Formative evaluation on increasing the uptake of ACRE Hakika in Kenya

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Formative evaluation report

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International Initiative for Impact Evaluation

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About 3ie

The International Initiative for Impact Evaluation (3ie) promotes evidence-informed equitable, inclusive and sustainable development. We support the generation and effective use of high-quality evidence to inform decision-making and improve the lives of people living in poverty in low-and middle-income countries. We provide guidance and support to produce, synthesise and quality-assure evidence of what works, for whom, how, why and at what cost.

About this formative study

This formative evaluation was submitted in partial fulfilment of the requirements of grant TW13.I.1109 awarded under Agricultural Insurance Evidence Programme. This version of the report is technically sound and 3ie is making it available to the public in this final report version as it was received. No further work has been done.

The 3ie technical quality assurance team comprises Bidisha Barooah, Stuti Tripathi and Deeksha Ahuja, with overall technical supervision by Marie Gaarder.

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1. INTRODUCTION

Kenya's agricultural sector forms the single largest contributor to GDP. Yet it is prone to a host of adverse weather-related risks. Lack of rain is a particularly serious risk, given that 96% of the land is rain-fed. In spite of these risks, agricultural risk management is a nascent area of exploration.

Existing informal strategies (such as farm and non-farm diversification) are currently the norm through which farmers protect themselves from unpredictable weather patterns. Such strategies, however, do not necessarily form reliable ways of protecting smallholders from destabilizing livelihoods and jeopardizing local food security. There have been initiatives to encourage use of index based insurance that theoretically removes some of the high cost and moral hazard involved in traditional and multi-peril crop insurance (FSD Africa, 2013). The review report done by FSD Africa offered an overview of the approach of this insurance over more traditional forms of insurance highlighting access as one of the larger challenges that still holds.

Further yet,Patt et. al.(2009) argued that smallholder farmers are trust issues to the uptake of index based insurance is trust in the product and larger organization as one of the other challenges facing uptake of these products.

This intervention is a product called ACRE Hakika, which was created and fine-tuned as an easily extensible and scalable mobile agricultural insurance product to provide a low-cost risk mitigation strategy for farmers. This product also was built on the rising mobile revolution in Kenya. This makes its application relevant to many other developing countries where mobile penetration is rising at a similarly rapid pace.

The evaluation was designed to address the challenges that smallholder farmers face when there are unexpected production-related shocks resulting from a lack of rain. The goal was to use a scalable product that would enable farmers to reap the full benefits of their crops through eliminating weather-related stress and the potential damage of climate variables. The information that follows is a closer assessment of the weather-index based product itself, ACRE Hakika.

About the Formative Evaluation of ACRE Hakika

The formative evaluation undertaken by the Agriculture and Climate Risk Enterprise (henceforth, ACRE) in partnership with The Busara Center for Behavioral Economics (henceforth, Busara) funded by the International Initiative for Impact Evaluation (henceforth, 3ie) focused on increasing the uptake of a mobile-based agricultural insurance product, ACRE Hakika (originally referred to as "Top-Up").

ACRE Hakika uses a rainfall-based index such that in case of excessive or insufficient rainfall, a farmer with the cover can make claim to be reimbursed money for the value of their seed bag and inputs. It is a follow-up product to the Replanting Guarantee (RPG), another mobile based insurance product offered by ACRE to smallholder farmers. RPG is offered to farmers, for free, to cover them for the first 21 days of planting while ACRE Hakika is meant to cover the farmer for the period after the 21 days to when the crop is matured for harvesting i.e. 21-118 days' cover. Once a farmer buys their seed, they find the RPG card inside the seed bag and they then send the serial number via a mobile phone text to the ACRE's insurance platform. This message also includes their geographical location. This is what is used to assess the farmer's claim based on the weather index described.

The evaluation aimed at informing the feasibility of the product in the market through two ways:

i. Determining the appropriateness of the timing of the premiums and payouts for the ACRE Hakika product.

ii. Investigating behavioral barriers to converting customers from a free RPG product to a paid "top up" insurance cover.

The following were identified as the questions which the evaluation would address:

iii. *What structural changes can be made to ease comprehension, interaction and purchase of ACRE Hakika?*
iv. *What are the behavioral barriers that prevent farmers from converting from a free RPG to a self-financed ACRE Hakika?*
v. *What core adjustments to the timing of the premiums and payouts can be made to better coincide with the cash constraints of the farmers, which then facilitates increased take up?*

Given that agriculture is the single largest contributor to the gross domestic product (GDP) in Kenya as in many developing countries, ACRE's product focuses on the overall goal of securing the livelihood and incomes of the local farmer through covering them from the effects of unpredictable weather. ACRE Hakika (and RPG) targets East African countries that heavily rely on agriculture.

The evaluation limited its scope to Kenya as a case study and specifically targeted the following regions: Murang'a in Central Kenya, Kisii in Nyanza Province, Kwale in the Coast region, Meru in Eastern Kenya, Bomet and Kericho in the Rift Valley province and finally Bungoma in Western Kenya.

This document is therefore a final reporting on the specifics of the evaluation done, and covers:

a. the planning and designing phases of the evaluation,
b. the implementation of the design and interventions selected,
c. the challenges encountered through the process of implementation,
d. the analysis and reporting of the findings and;
e. charting of a way forward to further refine the approach based on lessons learnt.

About Busara

The **Busara Center for Behavioral Economics** is a non-profit organization that was founded in 2012 by Professor Johannes Haushofer (Princeton University) and operating under the leadership of Dr. Jeremy Shapiro. Busara has worked with a number of leading universities, research organizations, governments, private enterprise, and nonprofit organizations to tailor behavioral solutions to achieve their goals. We have worked on vast projects relating to but not limited to financial inclusion, agriculture, health, women empowerment and gender equality, entrepreneurship and others related to development economics. The company currently has country offices in Nairobi - Kenya, Kampala - Uganda and Addis Ababa – Ethiopia, our projects however span across the globe including clients in Western Africa, Western Europe and America.

We work closely with our clients to understand and overcome behavioral challenges that could be preventing them from reaching their desired goals. After delving deeply into the context surrounding a particular issue, we propose tailored solutions using our extensive knowledge of behavioral science and its application. Going beyond the recommendation, we work with partners to test, refine, and continuously improve solutions. Our goal is to maximize program effect and improve process design.

Our work has proven that by better understanding and incorporating behavioral economics, we can successfully influence the decisions people make and enable individuals and organizations to make better choices that are evidence backed.

About ACRE

ACRE Africa, the brand name of Agriculture and Climate Risk Enterprise Ltd. (ACRE) is a registered insurance surveyor in Kenya and an insurance agent in Rwanda and Tanzania. It operates as a for profit company that evolved from the Kilimo Salama project (established 2009) that was funded through the Syngenta Foundation and the Global Index Insurance Facility (GIIF). ACRE Africa is not an insurance company, but rather a service provider working with local insurers and other stakeholders in the agricultural insurance value chain.

ACRE specializes on coming up with innovative insurance products for smallholder farmers. The company currently has operations in Tanzania, Rwanda and Kenya.

The combined effort of both ACRE and Busara covers a scope of a majority of Eastern Africa where ACRE brings in their expertise on agriculture and insurance products while Busara brings in expertise on research and behavioral economics.

2. CONTEXT

The Study Population

The study sample was drawn from 6 regions in Kenya - Central, Eastern, Nyanza, Western, Rift Valley and Coast. The variety of regions targeted ensured a representativeness in geographic spread alongside different farmer profiles and current strategies in risk mitigation. The specific target population was; (i) small-holder maize farmers, (ii) with an average of 2 ACREs of land under cultivation (with different crops), (iii) an average income of $2-$4 per day and; (iv) which had already been enrolled for the RPG product. Furthermore, these were farmers who generally understood the value of the crop index insurance but not the technical details surrounding the product.

