



Shell Foundation | 



Pay-at-harvest pilot

Lessons learned

May 2022





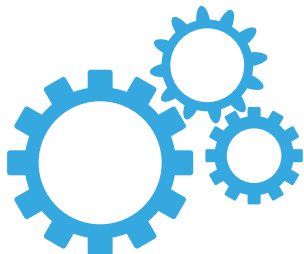
1.0

Executive summary

Project Summary

Pula, in partnership with Shell Foundation and UK's Foreign, Commonwealth and Development Office (FCDO), piloted its pay-at-harvest insurance model in Nigeria to explore how premium payment timing impacts farmers' purchasing decisions.

Pula worked with Olam and Heifer International to implement the pilot. The pilot was carried out in the wet season (June - Oct) of 2021 with 4,000 rice farmers in Nigeria's Benue and Nasarawa states, covering a total of 4,358 ha. This report provides insights on the factors that influence farmers' decisions and offers recommendations on how better to deliver insurance.



Three key lessons learned are:

- Sensitize farmers early to allow enough time to answer questions and ensure deep understanding of how insurance works.
- Automate the farmer registration process to reduce administration and manual collation.
- Allow farmer contributions to the initial funding to enhance sustainability.

Next steps for the product include:

- Partnering with off-takers in other countries, e.g., Kenya and Zambia, to expand product delivery.
- Sourcing and securing additional funding for the delivery of the pay-at-harvest insurance model.



2.0

Introduction

Overview

Smallholder farmers barely break-even, making insurance an additional burden. Farmers' willingness or ability to purchase insurance is limited, leading to low insurance penetration rates.

Insurance cover is typically bought at the start of the harvest season, which is when most farmers have the least cash at hand. What cash they have available usually needs to be spent on buying seeds and inputs.

A study carried out by the University of Zurich and Columbia University concluded that **the timing of insurance purchase plays a key role in the level of uptake by farmers**. Based on this, Pula decided to pilot a **pay-at-harvest** product to test its effectiveness, impact, and business viability.



Objective:

Pula's objectives of this project were to:

- Source funding to pre-finance insurance premiums.
- Pilot a pay-at-harvest insurance product for smallholder farmers.
- Increase insurance uptake among smallholder farmers.



Intended outcome:

The intended outcome for this pilot was to significantly increase insurance penetration among rice farmers in Nigeria and, as a result, their financial resilience to shocks.

Smallholder farmers are more willing to take up insurance when they pay at harvest

This research in Kenya showed:

5%

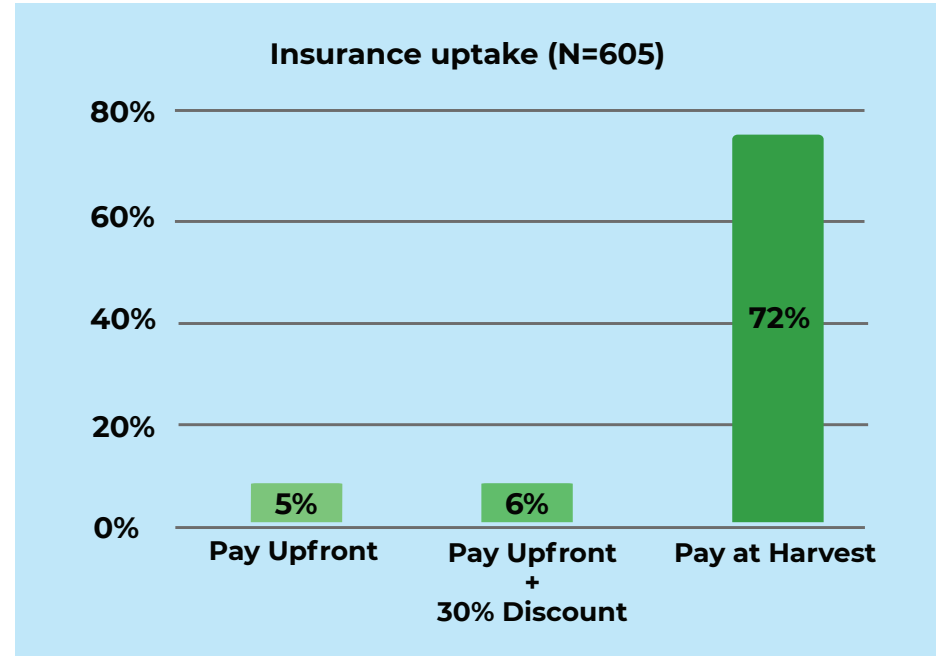
of farmers are willing to take up insurance when asked to pay upfront

