as the improvement of people's lifestyles through improved education, incomes, skills development and employment. It is the process of economic and social transformation based on cultural and environmental factors. Socio economic development is measured with indicators, such as gross domestic product (GDP), life expectancy, literacy and levels of employment. Furthermore, changes in less-tangible variables such as personal dignity, freedom of association, personal safety and freedom from fear of physical harm, and the extent of participation in civil society are also considered.

From the above definitions, one can assert that socio economic development is a process that entails the elimination of barriers such as poverty, hunger, lack of opportunity and any consequential deprivation and creating an environment that promotes the full realization of opportunities such as education and health facilities, for the attainment of sustainable freedom from economic, social and political repression.

2.2 The essence of using agriculture insurance as a lever for socio economic development

From the definitions given above can be deduced the nexus between agriculture insurance and socio economic development. The core mandate of agriculture insurance is to provide financial security to the farmer. This in itself is the epitome of sustainable economic emancipation, from which cascades many other 'freedoms' and benefits. These include reduction of poverty and hunger, less vulnerability to physical exploitation, peace of mind and a sense of achievement to name but a few. All these contribute to socio economic development. More so, the transferability of that financial security to other parties such as banks and input providers magnifies the significance of agriculture insurance in facilitating development at national level.

The traditional risk management and coping mechanisms are often time neither sufficiently robust nor cost effective. Wenner (2005) argues that in the absence of agriculture insurance, the amount of residual risk that remains with the household in question may induce asset liquidation and chronic poverty. Ex post government relief actions, if at all, may not be a sustainable solution; rather, they create incentive problems. The prospects of agriculture insurance as a sustainable socio economic development-oriented risk management tool thus come in handy.

2.3 Risks and constrains faced by farmers

Farmers encounter a variety of risks in their production. As indicated by the World Bank (2011), the nature of risks is specific to the agro climate region, climate, local agricultural production systems and socio economic variables among other factors. Not all risks faced by farmers are covered under agriculture insurance as the case with all other types of insurance. However, insurability of risk therefore varies from one market to the other. The classification depicted below is for the scenario in developing countries, Zimbabwe included.

2.3.1 Risks that can be mitigated by agriculture insurance

(a) Weather risks

Inconsistencies in weather variables such as excessive or insufficient rainfall, extreme temperatures and hail to name a few affect agriculture productivity. Bielza et al. (2008) asserts that of all the risks faced by farmers weather related risks abound the most in agriculture worldwide. Agronomic empirical evidence on Zimbabwe reveals that climate change has an adverse effect on the aggregate agricultural performance, which is to the detriment of the nation at large (Mano and Nhemachena, 2007). The main weather-related hazards in Zimbabwe include drought, excess rainfall, storms (hail or wind) and temperature extremities.

(b) Human or Personal risks

Personal risks include illness or injury and death of the farm owner and/or its labour force (Hardaker, Huirne and Anderson 1997). These risks usually arise from the use (or misuse) of agro-chemicals, ignorance and/or lack of knowledge being the main cause. To protect the lives of farm personnel, personal accident cover, embodied in the agriculture insurance

policy, is a necessity (Itturioz, 2009). Divorce and other personal relationship deteriorations can also cause financial distress.

(c) Financial risks

Financial risks include exchange rate risk, interest rate risk (rising cost of capital), insufficient liquidity and loss of equity (Hardaker, Huirne and Anderson 1997). Barnett et al. (2005) highlight that farmers experience cash flow problems, mainly because they have to cater for many expenses before their revenue can be realized. The scenario is even graver in Zimbabwe where farmers have very limited access to credit facilities, lack of collateral being the major causative factor (Muziri, 2009). The use of agriculture insurance as collateral can mitigate some of these financial constraints.

(d) Biological risks

Crops and livestock are vulnerable to attacks from pests and diseases. For instance, in 2011 farmers in Hurungwe were appealing for government assistance after their herds dwindled due to tsetse-fly borne diseases. The resultant loss of draught power and wealth paves way for poverty and economic dependence. An agriculture insurance product covering such livestock would sustain the community's means of living.

(e) Environmental risks

Contamination caused by poor sanitation may harm the environment, a liability which the farmers may be accountable for. The Commercial Farmers Union (2010) is of the opinion that cotton farmers, when disposing off chemicals, are the major perpetrators of pollution in Zimbabwe. To avoid the erosion of farmers' income by such liabilities, insurance protection ought to be sought.

2.3.2 Risks outside the scope of agriculture insurance

Not all risks faced by farmers are covered. The farmers are exposed to risks that go beyond weather and pests. Hess et al (2005), Bielza et al (2008) and World Bank (2011) identify some of the risks that cannot be mitigated by agricultural insurance, chief among them market or price risks, policy and institutions risks, management and operations risks and socio-political risks. The fact that agriculture insurance provides limited cover against risks

that farmers face goes to show that the complimentary role of other risk management strategies is still critical.

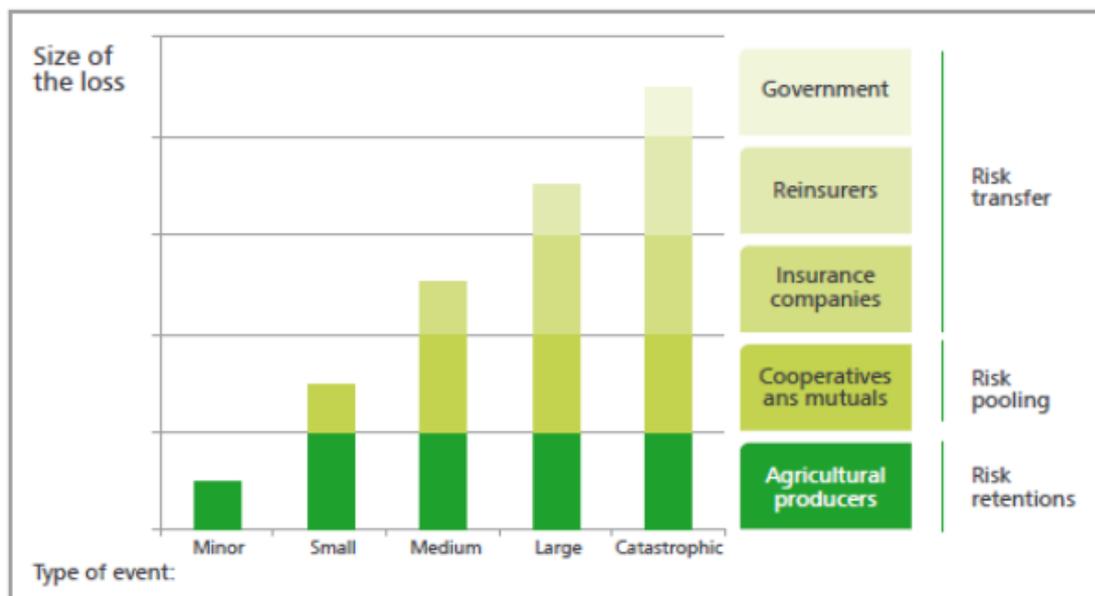
2.3.3 Constrains that hamper productivity in agriculture

In addition to the risks mentioned above, farmers face constraints that deter them to either improve or increase their production and revenues. These include limited access to finance, ineffective supply chains, dislocation from markets, lack of reliable input supply, poor prices, lack of advisory services and information, poor infrastructure (for example, irrigation or rural roads) and technology deficiency (Itturioz, 2010; World Bank, 2011). Itturioz goes further to say that these constraints are normally extremely high for agriculture in developing countries, where the public goods and the private sector service delivery are often poorly developed.

2.4 Risk layering

Risk layering is defined as the process of separating risk into tiers in order to finance and manage risk efficiently (Mahul and Stutley, 2010). Agricultural risks are layered depending on the frequency and severity of the risks in question. Agricultural risks can be distributed to farmers (self-retention), private financial markets and governments through an appropriate layering of risks. This is shown in figure 2.1 below.

Figure 2.1: Agricultural risk layering



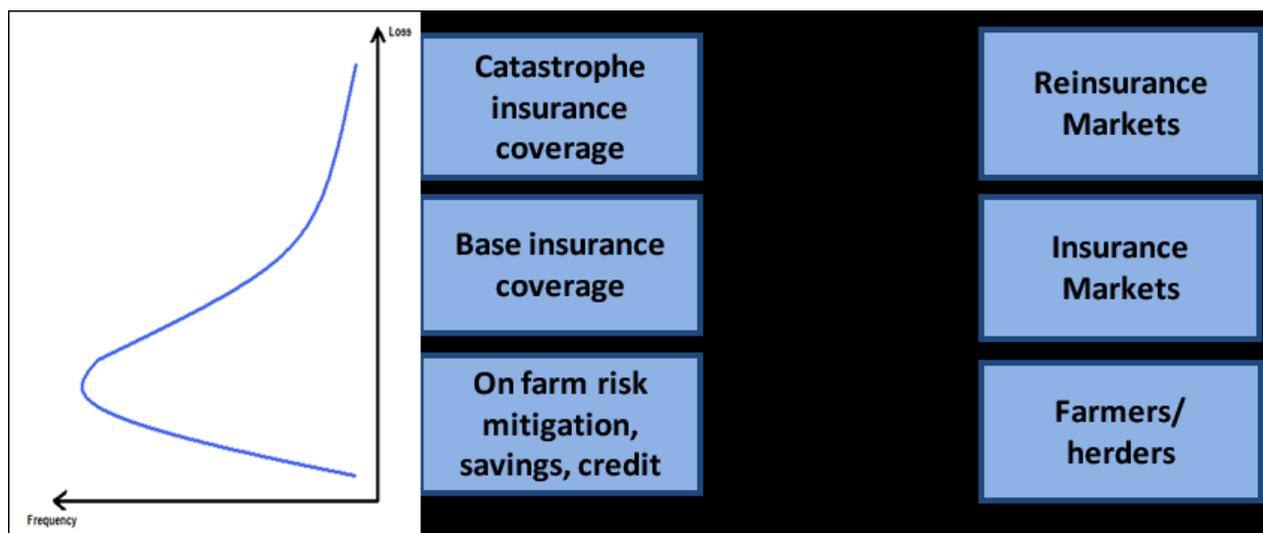
Source: Mahul and Stutley (2010)

From Mahul and Stutley’s viewpoint, the bottom layer includes low severity risks that should be retained by the farmers and financed by individual savings and contingent credit. The middle layer comprises more severe risks that affect many farmers at the same time and these losses can be pooled into cooperative or mutual insurance schemes. In Zimbabwe, a common risk in this category is hail for which the private insurance industry provides cover.

The top layer comprises high severity risks that cannot be managed, either through on-farm risk management mechanisms or through cooperatives and/or mutual insurance scheme, they need to be transferred to commercial insurers and reinsurers. Finally, governments may have a major role to play in the event of a major disaster, acting as a reinsurer of last resort or providing post-disaster aid. However, this supposition may not be practicable in emerging economies whose governments usually run on deficits. In such cases, the risk falls back onto the disaster-struck farmers, thrusting them into a vicious cycle of chronic poverty. In light of the complexity of catastrophe risks, the advent of insurance linked securities offers more viable risk transfer opportunities.

However, the drawback of Mahul and Stutley’s philosophy is that it only considers the severity and ignores the frequency of risk, which has also a bearing on the financing and management of risks. Mahul (2011) depicts a more feasible risk layering approach which considers both the frequency and severity of risk as shown in Figure 2.2 below:

Figure 2.2: Agricultural risk layering



Source: Mahul (2011)

This approach links risk layering to both frequency and severity of risk. In this case, the bottom layer comprising low frequency and low severity risks which is borne by the farmers. Higher severity risks are managed through insurance. Low frequency, high severity risks in the top layer are borne by reinsurers, the government included.

2.5 Conditions necessary for a self-sustaining agricultural insurance market

For the insurance market to continue providing agricultural insurance products, and make economic sense at the same time, certain conditions should exist. Adherence to basic principles of insurance is of utmost importance. More so, the risks should ideally have particular attributes for them to be considered 'insurable'. The following conditions should exist to ensure the emergence of a viable and sustainable agricultural insurance market:

2.5.1 Symmetric information

The insurer and the insured should have nearly or approximately the same knowledge of the distribution of probable losses so that proper risk classification can occur. This is normally not the case, the main problems being moral hazard and adverse selection caused by information asymmetries which could undermine the insurance system (Skees 1997; Skees and Barnett 1999; Wenner, 2005).

2.5.2 Large number of similar exposed units

The statistical Law of Large Numbers used to calculate coverage, indemnity and premium levels, states that the more uncorrelated risks that are added to a portfolio the lower the variance of outcomes for the entire portfolio. Thus, for the statistical law of large numbers to accurately predict average future losses and calculate the premiums the size of the pool or portfolio should be large and the risks faced in a particular class or group should be similar (Wenner, 2005).

2.5.3 Statistical independence of risks

Risk should be nearly or perfectly independent across insured individuals and spatially uncorrelated. The more spatial correlation there is the less efficient insurance will be as a risk transfer mechanism. More so, when losses are catastrophic, the risk-pooling advantage of insurance breaks down because the contributions of the unaffected are insufficient to cover the damages of the affected (Wenner, 2005).

2.5.4 Calculable expectancy, frequency and magnitude of loss

In order to fix the premium rates, the insurer should be able to estimate both average frequency of the risk to be insured and the average severity of loss. For low-probability risks with potentially catastrophic outcomes it is often difficult to estimate the average expected loss, because there are so few data points (Skees 1997; Skees and Barnett 1999; Wenner, 2005).

2.5.5 Actual losses occurring must be determinable and measurable

The actual loss should be tangible and measurable and causally linked to the random event insured. If this is not the case, claims settlements will tend to be highly contentious and the insurer's administrative costs will skyrocket (Wenner, 2005).

2.5.6 Limited policyholder control over the insured event

Insurance protection ceased to be ideal if policyholders can control the likelihood and extent of an insured event. If a policyholder has sufficient control over whether a risk can occur, they can take advantage of the insurance and generate "moral hazard" (Wenner, 2005). Moral hazard increases the likelihood that the policyholder will receive indemnities and this will ultimately lead to high premiums.

2.5.7 Premiums should be economically affordable

In general, for an insurance policy to be attractive to potential policyholders the premium cost must be substantially less than the potential benefit offered by the policy (Skees 1997; Skees and Barnett 1999; Wenner, 2005).