The choice of region was influenced by the presence of ACRE in the region as well as previous registrations to RPG. These areas represented high and low risk areas in terms of the weather fluctuation. Phase 1 had geographic limitations given that other counties or regions were under formative evaluation for alternative ACRE products. In order to prevent introducing a new product to farmers who were already exploring the use of similar ACRE products, this evaluation specifically chose areas in which ACRE products were not undergoing related evaluations.

Existing Uptake of ACRE Hakika

As earlier indicated, ACRE Hakika is a follow-up product to the RPG. At the time of the evaluation, we had approximately **700,000 smallholder** farmers RPG. The evaluation aimed at estimating the rate of conversion of these RPG beneficiaries to paying customers.

The uptake for the beta version of ACRE Hakika had been slow prior to the evaluation with few farmers showing willingness to graduate from the free RPG insurance product to the paid ACRE Hakika.

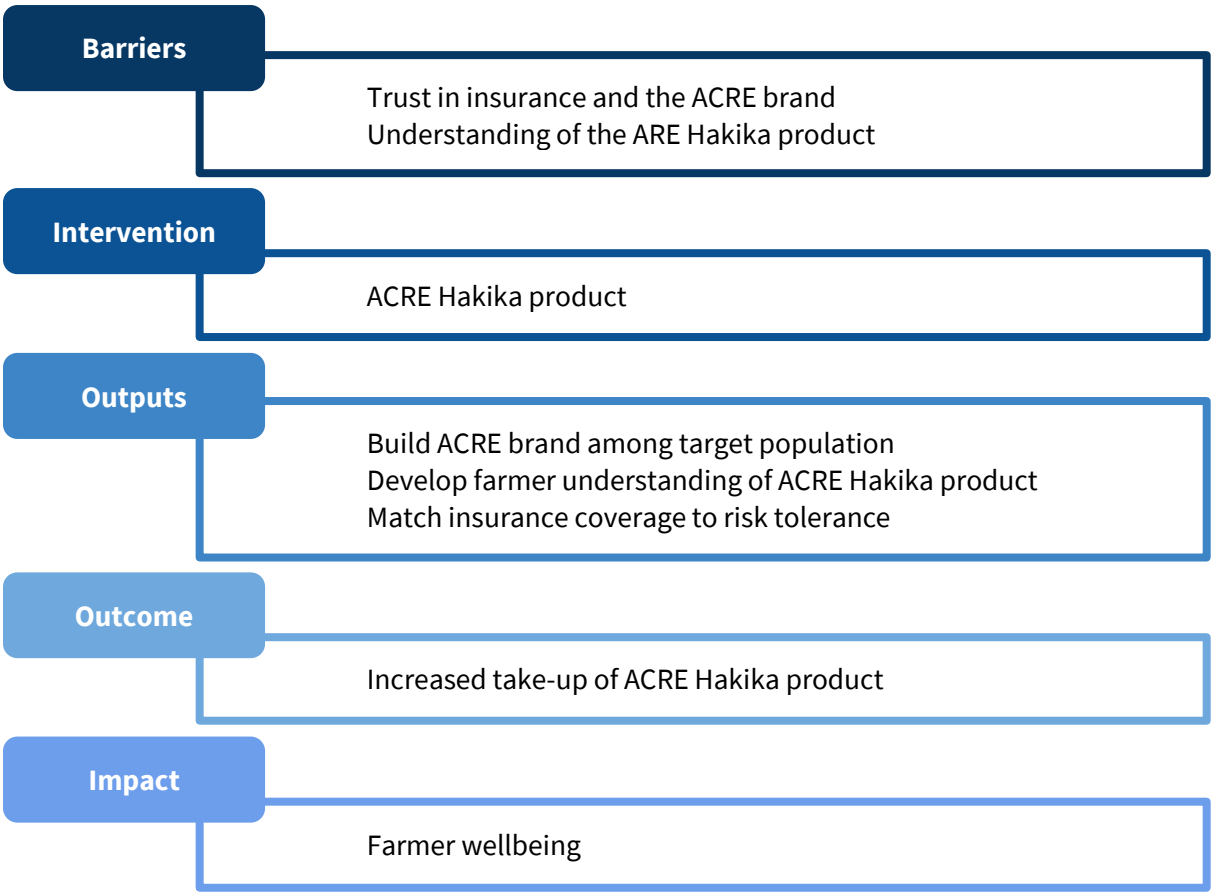
3. INTERVENTION DESCRIPTION AND THEORY OF CHANGE

Intervention Adopted

Busara worked with ACRE to offer a mobile-based paid extension to their Replanting Guarantee (RPG) called ACRE Hakika. In this case, ACRE Hakika itself was the intervention. ACRE Hakika is a private product that leverages the mobile revolution in Kenya to offer scalable weather-index based agricultural insurance. The first introduction point to ACRE Hakika is Replanting Guarantee (RPG), the product that initially begins as a free insurance product until the end of the germination (day 21). As RPG is expiring, ACRE Hakika is introduced as the paid extension product that expands insurance until harvesting phase.

This inputs-based insurance used SMS messages to introduce the product, confirm consent of takeup, offer more information on terms and conditions, enabled updates regarding payment, and can also include bundling "educational" information on insurance and agronomic practices. Most importantly, these SMS messages were behaviorally-informed to overcome drop-off points throughout the take-up timeline (from introduction to adoption). In order to explore timing options, the SMS messages were sent to farmers at three different times depending on the planting season dates.

Theory of Change



The Theory of Change here is supported by the following assumptions:

a. That ACRE Hakika is a unique product whose benefits are clear and desired by smallholder farmers. Once they are told about these benefits they will engage with ACRE to take up the cover and make the relevant premium payments.
b. As the smallholder farmers will have already engaged with ACRE through the RPG cover they are likely to trust and respond to the ACRE Hakika insurance product.
c. Given that the ACRE Hakika insurance cover is a unique product with no real competitors in the marketplace, this product can be better tailored to a sector that has previously neglected insurers. The first mover advantage combined with targeting smallholder farmer concerns creates an environment of higher uptake due to accessibility, affordability, and customer specification.

For this particular intervention, the entire project was expected to take a period of nine months.

4. MONITORING PLAN

Inputs, Outputs and Key Indicators

The main inputs for our intervention were SMS messages either encouraging uptake and/ or payment for premiums. Farmers received messages about ACRE Hakika which also included a helpline number.

The key indicators that were used to assess the farmer behavior towards the product were:

i. The number of farmers responding to any of the SMS messages

ii. The nature of responses being made i.e. those who express interest vs those who did not show interest

iii. The number of conversions from RPG to ACRE Hakika – "farmers opting-in"

iv. The number of premium payments made for ACRE Hakika

Data Sources

This evaluation used a combination of qualitative and quantitative data collection methods:

i. Qualitative interviews (focus groups, IDIs and stakeholder interviews)

These interviews formed part of the pre-baseline evaluations. The purpose of the interviews was to gain a better understanding of the farmers' context, their experiences, perceptions and preferences for agricultural insurance products. Busara carried out the interviews over a span of two weeks, covering four different areas in Kenya: Embu, Mbeere, Eldoret, and Thika.

ii. Baseline phone survey

In order to initially gain a better understanding of the farmer population, phone surveys were conducted with approximately 100 farmers in Rift Valley, Coast and Nyanza regions. The surveys explored themes around crop cycle risk, frequency of crop failure, the amount of the initial inputs (i.e. fertilizer, top dressing, labor), experience with the initial Replanting Guarantee Product (RPG), message comprehension/clarity in understanding insurance messages via SMS, financial patterns throughout the year and product preferences.

iii. Administrative data from SMS intervention

The administrative data from ACREs digital system included logs timing, location, premiums, payments and associated weather events. This data was used to assess uptake, premium payments and weather events that would warrant payouts for claims.

iv. Follow up phone survey

A follow up phone survey was administered to assess farmers' perceptions of the messages and their experience of ACRE Hakika. Questions in this survey focused on the following themes perception of insurance, trust and comprehension.

v. Helpline

As part of the support offered for the SMS intervention, Busara set up a call center where farmers could call to ask for help on various issues regarding the insurance cover. The data collected in this case was the farmer queries, which was used to inform what kinds of challenges farmers experienced with the ACRE Hakika product.