6%

if given a 30% discount, so price doesn't make much of a difference

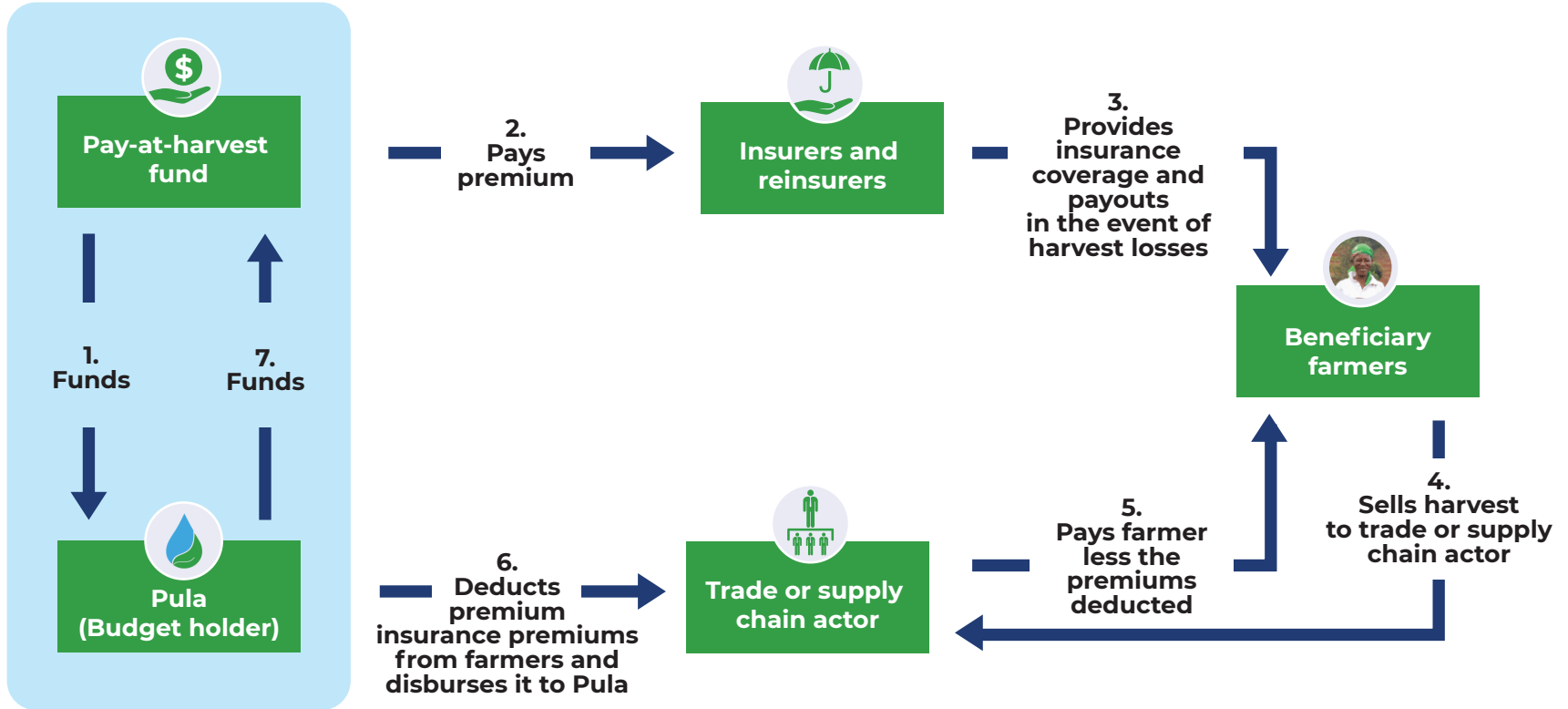
72%

are willing to pay at harvest

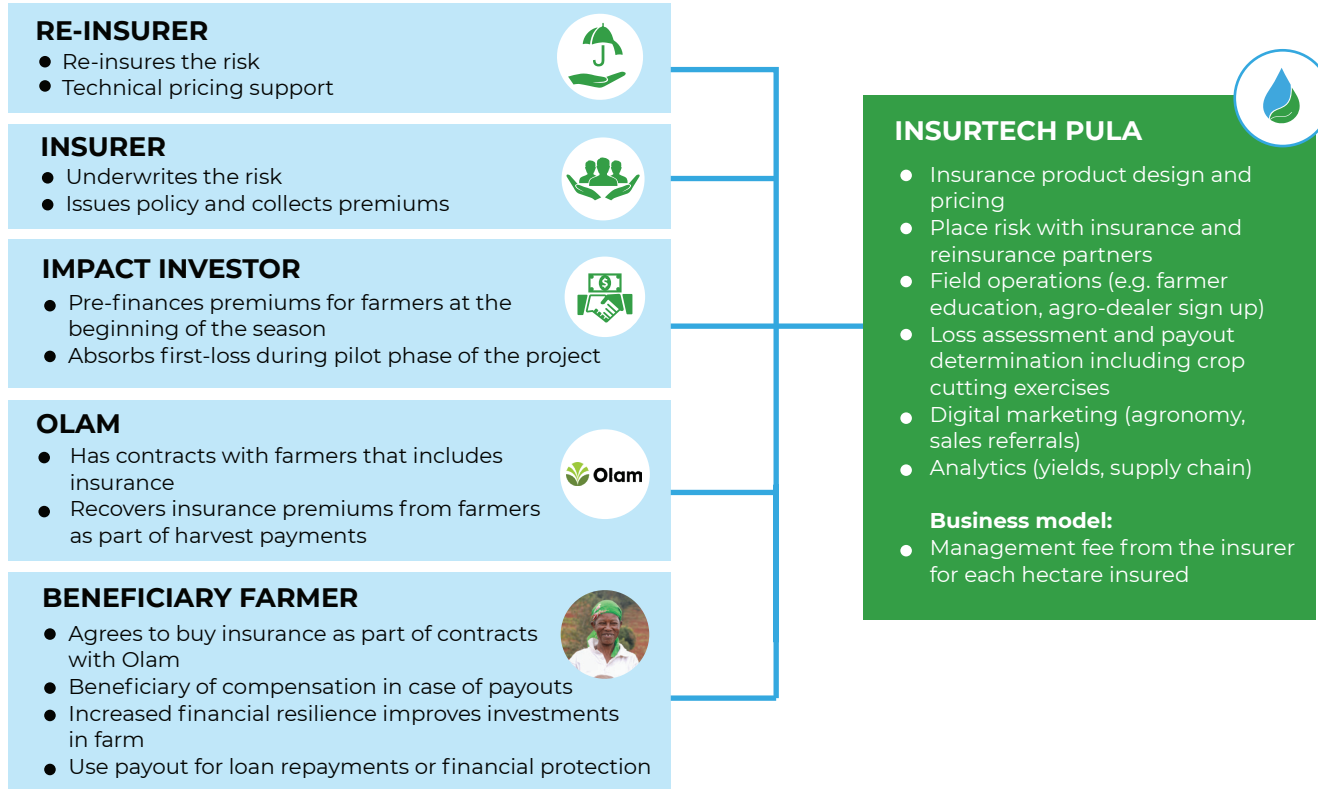


In Pula's experience, uptake of standalone insurance is usually around 1-2%.

Pula designed a clear structure to test the pay-at-harvest model



Key actors and their roles in implementing the pilot



The pilot was carried out with rice farmers in Benue and Nasarawa states in Nigeria, in collaboration with Olam - an aggregator with significant market access and signed contracts with farmers.



3.0

Model and risk analysis

Behaviour around pay-at-harvest is influenced by several factors



Timing of payment

Crop insurance premiums are typically paid at the start of the season. This is when farmers need money for inputs, seeds, machinery, and to feed their family. Insurance is simply not a priority. Until harvest time, when they can sell their produce, there is a constraint on available cash.