2.6 Agriculture Insurance products

Itturioz (2009) is of the opinion that products in agricultural insurance can be classified into three categories based on the method of determining how claims are calculated. These are, indemnity based; index-based and crop-revenue-based agricultural insurance. Yusuf (2010), on the other hand, identifies six types of agricultural insurance products which relate to Itturioz's classification. These are, named peril or damage-based, rainfall index, multiple peril crop insurance (MPCI), livestock and aquaculture insurance, index-based insurance products and input-based insurance products. These six types of agricultural insurance can be matched with Itturioz's classification as follows: indemnity based insurance comprising MPCI, named peril and/or livestock and aquaculture; index-based insurance aligns with rainfall or weather index and index-based insurance products. Lastly, crop revenue-based

insurance relates to input-based insurance products. This study adopts Itturioz's (2009) classification whose three distinct categories embrace the various forms of agricultural insurance given by the other authors.

2.6.1 Crop insurance

2.6.1.1 Traditional Indemnity-based crop insurance products

Indemnity-based agricultural insurance products assess the crop loss and insurance compensation on-site based on actual loss at the policyholder level (Itturioz, 2009).

(a) Damage-based indemnity insurance (or named peril crop insurance)

According to Mahul and Stutley (2010), damage-based indemnity insurance is crop insurance in which the claim is calculated by measuring the percentage damage in the field soon after damage occurs. The damage measured in the field, less a deductible expressed as a percentage, is applied to the pre agreed sum insured. This type of cover is most suitable where there is low degree of correlation of risk over a given area (Roth and McCord, 2008). Named peril crop insurance is best known for hail in most countries but it can also be used for other named-peril insurance products such as frost, excessive rainfall, and wind (Mahul and Stutley, 2010).

(b) Yield-based indemnity insurance (or Multiple Peril Crop Insurance, MPC)

Mahul and Stutley (2010) asserts that yield-based crop insurance is coverage in which an insured yield is established as a percentage of the insured farmer's historical average yield. The insured yield is typically 50-70 percent of the average yield on the farm. An indemnity is paid if the realized yield is less than the insured yield. The indemnity is equal to the difference between the actual yield and the insured yield, multiplied by a pre-agreed value of sum insured. This type of crop insurance typically protects against multiple perils, meaning that it covers many different causes of yield loss - often because it is generally difficult to determine the exact cause of loss. Itturioz (2009) added that MPC offers comprehensive cover to the producers but comes at significantly higher cost, compared with named peril insurance, thus requires government subsidy on premiums to enhance uptake.

2.6.1.2 Challenges associated with Traditional Agricultural Insurance products

(a) Moral hazard

Quiggin (1994), hypothesize that moral hazard is when policyholders, after purchasing insurance, alter their behaviour in a manner that increases their chances of collecting indemnities. Moral hazard arises from the fact that farmers can take great many actions which affect their final yield (Roth and McCord, 2008). The fact of being insured creates incentives for policyholders to behave in irresponsible ways hence a greater likelihood of the insured event occurring and/or a greater impact of loss. This gives rise to underwriting losses in the insurer's book thereby making the line of business unfavourable.

(b) Adverse selection

Harwood et al. (1999) define adverse selection as a situation in which the insured has more information about risk of loss than does the insurance provider and is better able to determine the soundness of premium rates. Wenner and Arias (2003) added that adverse selection in insurance markets makes it difficult or very expensive for insurers to distinguish between high-risk and low-risk insurance applicants and thus fail to set premiums commensurate with risk. Over time the low-risk clients drop out of the market, which is left with a very high-risk pool of clients with higher expected indemnities that negatively affect the insurer's profitability.

(c) Fraud

Roth and McCord (2008) define fraud as deliberate misrepresentation by the insured person, claiming that an insured event has happened when it has not, or providing false answers to the insurer's screening questions with the intention to obtain undue payment from an insurer. The most frequent fraudulent claims in crop insurance occur when producers underreport yields, manipulate yield histories, or bribe loss adjusters (World Bank, 2014). A striking illustration of fraud is given in the case by Burnett, cited by Roth and McCord (2008) dubbed 'the great tomato insurance fraud'. In this case, the insured threw ice over the tomato field to look like the aftermath of a hailstorm, having colluded with loss adjusters to perpetrate the fraud. Along with eight others, the insured pleaded guilty to swindling the government and insurance companies out of more than US\$9 million in bogus insurance claims from 1997 to 2003. The case shows the extent to which fraud can cost insurers a fortune, and in extreme cases, force them out of business. In short, fraud happens when policyholders attempt to increase indemnity payments by violating their insurance contracts.

(d) Correlation of crop risks

Roth and McCord (2008) hypothesize that in agriculture, risks stemming from natural disasters, pests or diseases affecting farms over a widespread region are systemic and not independent. This means that a single peril or event is likely to give rise to multiple claims. For instance households who live in a district prone to floods are likely to experience loss from the same risk at the same time. The correlation of systemic risks undermines the insurer's ability to diversify risks across farms, crops, or even regions, and prevents the pooling of risk across individuals (Miranda and Glauber, 1997).

(e) Loss assessment costs

Loss assessment can be costly and imprecise for traditional agricultural insurance products especially when assessing multiple claims separately due to systemic weather events such as drought or for large farms that are geographically dispersed (World Bank, 2014). Furthermore, if loss assessment is done on an individual farm basis the costs can be very large in comparison to the premium paid. The associated administration costs, fuelled by the above-mentioned contingencies, make it difficult for most insurance firms to realize underwriting profits. Binswager cited by Makaudze and Miranda (2009) concluded that the cost of traditional crop insurance has been the greatest obstacle to the development of agricultural insurance markets especially in developing countries.

2.6.1.3 Crop revenue insurance products

Iturrioz and Arias (2010) asserts that crop revenue insurance is an insurance cover in which the insurer guarantees the policyholder a certain level of revenue to be obtained from the insured crop. This type of insurance protects the policyholder from eventual shortfalls in the yield of insured crops and also from adverse movements in their price. The guaranteed yield can be determined, either as a percentage of the producer's past production or as a percentage of the average yield of the region where the insured farm is located. The guaranteed price can be either the future market price for the crop for the month of harvest or the strike price of a base price option. An indemnity is paid when the actual revenue received by the producer, which is given by the product of the actual yield and the spot market price at the time of harvest, is less than the guaranteed amount. This type of cover is available in few countries and mainly developed countries. Nonetheless, it is a useful tool in smoothing the income of farmers over the years.

2.6.1.4 Index-based insurance products

Hazell et al. (2010) define index based insurance as a financial product linked to an index highly correlated to loss experiences and indemnifications are triggered by pre-specified patterns of the index, as opposed to actual yields, which eliminates the need for in-field assessments. Contracts are written against specific perils or events (for instance area yield loss, drought, hurricane, flood) that are defined and recorded at regional levels (for instance at a local weather station). The World Bank (2011) concurs with this definition, adding that the sum insured is normally determined on a pre-agreed value basis and pay-outs are made based on a pre-established scale set out in the insurance policy. By virtue of these attributes, Hess et al (2005) affirm that index insurance is less susceptible to some of the problems that plague MPCCI products. In this regard, index-based insurance is a key product in agriculture insurance.

Grosh et al. (2008) and Hellmuth et al. (2009) assert that index insurance can be used as a handy tool for disaster relief and/or development. As a tool for disaster relief, this product offers a speedy response to catastrophic and highly covariate risks such as hurricanes, floods and severe droughts. With development-focused index insurance, households pursue riskier, but potentially more profitable farming strategies thereby defending their income and consumption. There are a number of index-based crop insurance products:

(a) Area-yield index-based crop insurance

According to Mahul and Stutley (2010), area-yield index insurance is coverage in which the indemnity is based on the realized (harvested) average yield of an area such as a county or district. The insured yield is established as a percentage of the average yield for the area usually 50-90 percent of the area average yield. An indemnity is paid if the realized average yield for the area is less than the insured yield, regardless of the actual yield on a policyholder's farm. This type of index insurance requires historical area yield data on which the normal average yield and insured yield can be established.

(b) Weather index-based crop insurance (WII)

Weather index insurance (WII) is coverage in which the indemnity is based on realizations of a specific weather parameter measured over a pre-specified period of time at a particular weather station (Mahul and Stutley, 2010). Weather index insurance protect against index

realizations that are either so high or so low that they are expected to cause crop losses. An indemnity is paid whenever the realized value of the index exceeds or falls short of a pre-specified threshold. More so, indemnity is calculated based on a pre-agreed sum insured per unit of the index.

(c) Normalized deviation vegetation index (NDVI) or Satellite insurance

According to Iturrioz and Arias (2010) normalized deviation vegetation index (NDVI) or satellite insurance refers to the insurance coverage constructed using the time series remote sensing imagery for instance, applications of false colour infrared waveband to pasture index insurance where the pay-out is based on a normalized dry vegetative index that relates moisture deficit to pasture degradation.

2.6.2 Livestock insurance

Roth and McCord (2008) define livestock insurance as the cover for losses resulting from death, disease and accidental injury to livestock. There are four basic types of livestock insurance products namely traditional animal accident and mortality cover; all risk mortality cover; epidemic disease cover; and livestock index mortality products.

2.6.2.1 Traditional livestock insurance products

(a) Animal accident and mortality cover

Named peril accident and mortality cover for individual animals is the most common traditional livestock insurance product for insuring livestock. It covers death against natural perils such as fire, flood, lightning, and electrocution, but normally excludes diseases and specifically epidemic diseases (Iturrioz and Arias, 2010). Premiums are set based on normal mortality rates within the permitted age range, plus risk and administrative margins, and are generally quite expensive.

Herd insurance is a variation on individual animal mortality cover for larger herds. A deductible is introduced, where a certain number of animals, or a percentage of the total number of animals, must be lost before an indemnity is paid (Mahul and Stutley, 2010).

(b) All-risk mortality insurance including diseases

This type of cover is provided to large commercial farmers that can demonstrate high levels of animal husbandry and control over animal diseases (Iturrioz and Arias, 2010). All-risk mortality insurance including diseases is usually offered for high-value bloodstock or for herd insurance.

(c) Epidemic disease cover

Epidemic disease insurance is offered in only a few countries, notably Germany. This type of cover normally excludes insurance of government-ordered slaughter or quarantine. Epidemic disease insurance carries major and infrequent exposure to catastrophic claims necessitating a high reliance on reinsurance for risk transfer. However, it is difficult to develop this type of insurance and to obtain support from international reinsurers due to the difficulties of modelling the spread of epidemic disease and financial exposures (Mahul and Stutley, 2010).

2.6.2.2 Index livestock insurance products

(a) Livestock index mortality cover

Iturrioz and Arias (2010) contends that livestock index mortality insurance is where livestock losses are highly correlated with an extreme weather event for which a weather index could not be built (combination of low temperature, dry conditions, snowfall, and so forth).

2.7 Empirical literature on weather index insurance

The effects of natural calamities such as droughts, floods and storms on global food security, financial crises (default of agriculture loans) and ultimately on socio economic development is a cause for concern. Weather index based insurance emerged as a viable and sustainable solution to these predicaments, as evidenced by various projects undertaken in different countries. Some of the products of index insurance are discussed in the empirical literature below:

2.7.1 Livestock mortality index-based insurance in Mongolia

According to Mahul and Skees (2006) the Mongolian rural economy is based on livestock reared by semi-nomadic herders. Agriculture contributes 19 percent of the country's gross domestic product, and herding accounts for more than 80 percent of agriculture. Animals provide income and wealth to protect nearly half the residents of Mongolia. Any mishaps interfering with this major economic activity would cause dire sustenance challenges.

Harsh climatic conditions caused major losses in livestock and extreme reduction in wealth. The traditional livestock insurance, based on individual losses, was ineffective mainly due to very costly loss adjustment owing to the spread of animals among vast areas, moral hazard. Upon request by the government, The World Bank recommended a customized livestock index insurance program in the year 2005.

The index in this program uses past population statistics to inform about livestock loss risk and determine exceedance threshold for pay-outs. The index-based livestock policy pays indemnities whenever the adult mortality rate exceeds a specific threshold for a localized region. The product combines self-insurance, market-based insurance and social insurance for catastrophic losses. Herders retain small losses that do not affect the viability of their business, while larger losses are transferred to the private insurance industry and only the final layer of catastrophic losses is borne by the government (Mahul and Skees, 2006; Itturioz, 2009; Mahul, Belete and Goodland, 2009).

The product is divided into two, the Base Insurance Product (BIP) and the Disaster Response Product (DRP). BIP is sold and serviced by insurance companies while the DRP is ‘a social safety net product financed and provided by Government, which begins payments at mortality rates exceeding the BIP exhaustion point’. Herders who purchase the BIP are automatically registered for the DRP at no additional cost. Without the purchase of at least the minimum value of BIP, herders must pay a small fee for DRP administrative cost. Operations of this product commenced in 2006 and have since captured an above-expectation participation of 14 percent of the market by 2009 (Mahul and Skees, 2006; Itturioz, 2009; Mahul, Belete and Goodland, 2009).

2.7.2 PepsiCo contract farming and index insurance - India

PepsiCo offers index insurance as part of its contract farming program to protect the farmers in its supply chain from weather events (Hazell et al. 2010). The insurance is sold through an international insurer, Lombard General Insurance Company, and is managed by Weather Risk Management Services, a private broker and weather station operator. In its contract farming arrangement, PepsiCo offers an extensive package of services such as high quality potato seed; access to fertilizers, pesticides and other chemicals; technical advice on production practices; fixed purchase price and incentives from the beginning of the season; weather information and advisories via mobile phone Short Message Service (SMS). The

index insurance sets a base buy-back price for its contract farmers at the beginning of the season and offers incremental price incentives according to quality of the produce (potatoes), use of fertilizers and pesticides and purchase of index insurance (Hazell et al. 2010).

In summary, the index insurance adopted by PepsiCo contract farming program plays an important role in paving way for a wider package of services and information that links the smallholder farmers to markets. Socio economic development is attained in the process.