Data Quality Measures

Quality of data collected was maintained through a combination of the following checks:

i. *High frequency checks*

This entailed a continuous monitoring of data coming into the server to check for missing observations and inconsistencies in responses. A standardized project-specific stata .do file was created and run daily on incoming data to check for errors. If any errors were detected corrective action was taken to resolve these issues.

ii. Field Observations

Field officers were supervised by project leads and analysts, who regularly sat with field officers to observe the manner in which questions were asked to respondents. They observed if questions were asked as per the protocol discussed during the training. This was an effort to ensure consistency of questioning across field officers. Continual feedback was relayed to field officers on areas that needed improvement. Additionally, senior project management made random visits to the field.

iii. Back checks

This consisted of calling back the respondents that were earlier surveyed and asking them time-invariant questions from the baseline, follow up and Endline surveys. Responses in the back-check survey were matched with the initial responses to monitor the reliability and quality of the data collected.The back checks surveys were conducted by field officers other than those who collected the initial data.

5. EVALUATION QUESTIONS AND PRIMARY OUTCOMES

The evaluation set out to answer the following key questions:

i. What are the behavioral barriers preventing farmers from converting from the free RPG to the paid ACRE Hakika product?
ii. What are perceptions of crop security and control over harvest with the use of this product?

Based on these questions, the expected outcomes were identified as follows:

1. Awareness and trust of the ACRE brand	The goal here was to increase the awareness on the ACRE brand, get people talking about ACRE and inform smallholder farmers on the work that ACRE does with farmers and hopefully use RPG and ACRE Hakika as the first point of contact to the brand.
2. Understanding of the ACRE Hakika product and its benefits	The focus was to improve / increase understanding of what the ACRE Hakika product is and what they as the farmers would benefit from adopting the product. By extension, this outcome worked towards building trust around insurance products.
3. Interest in learning more about the product	The focus was to spark general interest on ACRE Hakika i.e. increase product awareness over and above the actual purchase of the product. This reflected in further enquiries on the product.
4. Purchase of the product	With a clear understanding of the ACRE Hakika, we hoped to move interested farmers to actually purchase the cover i.e. adoption from RPG to ACRE Hakika and payment of the relevant premiums.
5. Interest in take-up for next season	Farmers who demonstrated interested in ACRE Hakika product but for one reason or another did not take up the cover, we sought behavioral ways to encourage take up of the product for their next planting season.

6. DESIGN, DATA AND METHODS

Selection criteria

The selection criteria used for selecting participants was that the farmers had to be registered for the Replanting Guarantee product and be part of ACRE Africa's long rain season database.

Due to the fact that Acre was conducting different evaluations on other insurance products, we had to further reduced our RPG-registered farmers sample to avoid spillover effects from other evaluations. There was a significant need to avoid the overlap of studies given that other evaluations may prime potential respondents to thinking about insurance in ways that could possibly contaminate Busara's findings. Our final sample was composed of 1,500 farmers across various regions in Kenya such as Central, Nyanza, Rift Valley, Eastern, Western as well as Kenya's Coastal region.

Research design

The study used a mixed method approach using both qualitative and quantitative research methods.

The research was split up into 3 major phases:

Phase 1: Contextual Assessment and Behavioral Diagnosis

In this phase the primary focus was to understand the behavioral mechanisms and perceptions that farmers held towards ACRE Hakika. This assessment was done using qualitative methods such as focus group discussions, in-depth interviews and phone surveys. Busara and ACRE Africa also used secondary data from desk research and past records, to gather literature and understand farmer interactions with the RPG product.

From the understanding of the farmer population and key behavioral insights, it was decided that sending SMS messages to educate the farmers on ACRE Hakika, was the best intervention to utilize.

Phase 2: Application of Behavioral Insights to Process and Product Optimization

SMS were sent out in order to inform about ACRE Hakika and invite farmers to purchase the premiums. Messages were crafted with careful awareness of content (language, length, tone, actual information), timing, frequency and channels to be used to make the interventions most effective.

Data for this phase was collected through the SMS and helpline platform

Phase 3: Analysis of Impact

This phase involved the analysis of data collected through the SMS platform using a tool procured from the message service provider, MTECH services, and the analysis of the farmer queries and enquiries using the statistical tool, STATA. Data was collected during baseline, endline as well as follow-up phone surveys which were conducted after the implementation of the study.

This formative evaluation sought to gain a better understanding of the ACRE Hakika customer. Understanding the demographics, knowledge, practices, and preferences of the smallholder farmers to purchase the "Top Up" insurance cover will allow optimization of design for users and provide insights on how to engage those customer segments that may be underrepresented. Critically, ACRE seeks to serve underrepresented groups through this mobile platform. Whether that refers to spatial, gender, ethnic, or socioeconomic underrepresentation, the formative evaluation sought to provide the team with valuable information about how to engage and target this customer base.

Data Collection and Analysis

Data collection was performed by experienced enumerators from the Busara Center for Behavioral Economics. These enumerators received National Institutes of Health (NIH) training as well as thorough training on the study protocol.

Qualitative data was collected using SurveyCTO platform, which allowed enumerators to collect data offline and submit data to the server securely. Quantitative data analysis was done using STATA 14 which allowed for a robust statistical analysis of data collected

Ethical approval

Finally, the study was submitted for review to the ethics review board -Kenya Medical Research Institute (KEMRI)- for approval. This approval provided us with a permit to conduct qualitative and quantitative analysis on human subjects.

7. STUDY TIMELINE

The timeline generally held up to the planned timeline (see below). There however was a delay on setting up the the “Top Up” system which was undergoing changes to its platform. Therefore, much of the programming behind the “Top Up” product was conducted manually. This was handled by Busara’s data team but we also worked with a consulting company to assist in sending the SMS messages.

		Task	Staff	Location	Start Date	End Date
Phase 1 - Understand the Context	1.1	Initial Meetings with ACRE	All	Busara	6-Feb	20-Feb
	1.2	Desk Research and Instrument Creation	All	Various	13-Feb	6-Mar
	1.3	Field Visits	All	Busara	27-Feb	9-Mar
	1.4	Initial Findings Report on Qualitative Instruments	All	Busara/ACRE	6-Mar	13-Mar
	1.5	Menu of interventions (finalized)	Associate	Busara	13-Mar	15-Mar
Phase 2 - Test Behavioral Evaluation Framework	2.1	Finalize SMS platform (messaging, etc)	Analyst + Associate	Busara and External	13-Mar	20-Mar
	2.2	Live tests on platform	ACRE	ACRE	20-Mar	25-Mar
	2.3	Finalize baseline survey	PIs + Ruth	Busara and Elsewhere	20-Mar	27-Mar
	2.4	Carry out baseline survey via phone	Analyst + Ruth	Busara	27-Mar	10-Apr
	2.5	Diagnose behavioral barriers using surveys	PIs	Busara	10-Apr	17-Apr
	2.6	Qualitative briefing with ACRE	Associate	ACRE	24-Apr	25-Apr
	2.7	Create midline and endline survey structures	Analyst + Project Lead	Busara	25-Apr	8-May
	2.8	Analysis and check-ins with farmers	Project Lead	Busara	8-May	12-Jun
	2.9	Carry out midline surveys via phone	Project Lead	Busara	12-Jun	26-Jun
	2.1	Analysis on midline data	Associate	Busara	26-Jun	3-Jul
	2.11	Preparation and crafting of report	Ruth + Analyst	Busara	3-Jul	10-Jul
Phase 3 - Test, Analyze, and Recommend	3.1	Carry out endline surveys via FGDs and phone	Ruth + Analyst	Busara	15-Jul	27-Jul
	3.2	Analyze data for priority findings	Ruth + Analyst	Busara	28-Jul	7-Aug
	3.3	Final interventions to ACRE and data team	Ruth + Analyst	Busara	7-Aug	15-Aug
	3.4	Compile and finalize recommendations from three phases and areas for further research	Ruth + Analyst	Busara	7-Aug	21-Aug
	3.4	Send report to 3ie	Ruth + Analyst	Busara	21-Aug	30-Aug

8. ANALYSIS AND FINDINGS

The study took a formative approach to understand farmer characteristics, perceptions of insurance, perception of a new crop insurance - ACRE Hakika - and the barriers to market entry. This was done through the mixed approach that leveraged on qualitative and quantitative approaches to uncover these themes.

