

Why Farmers in Semi-Arid Regions Do Not Insure their Livelihoods against Drought

Moses Mwangi

South Eastern Kenya University

ABSTRACT

Despite the potential benefits of livelihood insurance in helping farmers in the semi-arid regions adapt to drought risks, its uptake remains limited. This paper shares findings from a study carried among the agro-pastoralists inhabiting the Kyatune-Ikanga Ward of Kitui County, Kenya. The study sought to establish the level of awareness and embracement of livelihoods insurance among the small holder farmers and the accrued benefits. 45 households were surveyed in February 2025 and data collected through face-to-face interviews using a semi-structured questionnaire. The results show that more than half of the farmers were unaware of livelihoods insurance. Logit regression results show that education, herd size, access to a bank, weather information, and drought experience positively influence awareness and adoption of livelihoods insurance. In addition to low awareness, the main barriers to adoption are lack of knowledge about the effectiveness of insurance, difficulty in affording insurance, and farmers' low level of trust in insurance providers. Late payment of claims and inadequate compensation were the main challenges faced by adopters of livelihoods insurance. The study contributes to understanding of the drivers of awareness and adoption of livelihoods insurance. It adds to knowledge and insights for policy to help in the design and implementation of sustainable livelihood insurance as a key part of drought adaptation strategies. Raising awareness and helping farmers to assess the effectiveness of livelihood insurance, as well as developing a supportive institutional environment, are recommended for embracement to help to build a well-functioning insurance market.

Keywords: Awareness, barriers, embracement, adoption, trust, compensation.

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1.0 Introduction

Farmers in the semi-arid regions face multiple risks from droughts with some of the resultant effects being depressed livestock productivity, lowered crops and plants yields and destruction and, disease outbreaks. As a result, the moisture-absent period risks are burdensome

particularly for the inhabitant smallholder farmers who are largely dependent on land productivity. In addition, the smallholders tend to have very limited access to formal financial services, which increases their vulnerability to drought risks that manifest in slow social and economic development and poverty. With the climate change trend, the adverse effects of drought are

expected to continue, leading to production losses in the semi-arid areas, jeopardizing the achievement of the country's Vision 2030 and the global Sustainable Development Goals, particularly Goal 1 that aims to contribute to eradicate extreme poverty and hunger, and Goal 7, that has the goal to ensure environmental stability.

Livelihoods insurance against drought is one of the risk management strategies available to make the livestock system more resilient. It helps farmers to insure against the impacts of yield and income variability (Di Falco *et al.*, 2014). Payments from an insurer improves the farmers' ability to make the necessary investments to adapt or maintain production strategies and facilitate adaptation when bundled with new technologies (Elabed *et al.*, 2013), making insurance have a positive impact on the resilience of livestock keepers thus enhancing food security and household consumption (Biglaria *et al.*, 2019); FAO, 2021).

Insuring livestock against drought encourages risk-averse farmers to adopt riskier adaptive innovations that promise higher yields and incomes. In this way, insurance stimulates innovation and development, not just protection against failure (Hansen *et al.*, 2017). Some studies highlight the negative impacts of using agricultural insurance, such as over-reliance on insurance that may slow the adoption of other climate risk adaptations (Collier *et al.*, 2009). In addition, the price of premiums may increase as climate risk increases, while farmers become dependent on insurance payouts without making efforts to adapt to the changing environment. Thus agricultural insurance itself may lead to moral hazard (Tadessa *et al.*, 2015; Collier *et al.*, 2009; Budhathoki *et al.*, 2019). However, these negative effects are usually outweighed by the positive benefits (Cole & Xiong, 2017).

Because of the potential benefits, agricultural insurance has been recommended and promoted by intergovernmental organizations as one of the preferred climate change adaptation strategies (ARC, 2023; IPCC, 2018; IPCC, 2019). Training and technical assistance have been provided to climate change stakeholders such as ministries of environment and agriculture, banks, insurance companies and brokers, farmer groups, and policymakers, to enable them to design local policies that create the institutional environment for well-functioning agricultural insurance markets (ARC, 2023; IWMI, 2021).