2.8 Justification of index based insurance

2.8.1 Advantages of Index-based insurance over conventional products

As a result of the limitations and high costs associated with traditional agricultural insurance products particularly MPCCI insurance, researchers and practitioners have developed a growing interest in alternative agricultural insurance approaches based on indices (Makaudze and Miranda, 2010). By virtue of the foregoing the latter products should have significant benefits to justify their being. Levin and Reinhard (2007) and World Bank (2011) highlight some of these benefits:

(a) Reduced risk of adverse selection - With index based insurance, the insurer can calculate the risk more easily and more accurately without depending on the information provided by the insured since indemnities are based on widely available information and there are few informational asymmetries to be exploited by the insured (Levin and Reinhard, 2007).

(b) Reduced moral hazard - The pay-outs on index based insurance is based on an independent and exogenous weather parameter, independent of farmer's behaviour meaning that farmers have no incentive to influence the claims (Levin and Reinhard, 2007).

(c) Facilitating access to financial services – This is by removing the most catastrophic, spatially correlated risk from vulnerable communities, successful index based insurance markets have the potential to facilitate other financial instruments that are important for poverty alleviation and socio economic development (World Bank, 2011).

(d) Transparency - The assessment process in traditional products often leads to disputes between farmers and assessors due to the partly subjective nature of the loss adjustment process. Weather index contracts are based on the measurement of weather at defined weather stations and are therefore extremely objective and theoretically less likely to lead to disputes although basis risk becomes the real driver for dispute (World Bank, 2011).

(e) Reduced information requirements and bureaucracy – Traditional agricultural insurance products require more effort to gather data to establish yields and also to classify farmers according to their individual risk exposures. Index based insurance does not need to gather such detailed data and is of no use to differentiate between individual farmers. This can be particularly useful in countries in which there is limited access to detailed data (World Bank, 2011).

(f) Field loss assessment is eliminated - Loss assessment is a challenge for any traditional crop insurance product as indemnity is based on individual loss assessment, hence the need to mobilize large numbers of skilled or semiskilled assessors who possess some agronomic knowledge. With index based insurance it is possible to make pay-outs without field assessment thereby reduces administrative costs by eliminating the need for assessors (World Bank, 2011).

(g) Facilitation of reinsurance - Index-based insurance can be used to transfer the risk of widespread correlated agricultural production losses more easily to the international reinsurance market (Levin and Reinhard, 2007). More so, experience have shown that international reinsurers are likely to reduce the portion of the premium charged for uncertainty (loading) when the insurance is based on independently measured weather events (World Bank, 2011).

2.8.2 Limitations of index based insurance

Levin and Reinhard (2007), Dick et al (2011) and World Bank (2011) express a universal opinion on the major drawback of index based insurance, basis risk. World Bank (2011) defines basis risk as the difference between the pay-out as measured by the index and the actual loss incurred by the farmer. Since there are no field loss assessments under index insurance, the pay-out is based entirely on the index measurement which may be higher or

lower than the actual loss. Dick et al. (2011) goes further to say that basic risk could result in a farmer experiencing yield loss, but not receiving a pay-out, or in a pay-out being triggered without any loss being experienced. Index insurance works best where losses are homogeneous in the defined area and highly correlated with the indexed peril.

2.9 Farm implements insurance

Farm implements insurance is viewed as an indirect form of agricultural insurance as it is not taken on the actual crop or livestock but rather on the farm assets used in production. This type of insurance is taken by farmers to protect their farm implements or property against theft and fire. This may be taken on tractors, trucks, trailers, irrigation equipment, farm buildings and any other farm equipment (Tsikirayi et al. 2013).

2.10 Agricultural Micro-insurance

Most small holder farmers in developing countries are susceptible to risks yet for one reason or the other; they have the poorest uptake of agricultural insurance. Having limited access to insurance, small holder farmers are unable to cope with any form of crisis does it occur. Furthermore, poverty and vulnerability reinforce each other in an escalating downward spiral (Churchill, 2007). Already, agriculture insurance has been established as a viable solution to combat some risks. However, an analysis of the aforementioned types and forms of agriculture insurance shows a universal thread of high administration costs, hence higher premiums. All variables being equal, this factor alone disqualifies the majority of the farmers who cannot afford high premiums from taking up insurance. This problem gravitated to its solution, micro-insurance.

2.10.1 Definition of micro insurance

International Association of Insurance Supervisors (2007) define micro insurance as the insurance that is accessed by the low-income people, provided by a variety of different entities, but run in accordance with generally accepted insurance practices and funded by premiums. Churchill (2006) agree with this definition and define micro insurance as the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved.

Agricultural micro insurance is about providing agricultural insurance to small-scale farmers especially in developing countries. Since the market served by agriculture micro-insurance

consists of low-income people, in developing countries, with limited or no previous exposure to insurance. This has a number of implications and the most important of which being that the target market cannot afford large premiums (Roth and McCord, 2008). Furthermore, Roth and McCord (2008) identify three key areas which micro-insurers must pay particular attention to:

(a) The market will have limited knowledge of insurance so in addition to advertising a particular agricultural insurance product it is necessary to educate the market on the very need for, and the principles of insurance.

(b) Because of lower premiums, the insurance provider has to sell bulky of these policies in order to break-even or make a profit. This means that the traditional way of selling agricultural insurance, that is, through individual agents, may not be viable and new distribution channels may be required such as through microfinance institutions.

(c) Again, because of lower premiums it means that expensive forms of loss control will need to be avoided.

2.10.2 Empirical Literature on agriculture micro insurance

2.10.2.1 Eco Farmer in Zimbabwe: weather-indexed drought insurance

Eco Farmer is an innovative micro insurance product provided by Econet to protect small holder farmers against crop failure due to conditions of drought or excessive rainfall. It also provides the insured farmers with daily weather information, farming tips and information on when and where to sell, and the best price for their produce (Econet, 2013a). The major aim of the product is to ensure increased productivity by farmers and thus promoting food security in the country.

The Eco Farmer programme registers farmers into three categories which are the general farmer, the registered farmer and the insured farmer (Econet, 2013b). The General Farmer receives general farming messages only and this work as agricultural developments alerts. The Registered Farmer receives important farming messages at a charge of \$1.50 per month. Failure to meet the payment will make the registered farmer to automatically fall into the general farmer category. The Insured Farmer pays insurance premiums of \$0.08 per day for

125 days (farming season) or \$10 to cover the full farming season. The farmer is compensated \$100 in the event of rainfall deficit or excessive rain upon payment of \$10 and/or received \$25 in the event of the later upon payment of \$2.50 for the whole farming season. Econet (2013a) goes further to say that a farmer must have bought a 10kg Seed Co bag (branded Eco Farmer Special Pack) then submit the crop cover voucher that would be inside the seed bag to Econet. Econet and Seed Co have partnered and the latter supplies guaranteed hybrid seed to farmers. In the event of drought, the farmer will be given as much as \$100 for every 10kg seed pack planted.

2.10.3 Benefits of agriculture micro insurance

Churchill (2006) contends that most Millennium Development Goals (MDGs), which serve as a development framework, would be more achievable if agriculture insurance were widely available among low-income households. Churchill goes on to argue that micro insurance in agriculture can play a significant role in addressing some of the MDGs namely:

- (a) To halve the proportion of people whose income is less than one dollar per day,
- (b) To halve the proportion of people who suffer from hunger,
- (c) To ensure that children everywhere, will be able to complete a full course of primary schooling, and
- (d) To reduce by two-thirds the under-five mortality rate

All these goals invariably target the improvement of human standards of living. In addressing them through agricultural micro-insurance, socio economic development is strongly advocated for.

2.11 Determinants of demand or uptake of agricultural insurance by farmers

Tsikirayi et al. (2013) define agricultural insurance uptake as the acceptance or adoption of agricultural insurance by farmers. As suggested by Parkin et al. cited by Tsikirayi et al. (2013), the determinants of demand for a product are own price of the good, price of substitutes, complementary goods, level of income, consumer expectations about future prices or incomes and tastes and preferences. These factors are not considered in isolation as they affect each other and are all evaluated by farmers in purchasing insurance. This is illustrated in Figure 2.3 that follows.

(a) Own price of the good

The own price factor refers to the premium paid by the farmer either monthly or as a once off annual payment for the insurance policy for a given level of coverage or indemnity. Obviously a high premium, relative to low coverage, would low the uptake of a particular policy and conversely, a low premium, relative to high coverage, will increase uptake (Tsikirayi et al. 2013).

(b) Price of substitutes

The access, costs and returns available from other agricultural risk management methods such as pooling of resources with other farmers, diversification of farm activities and formation of cooperatives affects the uptake of agriculture insurance policies. Obviously, the ease of access coupled with low costs and high returns lowers the demand of agriculture insurance policies by farmers (Tsikirayi et al. 2013).

(c) Income

Income factor includes the level of income from the farm and off-farm activities. The higher the level of on-farm income, the higher the demand of agricultural insurance by farmers to protect against income losses, whereas the existence of off-farm income may be taken as a form of diversification and an alternative risk management tool, thus may act to reduce the demand for agricultural insurance (Tsikirayi et al. 2013).

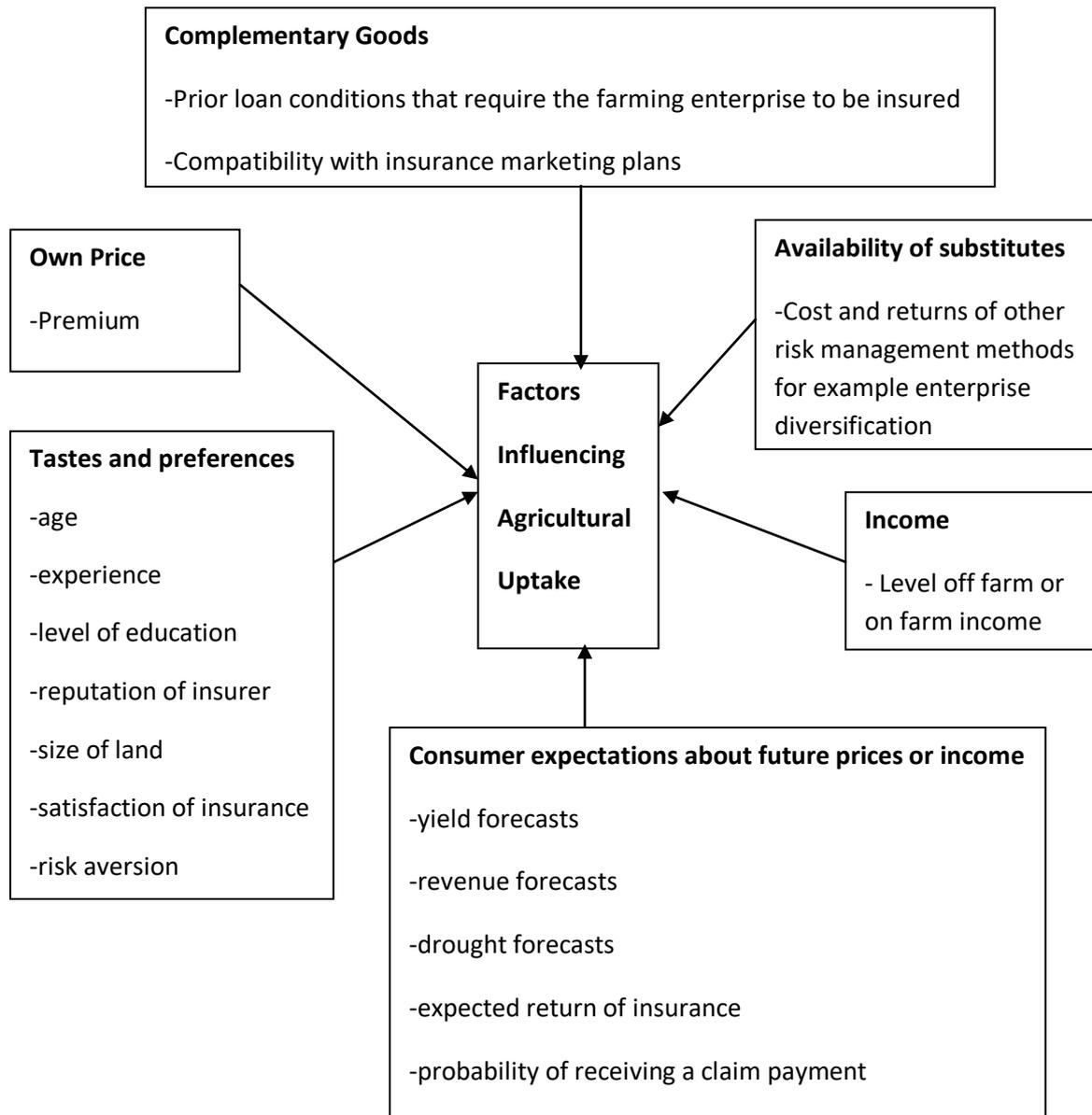
(d) Farmers expectations about future price or income

The farmers expectations about future prices or income in the form of yield forecasts, revenue forecasts, drought forecasts and its expected effects, expected return from insurance (expected indemnity) and probability of receiving claim payment, may act to determine the level of agricultural insurance uptake (Tsikirayi et al. 2013).

(e) Taste and Preferences

Tastes and preferences includes factors such as age, experience, level of education of the farmer, size of the land, reputation of the insurer and satisfaction with insurance (Tsikirayi et al.,2013). All these factors have a bearing on the demand of agriculture insurance. For instance, dissatisfaction of farmers with insurance leads to low uptake and in most cases dissatisfaction is as a result of late or non-payment of claims by insurers.

Figure 2.3: Determinants of demand or uptake of agriculture insurance



Source: Tsikirayi et al. (2013)

(f) Complementary goods

According to Tsikirayi et al. (2013) complementary goods refer to those goods where an increase in demand of one good will result in the increase in demand of the complementary good (derived demand). For instance an increase in agricultural credit facilities that require crop insurance as collateral will result in the increase in demand for agricultural insurance. Complementary goods may also refer to those goods that are offered in bundles, for instance, insurance companies and agricultural credit institutions can have stop-order facilities compatible with marketing association activities. A good example of this is

Agribank/Tobacco Industry and Marketing Board (TIMB) stop-order facility that guarantees loan repayment to Agribank from tobacco farmers.

2.12 Challenges to agricultural insurance uptake

According to Yusuf (2010), agricultural insurance uptake by farmers is affected by inadequate agricultural infrastructure, consistent underestimation of the catastrophic risks involved in agriculture and difficulty in designing new agricultural insurance products that suit the needs of farmers especially in developing countries. More so, the development of agriculture insurance line of business is affected by factors such as scarcity of data for actuarial determination of important underwriting parameters for instance crop yield and farming population; lack of qualified personnel in the field of agricultural insurance, high moral hazard and adverse risk selection.