Qualitative Analysis

The qualitative study involved face to face interactions by conducting 8 FGDs and 15 IDIs with farmers from Embu, Thika, Mbeere and Nakuru region. This offered assertive information to understanding the risk perceptions and perceptions of insurance. The existing knowledge of agricultural insurance was fairly limited and skewed to large assets e.g. livestock or more common mandated forms e.g. health or motor insurance and assumed to apply to wealthier individuals. Many of the risks were easily assuaged while those beyond the farmer's control were deferred to the power of "God". Upon understanding the concept of the rainfall index insurance, farmers were receptive to making payments for the insurance. The free RPG was well received and served as a reference for quality though understanding of the product was still low. Despite this, the familiarity and existing perception of the product offered a good foundation to offer continuity of ACRE Hakika.

Phase 1 of the qualitative research activities identified several behavioral barriers towards product adoption. These barriers could be segmented into two overarching categories: 1) barriers related to product knowledge, trust, and planning, and 2) barriers related to farmers' risk perceptions.

From these barriers, we crafted various iterations of messages that would address the barriers and hence build trust and leverage familiarity to increase take up and follow through (See the messages in the appendix). Results from the behavioral diagnosis are shown below:

Product knowledge, trust & planning	Pre-season product awareness, attention and familiarity ● Farmers showed a need for in-person touch to provide information about the product, have a platform to make inquiries and address their concerns Product comprehension ● Farmers did not know who ACRE Africa is and what products they offer. ● Farmers showed interest in understanding ACRE Hakika product, especially how the compensation process works.

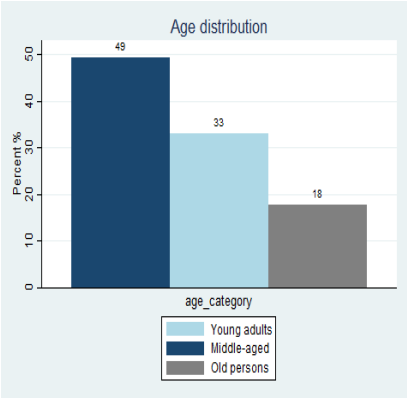
	Low trust in insurance products ● Farmers showed a lack of trust in insurance products which forms a great challenge for ACRE Africa.
	Preseason planning & budgeting: ● Farmers had a perception that rainfall insurance is a 'supplementary' or 'luxury' expense that should only purchased with leftover or discretionary capital.
Farmers' risk perceptions	Unstable risk perceptions ● Farmers had varying perceptions on risk across different phases throughout the season.
	Perceived cost of Hakika insurance ● Farmers had a perception that ACRE Hakika insurance is expensive.
	Perceived value of the potential payout ● Farmers were concerned about the insurance payout and what constitutes the payout cover.

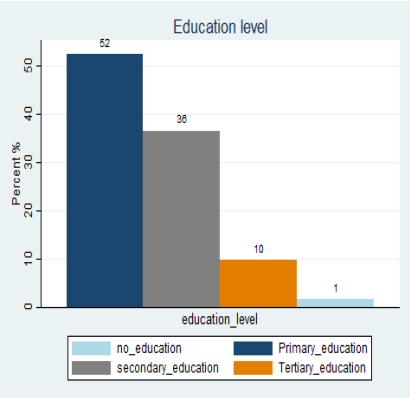
Quantitative Analysis

At baseline, we measured outcomes that targeted farmers cost of production, coping mechanisms, trust in insurance products, financial perceptions, and financial behavior. During the follow up calls, we evaluated themes around farmers perception of insurance and how they felt about crop insurance. Finally at endline, we focused on the major themes such as product satisfaction, attitude and perception of ACRE Hakika product, barriers to uptake, financial worries and motivation. In this section, we report on summary statistics and interesting findings from these outcomes.

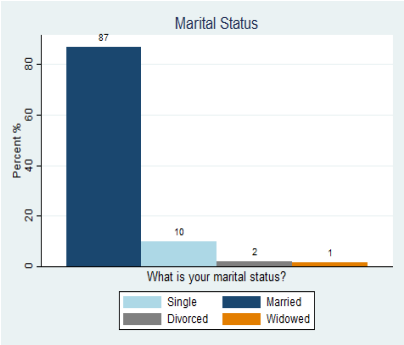
Summary Statistics

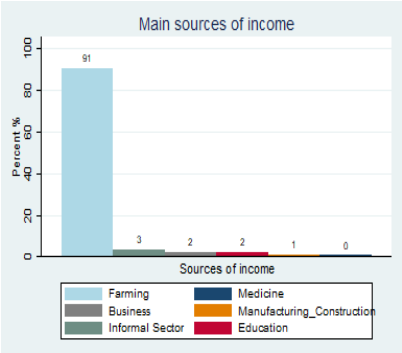
We conducted a baseline survey on 669 farmers, where we collected farmer demographic characteristics: age, education level, marital status, sources of income and farmer experience. We further categorized the farmers into young adults (18 years - 35 years), middle aged (35 years - 54 years) and older persons (+54 years). We found that 49% of the farmers in our sample are in the middle age bracket. The education level statistics showed us that 52% of these farmers completed their primary level of education. We categorized the farmers based on their experience levels: no experience (less than a year's experience), little experience (< 5 years' experience), experienced (> 5 years' experience, < 10 years' experience) and expert (> 10 years' experience). Most of the farmers who purchase the Replanting Guarantee product had more than 10 years' worth of farming experience.

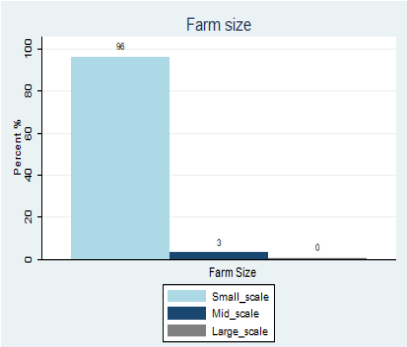




We found that 87% of the farmers are married. 91% of the farmers relied on farming as their main source of income. A few diversified their sources of income had other sources of income such as conducting different business endeavours, health industry, manufacturing and construction industry as well as the informal sector. We categorized farm sizes into: small scale (< 5 ACREs), midscale (> 5 ACREs <10 ACREs) and large scale (> 10 ACREs). 96% of the farmers were smallholder farmers with an average of 1.5 small tracts of land from which constitutes their main source of living.