Kenya's agricultural sector faces rising vulnerability to climate change impacts, including droughts, erratic rainfall, and other climate-related disasters that threaten livelihoods. Climate risk and crop insurance are seen as essential protections for farmers. Kenya has also included insurance among its agricultural climate change adaptation strategies through the launch of a climate risk insurance component integrated into the National Fertilizer Subsidy Programme.

This initiative aims to protect smallholder farmers from climate-related shocks such as droughts and floods. However, challenges exist that need to be addressed for the insurance solutions to effectively take root in the country (CRIK, 2024). Despite support to stakeholders and the potential benefits of insurance to farmers, there has been low patronage and adoption of agricultural insurance in the country. Literature from other countries reveal a similar situation (Biglaria *et al.*, (2019) Budhathoki *et al.*, 2019); Oduniyi *et al.*, 2020).

There is a consensus that awareness of insurance is a prerequisite and the first stage of its adoption (Daberkow & McBride, 2003). The required processes are influenced by information channels as postulated by diffusion of innovation theory (Rogers, 2003). Farmers' financial capabilities may also influence their adoption behaviour, highlighting the role of wealth, such as income, livestock ownership and other assets, as depicted by resource-based theory (Below *et al.*, 2014).

Research shows that farmers who experience climate-related natural disasters and extreme weather events are more likely to be aware of and purchase insurance (Floyd *et al.*, 2000). The protection and motivation theory explanation is that as the need and necessity to offset the effects of emerging climate-related threats such as drought increases, farmers will seek new knowledge and techniques to help them overcome constraints.

This study examined the awareness and adoption of livelihoods insurance by small-scale farmers in the semi-arid regions whose social and economic practices are dominated by agro pastoralism. It attempted to establish the i) variables influencing awareness and adoption of livelihoods insurance, ii) drivers of awareness and adoption of insurance as a drought risk adaptation strategy, iii) determinants of awareness of livelihoods insurance, iv) contributing factors to adoption of livelihoods insurance, and v) challenges faced by livelihoods insurance adopters

2.0 Study Methodology

2.1 Study area

The Kyatune-Ikanga Ward is a semi-arid zone and lies to the south of Kitui County in Kenya. The rainfall received is usually scarce and unreliable posting an annual average of 680 mm. The wettest months are November and April. The Ward has a landmass of 492 km². The area faces heavy land degradation largely due to human activities. The hydrology of the ward is dominated by the two seasonal rivers of Tiva and River Nzeeu and their tributaries. Harvesting of the water while flowing in the Ikanga-kyatune ward is manifested in seasonal wells and sand dams. The area becomes dry immediately after the rain stops, pushing the water table down, making it hard for plants to access water. With the increased frequency and severity of drought in the Ikanga-kyatune Ward, awareness about the negative impact of climate change is growing. Many people have already witnessed the change in the climate and its consequences on their lives, livelihood and the environment. The formation and activation of the area Climate Change Planning Group and the Resilience Champions team attest to the realization. Both have the vision focused on mobilizing the inhabitants towards building local resilience as the first line of defense against climate change impacts, the recurring droughts being top in the list.

2.2 Data collection

A total of 45 respondent households were randomly selected for quantitative structured questionnaire survey in the three sub locations of Kyatune, Vote and Ndatani. Face-to-face interviews were conducted by the authors to obtain primary data with the help of 2 trained local enumerators using google forms. The interviews were conducted in English Kiswahili local or languages (Kamba). The latter two were translated into English. The semi-structured questionnaire consisted of questions on household head characteristics, farm and institutional characteristics, drought risks experienced in the past 10 years and livelihoods insurance information.

2.3 Data analysis

Two multivariate logistic regression models were used to analyse the variables influencing farmers' awareness, and their use of livelihoods insurance. Multicollinearity was tested using correlation analysis. In addition, the

Variance Inflation Factor (VIF) was used to test for multicollinearity among the remaining variables recommended by [Akinwande et al., \(2015\)](#). Both awareness and adoption of agricultural insurance fall into two categories: aware and unaware (awareness) or adopters and non-adopters (adoption). Since the dependent variables are binary in nature, the logistic regression model was found appropriate for the analysis ([Stoltzfus, 2011](#)).