The Commodity Risk Management Group, Agriculture and Rural Development Department of the World Bank (2006) assert that it is difficult to establish compulsory crop insurance in the world. The United States tried a form of compulsory insurance in 1995 and abandoned it after one season. The major limitation of agricultural insurance is that, it is a low priority for many poor farmers in the face of competing demands for scarce cash surpluses from agriculture. Most poor farmers would rather manage their production risk through diversified farming systems, low input utilization strategies and off-farm income. Farmers' priorities are first to ensure that they have timely access to inputs of seeds, fertilizers, and often, credit with which to buy these inputs. Only then can they consider purchasing crop insurance.

Albert (2000) assert that the success of agricultural insurance is dependent on other basic agricultural services such as extension services, timely availability of inputs, agricultural credit and efficient marketing channels for agricultural outputs. Where these related services are absent, the benefit from agricultural insurance is likely to be minimal and this tends to be the case in developing economies.

Sadati et al. (2010) postulate that in developing countries the markets for formal insurance and reinsurance is either under-developed or non-existent. Also, there is lack of effective legal systems to enforce insurance contracts. These factors contribute to an inefficient agricultural insurance market performance. More so, the development of index-based

insurance (such as weather index) in developing economies is hampered by the lack of quality information, especially from weak national meteorological services and weather observing network (Yusuf, 2010).

According to Zimbabwe Farmers Union (ZFU) (2010), farmers are reluctant to purchase agricultural insurance because they are unaware of its benefits. Public awareness about insurance benefits in general plays an important role in the uptake of insurance products of any kind. The ZFU suggested that there is need for educating farmers on agricultural insurance and they attributed the low participation by farmers to high premium charges by agricultural insurance providers.

2.13 The role of agriculture insurance in support of socio economic development

The impact of uninsured risks are alarmingly devastating, more so for catastrophes. According to a publication by Cover (2011), ‘natural disasters pose a much bigger risk to world peace than the financial crises or political events.’ This assertion mirrors the scale and extent to which catastrophes can undermine socio economic development. At household level, risk affects the ability to sustain assets, the transformation of assets into incomes (activities) and the transformation of incomes into welfare outcomes (Dercon, 2004). Essentially, uninsured risk is anti-human welfare. Some of the implications of the absence of agriculture insurance are outlined below.

2.13.1 Implications of the absence of agriculture insurance

(a) Reduced consumption, income levels and malnutrition

Various authors dwell on the effects of inadequate agriculture risk management arrangements, agriculture insurance chief among them. Wenner (2005) is of the opinion that the absence of insurance in agriculture is a strong barrier to socio economic development. In his view, one of the distinguishing characteristics of the poor is their vulnerability to risk. Poor people in developing countries depend heavily on agricultural production and selling their labour to survive. Since consumption takes a greater share of income among low-income families, shocks that create a marked drop in income can easily force the household below minimal nutritional thresholds and health impairment is one likely result.

McPeak et al. (2003), consent to the foregoing sentiments, adding that those with enough tangible assets have a chance of recovery. However, this is not so for the majority who are then unable to break the cycle of poverty and stagnation. They remain in a poverty trap. Hoogeveen (2001) added that in the absence of a formal risk transfer arrangement, ex post responses of households may plunge them further down the poverty drain. Oftentimes, they draw down on savings (if any) and liquidate their assets, mainly livestock. Recovery from such situations is highly unlikely, especially if the perils persist.

(b) Production inefficiency

Kurosaki and Fafchamps, cited by Wenner (2005), articulate that the lack of formal, risk transfer instruments makes the poor and near poor more vulnerable and averse to making high risk (yet high return) and uncertain investment decisions. Some of the on-farm, risk mitigation practices such as plot fragmentation, economizing on purchased inputs, and the use of low-yielding but drought resistant varieties, represent production efficiency losses. Consequently, these costly risk mitigating techniques can contribute to chronic poverty and increased vulnerability.

(c) Demolition of financial markets

When crop insurance does not exist or is not used to an appreciable extent, the risk of default on agriculture loans may be too high (Wenner, 2005). This perception discourages financial institutions and input providers from extending credit to farmers. In the long run, the latter do not expand and innovate for lack of incentive to do so. Thus financial markets remain shallow, non-competitive and incomplete. Financial infrastructure is retarded hence underdevelopment.

(d) Fiscal stresses for central governments

Funds often time have to be diverted from other on going and approved government programs to attend to the agricultural emergency. This diversion of funds implies the suspension or abortion of pro-development undertakings, especially if the government is under budget stress.

2.13.2 Benefits of agriculture insurance

(a) Other resources attached to agriculture insurance

Hazell et al. (2010) assert that the real pay-off of agricultural insurance is to unlock access to high-value markets, modern technologies and inputs, agricultural information, credit and other financial services. Since the planning for, and financing of risks occurs ex ante, access to services of lending facilities should improve, so should productivity and incomes. The accessibility of this package is a crucial step towards sustainable socio economic development.

(b) Increased production

According to Wenner (2005), agricultural insurance facilitates the adoption of higher yielding technologies and intensification of production by risk adverse farmers. The presence of insurance gives added comfort to innovators. It enables farmers to pursue riskier, but potentially much more profitable farming activities (Roberts, 2005; Stutley, 2011). Resultantly, chances of household income increment are higher and consumption is better smoothened.

(c) Reduced risk of default

Another benefit is reduced credit default risk for financial institutions financing agricultural production thereby leveraging small farmers' access to rural finance. Stutley (2011) and Wenner (2005) agree that crop insurance policies can serve as a substitute for traditional collateral requirements. This gives financial institutions more comfort and incentive to lend to this sector because their loan is protected against climatic risk and production shortfall induced default. A well preserved sound financial infrastructure ensures continuity of financial services in the long run.

(d) Catastrophe management

Natural disasters are unpredictable since they can happen any time. Alternative ex-post coping strategies are barely optimal in the case of these catastrophes. Wenner (2005) assert that agricultural insurance would help both rural households and governments manage natural hazards better and reduce the vulnerability of the poor. Skees and Murphy (2009) also support that agriculture insurance serve as tool for financing disaster relief and encouraging

structured social safety net policies especially in developing countries. With insurance in place, households do not have to liquidate their assets in order to survive. Chances of falling into poverty traps are minimized.

(e) Enhanced competitiveness of local farmers

In a global marketplace, producers that enjoy the benefits of crop insurance are better able to assume new investment risks without mortal fear of losing a significant share of their asset base or being forced to exit agriculture if the undertaking fails due to adverse weather (Wenner, 2005). In a world heading towards a liberalized global village, agriculture insurance is a means to enhance competitiveness of the local farmers.

(f) Spread of risk

Insurance spreads risk across the farming industry or the economy or in the case of international reinsurance, to the international sphere. By virtue of the foregoing, Mahul (2011) contends that household incomes and consumption are securely protected against any adverse events.

2.13 Summary

The chapter reviewed literature published by other scholars on agriculture insurance. The available literature has shown that agricultural insurance is an important complement to a wholesome, development-oriented agriculture risk management strategy. The advent of innovative agriculture insurance products such as index-based and micro insurance has provided new ways of countering the risks that would otherwise thrust farmers and many other households into poverty and deprivation. The benefits of agriculture insurance contribute positively towards socio economic development.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The core mandate of this research is to analyse the uptake of agricultural insurance by farmers in Zimbabwe for socio economic development. The purpose of this chapter therefore, is to articulate the research techniques used in the data collection process and, to justify their use and limitations. It will cover the research design, study population and the sampling techniques, research instruments, data collection and data analysis plan.

3.1 Research design

The research design provide a detailed outline of how an investigation will take place for instance how data is to be collected, the instruments to be employed, how the instruments will be used and the intended means for analysing data collected (www.businessdictionary.com/definition/research-design.html, visited on 26 august 2016). According to Trochim (2006) research design provides the glue that holds the research project together. It provides the components and the plan for successfully carrying out the study therefore; it is the “backbone” of the research protocol.

A descriptive research design was used by the researcher as it is suitable for investigating public opinions. Descriptive research is designed to provide a picture of a situation as it naturally happens. It may be used to justify current practice and make judgment and also to develop theories (Burns and Grove, 2003:201). The research was a qualitative one although conclusions were made quantitatively basing on the qualitative data collected. In this research survey, questionnaires were administered to collect information from respondents on their views in relation to the uptake of agriculture insurance in Zimbabwe. Interviews allowed the researcher to probe the respondents for more information.

3.2 Study population

Population is defined as the total number of units from which data can be collected such as individuals, events or organisations (Parahoo, 1997:218). Study population refers to the entire group of individuals or objects to which researchers are interested in generalizing the conclusions (www.explorable.com/research-population.html, visited on 25 august 2016).The

sample drawn from the study population contains those subjects whose characteristics are similar with those of the subjects in the study population (Frankel and Wallen, 2006). The research population for this study consists of approximately 26 547 A1 and A2 farmers in Midlands Province (Agritax Statistics, 2015), but however only a sample representation of the study population was selected as the researcher could not collect data from the whole population due to financial constraints and limited time as the research was running concurrently with the researcher's semester at college. Furthermore, farmers in Midlands Province were chosen to represent all the farmers in Zimbabwe for convenience purposes and because of the homogeneity of the farmers all over the country. The research population also included 20 operational short term insurance companies registered with IPEC.

3.3 Sampling

Kendra (2016) defines a sample as a subset of a population that is used to represent the entire group as a whole. According to Trochim (2006) sampling is the process of selecting units from a population of interest so that by studying the sample we may fairly generalize the results back to the population from which they were chosen.

3.3.1 Sampling techniques

There are two types of sampling techniques which are random or probability sampling and non-random or non-probability sampling.

3.3.1.1 Random sampling method or Probability sampling

Stuart (1984) defines probability sampling as the method of sampling in which every element in the population has an equal chance of being selected. Random sampling eliminates the possibility of biases as each element in a sample frame drawn from the population is selected by chance and at random (Popham, 1993:246). The four most common types of probability sampling are simple random sampling, stratified random sampling, cluster random sampling, and systematic sampling (Allison et al, 2001).

(a) Simple random sampling

Simple random sampling is the one in which each member of the population has an equal and independent chance of being selected in the random sample (Fraenkel and Wallen, 2006).

(b) Stratified random sampling

Fraenkel and Wallen (2006:96) asserts that stratified random sampling is a process in which certain subgroups or strata are selected for the sample in the same proportion as they exist in the population.

(c) Cluster random sampling

Cluster random sampling permits the selection of groups or clusters of subjects rather than individuals (Fraenkel and Wallen, 2006).

(d) Systematic sampling

Systematic sampling is done when elements are selected from a population using a uniform interval which is measured in time, order and space, for instance, drawing a sample by taking every Kth case from a list of the population (Ary et. al, 2002).

3.3.1.2 Non-random sampling or Non-probability sampling

Non-probability sampling is the sampling technique in which members of the population do not have equal chance of being selected. Due to this, it is not safe to assume that the sample fully represents the target population (www.explorables.com/research-population.html, visited on 25 august 2016). Parahoo (1997:223) added that in non-probability sampling researchers use their judgment to select the subjects to be included in the study based on their knowledge of the phenomenon.

Saunders (2003) postulates that non-probability sampling can be done through four ways, which are quota, convenience, judgemental and snowball sampling. Frey et al. (2001) asserts that convenience sampling involves contributors who are readily accessible and agree to participate in a study. Therefore, convenience sampling is a relative easy way for researchers when a group of people cannot be found survey. Saunders et al. (2003) and MacNealy (1999) share the same view that snowball sampling is used in those rare cases where the population of interest cannot be identified other than by someone who knows that a certain person has the necessary experience. Judgemental sampling is also referred to as purposive sampling. Judgemental sampling includes elements thought to be representative of the population and in this case the researchers use their judgment to come up with a sample and the amount of error depends on the expertise of the researcher. Barnet (1991) asserts that the researcher is

deemed to be using quota sampling when the selection of respondents is in the same ratio as found in the general population.

The researcher used the random sampling method to come up with a sample population of the non-life insurers. This sampling technique was considered appropriate as it gives each non-life insurance company in the industry an equal chance of being selected to avoid bias. More so, the researcher used non random sampling method particularly convenience sampling to come up with a sample population of farmers. This sampling technique was considered appropriate because of the homogeneity of the population of farmers under study, for convenience purposes and also to cut on cost and time required in carrying out a survey for large group of elements.

3.3.2 Sample size

Evans et al. (2000) define sample size as the number of observations that constitute the sample. A sample size should be more than 33% of the target population (Haralambos and Halbon, 1990). According to Krejcie and Morgan (1990) the recommended sample size for a study population of 1000 000 and above is 384. For the population above 5000 the researcher can use a sample size of 400 (Jacobs, 2005). The sample populations comprise farmers and non-life insurers. Although, there are many farmers in Midlands Province but by means of a walk-through survey, the researcher established that there is minimal variability in the conditions under which the farmers operate. More so, due to the lack of financial resources and the inaccessibility of the rural population, a convenience sample population of 20 farmers who visited ZFU offices in Gweru was given questionnaires. For ease of administration, these farmers were stratified by nature and extent of operations into two broad groups. The one group comprised (ten) subsistence farmers and the other was made up of (ten) small and medium scale commercial farmers. The same questionnaire was distributed for completion by farmers, one questionnaire per each farmer.

The non-life insurers sample population consisted of 10 companies. Relative to the total number of non-life insurers in operation, the sample population is large enough to cater for company specific discrepancies such as risk appetite, underwriting philosophy and management style, which have a bearing on the individual company's capabilities and attitude towards agriculture insurance. One questionnaire was submitted to each company for completion by the underwriting manager targeting a total population of 10 respondents.

3.4 Research instruments and Data collection

Research instruments refer to the measurement tools designed to gather data on a topic of interest from the research subjects (Parahoo, 1997). Data collection involves gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypothesis and evaluate outcomes. Data was collected from primary and secondary sources, depending on the suitability of the source for the purpose at hand.

3.4.1 Primary data sources

According to Lancaster (2005), primary data is the original materials on which the research is based on and is acquired through the direct efforts of the researcher and through the use of surveys, interviews and direct observation. The primary data sources used by the researcher in this research include questionnaires and interviews.

