

# IFPRI's Research on Agricultural Insurance

## THE CHALLENGE: *Reducing risk for small farmers*

Natural disasters, crop diseases and pests, and other shocks cause enormous losses in agricultural productivity every year. For small farmers in low- and middle-income countries, these shocks can lead to lost income and assets, food insecurity, and poverty.

Insurance is a vital tool for protecting farm livelihoods and enabling investments that boost their productivity. It provides a safety net that helps vulnerable households meet basic needs and recover after crop losses. Evidence shows farmers who trust their coverage are more willing to adopt new technologies and make longer-term investments that improve welfare.

But agricultural risks are inherently difficult to insure. For insurers, the diversity of risks, limited data, and variation across farmers, as well as accurately measuring shocks, pose challenges that can drive up premium costs and make insurance unaffordable. For farmers, insurance payouts may not match their losses (a problem known as basis risk), which can limit the appeal of insurance.

## WHAT WE DELIVER: *Evidence, innovation, and actionable solutions*

For over 40 years, IFPRI has been a driver of innovation in agricultural insurance, providing partners with evidence, innovative tools, and policy solutions to improve the availability, affordability, and quality of agricultural insurance. Our research evaluates product performance, identifies barriers faced by farmers—especially women—and insurers, and tests innovations to strengthen existing insurance and develop new instruments.

### Evidence

**Assessing demand for insurance.** IFPRI evaluates what drives and limits uptake of insurance programs, identifying key barriers and examining how demand evolves over time. This work supports the development of insurance products that are more affordable, inclusive, and practical. By working with governments, insurers, and development partners, IFPRI helps translate evidence into market-ready, scalable insurance systems.

### **Assessing agricultural risks and design of insurance products for new settings.**

IFPRI researchers study innovative insurance models, piloting, studying, and developing insurance instruments to overcome fundamental challenges, including basis risk, information asymmetry, and high prices. This reduces vulnerability, protects livelihoods, stabilizes incomes, and helps prevent short-term shocks from becoming long-term poverty traps.

**Evaluating impact.** Impact evaluations of agricultural insurance programs generate evidence on how design, delivery, and complementary interventions can improve uptake, reduce basis risk, and strengthen farmers' resilience. Evaluations help practitioners and partners build stronger, more shock-responsive and resilient agricultural systems.

### Innovations

**Picture-based insurance.** This IFPRI innovation uses smartphone photos taken by farmers to remotely and affordably assess field-level crop damage. In [Ethiopia](#), Kenya, and India, IFPRI works to assess how improved crop monitoring affects insurance markets and whether the technology has applications beyond insurance. This [design](#) has shown improved take-up and impacts.

**Flexible weather index insurance.** IFPRI researchers designed an [innovative approach](#) to insurance that allows farmers to choose from a range of insurance units that cover specific risks and can be bundled into a portfolio of products to address key limitations of index insurance. Testing in [Ethiopia](#) showed its appeal for diverse farmers, and in [Uruguay](#), the government adopted and scaled the approach.

**Gap insurance.** To combat the problem of high basis risk, IFPRI worked with insurers and farmers in Ethiopia to develop an additional layer of protection for farmers. By combining weather indexes with measurements on the ground only in affected zones, gap insurance protects the low cost of index insurance while correcting for payout failures.

**Risk contingent credit.** This innovative market-based product links loans with insurance to increase uptake; when triggered, the insurance offsets part or all of

farmers' loan payments, increasing resilience. In [India](#), linking credit with picture-based insurance notably improved farm incomes, women's empowerment, and mental health. IFPRI piloted a model in [Kenya](#) and Ethiopia, designed to improve product design, [facilitate access for women](#), and develop partnerships and capacity among local service providers.

**Early season triggers.** IFPRI tested the impact of providing farmers with knowledge that they will receive a payout for a shock that occurs during the growing season. Partnering with a financial service provider in Bangladesh, researchers found that early season triggers allow farmers to undertake anticipatory investments that protect yields and reduce their overall losses.

## Actionable solutions

**Focus on [gender-responsive management of agricultural risks](#)** to ensure that insurance products are designed and delivered to reach and benefit women, who often face greater vulnerability to shocks and have less access to risk-reduction tools than men. Tailoring insurance programs to women can also promote gender equity and build resilience.

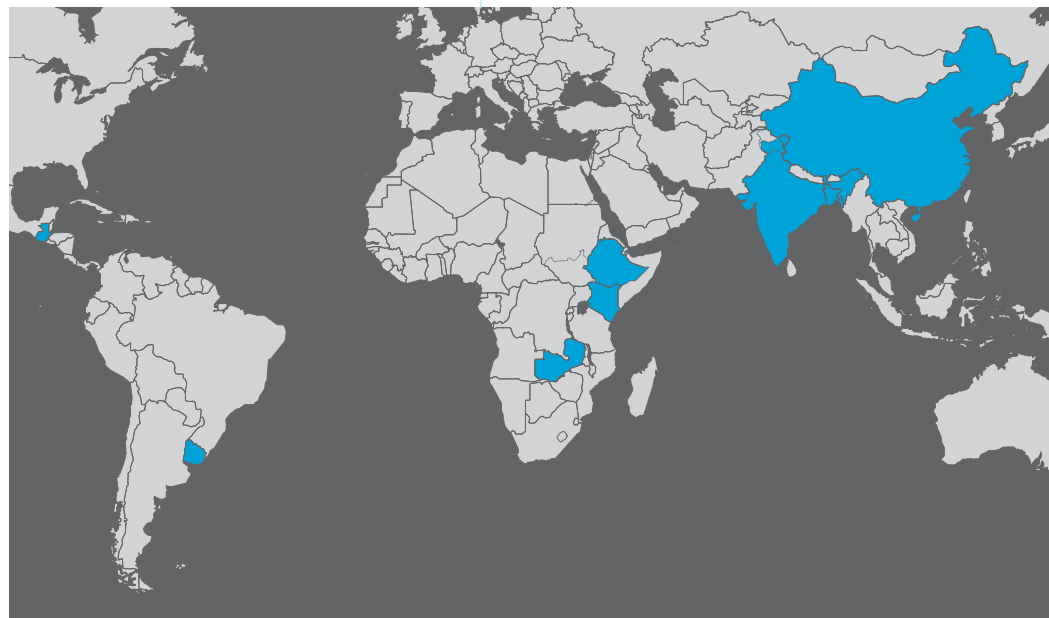
**Leverage [informal risk-sharing groups](#)** to cover individual losses and combine the strengths of formal and informal insurance. This approach helps to manage basis risk and keeps costs low while improving protection for members.

**Bundle insurance** with programs that increase farmer productivity and protect against shocks to strengthen demand for insurance and improve its value. Insurance can be paired with credit, climate-smart agriculture strategies, improved seed varieties, advisory services, informal insurance networks, and other interventions for specific contexts. Insurance can also be embedded in social protection schemes to shield rural incomes and assets from agricultural production risk.

## PARTNERSHIPS

In partnership with governments, insurance companies, development agencies, and researchers, IFPRI has generated evidence and pioneered innovative models in [India](#), [Bangladesh](#), Ethiopia, [Kenya](#), Malawi, and other countries. In Uruguay, Kenya, and India, IFPRI's work has evolved into [sustained programs](#) with implementing partners from government and the private sector who have a commercial interest in insurance.

This work has contributed to improvements in the design, delivery, and scalability of insurance for men and women small farmers, helping vulnerable households manage shocks, build long-term resilience, and invest in productivity.



## LEARN MORE

Our recent publications, events, blogs, and projects: <https://www.ifpri.org/topic/risk-and-insurance/>

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