



**Addressing Agricultural Risks:
Review of Ongoing Micro-insurance Field
Experiments**

Innovations for Poverty Action

www.poverty-action.org

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Agricultural Sector

Why don't farmers invest more in agriculture?

- Many profitable investments - farmers are not making them, why?
 - In Ghana 205-350% return on investment in pineapple cultivation and 30-50% in established food crop cultivation
 - Return on productive investment in agriculture in Ghana as high as 1,200%
 - In Kenya, certain uses of fertilizer can generate returns of 36% per season and 69.5% annualized
 - Yet in 2000, farmers using only 8.3kg fertilizer per hectare
- Agricultural sector-vast, largely poor & underfinanced



Risk and Investment

- One explanation for underinvestment may be risk - factors outside farmers control ie crop price and weather affect their livelihoods
- With high levels of risk, decision to invest in business or industry or trade becomes more difficult
- As chance of losing investment rises, likelihood of investment may decline
-  Protection/Insurance needed



Recent Developments

- Many important advances in recent years:
 - Index Insurance
 - Meteorological technology
 - NGOs, mobile phone, outreach networks
- Yet still low demand and limited supply
- Resulting questions:
 - What is the impact? Positive?
 - If so, how to encourage demand?



Impact, demand and marketing

Many questions on the impact of reducing risk and providing protection in the agricultural sector:

- Impact of rainfall insurance on farmers investments? On yields? On household spending?
- Effect of training/trust on spending, investment and other behaviors?
- Maximum feasible price for a farmer? Take-up levels at different prices?
- Willingness to pay increase after a payout? By how much?
- Most effective marketing methods? Level of information, marketing and training required?
- How do farmers decide whether or not to take-up insurance?



Completed Research

- Many of these important questions remain unanswered
- Few completed field experiments on agricultural insurance include:
 - Malawi, Xavier Gine and Dean Yang
 - India, Cole, Tobacman, Topalova, Townsend and Vickery
 - Ghana, Karlan, Kutsoati, McMillian and Udry
- Studies begin to get at: Low Take Up, Price, Liquidity Constraints and Timing, Marketing, Trust, and role of Financial Literacy



Low Take Up and Price

- Lower take up for loans with free weather insurance
- Take up low for free and actuarially fair products
- Price does matter but any price too high when subsistence/in extreme poverty
- Without experience, knowledge or trust - even free products concerning/confusing
- Too much fraud/fear of fraud



Timing, Marketing and Trust

- Finances tight and linked with agricultural cycle
- Ability to purchase, cash availability specific to each context
- Timing effect take-up and amount of protection purchased
- Agent matters, known in community -link with local NGO 10% increase take-up
- Increase of financial scams – more difficult to gain trust
- Being visited by marketer/surveyor increases likelihood of take-up



Ongoing Research in Northern Ghana

Examining Underinvestment in Agriculture

Question: What keeps farmers from investing more in their farms?

Hypothesis #1: Risk Aversion

✓ Offer insurance to take away some of the risks associated with farming

Hypothesis #2: Capital Constraints

✓ Offer capital grants



Examining Underinvestment in Agriculture

- Extensive research and lengthy design period
- Designed and marketed rainfall insurance product
 - Based on farmers conception of draught and flood
 - Looked at historical rainfall data
 - Simple design
 - Trained marketing team
- Outcomes include
 - size of farm plot
 - number and variety of crops planted
 - inputs used, including equipment, labor, chemicals, and seeds
 - amount and value of crops harvested
 - household income, consumption and nutrition



Examining Underinvestment in Agriculture

- Year 1 – August 2008 – November 2009
 - Sample ~500 maize farmers
 - 100% take-up of free rainfall insurance
 - Results of endline/impact assessment forthcoming in Jan/Feb

Treatment Categories:	Capital	Rainfall Insurance Product	Capital and Insurance Product	Control
Number of Farmers:	117	135	95	155

Examining Underinvestment in Agriculture

- Year 2 - December 2009-December 2010
 - Sample ~ 1000 maize farmers

			Treatment status in 2010:			
Treatment status in 2009:	Number of observations:	Assumed takeup at subsidized price:	Offer at subsidized price	(# who take up at subsidized price)	Free insurance	Control
Insurance treatment	223	50%	149	74	74	n/a
No insurance	257	30%	145	44	44	68
Not in sample	520	30%	294	88	88	138
Totals	1000		588	206	206	206