3.4.1.1 Questionnaires

The questionnaire is most frequently a very concise, pre-planned set of questions designed to yield specific information from respondents to meet a particular need for research information about a pertinent topic (Key, 1997). The questionnaires were sent to both insurers and farmers to gather their views on the subject under study.

3.4.1.1.1 Advantages of Questionnaires

- (a) The responses are gathered in a standardized manner which makes them more objective and simple to compile.
- (b) The researcher's influence on responses was insignificant as the questionnaires were completed in the absence of the researcher.
- (c) The respondents had time to think through the questions and answer them at their own pace.

3.4.1.1.2 Disadvantages of Questionnaires

- (a) Response rates can be lower.
- (b) Lacks validity. Some of the respondents forwarded the responses later than was scheduled for. This made adherence to the work plan challenging.

(c) Given lack of contact with respondent, the researcher never knows who really completed the questionnaire which can lead to bias.

3.4.1.2 Personal interviews

Key (1997) contends that an interview is a direct face to face attempt to obtain reliable and valid measures in the form of verbal responses from one or more respondents. The interviews were directed to both the farmers and the insurers mainly because the bulky data required could not all have been compressed into the questionnaire list it became burdensome to the respondents. Most interviews were held simultaneously with collection of questionnaires.

3.4.1.2.1 Advantages of personal interviews

(a) Personal interviews are useful to obtain detailed information about the subject under study as the research has more room to ask more questions and get answered.

(b) Response rate are higher than of questionnaires.

(c) Physical presence afforded the researcher a golden opportunity to confirm some of the answers provided on questionnaires thereby reducing prospects of ghost information.

3.4.1.2.2 Disadvantages of personal interviews

(a) The major drawback of an interview is the existence of the interviewer's influence. This may influence the way in which questions are going to be answered.

(b) The interviews are costly and time consuming.

(c) Interviews require good interpersonal skills to build some confidence and trust in the respondent.

3.4.2 Secondary data sources

Secondary data is the data that have been already collected by other researchers for particular purpose. Sources of secondary data consulted in this research include internet, textbooks, journals and research papers. This secondary data accounts much of the data used by the researcher especially in the literature review.

3.4.2.1 Internet

The internet was the main source of secondary data. As such, the data collection process was less time consuming, less costly, and more easily accessible than was the case with primary data.

3.4.2.1.1 Advantages of the internet

- (a) Some textbooks not available in the university library may be available online.
- (b) Information on internet is continuously updated giving the researcher a reliable and accurate source of data.
- (c) Internet provides a wide range of information on any subject under study.

3.4.2.1.2 Disadvantages of the internet

- (a) Some of the information on the internet is vulnerable to exaggeration by computer experts.
- (b) Some textbooks on the internet require subscription to access them.

3.4.2.2 Textbooks and Journals

Textbooks and journals are manuals of instruction or standard books and codes in any branch of study. Textbooks can be published in printed format and some are found online mainly known as electronic books or e-books. The researcher had to use different textbooks of agriculture insurance to be able to analyze the subject under study.

3.5 Data analyses and Presentation plans

Data analysis is the systematic process of applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data (Shamoo and Resnik, 2003). The researcher evaluated data using analytical and logical reasoning to examine each component of the data provided. Data from the farmers and non-life insurers was gathered, reviewed, and then analyzed to form a conclusion.

3.6 Summary

This chapter described the various methods that were used by the researcher to collect data that was needed to substantiate the main objective of the research, which was to analyze the uptake of agriculture insurance by farmers in Zimbabwe. Data was mainly collected from primary sources using interviews and questionnaires and from secondary sources using the

internet and textbooks. In the next chapter the researcher will be analyzing and presenting the data collected in this chapter.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.0 Introduction

The essence of this chapter is to present the data collected from primary and secondary sources and simultaneously undertake analyses in tune with the objectives of the research. The data collected will be presented using various tools such as tables, charts, graphs among them.

4.1 Questionnaire response rate

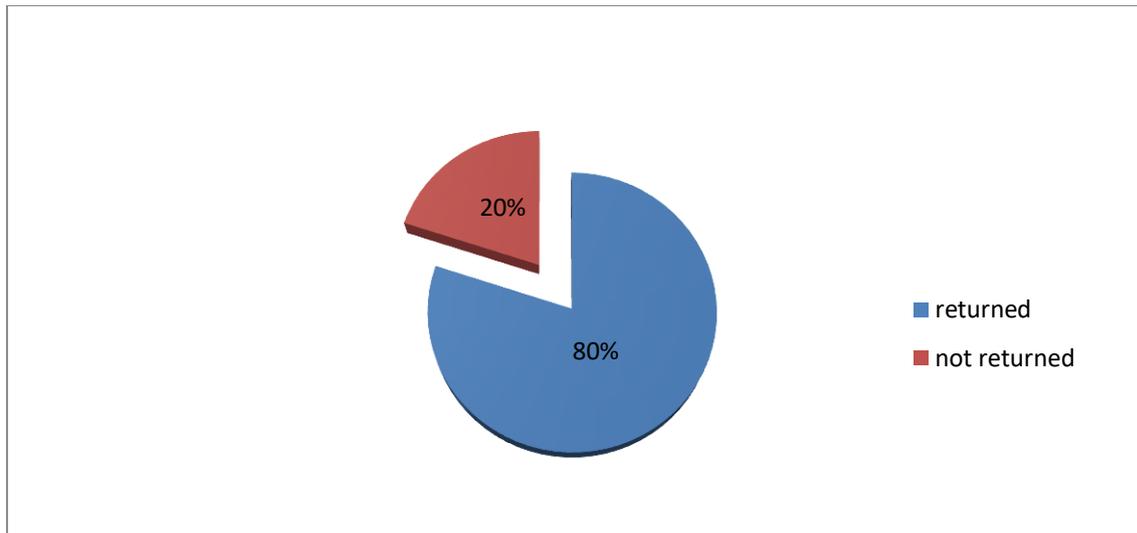
The researcher distributed 30 questionnaires; 10 of these were sent to non-life insurers, the other 10 to subsistence farmers and the last 10 were sent to small-medium scale commercial farmers. The response rate from all the groups was satisfactory. The table 4.1 below shows the level of response from the questionnaires. Out of the 30 questionnaires distributed 24 were returned giving a total response rate of 80%.

Table 4.1: Questionnaire response rate

Group of respondents		Questionnaires distributed	Questionnaires returned	% of response rate
Non-life insurers		10	9	90%
Farmers	Subsistence	10	7	70%
	Small-Medium scale commercial	10	8	80%
Totals		30	24	80%

Source: Primary data

Figure 4.1 Overall response rate analysis



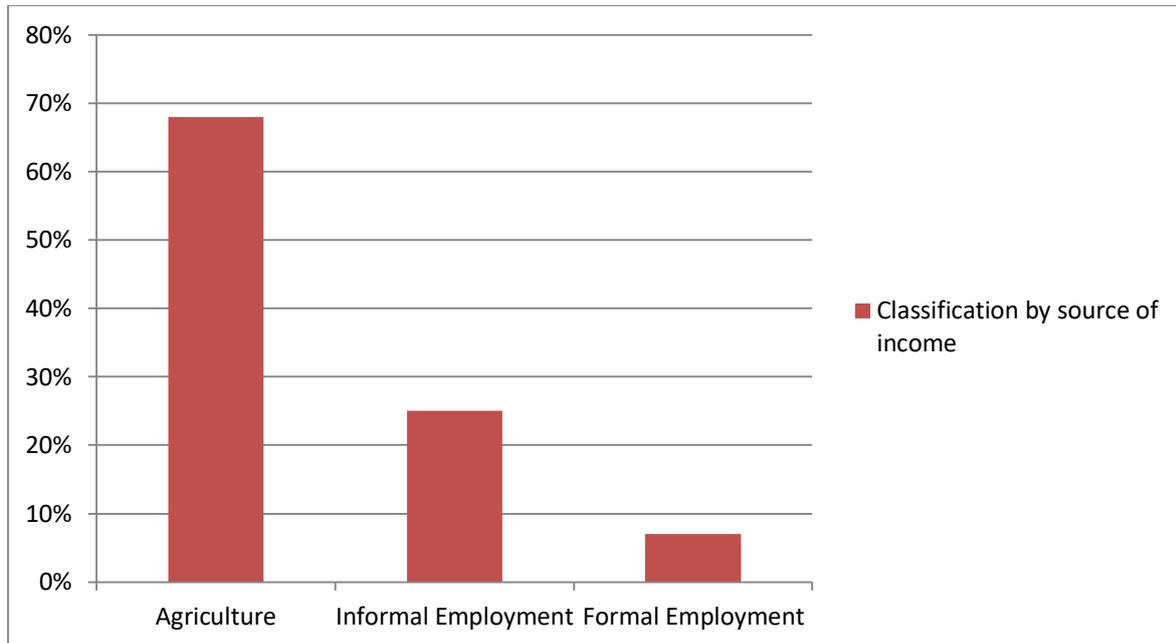
Source: Primary data

4.2 Analysis presentation and discussion of data

4.2.1 Sources of income for rural households

The question was asked to find out different ways used by the rural households to earn income. As illustrated in figure 4.2 below, agriculture constitutes 68%, informal employment 25% and formal employment contributes only 7%. This shows that agriculture is the major constituent of household incomes in rural areas. The risks inherent in agriculture, if not insured causes instability in the incomes of the farmers and their lifestyles too. The researcher gathered that households turn to informal employment (usually providing cheap labour in exchange for non-cash payments like food and clothes) in cases where agricultural productivity is poor. This is a sustenance measure. However, it creates precedence for poverty given that once the farmers commit their service elsewhere, they stifle production at their own farms and the cycle continues. Only a few households in rural areas were found to be in formal employment. The trend in Zimbabwe shows that the large population in rural areas consist of the ones that have retired from formal employment and those who have never worked in any job that is regarded as formal employment. This clearly shows the need for agriculture insurance to sustain agriculture production for socio economic development.

Figure 4.2: Sources of income for rural households



Source: Primary data

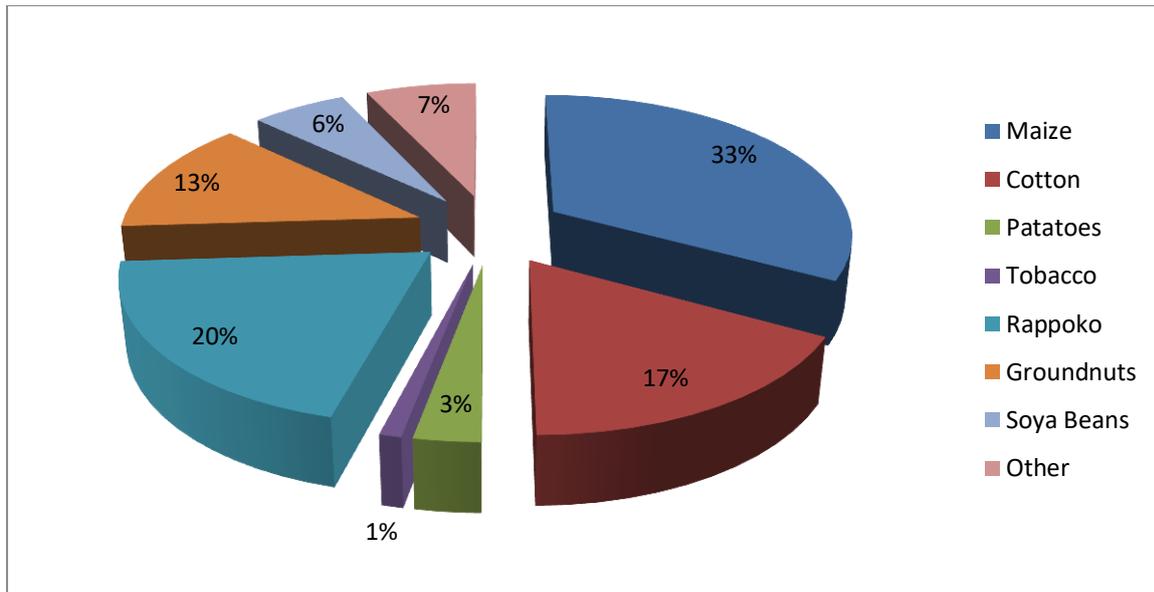
4.2.2 Orientation of agriculture as shown by crops grown

The question was asked to find out the type crops grown and the purpose of engaging in agriculture production by subsistence and small-medium scale commercial farmers as illustrated below.

4.2.2.1 Subsistence farming

The subsistence farmers grow crops or keep livestock mainly for consumption purposes. As shown in Figure 4.3 below maize (the staple food), rappoko and groundnuts constitute the bulk of crops grown and cotton was found to be the cash crop grown by most subsistence farmers. Other cash crops such as soya beans, tobacco and potatoes amount to a relatively small proportion. The implication is that when the risks that affect production of the food crops run, these households are most likely to be hunger-struck. More so, without adequate back up of alternative cash-generating activities, poverty reinforced with hunger deters investment in upward mobility activities such as education.

Figure 4.3: Types of crops grown by subsistence farmers

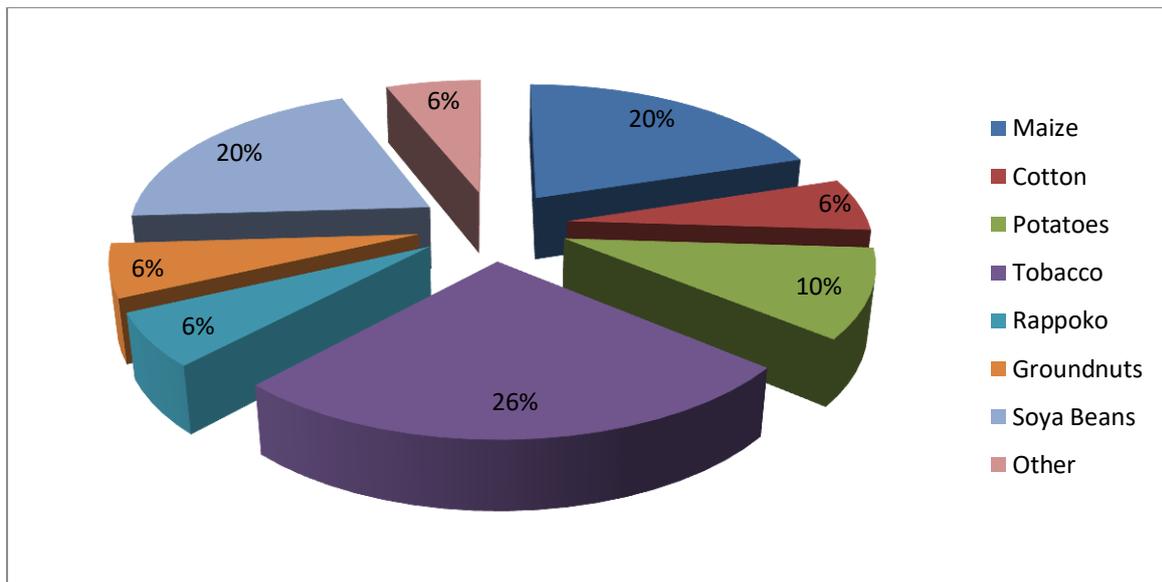


Source: Primary data

4.2.2.2 Small-Medium commercial farmers

The difference between subsistence farmers and small-medium scale commercial farmers is in the type of crops they grow, hence the main purpose of engaging in agriculture altogether. As shown in Figure 4.4 below the greatest proportion of the crops grown by small-medium scale commercial farmers is cash crops, with even the food crops intended for sale. The implication is that risks which affect the production of these crops deprive farmers of income and not only that, reinvesting in the successive seasons of farming is also disrupted and as a result the human welfare is greatly compromised.