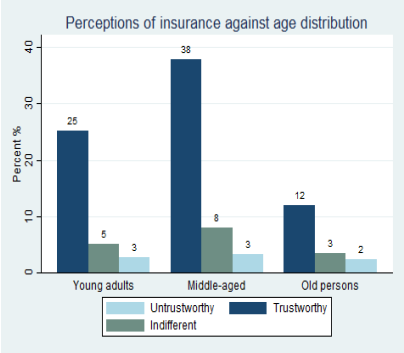
The summary findings that we obtained from the blasting out messages to 1500 farmers are:

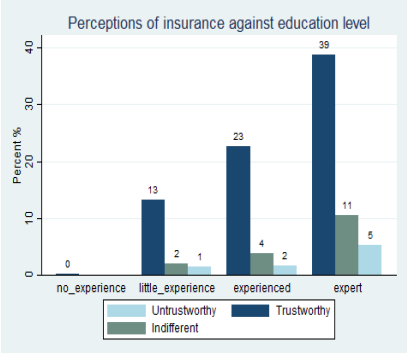
31 out of 1500 farmers paid for ACRE Hakika
40% expressed interest
30% opted out of the product
30% did not respond to the message sent out

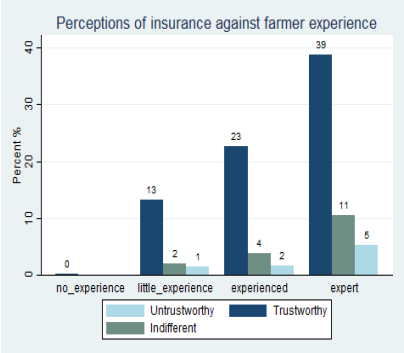
Perception of Insurance

Throughout the quantitative study we evaluated the theme of trust to ensure we get an understanding of farmer's trust levels on insurance. Different variations of trust were tested around perception of insurance firms, integrity and fairness levels, and how their trust levels changed

throughout the intervention. We found that most farmers in our study trust insurance regardless of the age group or education level. Insurance products that are familiar to the farmers are health insurance offered by the Kenyan Government and car insurance. Despite their high levels of trust on insurance, only 3% of the farmers have taken up crop insurance in order to protect themselves from crop failure. 84% of the farmers are willing to take up insurance in the next maize season in order to protect themselves from crop failure. The coping mechanism used by most farmers when their maize crops fail, is their savings while a few of them borrow money from family and friends.



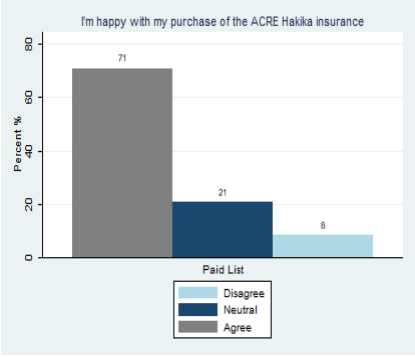




Awareness and trust in ACRE Hakika product

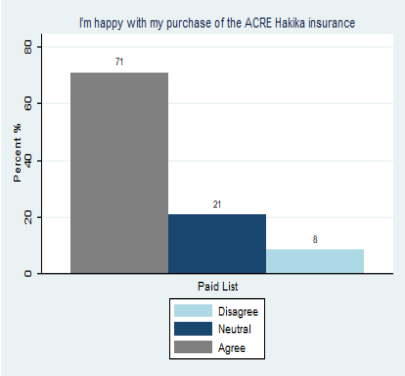
On awareness and trust in the product, we tested the satisfaction levels of those who paid for ACRE Hakika product. The findings show that 71% of those who paid for the product were satisfied with the product because they felt secure within the maize season. They agreed that the product was worth the cost and see it as a responsible thing to do.

One interesting finding was that those who only expressed interest in Hakika product seem to agree that it is quite responsible to purchase the crop insurance product.

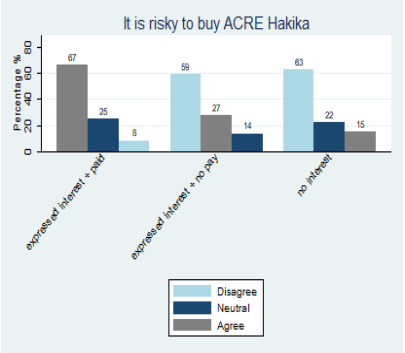


Attitude towards ACRE Hakika product

We also assessed the attitude that the farmers had towards ACRE Hakika insurance. Among those who had purchased the product, 71% of them were happy with the product. This is an indication that uptake can increase as long as we address the barriers to uptake. Only 8% of those who paid for ACRE Hakika were not content with the product.

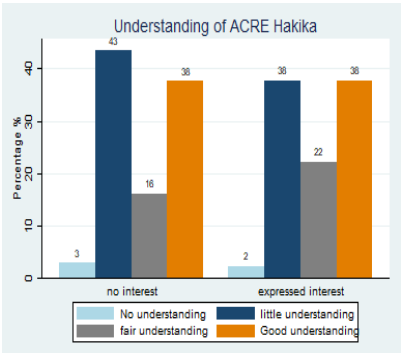


We assessed the attitude of those who expressed interest and those who didn't. We found that among those who didn't pay for the product, 59% of them thought that ACRE Hakika was not a risky product. Those who showed no interest on the product also felt that the product was not risky. An interesting finding was that those who paid for the product felt that the product was risky. This could be because they felt that they would not receive a payout at the end of the maize season as a result of lack of sufficient rainfall. This can form part of the testing points in the impact evaluation.



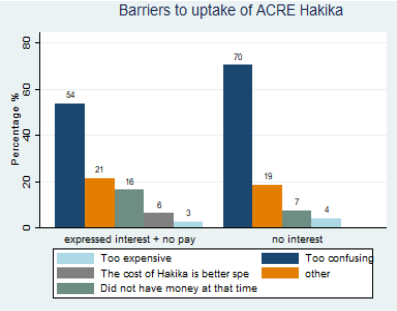
Understanding of the ACRE Hakika Product

We assessed farmer understanding of the product. We looked at those who expressed interest, including those that did not pay for the product and compared them to those who showed no interest. Those who expressed interest also struggled to understand the product therefore explaining why some of these farmers did not end up paying for it. We also found that 43% of those who had no interest in the product had little understanding of the product. This enabled us to know why they did not take up the product. In light of this, we hope to provide behavioral solutions to improve farmers understanding of the product.



Barriers to Uptake

In assessing the barriers to uptake of ACRE Hakika product, we asked the farmers why they did not pay for the product. We found that among those who expressed interest but did not pay, 54% found the product to be confusing. Those who showed no interest in the product also had 70% of them say the same. Other reasons were that financial incapability to purchase the product and that they instead used the money for other needs.



The fact that the product was digital and offered via SMS broadened the scope for uptake and allowed the product to reach marginalized populations that would otherwise be cut off from existing insurance products. All the farmers who registered and actually paid for the insurance cover, they only received compensation once the cover elapsed. This was because the rainfall distribution across all regions was not adequate. The compensation covered the cost of the bags of seeds bought and registered during their maize season.

Conclusion

The formative study we conducted enabled us to understand farmer's perception of ACRE Africa's new product. In order for ACRE Africa to increase uptake, they need to focus on providing human interaction with the farmers to address their queries and inquiries in a timely manner. The main findings were that farmers have little understanding of what crop insurance is, how it works and where to raise their concerns. Despite the fact that they understand other forms of insurance such as health and car insurance, we recognize that crop insurance is a fairly new concept.

9. IMPLICATIONS OF STUDY FINDINGS

Given that product understanding as the leading challenge to uptake, we intend to focus on exploring various product enhancements and features that would ultimately improve understanding. Tied closely to this, trust remains a huge lever in facilitating uptake. Qualitative findings highlighted the need for a physical touch point that could deal with both the issue of product understanding and trust. Given the product is digital and the very conceptions of insurance in the targeted population is limited, it is worth exploring what ideal balance could exist between the digital front and the physical touchpoint. On a third layer, there exists an intention-action gap with farmers. What this means is that there were farmers who were interested in taking up the product but did not pay for it.

For further research, to address the challenges of farmer understanding and trust, first we will introduce and test various levels of human interactions that would be sustainable and scalable.

