

# BASIS AMA Research Program

## University of California, Davis

[basis.ucdavis.edu](http://basis.ucdavis.edu)

Feed the Future Food Security Innovation Labs: Collaborative Research Programs Meeting

“Examining Opportunities for Linkages in Collaborative Research, Technology Dissemination,  
and Human and Institutional Capacity Development”

5 March 2013



B A S I S

AMA Collaborative Research  
Support Program

*I* *Index Insurance*  
*4* *Innovation Initiative*



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# Key Project Areas in Eastern and Southern Africa

- Sustainable Adoption of profitable agricultural technology and crops
  - The Impact of Voucher Coupons on the Uptake of Fertilizer and Improved Seeds (Mozambique)
  - Interlinking Weather Insurance with Credit (Ethiopia)
  - Developing a Satellite Based Index to Predict Crop Yields in Smallholder Agriculture (Tanzania)
- Resilience in the face of climate change and shocks
  - Index Based Livestock Insurance (IBLI) - Kenya
  - IBLI - Ethiopia



# Sustainable Adoption of Profitable Agricultural Technology and Crops

There are three primary socioeconomic constraints to successful and sustainable adoption of profitable agricultural technology and crops

- Knowledge/Information
- Liquidity
- Risk



Sustaining adoption requires holding liquidity/creditworthiness

# Impact of Voucher Coupons on Adoption of Profitable Agricultural Technology and Seeds

- Government of Mozambique piloted a limited, two year fertilizer subsidy program for maize and rice producers
- Voucher coupons intended to boost input use in both the short and long term
  - “Learning subsidy”
  - Liquidity
- RCT showed that for those who used the voucher, there was increased use of fertilizer and improved seeds
- Also included a matched savings program to encourage profit savings for future liquidity and risk management
- Impact evaluation is ongoing; survey conducted in late 2012 is still being analyzed

## Partners



# Interlinking Weather Insurance with Credit in Rural Ethiopia

- Interlinked credit and insurance contract
  - Addresses credit availability constraints for borrowers and lenders
  - Keeping people credit worthy for long-term sustainability
- Vulnerable famers are unwilling to take on additional risk of loans
- High uptake of insurance with small subsidy (25-37 percent)
- Other impacts to be determined

## Partners

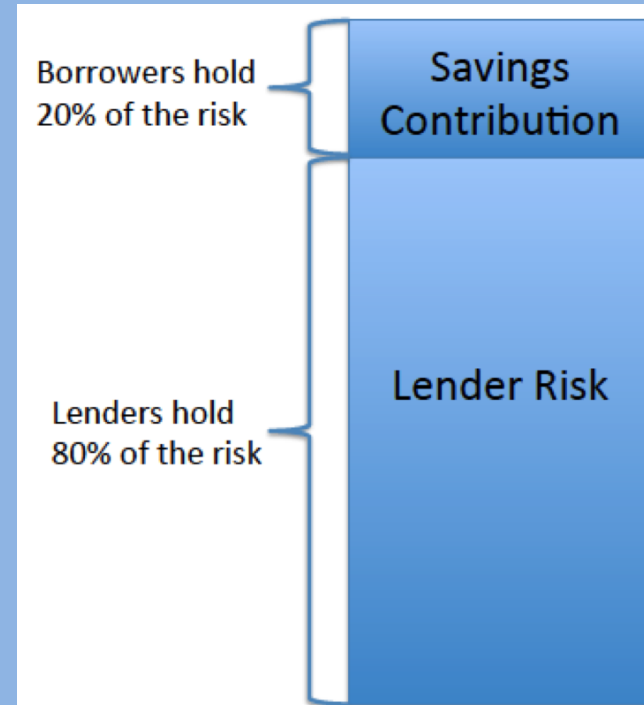


Nyala Insurance



# Developing a Satellite Based Index to Predict Crop Yields in Smallholder Agriculture

- Plan to partner with World Vision in Tanzania to apply this index to a credit-linked insurance contract
- Creating an innovative satellite based index which can reliably predict local crop yields for design of an index insurance contract
- Better and more accurate predictions, lower costs for data