Cash constraints and present-bias

Even with a 30% discount, most farmers were unwilling to pay for insurance at the beginning of the season. Price did not correlate with uptake. Our research found that neither discounting nor delaying repayment by a month resolves the timing constraint.



Many offtakers get most services on credit

Offtakers provide seeds and fertilisers to farmers on credit. The cost of these inputs can often limit offtakers' ability to take on the additional cost of insurance premiums for their farmers.



Higher demand is associated with poverty

Farmers have a high demand for insurance, but a low willingness to pay for it upfront. In addition, the poorest and the most liquidity-constrained farmers showed the highest increase in demand for insurance that can be paid for at harvest.

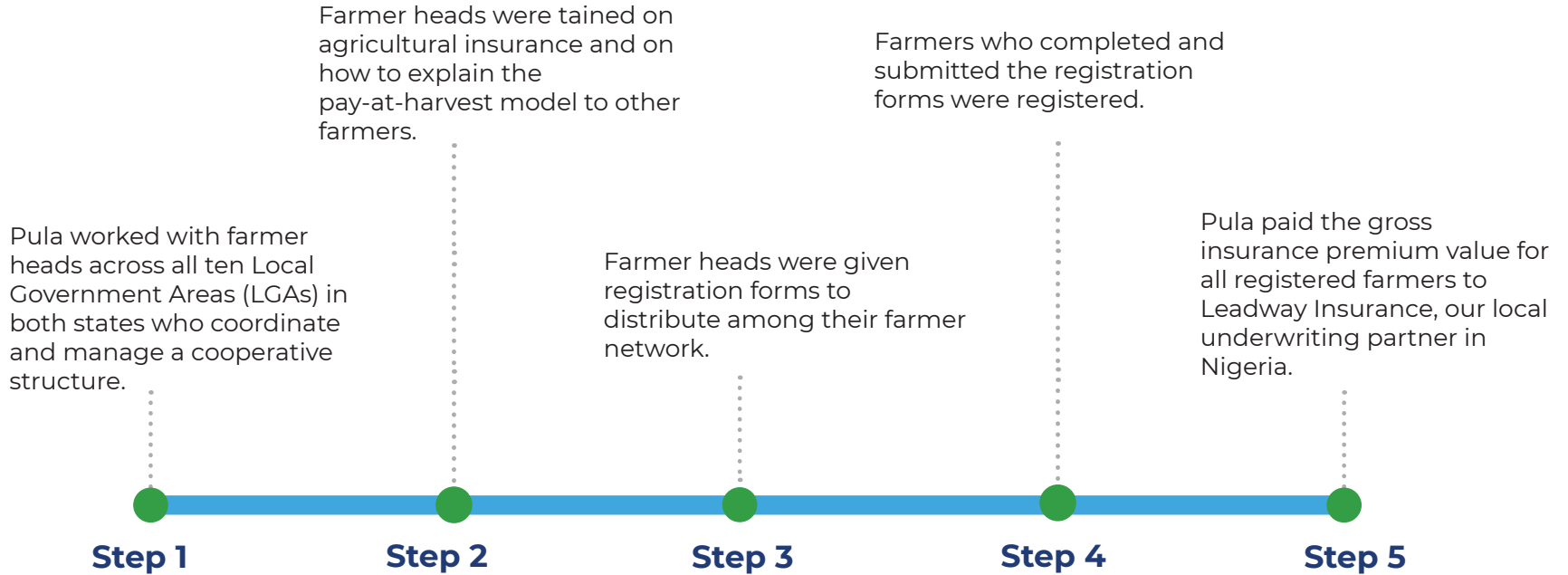
Associated risks

Risk	Risk analysis	Mitigation solution
1. Collecting premiums repayment	At the end of the season, during harvest, premiums need to be individually collected from farmers.	The offtaker should have a digital payment mechanism in place to deduct premiums from harvest payments. The faster payments are made, the better for project financing as it allows the circle to continue efficiently. Money would then be available to fund the next cycle.
2. Farmer loyalty / side selling	Most farmers do not have enforceable contracts with targeted aggregators, creating a side-selling risk where aggregators cannot deduct and repay insurance premiums.	A possible mitigation strategy for farmer defaults is have an enforceable contract between farmers and aggregators. This will allow premiums to be deducted at point of sale.
3. Default rates	Completely pre-financed services to be repaid later can create a risk of repayment defaults.	The cost of defaults should be absorbed by one or more of the value chain partners. The maximum tolerated default rate should be 10% or 90% repayment of a loan or previously financed premium.
4. Cost of premium	Cost of premiums cannot be greater than 5% of harvest income. Otherwise the risk of default becomes high on the farmers' side.	With a small insurance loan, the default and resulting reputational risk for the farmer does not outweigh the benefit of side selling. Therefore, the cost of premium should be around or less than 5% of harvest income.