At an initial level, the following elements will be tested:

- **Interactive Voice Recording (IVR)**
  This is our to scale component which provides the human touch whilst offering information and valuable feedback to the farmer. IVR experimentation has been gaining traction in many of the social sciences as well as commercial products to pass on information and garner feedback from customers. We plan to test the effect of this method of product communication.
- **Call Center**
  ACRE has a well established call center that offered support for Hakika product as well as their other products. The Call center at the moment serves to receive inbound calls. Outbound calls will be tested in the next phase and the effect on trust in the product, brand and more importantly trust and improved perception of insurance.
- **Village Ambassador (Tentative)**
  ACRE, leveraging farmers need for a physical presence, piloted an ambassador program in various villages. This ambassador program would identify "model" farmers who are respected in the community for their prowess and experience in farming. these farmers, already benefitting from the product, would act as ACRE Hakika ambassadors, offering appropriate responses and clarification on the product and give broader advice on farming best practices.

Secondly, identifying the best strategy to encourage follow through towards purchase of the product would be another avenue to further explore. Qualitative work suggested that targeting payment dates early on would be crucial to actualize payments. Farmers have the highest expenditure at the beginning of the season when they invest in inputs i.e. seeds, fertilizer, labor etc., towards initiating the season. As such, they would be more comfortable purchasing insurance along with those inputs as it would reflect a relatively cheaper and worthwhile cost. Further yet, risk perception will be targeted while it is fairly salient to them. However, the question remains: During the beginning of the season, what time point would would be ideal to introduce Hakika and the possibility of payment?

The above exploratory elements will be core questions for the next phase to address in order to further deepen the impact of the product, not just for uptake, but the impact on broader well-being of the farmers.

10. CHALLENGES AND LESSONS LEARNT

Importance of Insurance Education:
There was a considerable number of farmers who still did not understand ACRE Hakika as a product as well as the ACRE brand – this was highlighted from post-evaluation phone surveys. What came out strongly from the research was the need to further increase education to smallholder farmers on what insurance and its specific benefits are. Refining of the delivery methods should be given more emphasis with specifics on:

i. *Timing (When should we inform/train farmers?):* This was noted to be important as some of the farmers admitted to either ignoring or forgetting to reply to the messages received. Therefore, the identification of an opportune time of communication will be necessary to ensure that ACRE gets the full attention of the farmer when they can concentrate. This would then hopefully result in optimal engagement with the farmers.

ii. *Contents (What should we tell them? Should we tell them everything about the product? Important to be transparent and address information asymmetry):* From the research, it was clear that different farmers had different experiences and understandings of insurance and ACRE. Consideration needs to be made to what kind of information should be shared to educate or possibly ensure ACRE's brand salience based on their different levels of understanding. Furthermore, specific content on the benefits of insurance should be included to ensure that farmers are well aware of what they are getting from the cover.

iii. *Channels (How should farmers be educated?)*: The use of SMS interventions proved to need further reinforcement, especially when looking at the number of no responses vis-a-vis the SMS messages sent out. Reinforcements are being considered, notably face-to-face interactions which may considerably improve the level of trust, encourage take up and assist in following up on payments.

iv. *Frequency (How often should we train/follow-up and ensure continuous engagement?):* Focusing on this component is to increase and improve brand awareness and salience which should eventually encourage more sustainable levels of purchase.

Technology – Related Challenges

One of the biggest challenges experienced through the process of SMS intervention was technical hitches of technology. The team experienced challenges specific to the programming of the ACRE Hakika product platform. This was mitigated by having the Busara data team partnering with ACRE to help in the platform development and management throughout the evaluation to ensure that the platform was functional throughout the evaluation and mishaps were responded to as fast as possible. We foresee the need to work with an experienced software developer. Furthermore, taking advantage of technology available to monitoring the usage of the app.

The Importance of Supplementing the SMS Intervention

Both trust and product comprehension depend on moving past the SMS mode and reaching out to farmers in modes that inspire trust. In order to increase the level of trust and enable the smallholder farmers ask questions about the product directly to ACRE's representatives it was noted that the farmers appreciated the physical interactions over and above the technology based interactions. Through the process of the evaluation, to supplement the SMS intervention, a call center was set up to respond further to farmer enquiries. Through this ACRE and Busara were able to gain additional insights on the farmer perceptions towards ACRE Hakika.

Farmers gave specific suggestions for the need of having people on the ground to continuously inform them of the product and its application. The instances of no response either by ignoring the messages and / or forgetting about the message would be further handled by these other forms of interactions.

Sustainability of Farmer Take Up / Engagement

The need to track and possibly follow up on same cohorts.

To take into consideration possible drop outs with no pay outs over a period of time

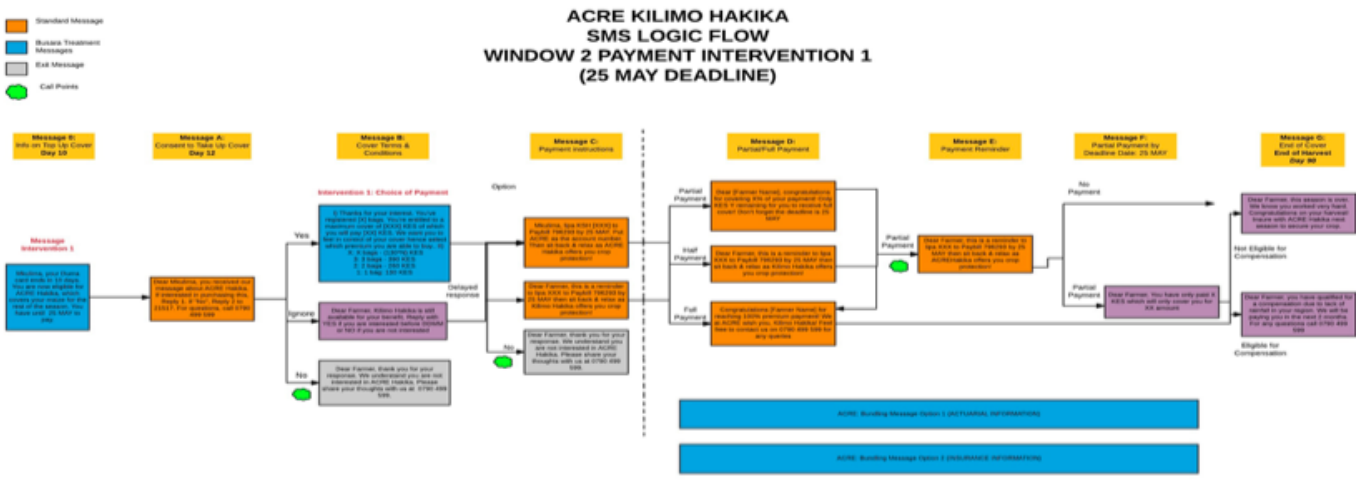
Competing risk mitigation options

Intention-Action Gap between Expressed Interest and Purchase

Of interest was the positive response towards ACRE Hakika in the process of raising awareness through the introductory messages and phone surveys; however, a clear disconnect was evident between interest expressed and paying for the cover. There were farmers who registered for the insurance and they did not make payments for this. The SMS reminders were sent out to encourage farmers to make payments. However, continuing research would be useful to uncover the root cause of the breakpoint between expressed interest and payment for the product i.e. research to discover the decision makers in households so as to enable targeted SMS intervention that would result into purchase of the ACRE Hakika.

11. APPENDICES

I. SAMPLE SMS MESSAGES



II. BASELINE QUESTIONNAIRE

ACRE Top-Up Product Survey

Survey Module	**Objective**
Section A: Demographics ▪ Personal information ▪ Household information ▪ Assets / Income Level ▪ Phone Usage Information	Market segmentation and a deep understanding of consumer profiles
Section B: Agricultural Information ▪ Farm Size / Current Practices ▪ Seed / Fertilizer Usage ▪ On-farm Production	Understanding farm composition and their risk assessment. Farm-level decision making and need for the ACRE Top-Up product.

