INSURANCE TOOLKIT

Knowledge brief

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Filling in the blanks: How to address data gaps to develop better livestock insurance for smallholder farmers

By: Katie Biese and Mariah Mateo Sarpong

Introduction

There are more than 500 million smallholder farms globally, each with landholdings of less than 2 hectares.[1] Livestock play an integral role in many of these farms, with families depending on large and small animals as a source of both food and income.[2]

The loss of livestock can therefore have severe consequences for poor rural families. Smallholder farmers face a myriad of risks that can lead to the death of their livestock, ranging from diseases and malnutrition due to drought, to accidents, theft and wild animal attacks. While much can be done to mitigate these risks, when deaths do occur, livestock insurance, especially when linked to other risk management tools, can play a valuable role in cushioning families against the loss and increasing their resilience and ability to recover.

Livestock insurance typically pays out an established amount of money in the event of the death of an insured animal, in exchange for an annual premium. A key challenge to the development of successful livestock insurance in emerging markets is often a lack of data on the risks.[3] In the absence of government or industry data on the causes and rates of livestock deaths, insurers will either not offer coverage, or will opt to charge farmers a very high premium in order to make sure that they can cover the resulting claims. As a result, livestock insurance is very often either unavailable or unaffordable for smallholder farmers.

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AVTANDIL TETRADZE, from the Samtskhe-Javakheti region, is a smallholder policyholder and claimant of a dairy cow mortality insurance product in Georgia. He is pictured holding the product brochure.

As part of the IFAD-funded grant project Managing Risks for Rural Development: Promoting Microinsurance Innovations (MRRD), the MicroInsurance Centre at Milliman (MIC@M) piloted and launched a dairy cow insurance product in Georgia from 2019 to 2021. The insurance covered smallholder dairy farmers in three regions of the country. Because of a lack of data on dairy cow mortality, the MIC@M team worked with local partners to collect the data required and incorporate it into insurance product pricing. This brief presents our activities and the lessons learned.

MicroInsurance Centre at Milliman

PARM PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

Sida

Collecting data to assist in designing and pricing dairy cow mortality insurance for smallholder farmers: A case study from Georgia

The MRRD team in Georgia worked with the IFAD-supported Dairy Modernization and Market Access Project (DiMMA), which is implemented by the government. The dairy sector in Georgia, which produces about 500 million tons of milk annually and is valued at US$500-600 million, is dominated by smallholders; almost 99 per cent of agriculture holdings with cattle have fewer than 20 head.[4] The team assessed the demand for dairy cow insurance from smallholder farmers, assessed insurers' willingness (or unwillingness) to meet this demand, and then designed and implemented a product based on these findings. The following sections describe: the key goal of the insurance, the lack of data and what the project did to address this problem, and the results.

GOAL: Farmers wanted all mortality risks to be covered

According to field research conducted by our team on the demand for insurance protecting dairy cows, the ideal product would cover deaths due to any cause. There were livestock insurance offerings on the market at the time, or others that had been available in the past, but they covered only a narrow range of risks, such as accidents or wild animal attacks. Farmers were more concerned with cow deaths due to diseases and other issues, such as cattle bloating or complicated calving.

PROBLEM: In the absence of data, insurers were unwilling to offer coverage

When a more comprehensive product was proposed to insurers (with no exclusions except for the intentional killing of an otherwise healthy cow), most were unwilling to underwrite such a coverage. The primary reason given was that mortality rates were too high. The insurers believed cow mortality rates to be in the range of 10-15 per cent per year, and there was no data available to challenge this belief. The MRRD team identified one insurer who was willing to offer livestock insurance at a mortality rate of 5 per cent. Including a loading of 2 per cent, the insurance product was offered to farmers at a price point of 7 per cent of the sum insured (the amount of coverage), or 70 Georgian Lari (GEL) (approximately US$23) for GEL 1000 (US$325) of coverage in the event of a cow's death due to any cause. The take-up rate during a three-month pilot was low, and this price point was still much higher than farmers indicated during willingness-to-pay exercises. Therefore, the project team sought to gather additional data on farmers' actual experiences with deaths of their dairy cows, based on the hypothesis that the price could be significantly reduced and the product design improved.

ACTION: A short, practical dairy cow mortality study gathered vital data

MIC@M developed a short questionnaire to gather data on dairy cow deaths and causes, farm characteristics, herding and feeding practices, and reasons for buying or selling dairy cows. The Georgian Farmers' Association (GFA) was engaged to conduct phone interviews with individual farmers (approximately 15 minutes each), primarily targeting those with between 3 and 20 cows.[5] Contact information for smallholder dairy farmers was obtained via GFA's database and from supplier lists provided by cheese manufacturers that collect milk. Data was collected from 500 farmers in the Samtskhe-Javakheti region over the course of one month in 2019, and the analysis and write-up of the results by the team took another month. The following year, the study was repeated with 320 farmers in the Kakheti region.