3.0 Findings and Discussion

3.1 Variables influencing awareness and adoption of livelihoods insurance

Awareness of livelihoods insurance is identified to be influenced by a number of factors. Adaptation to drought invites adjustment of livelihoods systems in response to actual and expected drought stimuli and conditions, in order to avoid or reduce associated risks or to exploit potential opportunities. Household decisions on whether to insure their livelihoods are considered within the general framework of utility or profit maximization. It is assumed that farmers will use livelihood insurance only if the perceived utility or net benefit of using it is significantly higher than the cost. In this context, the farmer's expected utility is not observable, but the economic agent's behaviour can be observed through the decision to insure or not to insure ([Bryan et al., 2013](#); [Di Falco et al., 2011](#); [Mendelsohn, 2000](#)).

Awareness of livelihoods insurance as a drought risk mechanism was found to be influenced by gender, farm size and level of education and membership in a farmers' cooperative similar to what [Ghazanfar et al., \(2015\)](#) and [Olila & Pambo 2014](#)) found in their studies. Access to credit was reported to influence awareness of livelihood insurance with banks being one of the intermediaries in insurance market design and proxies for access to credit and insurance information.

Female farmers were more likely to adopt livelihoods insurance than their male counterparts, an aspect also reported in [Chand et al., \(2016\)](#). Age was found to affect the adoption of livelihoods insurance with the middle aged seemingly to be more willing to venture into it. The average age of adopters is 42 years compared to 54 years for non-adopters, which may have an impact on farmers' awareness and adoption of livelihoods insurance. Most (90%) of the adopters have access to weather

information, which is significantly higher than 59% of non-adopters. Education influences was high in willingness to adopt of livelihood insurances. The educated have the advantage of being able to understand written information from banks, insurance brokers and agents, and in assessing the potential benefits of using agricultural insurance which influence farmers' awareness and decision to use livelihoods insurance. The more years of being in froma education, the more the willingness to insure livelihoods. Experiences in livestock rearing or crop growing was found to influences the adoption of insurance, the reason discerned being the dependency built from the practice for household sustainability. The more proactive nature of the experienced farmers in insuring their farms against anticipated drought extremes is contrary to suggestions in the theory of protection motivation (Floyd *et al.*, 2000).

3.2 Drivers of awareness and adoption of insurance as a drought risk adaptation strategy

People in drought-prone semi-arid areas often do not take out insurance against drought effects due to a variety of factors that gravitate around affordability issues, a lack of trust in insurance providers, limited understanding of insurance products, and the prevalence of traditional coping mechanisms (Table 1). The communities employ

a diverse array of traditional social insurance mechanisms to mitigate the impacts of drought and climate variability. These practices are deeply embedded in their social structures and cultural norms. Key social insurance strategies include reciprocity and communal support which is the foundation of rural social insurance. A strong system of reciprocity has households sharing resources like food, livestock, and labor during times of need, with the expectation that the favor will be returned later. This informal safety net ensures that the most vulnerable members are not left without support.

Many households maintain traditional granaries and storage pits to stockpile surplus harvests during good years, providing a crucial buffer for consumption during lean periods caused by drought. Extensive kinship and clan networks provide support, allowing individuals and sometimes entire families to temporarily migrate to areas less affected by drought, where they can rely on relatives for food and shelter until conditions improve in their home areas. People often engage in a mix of farming, livestock rearing, and off-farm activities such as casual labor, craft production, or gathering wild foods. This diversification reduces reliance on a single income source and helps them manage risk for the survival and resilience of the communities in the face of environmental challenges.