4.0

**Review of key
processes to enroll
farmers for the
pay-at-harvest pilot**

Registration process for the pilot



Data collection process

Data collection was carried out using Pula's standard harvest crop cutting exercises (CCE), i.e., harvest samples collected through box placement, and wet harvest and dry harvest measurements. This process started prior to harvest.

Loss assessors (or enumerators) were then trained to collect data through crop cutting experiments. Data collected was checked using Pula's business intelligence platform to ensure cleanliness and compliance. For example, to ensure that data that data was collected in the right agro-ecological zone (AEZ) and for the right crop.

Information on harvest was collected in two ways:



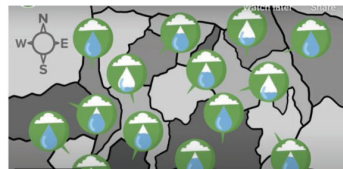
Through our support desk (call center). Data was collected randomly by sampling farmers across the different AEZs to confirm the time of their harvest, the current development of the crop(s) planted and types of perils suffered, such as droughts, floods or other.



Through the use of farmer heads in various LGAs, who initially provided information on expected cultivation periods and time of harvest during the training period.

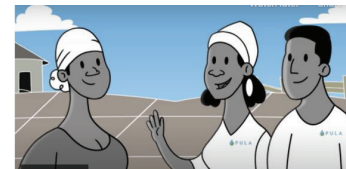
Steps 1

Country is split in to agro-ecological zones



Steps 2

Pula agents visit selected farms



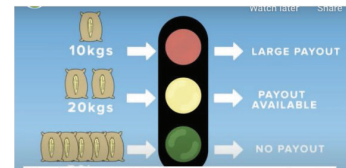
Steps 3

Pula agents harvest using CCE method



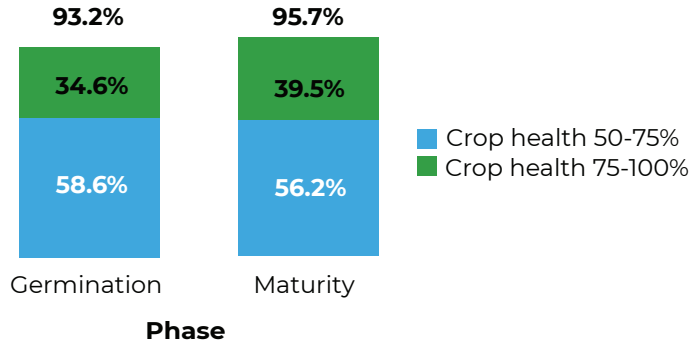
Steps 4

Average yield for area is compared against a benchmark

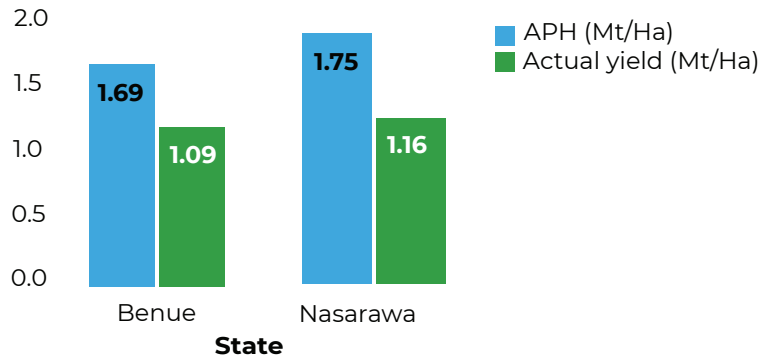


Yield results

Germination and maturity phases



Average production history (APH) compared to actual yield achieved



Seasonal observation

- The pilot was carried out in the wet season (June - Oct) of 2021.
- At germination phase, 93.2% of all farmers saw above 50% growth of seeds planted. There were no losses due to drought. However, slight losses due to flood and seed quality were noted.
- At maturity stage, 95.6% of the grown crop had an overall maturity and harvest stage health above 50%. Slight losses due to pest and disease, drought, and excess rain were noted in Benue state, where 78.3% of registered farmers were located.