Figure 4.4: Types of crops grown by small-medium scale commercial farmers



Source: Primary data

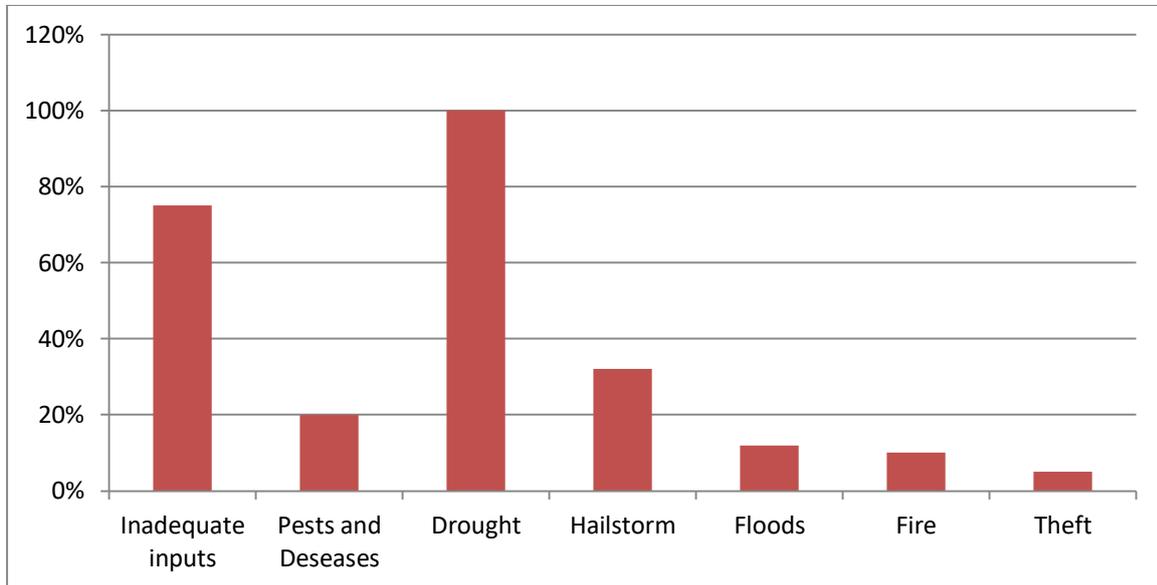
4.2.3 Risks affecting farmers

The question was asked to find out the risks that affect farmers in Zimbabwe. Farmers encounter a variety of risks in their production. 100% of farmers indicated that they had been affected by drought. Successive periods of erratic rainfalls experienced recently in Zimbabwe affected farmers adversely and as a result most farmers, for fear of large losses (due to rainfall shortages) cut down on acreage. 75% of the farmers cited that they had been affected by inputs shortages for instance seeds, fertilisers, pesticides, tractors when the agriculture season started and 32% of the farmers, whom most of them are tobacco growers had been affected by hailstorms. Hail affects other crops such as potatoes and tomatoes in Zimbabwe. 20% of the farmers indicated that they had been affected by pest and diseases outbreaks and 12% of the farmers had been affected by flooding. Lastly, 10% cited fire as one of the risks that have affected them and only 5% include theft as another risk which has affected them in the past. The resultant effect of all these risks if not insured is underdevelopment.

All the risks mentioned above are 'insurable', except the risk of shortage of inputs. However, insurers can have a very significant role in the mobilization of input suppliers to provide the required material on credit, cash included. In this case, agriculture insurance policies are held as the collateral upon which the creditors call on in case of fortuitous default by the farmer. Drought risk is now covered by weather index insurance but in Zimbabwe no insurance

company has yet considered offering this product only Econet has launched this product for farmers.

Figure 4.5: Risks affecting farmers

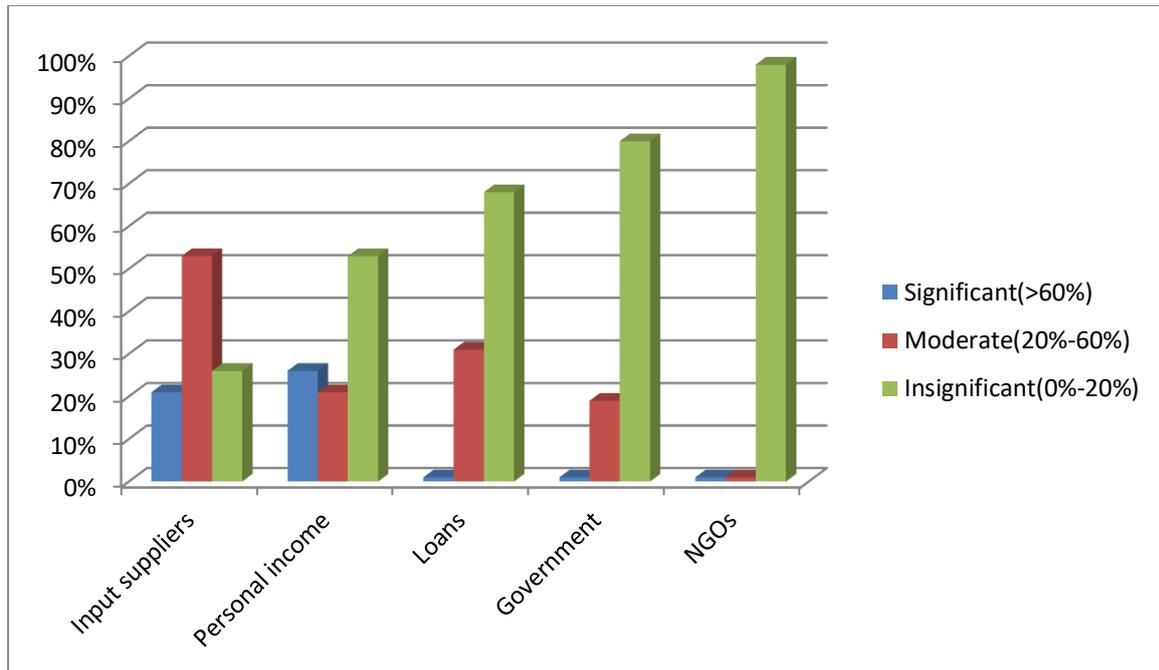


Source: Primary data

4.2.4 Sources of finance for funding agricultural production

The question was asked to find out sources of finance which are used by farmers to fund their agriculture production. Apart from revenue generated from the sale of farm proceeds, the farmers have no other reliable source of finance to enable an appropriate funding structure. The contribution of each means of funding agriculture is illustrated in Figure 4.6 below. The researcher gathered that farmers in Zimbabwe rely heavily on personal income to fund their agriculture production. Besides personal income farmers depend on input suppliers compared with other sources of finance mentioned here. Lack of collateral (agriculture insurance policies is the most common collateral required) deprives most farmers of access to loans from banks and other lending institutions. The government plays a limited role in funding and the same goes for non-governmental organizations whose contribution towards the funding is very paltry. The overall impact of the foregoing is that farmers are unable to utilize their full capacity hence under-production. Resultantly, the farmers are more prone to hunger and poverty among other adversities.

Figure 4.6: Sources of funding for farmers

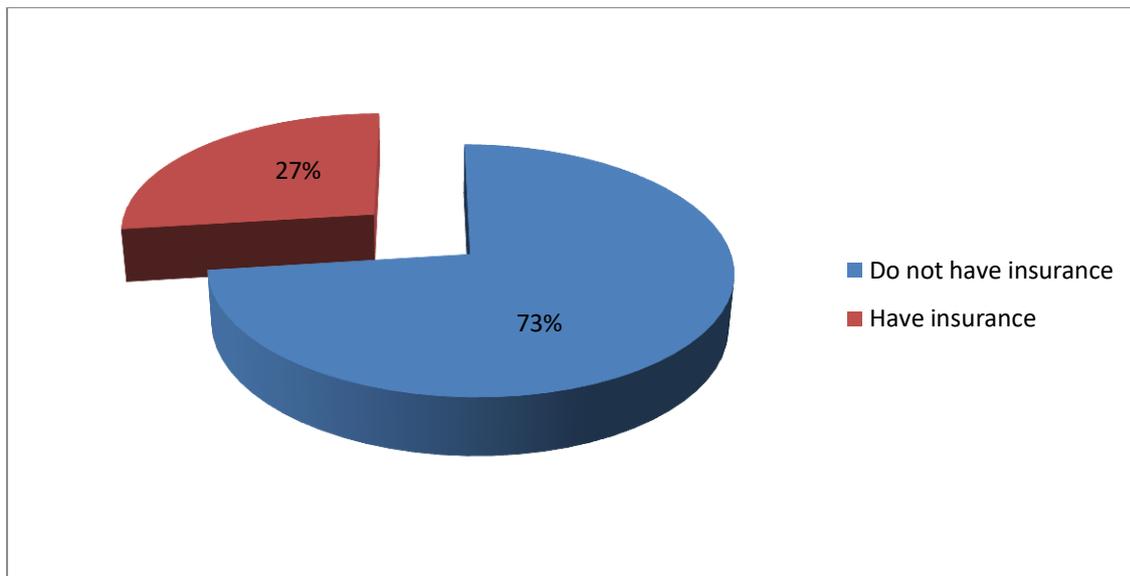


Source: Primary data

4.2.5 Uptake of agricultural insurance by farmers in Zimbabwe

The question was asked to determine the level of uptake of agriculture insurance by farmers in Zimbabwe. The researcher gathered that only a few farmers have insurance. More so, it was found that of these farmers who bought insurance there were no subsistence farmers meaning that production or income levels matters in the uptake of agriculture insurance. The Figure 4.7 below shows that only 27% of farmers in Zimbabwe have insurance 73% do not have insurance. The low uptake of agricultural insurance in Zimbabwe seems to validate earlier findings by Tsikirayi et al. (2013) that, farmers view insurance as an unnecessary expense rather an investment to curtail future risks, hence the low uptake.

Figure 4.7: Uptake of agriculture insurance by farmers



Source: Primary data

4.2.6 Agricultural insurance products offered in Zimbabwe

The question was intended to identify agricultural insurance products offered in the Zimbabwean insurance market. The researcher noted that there were a total of 20 operational non-life insurance companies registered with IPEC. Out of a sample of 10 non-life insurers, 8 insurers representing about 40%, currently provide agricultural insurance.

The researcher gathered that only ‘named peril’ insurance for the crops, livestock, farm implements and farm comprehensive cover are the forms of agricultural insurance provided in Zimbabwe as shown in the table 4.2 below. 90% of the insurers provide crop insurance in particular tobacco hail insurance. More so, tobacco hail insurance was found to be the most purchased cover and contributed the greatest percentage in the agricultural insurance portfolio. The researcher discovered that tobacco yields more revenue than other farming activities and farmers feel inclined to protect the crop. 73% of the insurers provide livestock insurance and 80% offer farm implements cover. Farm comprehensive cover comprises of crops, livestock, farm implements and other insurance needs of the farmer besides agricultural insurance was found to be offered by only 30% of the insurers in Zimbabwe. There was no insurer found to provide MPCI, index-based and revenue insurance in Zimbabwe. The researcher also gathered that even those insurers who offer agriculture

insurance only write small portion as compared to other general short term insurance products like motor, property or commercial insurance.

Table 4.2: Agricultural insurance products offered in Zimbabwe

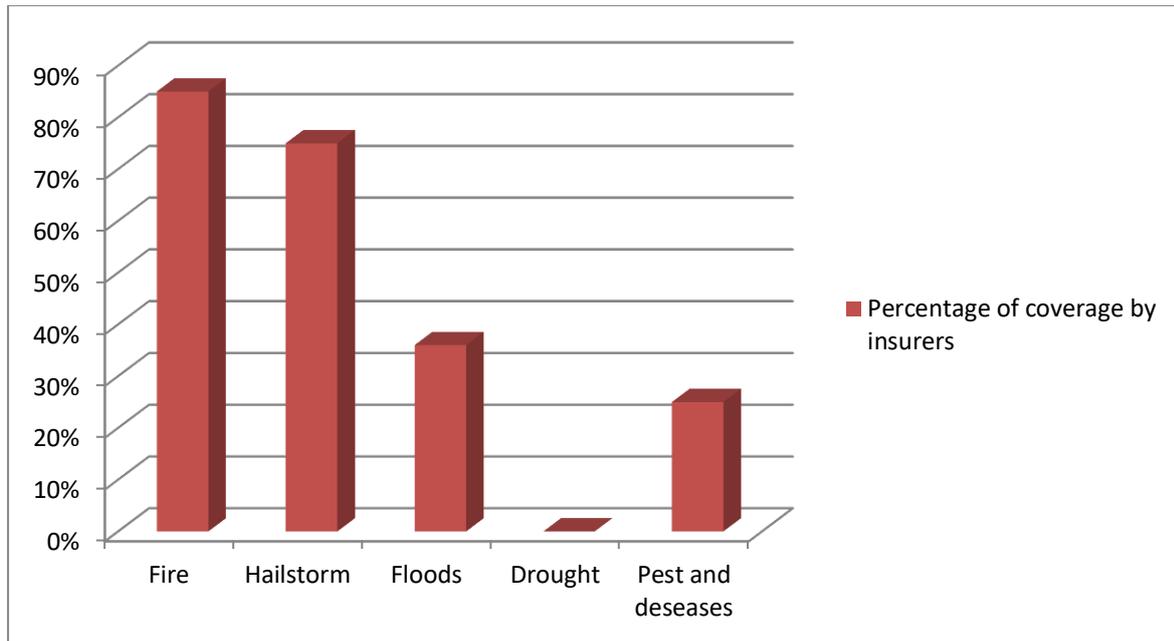
Insurance product	Percentage response (n=10)
Crops	90%
Livestock	73%
Farm implements	80%
Farm comprehensive	30%
Multiple peril crop insurance(MPCI)	0%
Index insurance	0%
Revenue insurance	0%

Source: Primary data

4.2.7 Agriculture insurance scope of cover

The question was intended to identify the risks covered by agricultural insurance policies offered by insurers in Zimbabwe. According to the survey, 85% of the policies cover fire risks in agriculture which ironically has the least frequency as compared to other risks affecting farmers. 75% of the policies cover hail risk but mainly for the tobacco crop (tobacco hail insurance) as mentioned earlier in this study and for other crops such as potato, tomatoes which are also affected by hail the cover is limited. 36% of the policies cover flooding risk and 25% cover pest and diseases. Pest and diseases affect the farmers quite severely yet coverage of these risks by insurers is scanty. Of great concern is that all agriculture insurance policies provided in Zimbabwe exclude drought risks which are very prevalent in Zimbabwe. The insurer's avoidance of drought risk impact heavily on the livelihoods of the farmers hence underdevelopment. Drought risk is now covered by weather index insurance in other countries.