▪ Risk Assessment ▪ Decision-making Dynamics	
Section C: Replanting Guarantee Product Usage ▪ RPG Uptake ▪ Payout Rate ▪ Payout duration	Understanding the RPG uptake, payout rate and duration.
Section D: Risk Assessment ▪ Understanding risks during germination stage ▪ Understand risks after germination ▪ Management of risks ▪ Possibility of Top-Up uptake	Understand the risks faced during and after germination stage, how farmers manage those risks and possibility of Top-Up product uptake.
Section E: ACRE Top-Up Information ▪ Awareness of agricultural insurance covers ▪ Possibility of Top-Up uptake ▪ Relaying product information	Familiarity with agricultural insurance, possibility of Top-Up product uptake and how to best relay product information.

Section A. Background Information			
FO: First I would like to ask you a few questions about yourself and your background			
	Survey ID	☐☐☐☐☐☐	
	Primary Contact Number	☐☐☐☐☐☐☐☐☐☐	
	What is the respondent's gender?	[ ] Male [ ] Female	
	What is your primary occupation?	[ ] Farm Worker [ ] Market Vendor [ ] Cattle Owner [ ] Industrial Worker [ ] Carpenter/Mason [ ] Clerk [ ] Conductor [ ] House Help [ ] Waiter/Cook [ ] Driver [ ] Public Servant [ ] Electrician [ ] Mechanic [ ] Manager [ ] Watchman [ ] Policeman [ ] Secretary [ ] Tailor [ ] Student [ ] Teacher	[ ] Engineer [ ] Housewife [ ] Plumber [ ] Farm Worker [ ] Cattle Owner [ ] Salesperson [ ] Unemployed and NOT searching for work [ ] Unemployed and searching for work [ ] Physically unable to work [ ] Commercial Farmer [ ] Something else (des):_____ [ ] Refused [ ] Don't know
	What is your date of birth?	[*FO: write in number. Code -98 for refused, -99 for don't know*] [_____] [_____] [_____] [DD] MM] [YY]	
	Does the respondent live in the same location as their primary agricultural landholding?	[ ] Yes → A8 [ ] No	
	How often do they visit their primary agricultural landholding?	[ ] Once a week [ ] Two – three times a month [ ] Once a month [ ] Once every two months [ ] Once per quarter [ ] Between two times per year and once a quarter	

		[ ] Between one and two times per year [ ] Less than once per year [ ] Other (des): _____
	Which county is the respondent's primary landholding?	Insert 47 county options
	Which county does the respondent primarily live in?	Insert 47 county options
	What is the highest level of formal schooling you have completed? (*FO: circle the answer*)	[None 1 2 3 4 5 6 7 8] [ ]Std 1 13.[ ] Univ 1 [ ]Std 2 14.[ ] Univ 2 [ ]Std 3 15.[ ] Univ 3 [ ]Std 4 16.[ ] Univ 4 [ ]Std 5 17.[ ] Polytechnic/College [ ]Std 6 18.[ ] Postgraduate [ ]Std 7 [ ]Std 8 19.[ ] None [ ] Form 1 -98.[ ] Refused [ ] Form 2 -99.[ ] Don't know [ ] Form 3 -777.[ ] Other (specify) [ ] Form 4
	What is your marital status?	[ ] Married [ ] Cohabiting but not married [ ] Widowed [→A11] [ ] Divorced/separated [→A11] [ ] Never married and not cohabiting [→A11] [ ] Refused [→A11]
	Do you live with your husband / wife/ partner?	[ ] Yes [ ] No [ ] Refused
	Do you have children?	[ ] Yes [ ] No [→A13] [ ] Refused [→A13]
	How many children do you have?	[*FO: write in number. Code -98 for refused*] [_____]
	Are you the head of your household?	[ ] Yes [ ] No [→A15] [ ] Refused
	What is the head of the household's relation to you?	[ ] Spouse [ ] Mother [ ] Father

		[ ] Brother [ ] Sister [ ] Cousin [ ] Uncle [ ] Aunt [ ] Grandfather [ ] Grandmother [ ] Other (des): _____ [ ] Refused [ ] Don't know
	In total, how many people live in your house, including you?	[*FO: write in number. Code -98 for refused,*] [_____]
	How many people depend entirely on you for support?	[*FO: write in number. Code -98 for refused*] [_____]
Financial Decision Making FO: I would like to ask some questions about your views on how you make decisions in your household.		
A18.	Who are the people in your household who are involved in the financial decision making for purchasing goods and services for the household?	[ ] Me alone [ ] The household head alone [ ] Me and someone else (des): _____ [ ] Someone else in the household (des relation): _____ [ ] Household head and I decided together [ ] Household head and I decide independently [ ] Refused [ ] Don't know
A19.	Who are the people in your household who are involved in the financial decision making for borrowing and savings?	[ ] Me alone [ ] The household head alone [ ] Me and someone else (des): _____ [ ] Someone else in the household (des relation): _____ [ ] Household head and I decided together [ ] Household head and I decide independently [ ] Refused [ ] Don't know
A20.	Do you have alternative sources of income?	[ ] Yes [→A21] [ ] No [→A22]
A21.	What are your alternative sources of income?	[*FO: write farmer's alternative sources of income. Code -98 for refused, -99 for don't know*] [_____] [_____]

		[_____]	
A22.	What did you buy for the house yesterday?	[ ] Maize flour [ ] Rice [ ] Omena [ ] Bread [ ] Milk [ ] Paraffin [ ] Charcoal [ ] Cooking fat [ ] Sugar	[ ] Meat [ ]Clothes [ ] Other: _____ [ ] Refused [ ] Don't know
A23.	How much did you spend in total?	[*FO: write in number. Code -98 for refused, -99 for don't know*] [_____]	
Section B. Agricultural Information			
Farm Information FO: Now I would like to ask you some questions about your income			
	Does your household own the land you primarily farm on?	[ ] Yes [ ] No	
	How many acres is this land?	|_____| Acres	
	Who owns this land?	[ ] Respondent [ ] Spouse [ ] Father [ ] Brother [ ] Mother [ ] Other : _____ [ ] Refused [ ] Don't know	
	Who is the primary decision-maker on the farm?	[ ] Respondent [ ] Spouse [ ] Father [ ] Brother [ ] Mother [ ] Other : _____ [ ] Refused [ ] Don't know	
	Who does the physical planting of maize seeds?	[ ] Respondent [ ] Spouse [ ] Father [ ] Brother [ ] Mother	

		[ ] Hired Labor [ ] Caretaker [ ] Other : _____ [ ] Refused [ ] Don't know
	Did you cultivate (harvest) anything in the last season?	[ ] Yes [ ] No
	What did your household cultivate in the last season? (Choose up to 4)	[ ] Maize [ ] Wheat and other grains [ ] Tubers (Cassava, potato and sweet potato, etc.) [ ] Vegetables (eggplant, okra, carrot, cabbage, etc.) [ ] Pulses (beans, lentils, etc.) [ ] Fruits (Avocado, melon, banana, plum, etc.) [ ] Sugarcane [ ] Coffee [ ] Tea [ ] Other : _____ [ ] Refused
	How many acres of maize did you plant the last season you harvested?	[*FO: write in number. Code -98 for refused, -99 for don't know*] [_____]
	How many 90 kg bags of maize did your farm produce last season you harvested?	[*FO: write in number. Code -98 for refused, -99 for don't know*] [_____]
	How much did your household pay for the following items in the last season?	
a.	Seeds	[_____] KES
b.	Fertilizers	[_____] KES
c.	Pesticides / herbicides	[_____] KES
Section C. Replanting Guarantee Product Usage		
FO: Use of Kilimo Salama Insurance Cover		
C1.	Do you know about the Kilimo Salama insurance cover?	[ ] Yes [ ] No [→D1]
C2.	Did you subscribe to the Kilimo Salama insurance cover?	[ ] Yes [ ] No
C3.	What do you think about the Kilimo Salama insurance cover?	[ ] Great and effective product [ ] Good product [ ] In-different [ ] In-effective product