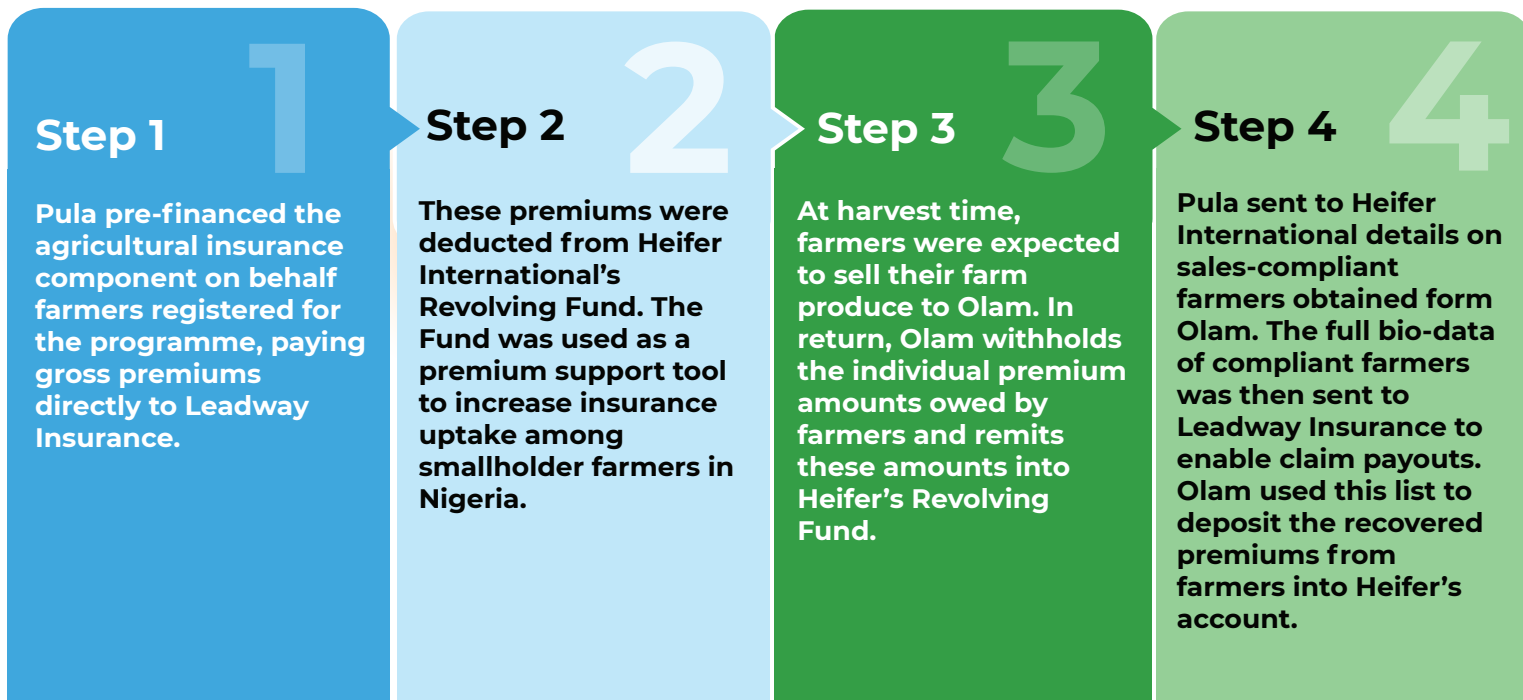
Yield results

- A lower actual yield was recorded in the pilot compared to the average production yield estimate used in the product policy design.