Figure 4.8: Coverage of agricultural risks by insurers



Source: Primary data

4.2.8 The rationale for insurers limited scope of cover

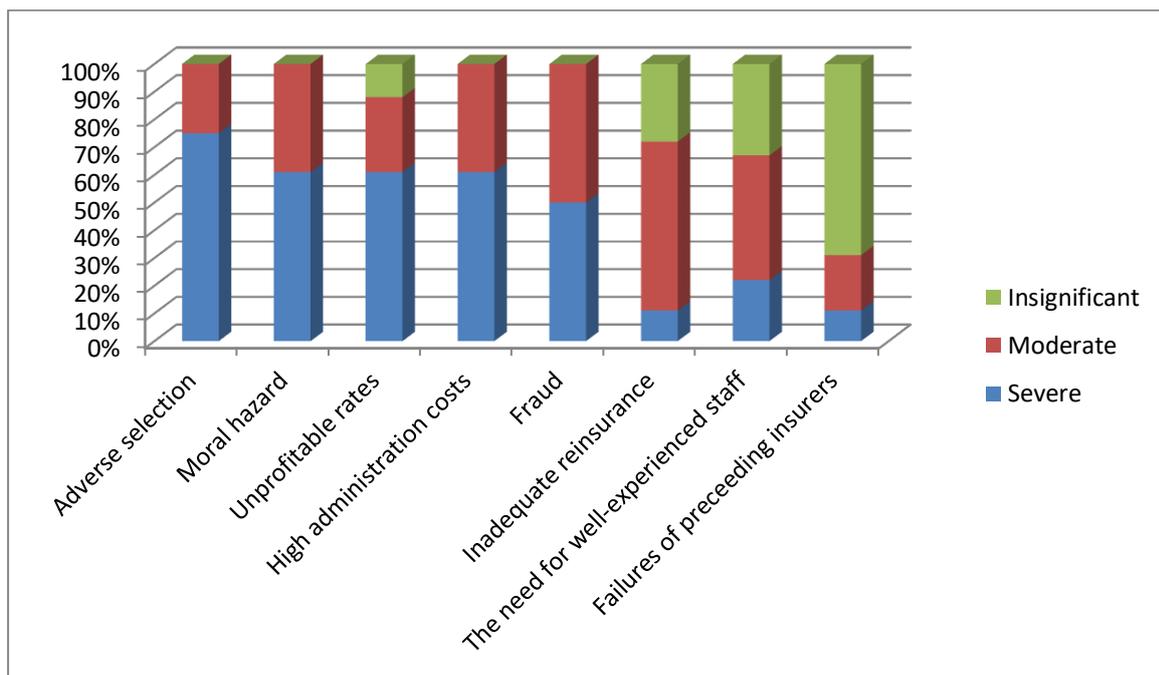
The question was asked to find out the factors that affect the underwriting of agriculture insurance business by insurers. The researcher gathered that agriculture insurance business is particularly associated with peculiar characteristics, most of which upset insurance principals altogether. The Figure 4.9 below shows the extent to which avoidance of this line of business by insurers is triggered by the following factors.

As illustrated in Figure 4.9, it can be deduced that it is not because of the limited or unavailability of reinsurance protection that insurers reject and/or exclude some risks in agriculture. Instead, the prevalence of adverse selection, moral hazard, high administration costs and high chances of fraudulent claims deters insurer's involvement in this line of business. The most common type of fraud in crop insurance is side-selling. More so, fraud is also very severe in livestock insurance where farmers have the tendency to lodge 'framed' claims knowing very well that insurers can barely prove otherwise. Another challenge mentioned was the need for field assessors who monitor the progress of the insured crops and livestock country-wide which makes the administration costs of traditional agricultural insurance products very expensive. Unprofitable rates were also mentioned by insurers as making the agriculture line of business unattractive. Soft market conditions undermine the

rates which insurers can charge and chances of profitability are slim. Some insurers mentioned the need for well-experienced staff in the field of agriculture for efficiency and effectiveness in underwriting as limiting the expansion of agriculture insurance market. Lastly, the avoidance of this line of business by other insurers was due to failures of proceeding insurers but only to a lesser extent.

Most of the challenges mentioned above are associated with traditional agricultural insurance products; however, innovative agriculture insurance products based on a certain index rather than loss measured in the field have developed to overcome all these challenges. Insurers in Zimbabwe have to consider adopting these new products to expand agriculture insurance market and fully protect farmers from risks inherent in agriculture.

Figure 4.9: Challenges which insurers encounter in writing agriculture insurance business



Source: Primary data

4.2.9 Constraints to the uptake of agriculture insurance

The question was asked to find out why farmers are reluctant to purchase agriculture insurance in Zimbabwe. 17% cited that they do not know about insurance and how it operates. In conjunction with this lack of knowledge, 13% cited that misunderstandings and lack of awareness have birthed negative perceptions about agriculture insurance altogether.

The purchasing of insurance by farmers in such instances is highly unlikely thus the need for rigorous marketing and awareness campaigns.

Another 13% of the farmers cited that poor uptake of agriculture insurance is caused by unaffordable premiums. This shows that premiums are beyond farmer's means, hence the low uptake of agriculture insurance. More so, the fact that premiums are high it means smallholder farmers are excluded since they cannot afford high premiums.

Furthermore, 12% of the farmers cited limited access to service providers or remoteness of farms from service providers as preventing high uptake of agriculture insurance. The issue of distance of the service providers from the farms limits accessibility of insurers by farmers or vice versa that leads to inefficient service delivery by insurers, hence creation of the service gap.

Another constraint cited by 11% of the farmers as preventing high uptake of agriculture insurance was dissatisfaction with the service delivery. The dissatisfaction indicated by farmers in this study was emanating from the late or non-payment of insurance when disaster strikes. This supports earlier findings by the Commodity Risk Management Group of the World Bank (2006) which showed that high uptake of an agricultural weather insurance policy in India resulted from quick pay-out of the policy and high awareness of policy features possessed by farmers that contributed to insurance satisfaction.

9% of the farmers also cited limited agricultural insurance products available as constraint to the uptake of agricultural insurance. For instance, farmers were complaining that there was no insurer who provides insurance cover against drought which was relevant to them among other agricultural insurance products. This supports earlier findings by Yusuf (2010), that lack of innovativeness in designing new relevant products impedes uptake.

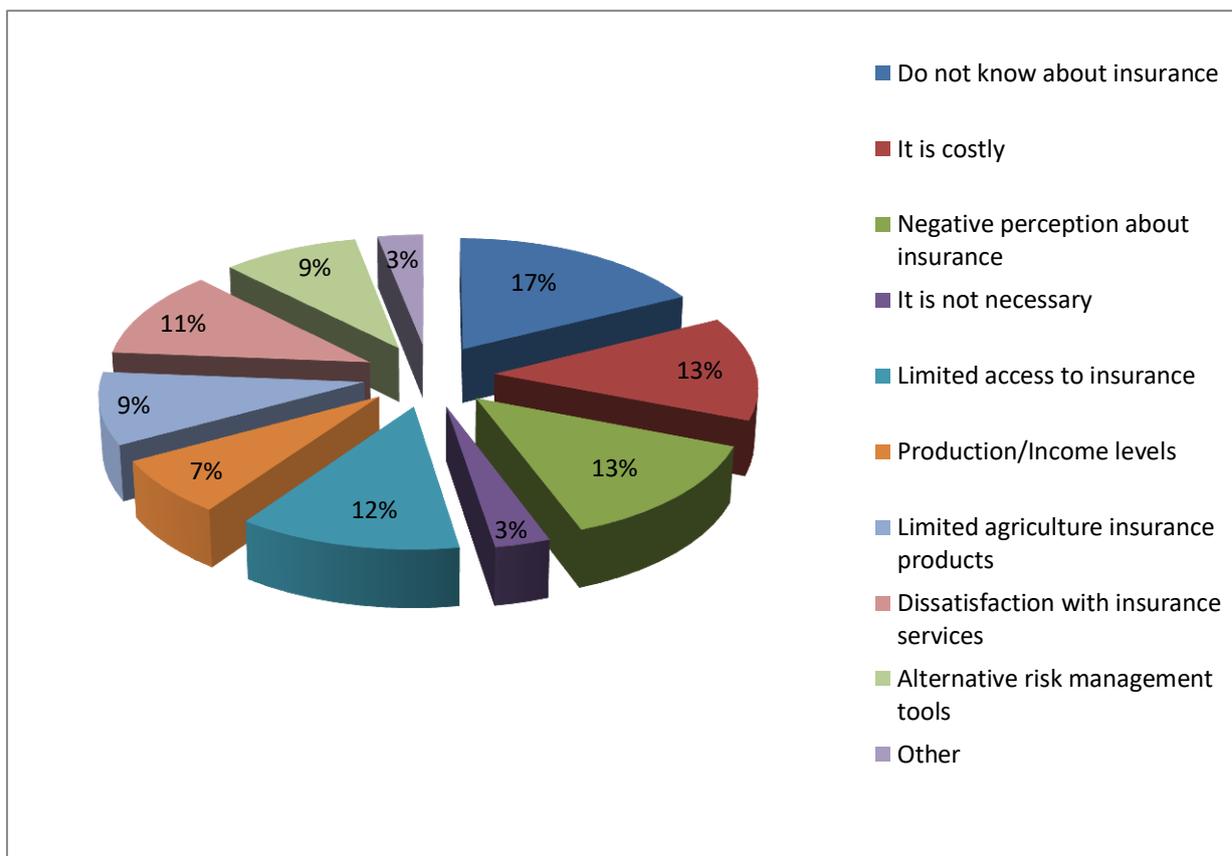
Alternative risk management methods were also cited by 9% of the farmers as preventing high uptake of agriculture insurance. The researcher gathered that besides agricultural insurance, the majority of farmers manage agriculture risks through diversification of farming activities. This supports earlier findings by Barnett et al. (1990) that diversifying agriculture operations as a risk management tool had a negative effect on insurance uptake. Formation of cooperatives and pooling of resources with other farmers were also mentioned as alternative risk management methods. The researcher further noted that for those farmers using

diversification as a risk management tool, they only took insurance on such lucrative crops as tobacco, while the other grain crops and livestock remain uninsured.

Lastly, 7% of the farmers cited production or income levels as preventing high uptake of agricultural insurance. True to this notion as no subsistence farmers was found to be insured or have purchased insurance in the past and there are the ones who said that insurance is not necessary during the research survey. High production or income levels force the farmers to take insurance as they fear that when the risk occurs they might be greatly affected.

The constraints to the uptake of agricultural insurance cited by insurers were similar to those mentioned above by farmers. The Figure 4.10 below summarises the constraints which prevents high uptake of insurance by farmers.

Figure 4.10: Reasons for not taking up agriculture insurance



Source: Primary source

4.2.10 Suggestions on how to improve the uptake of agriculture insurance

The question was asked to find ways to improve agricultural insurance uptake by farmers in Zimbabwe. The table 4.3 below shows suggestions given by both insurers and farmers to improve the uptake of agriculture insurance.

60% of farmers and 85% of insurers recommend that, farmer knowledge on the relevance of insurance should be improved through education, massive marketing and awareness. This view supports earlier findings by Baker (1990) and Commodity Risk Management Group of the World Bank (2006), on the positive correlation between farmer awareness and the uptake of crop insurance.

80% of the farmers suggest for the provision of affordable premiums on agriculture insurance products while for the insurers it is of no consequence. This clearly indicates how critical the cost component is to the uptake of agriculture insurance by farmers while for insurers high premium rates are welcome. This view is also supported by Babcock and Hart (2005); Ginder and Spaulding (2006); Shaik et al. (2005); Gardner and Cramer (1986) who agreed that there exist an indirect relationship between the cost of insurance and uptake.

On the issue of lack of innovativeness, 51% of the insurers mentioned research and development to develop agriculture insurance products that are affordable and meet farmers needs as vital in improving the uptake of insurance by farmers. This shows that insurers have realised that their limited portfolio may limit their business opportunities in the agricultural sector and thus need to be more market oriented.

56% of farmers and 36% of insurers suggest that locating insurance providers close to the farming community would improve insurance uptake through improved accessibility that leads to efficient service delivery by insurers. Furthermore, 27% of insurers and 37% of the farmers suggest that government intervention could help improve uptake of agriculture insurance by way of subsidies to the farmers. Subsidies make agriculture insurance premiums affordable to farmers when the government pays part of it thereby encouraging uptake especially of traditional agriculture insurance products- particularly MPCI.

33% of the insurers further suggested improvement in agricultural production as low agricultural production results in a narrow agricultural pool that does not give a basis for profitable underwriting business and affordable premium rates. More so, 27% of the insurers

also highlight the need for contractors to purchase insurance on behalf of the farmers to enhance uptake.

