

Improving Agricultural Insurance for Climate Adaptation

Lessons from Decades of Research in the Global South

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This presentation draw's primarily on evidence presented in Chapter 10 of the 2025 GFPR, *Agricultural Insurance: Policies and Programs for Reducing Farmer Risk* by Francisco Ceballos, Peter Hazell, Ruth Hill, and Berber Kramer



International Food Policy Research Institute: Who we are

MISSION

Research-based policy solutions for food security, nutrition, and climate-resilient livelihoods

GLOBAL REACH

Part of CGIAR; 50+ years of agricultural policy research with research across ~70 countries in Africa, Asia, Latin America, and the Middle East.

WHY THIS TALK

Drawing on our research on agricultural insurance across the globe – evidence that can travel to other regions facing similar credit and insurance gaps.



Countries with significant IFPRI research and offices worldwide



Lesson 1: There are considerable benefits of insurance

Insurance protects incomes and food security

- Insurance payments protect consumption when shocks occur and can help mitigate the impacts of shocks on production and productive assets.

(Bertram-Huemmer & Kraehnert 2018; Hill et al., 2019; de Janvry et al., 2016)

And insurance enables investment

- When farmers are confident in the security provided by their insurance coverage, they increase investments in higher-return activities by 15%-30%.

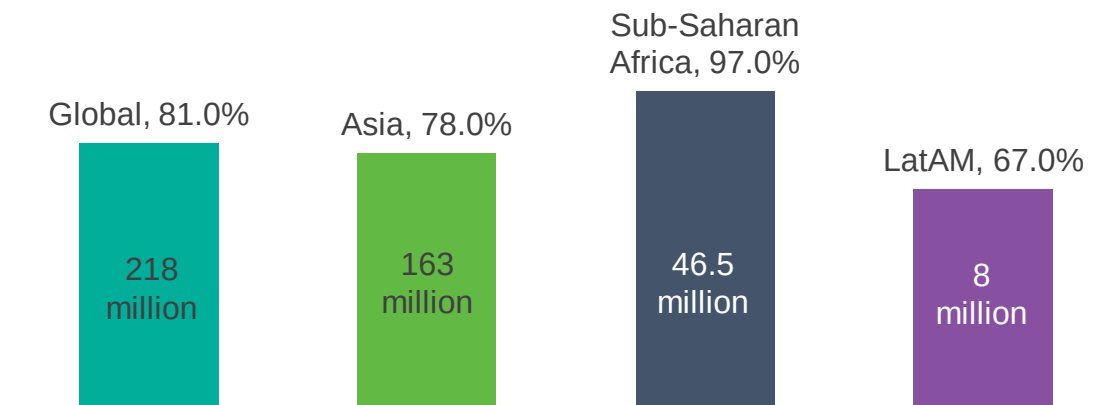
(Mobarak and Rosenzweig 2013 for rainfall index insurance in India, Elabed and Carter 2014 for area yield insurance in Mali, Karlan et al. 2014 for rainfall index insurance in Ghana, Cai et al. 2015 for swine insurance in China, Cai 2016 for area-yield insurance in China, Fuchs and Wolff 2016 for rainfall index insurance in Mexico, Jensen et al. 2017 for livestock insurance in Kenya, Hill et al. 2019 for rainfall and area yield insurance in Bangladesh, Bulte et al. 2020 for multiperil crop insurance in Kenya, Stoeffler et al. 2022 for area yield in Burkina Faso).