Table.1 Reasons for Low Droughts Insurance Uptake

Factor		[N=45]
1.	Affordability and Financial Constraints	39
2.	Lack of Trust and Assurance	26
3.	Limited Awareness and Understanding	32
4.	Basis Risk	25
5.	Reliance on Traditional Methods	36
6.	Product Design Issues	36
7.	Perception of Government/Donor Aid	24
8.	Logistical and Infrastructural Challenges	22

The factors highlight that the decision not to take insurance is influenced by a complex mix of economic, behavioral, and structural challenges. There is often a low level of awareness about livelihoods insurance as a risk management tool, and many farmers do not fully understand how the products or compensation mechanisms work. Households are of the opinion that the insurers have complex and confusing language which is a significant barrier to the understanding and adoption of

livelihood insurance products. The lack of clarity often leads to low trust, a no-understanding problem, and surprises at the claims stage.

To address this issue, farmers recommend livelihood insurance vendors to take several steps to popularize and clarify insurance language. The region is inhabited by smallholder farmers who are cash-constrained and operate on narrow margins, making insurance premiums

a significant financial burden they often cannot afford. On the other hand, there is existence of a major barrier that manifests in the fear that insurance companies do not honor contracts or that compensation will be inadequate or delayed. Past experiences with failed payouts have contributed to this trust deficit. Part of the problem is traced to the mismatch between the insurance index and the actual losses experienced an individual farmer on their specific land parcels. Consequently, if a farmer suffers a loss but the general index threshold isn't met, they don't receive a payout, which discourages participation. A majority of the households rely on established traditional coping mechanisms, such as selling livestock, using savings, relying on community support networks, or diversifying crops/income, rather than adopting new, unfamiliar insurance products. In some cases, farmers expect ex post (after-the-fact) disaster relief from the government or NGOs, which can reduce the perceived need to invest in ex ante (pre-disaster) insurance.

Some available insurance products are not tailored to local needs or lack the flexibility to account for variations in local farming practices or micro-climates, making them seem less valuable to farmers. Insurance vendors complain that the rurality and the distance from the conventional insurance offices to the farmers are vast and characterized by remoteness, poor infrastructure. Extensive insurance paperwork make it difficult for insurance providers to reach the farmers and for the farmers to access services and file claims. More than half of the farmers surveyed are not aware of livelihoods insurance as a drought risk management strategy. Only 9% of the households have adopted livelihoods insurance. The many (71%) of the farmer households are unaware of livelihoods insurance, they cannot be interested in it and do not evaluate the benefits and costs, including the reduction of uncertainty for households. The farmers who are aware still struggle to understand the potential welfare effects and have low levels of trust in insurance providers, which discourages them from investing in insurance.

3.3 Determinants of awareness of livelihoods insurance

The socio-demographic characteristics of household heads are found to influence awareness. An increase in the age of farmers increases the likelihood of awareness of agricultural insurance. This may be due to the changes observed over time and the high perceived risks that lead

them to seek available adaptation strategies. Farmers' awareness of agricultural insurance also increases significantly with years of schooling ($p < 0.01$). Educated farmers are more likely to consult different institutions that promote agricultural insurance as an adaptation option and to understand written information about insurance products (Ghazanfar *et al.*, 2015; Hountondji *et al.*, 2018).

In terms of farm characteristics, unexpectedly, farmers with small farms and non-livestock owners are more likely to be aware of agricultural insurance ($p < 0.05$). This may be due to their high vulnerability to climate risks, which leads them to seek new knowledge that will help them overcome these constraints, as suggested by the protection motivation theory. However, Olila and Pambo (2014) report a positive relationship between farm size and awareness of agricultural insurance in Kenya, although the result was not significant. As a herd size increases, farmers are more likely to be aware of agricultural insurance ($p < 0.10$).

One possible reason is that farmers with large numbers of animals may find it difficult to manage their livestock because of drought risks, leading them to seek ways to minimize expected severe losses. Another plausible reason is that large herds may serve as a proxy for wealth, giving the farmer access to a variety of information sources and the ability to pay for insurance. In addition, the loss due to illness/disaster may be much higher than for farmers with smaller herds.