Lastly, 25% of the farmers suggested that fair and ethical practices (for example fair premiums, and claims settlement) by insurers would improve the uptake of insurance and only 17% of the farmers suggest cooperation between insurers and local institutions to improve uptake of insurance.

Table 4.3: Suggestions on how to improve uptake of agriculture insurance

Suggestion to improve uptake	% Response			
	Insurers	Rank	Farmers	Rank
Improving farmer knowledge and awareness on the importance of insurance in agriculture	85%	1	60%	2
Contractors to purchase insurance on behalf of farmers	27%	5	0%	-
Insurers to locate close to farmers	36%	3	56%	3
Increased agricultural production levels	33%	4	0%	-
Research and development (R&D)	51%	2	0%	-
Government intervention	27%	5	37%	4
Affordable premiums	0%	-	80%	1
Fair practices by insurers	0%	-	25%	5
Cooperation with local institutions	0%	-	17%	6

Source: Primary Data

4.12 Summary

This chapter gave an analysis and presentation of the research findings. From the research findings it has been established that agriculture, the main source of income for most households in rural areas, is ingrained with a host of risks that impede production and undermine socio economic development. Risk mitigation and loss coping measures undertaken by farmers have proved to be ineffectual. To counter the effects of some of these risks, agriculture insurance can be utilized as a component of a comprehensive risk management strategy.

CHAPTER FIVE

RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter the researcher is going to make the conclusions drawn from the findings of the research as well as theoretical and empirical literature and recommendations are made to address the constraints which prevent high uptake of agricultural insurance for socio economic development in Zimbabwe.

5.1 Summary of research findings

The researcher noticed that agriculture is the main source of income for rural households and the risks and constraints prevalent in agriculture are an impediment to production. The farmer's attitude towards agricultural insurance as a risk management strategy is relatively negative in Zimbabwe. Instead, farmers employ other risk management mechanisms such as diversification of farm activities, pooling of resources with other farmers and forming cooperatives which usually fall short of their purpose when disaster strikes. The result is that these farmers lack a formal and organized channel that enables them to effectively deal with the consequences of loss.

Meanwhile, the Zimbabwean agricultural insurance market is relatively shallow. The insurance companies, on the basis of protecting their technical result, specifically exclude risks that affect the farmers quite severely. However, the insurers show a keen interest in adopting new products and/or distribution channels which significantly facilitate development.

5.2 Conclusion

Agriculture, the major means of livelihood for the bulk of the population, is ingrained with a host of risks and constraints. In most instances, these risks and constrains fall outside the control parameters of the farmers or anybody else for that matter. It follows that losses and their consequences are inevitable. The resultant obstruction in agricultural productivity perpetrates variability in the incomes and consumption levels of the farmers. The households are thus susceptible to starvation, malnutrition and poverty, among other maladies. In essence, underdevelopment is knitted into the being of the society.

The farmers exhibit a high awareness of these risks and thus respond with both ex-post and ex-ante risk management strategies, which apparently fall short of their purpose. Despite the prevalence of threats and uncertainty, a culture of insuring against agricultural risks is uncommon among the farmers. Consequentially, the high levels of uninsured risks borne by the farmers have a telling effect on their livelihood. The long term wealth structure of these households is disrupted altogether.

Agriculture insurance is one intercept of the consequences of farming-related losses. A well-structured agriculture insurance scheme can provide adequate protection to the farmers such that the impact of risks is less severe on their livelihood. In the Zimbabwean market however, the scope of cover provided in agricultural insurance policies is generally limited. Insurers attribute this tendency to undesirable characteristics associated with agriculture insurance; adverse selection, moral hazard, fraud and high administration costs chief among them. The resultant uneconomic loss ratios deter insurers from providing comprehensive cover. Major risks are excluded from most policies. This may defeat the purpose of and motivation for taking up agriculture insurance altogether.

Innovative agriculture insurance products such as weather index insurance, agriculture micro insurance have filtered into international markets. The local insurers' willingness to adopt these products foreshadows redemption of the mismatch between risks encountered by farmers and the agriculture insurance products offered on the local market. These products particularly address the reservations which both the insurers and the farmers have with traditional agriculture insurance products. Moreover, both weather index insurance and micro insurance are development oriented. As such they are instrumental in forging the way of attaining socio economic development.

5.3 Recommendations

In order to improve the uptake of agricultural insurance in Zimbabwe the following recommendations need consideration.

5.3.1 Recommendations to the insurance industry

The researcher recommended insurers to embark on campaigns that impart to farmers knowledge on the importance of agricultural insurance on farm operations and insurance products and how the insurance market operates in general. This exercise would go a long way in neutralizing the negative mentality that most farmers have towards agricultural

insurance. Additionally, an educated demand populace is well positioned to make informed decisions which add value to their lives. An effective for agriculture insurance products is thus created.

Furthermore, the researcher recommends that the local insurers invest in new product development initiatives. Rather than adopt generic products from the international markets, the insurers ought to fine-tune the policies so that they suit the unique circumstances of the local target population. In light of this argument, extensive research has to be conducted so as to ascertain the specific needs and wants of the farmers. Thereafter, the insurers are in a better position to craft consumer-centric products which match with and appeal to the farmers.

More so, for agriculture insurance to be effective in combating the financial consequences of loss hence foster socio economic development, it ought to be offered as part of a package, rather than in isolation. In this sense, the insurers have to partner with other participants in the agricultural value chain. These include credit suppliers (banks and other lending institutions), input providers and the direct buyers of agricultural products (tobacco auction floors, breweries or other manufacturers). For agriculture insurance to deliver value to the farmers, it has to be a complementary service attached to these products/services. The recommendation therefore is for the insurers to act as the conduit between the farmers and the other providers of agricultural services.

On the issue of accessibility the researcher recommended that insurers should locate closer to their market and increase their branch network, especially in agricultural thriving areas, to enhance service delivery. In addition, regular farm visits are important to reinforce the education of the farmers. This further enhances data collection to facilitate the selection of the right candidates for efficient agricultural underwriting and reduce moral hazard through effective monitoring.

Lastly, the researcher recommended that communication and interaction between insurers and farmers should be improved for effective insurance delivery and uptake. This can be achieved through frequent farm visits, meetings, workshops, or field days. Insurers should solicit feedback from farmers on a continued basis to consistently meet customer needs. This can be done through customer surveys, suggestions, complaints systems and customer focus groups.

5.3.2 Recommendations to the government

The very first recommendation is that the government should enact legislation and effectively regulate players in the insurance sector to promote fair practices and protect farmers against exploitation. In Zimbabwe the government regulate insurance industry through IPEC.

More so, the researcher recommended that the government should provide financial aid to agricultural insurance to promote socio economic development. Ideally, premiums in agriculture insurance are so high that the majority of farmers cannot afford them especially smallholder farmers. The government can therefore subsidize premiums in this line of business. Simultaneously (or alternatively), the government can be the reinsurer for losses that exceed a stipulated amount. This can be structured much the same way as the Disaster Response Product (a social safety net product financed by the government) in Mongolia. Such an arrangement would attract insurers to participate because their capital and reserves are less exposed to huge losses.

The government can invest in activities aimed at growing the agriculture insurance market. This can be done by funding the extensive marketing schemes and awareness campaigns aimed at educating the farmers and prospective policyholders. Furthermore, financial assistance is needed to facilitate research in the field of agriculture insurance. In this way, competitive products are developed for the good of both the insurers and the farmers.

In addition to financial support, the government can also facilitate development by creating an environment conducive to agriculture insurance operations. For instance, the removal of legal and regulatory barriers that prohibit the development of new agriculture insurance products and distribution channels is crucial.

5.4 Recommendations for further study

Evidence from theoretical and empirical literature has shown that index based insurance particularly weather index insurance and agriculture micro insurance make up part of the additions to the agriculture insurance product range. Further study is recommended with regards the feasibility of adopting these products in Zimbabwe for socio economic development.

5.5 Summary

This chapter presented the conclusions made from the research findings and recommendations by the researcher were presented which are hoped to improve the uptake of agriculture insurance for socio economic development in Zimbabwe.

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APPENDIX 1



MIDLANDS STATE UNIVERSITY

FACULTY OF COMMERCE

DEPARTMENT OF INSURANCE AND RISK MANAGEMENT

Date..../..../2016

To Whom It May Concern:

Dear Sir/Madam

Ref: Request for information on a research

My name is Topoya Trevor (Registration Number – R132427Y). I am a student at the Midlands State University in Gweru, studying for a Bachelor of Commerce Honours Degree in Insurance and Risk Management. I am currently undertaking a research project for my final year entitled “AN ANALYSIS OF THE UPTAKE OF AGRICULTURAL INSURANCE SERVICES BY THE AGRICULTURAL SECTOR FOR SUSTAINABLE SOCIO ECONOMIC DEVELOPMENT IN ZIMBABWE” To this end, I intend to collect data by use of the attached questionnaire which I kindly ask you to complete. I guarantee you that all information will be used for purely academic purposes and confidentiality shall be maintained.

Should you require more details about the researcher, you are free to contact the Chairperson of the Department of Insurance and Risk Management; Mr. F. Makaza on his mobile number, 0774 620 669 or email makazaf@msu.ac.zw.

Your co-operation will be deeply appreciated.

Yours sincerely

.....

Topoya Trevor.

0779 437 170

ttopoyajunior@gmail.com

APPENDIX 2

Questionnaire for Insurers

Current Position Held in the organisation.....

1. Do you write agriculture business?

Yes

No

1.1 If yes, what agriculture insurance products do you offer?

Crops

Livestock

Farm implements

Farm comprehensive

Multiple peril crop insurance (MPCI)

Weather index insurance

Revenue insurance

Other

If other (specify).....

1.1.1 Do the policies cover the following risks?

Hailstorms Drought Floods Fire Pests and Diseases

1.2 If no, to what extent is your avoidance of this line of business influenced by the factors listed below?

	Larger extent	Moderate extent	Insignificant extent	None
High administration costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prevalence of moral hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prevalence of adverse selection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fraud (claims)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Limited support from reinsurers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The need for well-experienced staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Failures of preceding insurers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unprofitable rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If other (specify).....

3. Would you consider offering Agricultural Micro-Insurance products?

Yes No

4. What do you think are the constraints to the uptake of agricultural insurance?

.....

.....

.....

.....

.....

5. What strategies did you implement to improve the uptake of agriculture insurance by farmers?

.....

.....

.....

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.....

.....

6. What would you suggest to improve the uptake of agriculture insurance by farmers?

Suggestion to improve uptake	
Improving farmer awareness on the importance of insurance (education, marketing, and so on)	<input type="checkbox"/>
Contractors to purchase insurance on behalf of farmers	<input type="checkbox"/>
Insurers to locate close to farmers	<input type="checkbox"/>
Increased agricultural production that provides an agricultural pool to form the basis for affordable premiums	<input type="checkbox"/>
Research and development to develop insurance products that are affordable and meet customer needs	<input type="checkbox"/>
Government intervention	<input type="checkbox"/>
Affordable premiums	<input type="checkbox"/>
Fair practices by insurers	<input type="checkbox"/>
Cooperation with local institutions	<input type="checkbox"/>

If other, specify.....

APPENDIX 3

Questionnaire for Farmers

1. Which crops do you grow?

Maize <input type="checkbox"/>	Groundnuts <input type="checkbox"/>
Beans <input type="checkbox"/>	Rappoko <input type="checkbox"/>
Tobacco <input type="checkbox"/>	Potatoes <input type="checkbox"/>
Cotton <input type="checkbox"/>	
Other <input type="checkbox"/>	

If other (specify)

2. Are you a member of any farming group (association or cooperative)?

Yes No

3. The following are challenges faced by farmers. Identify the ones that affect you and rate the effect that these have on your farming activities.

	Severe	Moderate	Minor
Shortage of inputs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pests and diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inadequate rainfall (drought)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hailstorms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flooding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify in space below)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

4. Listed below are some of the sources of funds which farmers rely on. To what extent does each of these sources contribute towards financing your farming activities?

	Significant (>60%)	Moderate (20%-60%)	Insignificant (<20%)
Loans from banks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal income	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Government aid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NGO donations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Input from suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On credit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. What is your main source of income?

Formal employment Agriculture Informal employment

If other, specify

6. Do you have insurance cover for your crops or livestock or farm implements?

Yes No

6.1 If you answered no, what is the reason?

- It is expensive
- Negative perception about insurance
- Limited access to insurance services
- Do not know about insurance and how it operates

- It is not necessary
- Production/Income levels
- Limited agriculture insurance products
- Dissatisfaction with insurance services
- Alternative risk management tools (diversification, cooperatives)
- Other (specify).....

7. What would you suggest to improve the uptake of agriculture insurance?

Suggestion to improve uptake	
Improving farmer awareness on the importance of insurance (education, marketing, and so on)	<input type="checkbox"/>
Contractors to purchase insurance on behalf of farmers	<input type="checkbox"/>
Insurers to locate close to farmers	<input type="checkbox"/>
Increased agricultural production that provides an agricultural pool to form the basis for affordable premiums	<input type="checkbox"/>
Research and development to develop insurance products that are affordable and meet customer needs	<input type="checkbox"/>
Government intervention	<input type="checkbox"/>
Affordable premiums	<input type="checkbox"/>
Fair practices by insurers	<input type="checkbox"/>
Cooperation with local institutions	<input type="checkbox"/>
Other	<input type="checkbox"/>

If other, specify.....

APPENDIX 4

Interview Guide for Insurers

1. What agriculture insurance products do you offer?
2. What challenges do you encounter in writing agriculture business?
3. Would you consider offering agricultural micro-insurance products?
4. What do you think are the constraints to the uptake of agricultural insurance?
5. What strategies did you implement to improve the uptake of agriculture insurance by farmers?
6. What would you suggest to improve the uptake of agriculture insurance by farmers?

APPENDIX 5

Interview Guide for Farmers

1. Which crops do you grow?
2. What risks do you face in farming?
3. Are you a member of any farming group (association or cooperative)?
4. What is your main source of income?
5. Do you have insurance cover for your crops or livestock or farm implements?
6. What are your reasons of taking up insurance or not?
7. What do you think are the constraints to the uptake of agricultural insurance?
8. What would you suggest to improve the uptake of agriculture insurance?