RESULTS: The findings contributed to a 29 per cent reduction in the price of insurance

The results of the study indicated that the overall death rate for dairy cows was only 1.6 per cent per year. On top of this, 0.8 per cent of dairy cows were sold due to accident or illness. Even if these sales were counted as a "death" (presuming that the sales due to accident or illness were to a slaughterhouse), the resulting rate of 2.4 per cent was much lower than the 10 per cent (and above) that many insurers initially believed to

Dairy cows grazing in the mountains in Georgia. Smallholders often take their cows to mountain pastures for grazing during the summer, which can expose them to risks such as animal attacks or bloating from ingesting poisonous plants or grasses.

be the mortality rate. After sharing the results with the insurance industry, a new insurer came forward and offered to underwrite the product at a 2.9 per cent risk premium (the 2.4 per cent from the study plus a buffer of 0.5 per cent). After adding a margin for expenses, this resulted in an overall premium reduction of almost 30 per cent, from GEL 70 (US$23) to GEL 50 (US$16) (see figure 1), for the same coverage of GEL 1000 (US$325) in the event of death due to any cause.

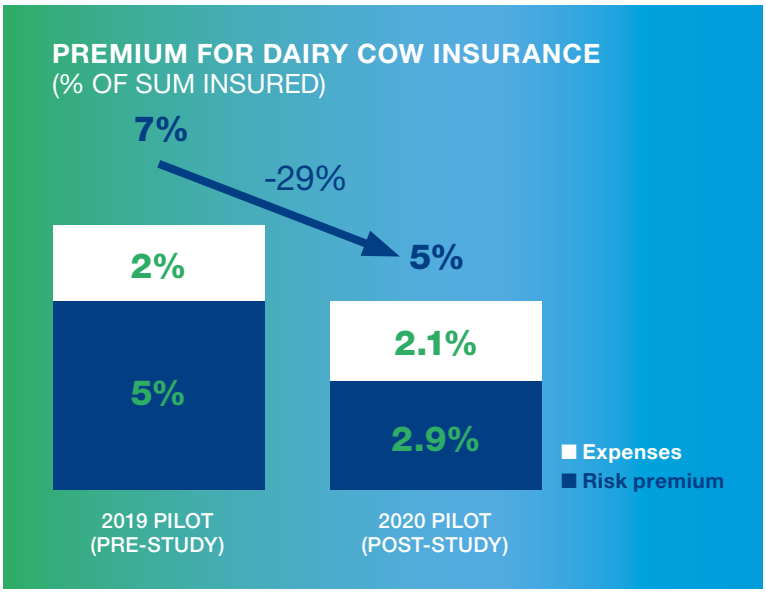
The study had effects beyond pricing changes

MIC@M published the results of the study in a research report in English and Georgian. In addition to having an immediate impact on the pricing, the report also informed or validated other product design features such as payout amounts, eligibility criteria and potential value-added services. Furthermore, it attracted interest from other stakeholders involved in the dairy sector, such as the Georgian Rural Development Agency and Land O'Lakes Venture37, a global non-profit organization striving to help communities thrive through agriculture, which is supporting the dairy and beef value chains in Georgia.

Lessons and tips for gathering mortality data for livestock insurance design

The experience of the MRRD grant project in Georgia yielded several key lessons that may be useful to similar projects in data-sparse environments.

FIGURE 1: IMPACT OF THE MORTALITY STUDY ON DAIRY COW INSURANCE PREMIUMS



Plan to collect data as an integral part of insurance product design

Initial project research and feasibility studies should identify the extent to which mortality data is available, and time and budget allowances should be made to collect relevant data. Key steps to plan for include: designing and testing a questionnaire for farmers, engaging key partners (to build trust, collect data and promote the results of the study), collecting the data, and analysing and sharing the results.

TABLE 1: CHECKLIST OF QUESTIONS TO ASK FARMERS IN A DAIRY COW LIVESTOCK MORTALITY STUDY

(1) Farm characteristics (to understand the risk exposure of the farmer)

- Total number of dairy cows/livestock for each of the past 3 years
- Age breakdown of dairy cows/livestock
- Breed of dairy cows/livestock
- Typical milk yield/productive output

(2) Dairy cow transactions (to understand the value of the cows/livestock)

- Number of cows/livestock sold and purchased
- Reasons why
- Prices received/paid

(3) Dairy cow deaths (to calculate mortality rates and understand cause of death)

- Number of deaths of productive milking cows/livestock
- Breed of cows/livestock that died
- Cause of each death
- Whether or not the cows/livestock were replaced
- Illnesses that have affected productive milking cows/livestock

(4) Farming practices (to identify additional risk management solutions or value-added services)

- Types of feed purchased, and amounts paid
- Preventive techniques, such as vaccines or medicines used
- Access to and usage of veterinary services
- Herding practices

(5) Insurance and risk perceptions of farmers (to inform insurance marketing and education efforts)