Farmers who are members of a group, access to banks and weather information are more likely to be aware of livelihoods insurance. Most farmers receive information on agricultural innovations, new government policies and programmes during group meetings. Jatto (2019) reports positive effect of cooperative membership on agricultural insurance awareness in Nigeria while Ibitoye (2013) found that 66% of farmers learn about agricultural insurance during farmers' cooperative meetings. Furthermore, the livelihoods insurance market policy provides subsidies to support smallholder farmers who collectively insure their farms within a group. The positive effect of access to banks is consistent with the findings of (Ghazanfar *et al.*, 2015), who reported a significant effect of credit availability on insurance awareness among farmers in Pakistan. The positive effect of access to weather information is that it helps farmers to know the expected climate risk, which leads them to seek proactive measures (Hountondji *et al.*, 2018).

3.4 Contributing factors to adoption of livelihoods insurance

The study established that the livelihoods insurance adoption by farmer households to have socio-demographic characteristics influencing it. An increase in years of schooling significantly increases the likelihood of adoption ($p < 0.05$). Education plays a role in reducing cognitive failure, which is a psychological phenomenon that can affect an individual's willingness to spend their limited income to cover risks (Amare *et al.*, 2019). The positive effect of education on livelihoods insurance adoption is consistent with various studies such as Abugri *et al.*, 2017; Amare *et al.*, 2019; Oduniyi *et al.*, 2020.

Farmers with statutory land tenure are more likely to use livelihoods insurance than farmers with customary land tenure. This is explained as emanating from the fact that legal land tenure is more secure than customary land tenure. This security of tenure allows farmers to make larger investments, and their own land can be used as collateral to access credit. In addition, farmers with large numbers of livestock are more likely to adopt the insurance ($p < 0.01$) as the animals are a proxy for wealth that makes farmers financially capable. Farmers with small herds find it uneconomical to insure their livestock. The findings on the positive effect of legal type of land tenure and herd size are consistent with those contained in Chand *et al.*, (2026).

A hypothesis in the study was that access to livelihoods extension services would have a positive effect in adoption of insurance services. The assumption was based on the thinking that farmers who had access to extension services were more likely to be informed about different climate risk management strategies and therefore could choose from a greater variety of different risk diversification and mitigation. This was found not to be the case. An explanation was that the livelihoods extension agents and organizations were not involved in promoting livelihoods insurance to farmers in the study area. Insurance agents and brokers, banks and extension agents are the intermediaries responsible for bringing farmers into the insurance relationship. In addition, farmers with access to banks are more likely to adopt agricultural insurance ($p < 0.01$). According to the resource-based theory, the ability to adopt depends on one's wealth and assets. In other words, farmers demand more security for their investments as their wealth increases (Marr *et al.*, 2016). Another plausible reason is

that access to credit helps farmers improve their financial capacity to pay insurance premiums (Amare *et al.*, 2019). Moreover, poor people have a lower capacity to build capital for drought risk management and risk transfer, except through credit (Tadesse *et al.*, 2015). The findings are consistent with the results provided by Budhathoki *et al.*, (2019); Arshad *et al.*, (2016) and Abugri *et al.*, (2017).

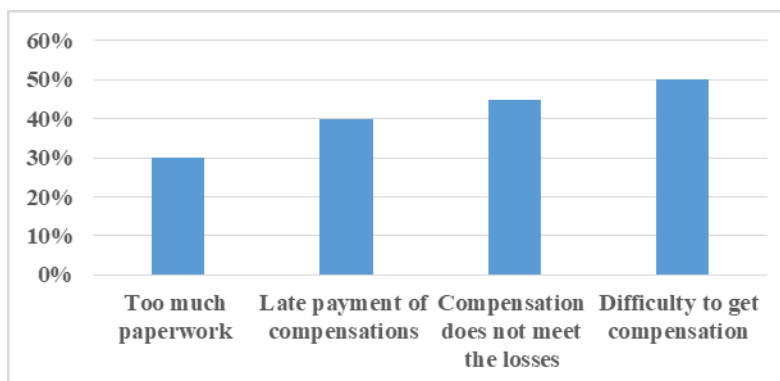
Farmers with access to weather information are more likely to use agricultural insurance ($p < 0.01$). This is likely because knowledge of expected weather and climate extremes leads farmers to prepare for expected climate risks (Hill *et al.*, 2013). Regarding the effect of drought risk experience, farmers who have experienced droughts are more likely to purchase livelihoods insurance ($p < 0.05$). This is explained by the protection motivation theory, which states that when a farmer experiences a threat in the environment in which he operates, he seeks techniques to disrupt the threat (Floyd *et al.*, 2000). (Amare *et al.*, 2019) explains that insurance adoption is most likely to come from farming systems where household livelihood strategies are largely exposed to weather-related risks.