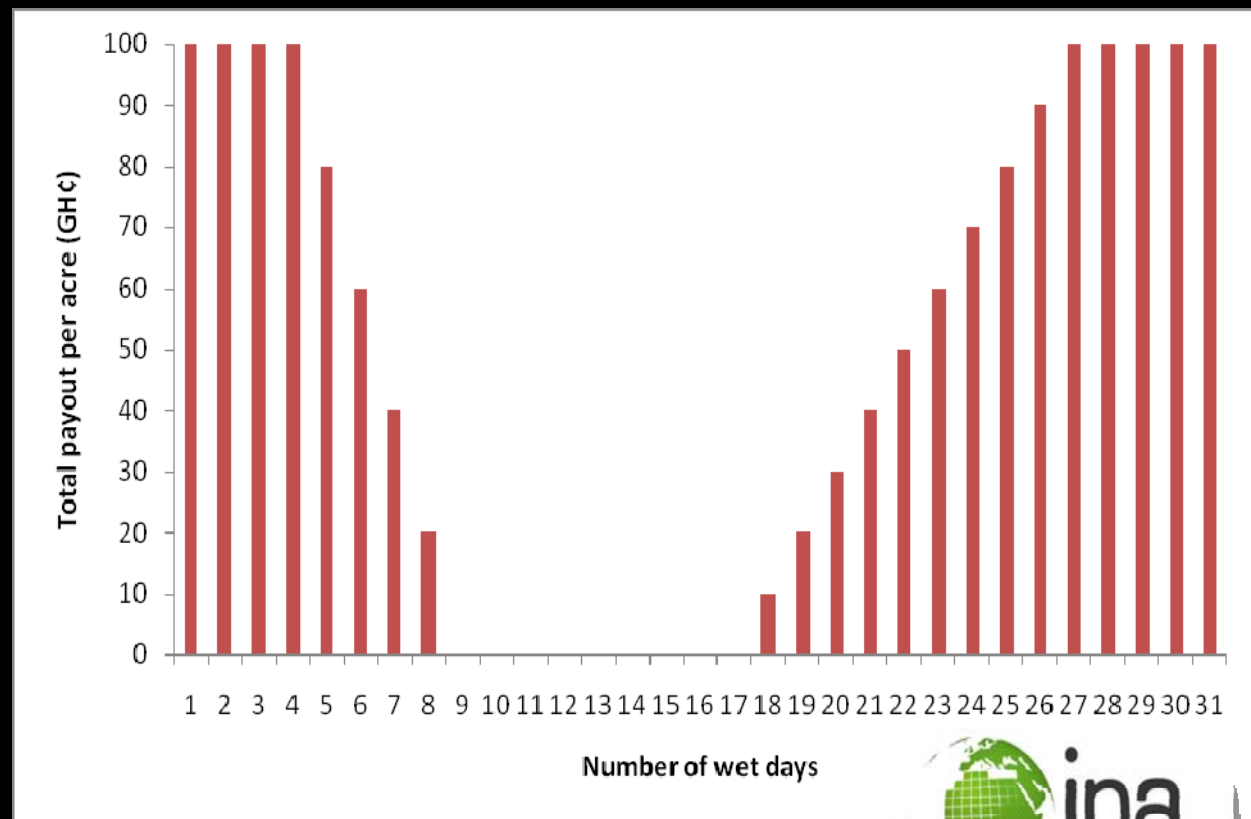
- Year 3 – December 2010 – December 2011
 - Sample ~ 1000 maize farmers
 - Look at more prices, actuarially fair price



Examining Underinvestment in Agriculture

TAKAYUA Rainfall Insurance Product

- Designed specifically for maize
- Main and most common crop
- Covers main growing season in northern Ghana (June – Sept)
- Payout in this June



Examining Underinvestment in Agriculture Year 2 and Year 3

- Aim to understand:
 - Willingness to pay for rainfall insurance
 - Returns to capital over time
 - Increase in trust or returns to insurance over time
- Expand to 1000 farmers and 8 treatment groups
 - Free Rainfall Insurance
 - Subsidized Rainfall Insurance
 - Rainfall Insurance
 - Capital Drops
 - Capital Drops and Free Rainfall Insurance
 - Capital Drops and Subsidized Rainfall Insurance
 - Capital Drops and Rainfall Insurance
 - Control group



Conclusion

- Potential impacts of agricultural insurance diverse and wide reaching
- Many hurdles and questions remain

Innovations for Poverty Action (IPA)

- IPA interested in new partners and expanding research on micro-insurance
- IPA conducts impact evaluations - partners with NGOs, government institutions, MFIs, banks and companies to answer key questions related to access, usage and impact of financial products and other innovations aimed at tackling poverty

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