Lesson 2: Despite benefits, coverage has remained low, highlighting the need for more focused use of insurance

Despite benefits, coverage is low in LMICs

Share of smallholder farmers without insurance



Source: ISF (2018)

Challenges:

- 1. High data and verification costs, index insurance to reduce costs reduces its quality and value.** (MPCI: Hazell et al. 1986; Hazell & Valdés 1984; Index: Clarke 2016)
- 2. Risk in agriculture needs to be reduced** through better practices and technologies, and crop market development (price risk). (Hernandez et al. 2026; Kramer and Ceballos 2018)

Implication: More focused role of insurance that reflects needs for different types of farmers



Lesson 3: Product design matters and still needs to improve

Innovations in product design

- Combining formal and informal insurance, insurance for migrants' remittances (Dercon et al., 2014; Kazianga & Wahhaj 2020).
- Gap insurance and conditional audits as fail-safe mechanisms for indexed products (Berhane et al. 2015)
- High-resolution satellite imagery, drones and smartphones offer new possibilities.

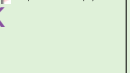
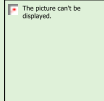
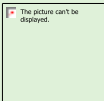
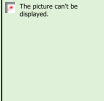
Example: Picture-based insurance

- Farmers submit smartphone pictures of crop fields to assess damage remotely, effectively and at low cost (Ceballos et al. 2019)
- Increased demand across India, Kenya, and Ethiopia, with often largest effects among women (Kramer, Pattnaik et al., 2024; Kramer, Waweru et al., 2024; Kramer, Porter, & Bizuayehu, 2023)



Lesson 4: Insuring incomes by linking to social protection

- **Subsistence farmers** need insurance against income shocks more than protection of investments – but requires subsidies.
- To do this, **formally link to social safety nets**.
 - Targets subsidies to poorest whose ability to pay for insurance is most constrained.
- Insurance for different layers of risk:
 - **Microinsurance** to protect livelihood investments in graduation / asset building.
 - **Sovereign insurance**: Rapid rules-based scale-up of safety nets during disasters

Policy responses			
Risk Level	Chronically poor	Non-poor subsistence farmers	
Small yet frequent individual risks	Regular social Protection		Informal risk sharing and savings 
Community-level risks (e.g. storms, pests)	Regular social Protection		Subsidized microinsurance 
Disasters at region / country level (e.g. major drought)	Additional social protection Disaster assistance	 	Subsidized catastrophe insurance Disaster assistance  



Lesson 5: There is a clear role for insurance to insure assets and investments of small market-oriented farmers

Example of assets: Index-based livestock insurance

- Scaled across Horn of Africa through the DRIVE program: changes in herd composition, increased investment in education, livestock health and milk production (Jensen et al. 2017)
- Used for both subsistence farmers as social protection (subsidized) and farmers with larger herds (unsubsidized)

Insuring investments: Important for crop insurance

- Bundling with inputs (e.g., seeds of improved varieties) increases demand for insurance and the value of inputs (Kramer, Malacarne, and Waweru, 2023; Boucher et al., 2024)
- Bundling with credit reduces liquidity constraints and reduces borrowing risk for lenders and producers (Ndegwa et al., 2020, 2025; Kramer, Pattnaik et al., 2024)
- For farmers to change their behavior, it is important that they are aware that these inputs or loans come with insurance



Photo Credit: Camille Hanotte/ILRI



Examples from International Agricultural Research

1. **India: Impacts of expanding access to agricultural credit linked with insurance**
2. **Incentivizing use of adaptation practices through agricultural credit and insurance**
3. **Financial institution demand for de-risking agricultural loans**