Outcome

- The sum insured per farmer was based on their crop output. As a result, a farmer received compensation based on the expected monetary value of their harvest in the event of a claim payout. The farmgate price of rice applied was **\$395 per metric tonne (mt)**.
- On average, farmers received a payout greater than the amount they spent on the insurance premium, and 78% of insured farmers received payouts. These are powerful motivating factors for beneficiaries to adopt insurance in the long run.

Repayment arrangements process set up with Olam



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**Challenges faced,
lessons learned and
future recommendations**

Farmers were relatively optimistic about participating in the pilot, but some raised several concerns

Challenges faced during the pilot were particularly related to the issue of paying premium as stated below:



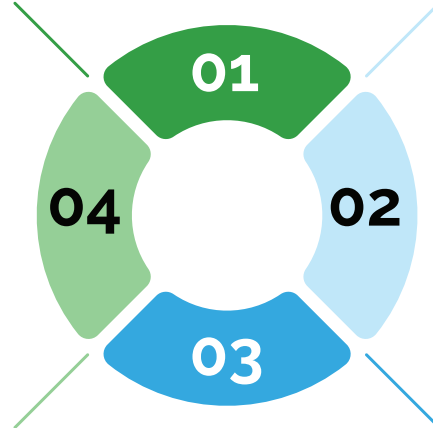
Limited outreach

Farm heads were trained at city-level on how pay-at-harvest works and were expected to explain this to their member farmers. This reliance led to several farmers lacking a clear understanding on pay-at-harvest.



Negative perception of insurance

There was general apprehension among farmers towards buying insurance. They complained of past experiences where they bought insurance, but received no payouts from insurers when they suffered harvest losses.



Repayment mode uncertainty



During the pilot, it became apparent that farmers remained unsure on how premiums were meant to be deducted from harvest sales. Repayments were not properly explained to farmers, who were then surprised when premiums were deducted from their sales.

Payout beneficiary uncertainty



Farmers raised issues on which party qualifies as the ultimate beneficiary in the event of a claims payout. Whether claim payouts go directly to their accounts or through a third party was not clearly explained to farmers. This further dampened their commitment towards premium repayments.

Lessons learned

1. Early farmer and grassroots sensitization is key:

Outreach to farmers, especially at village-level, should be done before product roll-out to ensure key questions and concepts are properly answered and understood. In addition, the dependency on farmer heads to disseminate information should be reconsidered to avoid possible lapses.

2. Automated registration of farmers is more efficient:

Automating the registration process removes any reliance on handwritten paper registration forms, which may contain errors or easily get lost.

3. Farmers should contribute:

Pay-at-harvest can become sustainable if farmers have 'skin in the game'. This can either be through a partial down-payment or an existing small loan taken from the aggregator.

4. Pay-at-harvest works best with crops where a monopoly

buyer exists: Pay-at-harvest would work well for value chains, such as cocoa in Ghana, and cotton in Côte d'Ivoire. One exception is if the client already offers a small loan to the farmers that they will recoup. If only seeds are being advanced, then food crops can be considered too.

5. The carrot and stick approach to incentivise cluster heads

should be automated, so that cluster heads payments can be tracked.

Future recommendations

- 1. Train farmers at village-level:** Targeted agriculture insurance sensitization workshops should be run at village level to engage directly with farmers and educate them about the pay-at-harvest model.
- 2. Streamline farmer leads' responsibilities:** Leads should be charged with the assembling of smallholder farmers in batches for registration and onboarding for the pay at harvest next phase only.
- 3. Constant communication:** Leads should only be responsible for assembling batches of farmers and onboarding them for the next phase.
- 4. Engage sufficient operational staff:** This will enable the efficient sensitization of all farmers.
- 5. Migrate registration from paper to digital:** Pula's app (Commcare) could be used to collect farmer data and reduce human error in the process. Furthermore, collaborating with offtaker representatives is key to identifying and onboarding farmers that show interest in the programme during the sensitization phase.
- 6. Farmers should contribute to insurance prepayment:** Farmers should pay part of the premium or pay for seeds and around 10-30% of the insurance cost.
- 7. Focus on gaining farmers trust:** A fair assessment of farmer produce should be conducted using a neutral scale to improve trust.



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