3.5 Challenges faced by livelihoods insurance adopters

Figure 1 shows the reported challenges associated with livelihoods insurance as a drought adaptation strategy. These results show that about 50% and 40% of farmers' experience difficulties in accessing compensation and late payment of compensation, respectively. Delays, excessive bureaucracy and perceived insurer opportunism during the claims process can erode trust and increase dissatisfaction with the final amount received. The non-adaptors highlight late payment of compensation as the main hindrance to their participation in livelihoods insurance. This implies that the objective of livelihood insurance to keep farmers in the business ex-post risk and disaster is not always achieved. Therefore, the objective is defeated when compensation cannot cover the losses incurred. 30% of farmers complained of the is too much paperwork and lengthy administration process during the registration and compensation application.

The feeling by 45% of the respondents that the livelihood insurance compensations are inadequate stems from underinsurance, misunderstanding of policy limits and coverage, and the inherent complexity of valuing losses.

Figure.1 Challenges met by users of livelihoods insurances



Policyholders often have coverage limits that do not reflect the full current value of their assets or the true cost of recovery, especially in times of inflation. This means the maximum payout is simply not enough to cover the actual loss. In interruption policies, if the insured value is less than the actual value, the insurer can reduce the claim payout proportionally.

Livelihoods are complex, dynamic systems involving a mix of activities, resources, social networks, and access to the environment. Livelihoods are complex, dynamic systems involving a mix of activities, resources, social networks, and access to the environment. Accurately quantifying the total financial impact of their disruption is a challenge that cash compensation alone often fails to address. There are also mismatches of expectations. Customer expectations are formed by their experiences, word of mouth, and advertising, which may not align with the technical realities and fine print of their specific policy. Many policyholders do not fully understand the scope, exclusions, and conditions of their insurance policies, leading to unexpected shortfalls at the time of a claim. The impact of a loss is not just financial as it involves significant emotional distress and disruption to one's life. Financial compensation, no matter the amount, cannot fully restore the sense of security and well-being lost. Initial compensation may be consumed quickly for immediate needs, leaving nothing for long-term sustainability or investment in new livelihood strategies, leading to a feeling of ongoing vulnerability and inadequacy of the initial help.

4.0 Conclusion and Recommendations

Droughts present one of the greatest challenges of living in the semi-arid regions. The incidents are characterized

by deficiency of water, limited resources and uncertainty of a degraded environment. Despite the low participation of the inhabitant population in livelihoods insurance against drought, it is concluded to be essential to provide a safety that helps them recover from devastations, ensuring continuity in livelihoods operations and supporting economies. By understanding the importance of insurance for drought conditions, farmers can make informed decisions and develop resilient strategies to safeguard their livelihoods and regional food security.

In order to heighten adoption of livelihoods insurance uptake, awareness must be built with a focus on foremost building an understanding of the benefits and procedures involved. This is envisaged to inculcate confidence in the system among the farmers. The implementation of the awareness strategy can bridge the empathy gap and better serve the needs of livelihood insurance customers, fostering trust, and adoption of essential financial protection tools. Topmost is the need for employment of everyday language which avoids insurance jargon and complex legal terms.

Focus needs to be placed on the real-world implications that elaborate on how specific types of coverage are crucial for protecting a farmer's livelihood. The insurers need to leverage community advocates and local channels and consequently train trusted community opinion shapers who can share knowledge and influence behavior through existing social networks. The arrangement can disseminate educational messages through accessible channels like local radio dramas and jingles. The approach has the capacity to provide proactive and transparent information that can empower customers by providing clear information upfront about policy features, coverage limits, deductibles, and major

exclusions. The claim process needs to be streamlined to raise trust possibly with digital submissions.

4.1 Conflict of Interest

The authors declare no competing interests.

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