- Top concerns/worries with their dairy cows/livestock
- Prior experience with livestock insurance
- If any experience, overall satisfaction with the insurance
- If no experience, why not

Ask the right questions, but keep it short

Filling in gaps in mortality data is a quantitative exercise. It is essential to get key data elements related to frequency and cause of death (e.g. X deaths per year from bloating out of Y cows owned), as well as some indication of the magnitude of loss (e.g. cost to replace a cow or typical value of milk production). For a livestock mortality insurance product, it is also helpful to assess data elements that may indirectly indicate deaths (and which could identify potential fraud), such as illnesses and sales of livestock. Table 1 provides a checklist of key questions to include in a questionnaire for farmers. Sections 1 to 3 are essential for a mortality study, while sections 4 and 5 provide additional questions that can add value to product design, if time and budget are available for a longer survey.

Data collection can be done inexpensively by phone

Most of the necessary data elements are "factual" data points that farmers should be able to recall easily, without a significant level of sensitivity around them (as exemplified in table 1). This may vary by context, but generally questions of this kind lend themselves to efficient and cost-effective data collection methods, such as using a call centre.

Access to farmer contact databases is crucial

Access to a sizeable and well-maintained database of livestock farmers with phone numbers is necessary. Potential sources may overlap with potential insurance distribution partners and could include: local NGOs that work with farmers, farmers' associations or cooperatives, or value chain actors that supply to or purchase from livestock farmers.

Involve a trusted local stakeholder

When possible, hire an organization that is local and trusted to collect the data. Farmers are typically more willing to provide data and information to a local partner they trust rather than to a marketing or research firm, whom they may see as trying to sell them something. The key to securing the partner's involvement is conveying how the study will provide value to the dairy/livestock sector, and how that will further the partner's own goals. A data collection partner should also be paid an appropriate amount.

Involve insurers before and after data collection

Insurers must buy into the results in order for the data to make a real difference to product design and pricing. Involving insurers up front during questionnaire/study design will ensure that their key issues and concerns are addressed. Inviting them to access the (anonymized) study results database and review and analyse the data themselves to validate conclusions can build trust in the results, the data collected, and the implications for pricing and design.

Leverage the results beyond pricing, and beyond insurance

Data gathered in a mortality study can also provide valuable insights into improved forms of risk management, which could reduce the need for, or cost of insurance. For example, if a particular disease is identified as one of the top causes of livestock death, value-added services could be provided, or programmes could be developed that help farmers better prevent or treat that disease. In Georgia, the MRRD team set up additional programmes for dairy farmers based on information from the mortality study regarding the lack of access to veterinary services, as well as the top causes of death. These programmes included an awareness campaign, "lunch n' learn" sessions and virtual "Ask-a-Vet" sessions, during which veterinarians presented on key risk management topics followed by question and answer periods.

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is a US$6 million programme financed by Sida (the Swedish International Development Cooperation Agency) and implemented by IFAD through the Platform for Agricultural Risk Management (PARM). The five-year programme's goal is threefold:

- **increase the resilience of poor rural households in the face of climate risks**
- **build their capacity to manage risks**
- **strengthen their livelihoods.**

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CONTACT

insured@ifad.org

microinsurancecentre@milliman.com

International Fund for Agricultural Development
Via Paolo di Dono, 44
00142 Rome, Italy
Tel: +39 06 54591
Fax: +39 06 5043463
Email: ifad@ifad.org
www.ifad.org

facebook.com/ifad
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Notes

1/ Sarah K. Lowder, Marco V. Sánchez and Raffaele Bertini. Which farms feed the world and has farmland become more concentrated?, *World Development*, Volume 142, 2021, 105455, ISSN 0305-750X https://doi.org/10.1016/j.worlddev.2021.105455.

2/ Livestock refer to domesticated land-based animals that are raised to provide a diverse array of goods and services such as meat, eggs, milk, hides and feathers. (https://www.fao.org/livestock-systems/en)

3/ Additional challenges to the development of livestock mortality microinsurance often include lack of awareness and trust on the part of farmers, lack of accessible distribution channels and premium payment mechanisms, and lack of efficient means of managing fraud. This brief focuses on the key challenge of data availability.

4/ Georgian Farmers' Association. *Baseline Assessment of the Dairy Sector in Georgia*, 2018. https://gfa.org.ge/wp-content/uploads/2018/10/ჯამოვან-1-Baseline-Assessment-Dairy-Sector-in-Georgia_eng.pdf.

5/ While a majority of cattle holdings in Georgia have just 1 or 2 cows, a range of 3 to 20 focuses on smallholders who are more likely to generate some income from their cows, and therefore more likely to have demand and ability to pay for insurance. This is in line with the DiMMA project's target market of smallholder dairy producer households with less than 20 cattle, divided into two groups: (i) market-vulnerable dairy producers; and (ii) progressive dairy producers (as per project design documentation).