C4.	Did you receive any payout during the last season?	[ ] Yes [→C4] [ ] No
C5.	How much did you receive?	[_____] KES
C6.	How long did it take for you to receive the payout? (before/during preparation of the next planting season)	[_____] Days after harvesting
Section D. Risk Assessment		
FO: Now I would like to ask you some questions about your risk assessment		
	What are the main risks impacting your crops during germination stage?	[ ] Low rainfall/drought [ ] Pest infestation [ ] High rainfall [ ] Crop disease [ ] Other (des):_____
	After the RPG insurance cover lapses, what risks do you face post-germination stage?	[ ] Pest infestation [ ] Crop disease [ ] Insufficient water [ ] [ ] Other (des):_____
	How do you manage these risks?	[*FO: write ways in which the farmer manages these risks. Code -98 for refused, -99 for don't know*] [_____] [_____] [_____]
Section E: ACRE Top-Up Information		
FO: Ask questions on the ACRE Top-Up product		
	Are you aware of insurance covers for post-germination stage?	[ ] Yes [→E2] [ ] No [→E3]
	Which ones do you know?	[*FO: write different insurance covers that are available to farmers that cover post-germination risks. Code -98 for refused, -99 for don't know*] [_____]

		[_____] [_____]
	Would you be willing to purchase an additional Kilimo Salama insurance cover for post-germination stage for which you will have to pay a certain amount as premium?	[ ] Yes [→E4] [ ] No [→E5]
	Why will you be willing to take up the Top-Up product?	[*FO: write reasons why farmer would take up the Top-Up product. Code -98 for refused, -99 for don't know*] [_____] [_____] [_____]
	Why won't you be willing to take up the Top-Up product?	[*FO: write reasons why farmer wouldn't take up the Top-Up product. Code -98 for refused, -99 for don't know*] [_____] [_____] [_____]
	What is the best means to relay information about the new Kilimo Salama Top-Up cover to you and other farmers?	[ ] Text message [ ] Radio broadcast [ ] Agrovets/Agrodealers [ ] Pamphlets [ ] Workshops/Seminars [ ] Other : _____ [ ] Refused

III. ENDLINE QUESTIONNAIRE

Recruitment

1. Group 1: All those who paid (30)
2. Group 2: All those who expressed interest (180)
3. Group 3: Random sample of people who didn't pay, didn't express interest but reported receiving an offer (50)

Initial introductions and probe of Hakika familiarity ("Hakika is a) insurance; b) ; c")

MODULE

Financial Worries
Financial Motivations (optimism; locus of control)
[Include financial literacy test?]
Trust
Product Satisfaction
Attitudes and Perceptions of Hakika
Barriers to Uptake
Input Investments

DEMOGRAPHICS:

Age, gender, highest level of schooling, marital status, years farming, do they have a bank account [bank, sacco, chama--to get at financial sophistication and whether they are banked], have you ever taken a loan

FINANCIAL WORRIES

- Financial worries scale – "To what extent do you agree with the following statements?" (1=strongly disagree, 5=strongly agree)
    - I am very worried about my financial situation.
    - I am very worried about having enough money to make ends meet
    - I am very worried about not being able to find money in case I really need it.
    - I often feel ashamed because of my current financial situation.

FINANCIAL MOTIVATIONS

[Financial optimism: single item]
Looking ahead, how do you think you will be financially one year from today?

i. Much worse than you are now
ii. A little worse than you are now
iii. About the same
iv. A little better than you are now
v. Much better than you are now

[Financial locus of control: adapted 7-item scale]
We would now like to better understand your life and finances. Please state the degree to which you agree or disagree with the following statements."

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

i. I have little control over things that happen to me
ii. There is really no way I can solve some of the problems I have
iii. There is little I can do to change many of the important things in my life
iv. I often feel helpless dealing with the problems of my life
v. Sometimes I feel that I am pushed around in life
vi. What happens to me in the future mostly depends on me
vii. I can do just about anything I really set my mind to

TRUST

2 different trust components:
1. Trust in insurance (general)
2. Trust in Hakika product, specifically

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

i. I fully trust insurance providers.
ii. I believe insurance providers have a high integrity
iii. In general, I believe insurance providers' motives and intentions are good.
iv. Insurance providers are not always honest and truthful
v. I do not think my insurance providers treat (or would treat) me fairly.
vi. I can expect insurance providers to treat me in a consistent and predictable manner.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

i. I fully trust ACRE Hakika
ii. I believe Hakika providers have a high integrity
iii. In general, I believe Hakika providers' motives and intentions are good.
iv. ACRE Hakika providers are not always honest and truthful
v. I do not think my ACRE Hakika treat (or would treat) me fairly.
vi. I can expect ACRE Hakika to treat me in a consistent and predictable manner.

PRODUCT SATISFACTION [ONLY FOR THOSE WHO PURCHASED]

What is the biggest problem with Hakika insurance? [open-ended; FO to code responses into the following categories]:

i. Too expensive
ii. Too confusing
iii. The cost of Hakika is better spent on something else
iv. Other []

[Satisfaction - Regret]

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

i. I'm happy with my purchase of the Hakika insurance?
ii. I regret my purchase of the Hakika insurance?
    - [if >4] If you had not purchased Hakika insurance, what would you have spent the money on instead? [open-ended; FO to code responses into the following categories]:
        - § Other maize farming inputs (tools, machinery, irrigation, etc.)
        - § Other farming activities (any farming other than maize: i.e. other crops, or livestock)
        - § Other businesses (non farming)
        - § Household needs (supplies, food, etc.)
        - § Other _____ [FO to specify]

[willingness to recommend]

I would recommend the Hakiki insurance to other farmers like me

1. I would strongly recommend
2. I would recommend, but with caution
3. I would never recommend

Do you plan to purchase Hakika insurance next season?

- Yes
- No

Did you call in to ask questions about ACRE Hakika

- Yes
- No

ATTITUDES AND PERCEPTIONS OF HAKIKA

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

i. Hakika insurance is worth the cost
ii. Buying Hakika insurance is wasteful
iii. Buying Hakika is responsible.
iv. It is risky to buy the Hakiki product

The cost of Hakika insurance is:

- o Very affordable
- o Somewhat affordable
- o Somewhat expensive
- o Very expensive

Do you know other farmers who have purchased Hakika insurance?

- Yes
- No

BARRIERS TO UPTAKE [FOR GROUP 2 and 3]

What were the reasons that you did <u>not</u> buy the Hakika insurance. [open-ended; FO to code responses into the following categories]:

i. Too expensive
ii. Too confusing
iii. The cost of Hakika is better spent on something else
iv. Other [specify]

INPUT INVESTMENTS

This maize farming season, how much money did you spend on maize farming inputs, in total? This includes all money spent on seeds, tools and machinery, irrigation, fertilizer, and insurance. If you do not know the exact amount, please provide your best estimate.

[for people who paid]
Besides seed insurance, did you purchase any new inputs this season that you have not bought in previous seasons (i.e. improved seeds, new equipment, etc.)?

- Yes (please specify)
- No

[for people who did not pay]
Did you purchase any new inputs this season that you have not bought in previous seasons (i.e. improved seeds, new equipment, etc.)?

- Yes (please specify)
- No

[if yes]
What new purchases for your maize harvest did you make this season [open-ended; FO to code into the following categories

i. Tools and machinery
ii. Irrigation
iii. New seeds or fertilizer
iv. Other (specify)