KhetScore in India: De-risk uncollateralized agri-credit with insurance



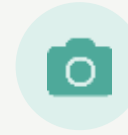
Digitizes

smallholder farmers' agricultural profiles



Scores

plot- and season-level credit risk using satellite imagery



Protects

against crop losses with picture-based insurance

What a randomized trial in Odisha showed

+20%

Increased formal credit,
largest gains for women

+60%

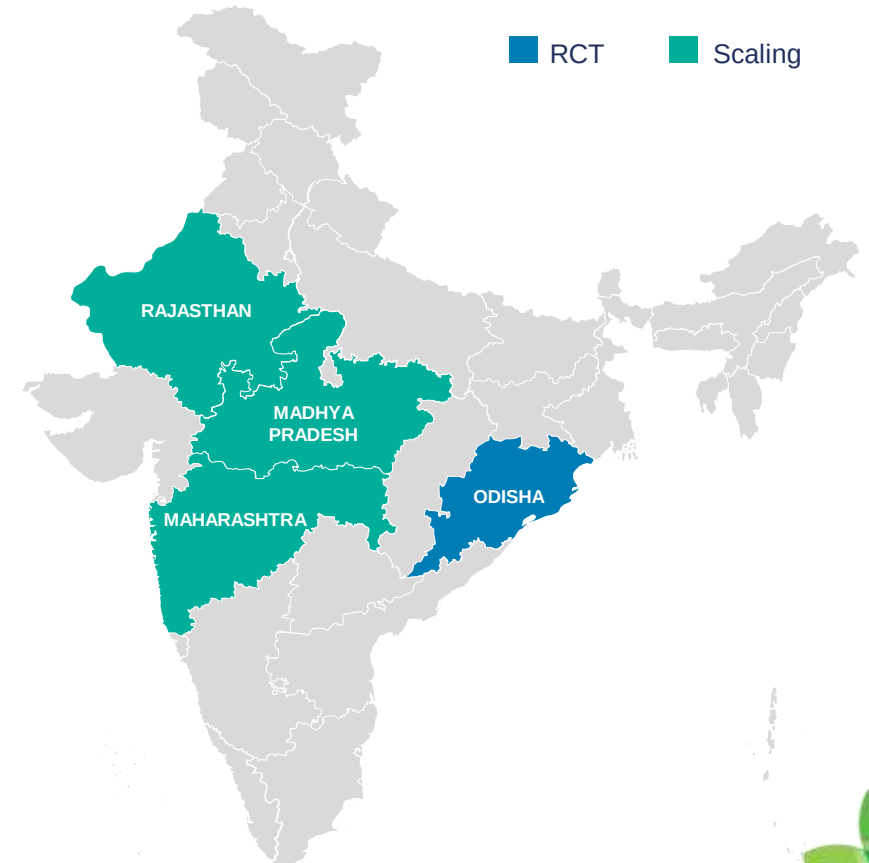
Increased insurance
uptake

+\$118 +\$166

Increased farm profit in
monsoon and **dry** season

+30%

Improved women's
empowerment



SCALE facility: Credit and insurance to accelerate CSA use

\$83.7M COMMERCIAL CAPITAL Repaid through lending



Agri-credit

KhetScore loans tailored to agricultural cropping cycles



Bundled insurance

Photo-based insurance cutting downside risk with temporary subsidies

\$3.3M PHILANTHROPIC GRANT Catalyzes CSA adoption



CSA advisory

Targeted technical support to adopt climate-smart practices



CSA incentives

Incentives for verified adoption and ringfenced lending for CSA inputs

PILOT OF CSA INCENTIVES ('26-'28)

Randomized trial **20,000** farmers

SCALE-UP (STARTING '28-'29 CYCLE)

Targeting **120,000+** farmers in India



Financial institution demand for de-risking agricultural loans

Emerging findings from key informant interviews with financial institution staff in Kenya

Protecting versus enabling

Insurance payouts mainly protect farmers' existing collateral after a shock, without enabling credit for farmers who lack sufficient collateral to qualify.

CONSIDERATION: Insurance as a substitute for collateral

Quantify how much insurance reduces default risk for farmers currently excluded from lending.

Resolving other constraints

Poor incomes, market arrangements and price risk undermine repayment regardless of whether loans are bundled with insurance.

CONSIDERATION: Bundle insurance with market linkages

Providing credit and insurance through off-takers to address both price and production risk.

Regulations for credit risk

Current regulations do not distinguish insured from uninsured loans; as a result, coverage does not change how FIs classify risk or exposure.

CONSIDERATION: Recognize insured loans in regulation

Adjusting capital or credit-risk rules could give FIs a clearer incentive to insure loans.



Thank you

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