## Partners





# Resilience in the Face of Climate Change and Shocks

- Poverty Traps
  - Shocks could push households into a “poverty trap”
  - Research has identified a minimum herd size, or tipping point, below which households tend to collapse into poverty
  - The consequences appear to be long term, if not irreversible
  - It may be possible to place a safety net at the tipping point to catch people before they fall into a poverty trap
- Barriers to Growth
  - Farmers are reluctant to adopt more profitable investments due to risk exposure
  - Risk mitigation should stimulate investment and growth

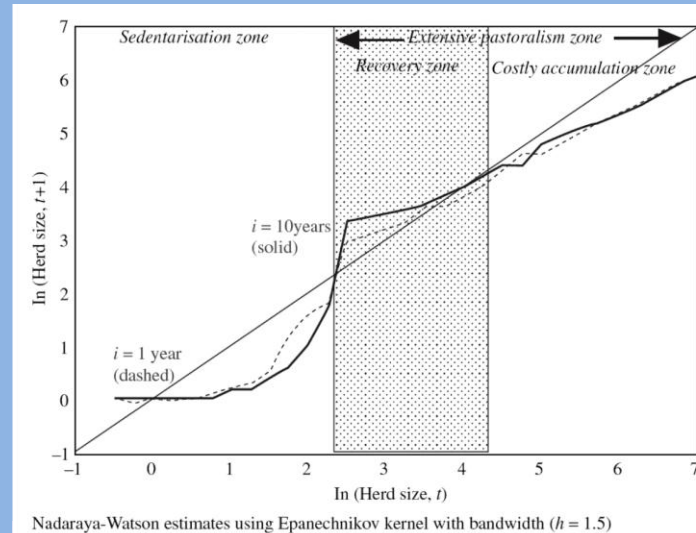
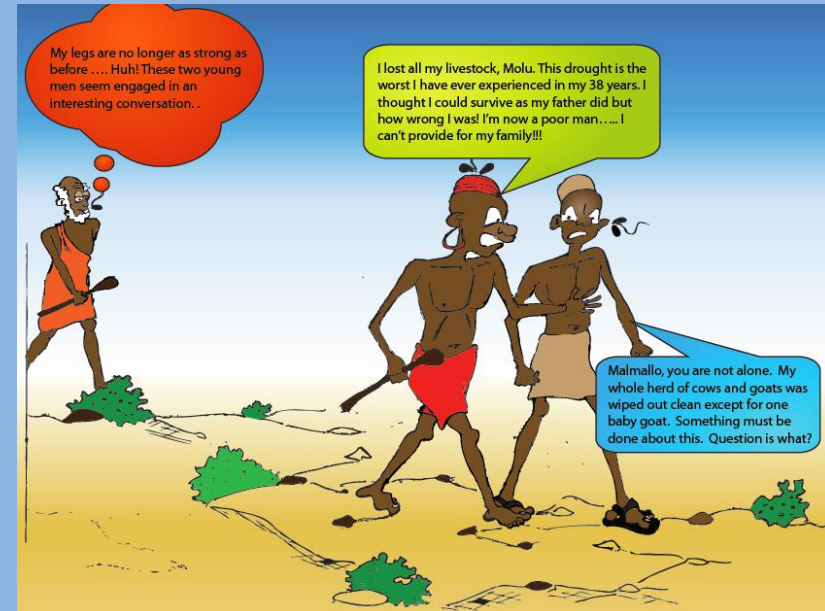


Fig. 4. Nonparametric Estimates of Expected Herd Size Transition Functions

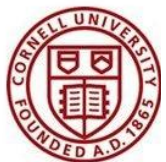


# Index Based Livestock Insurance (IBLI)

- Uses satellite spectrometer data to correlate vegetation groundcover with predicted livestock mortality
- Insurance payouts are based on that prediction, rather than on verification of individual losses
- Avoid costly coping strategies that often lead to poverty traps and the intergenerational transfer of poverty
- Enable farmers to increase investment in potentially higher-return activities



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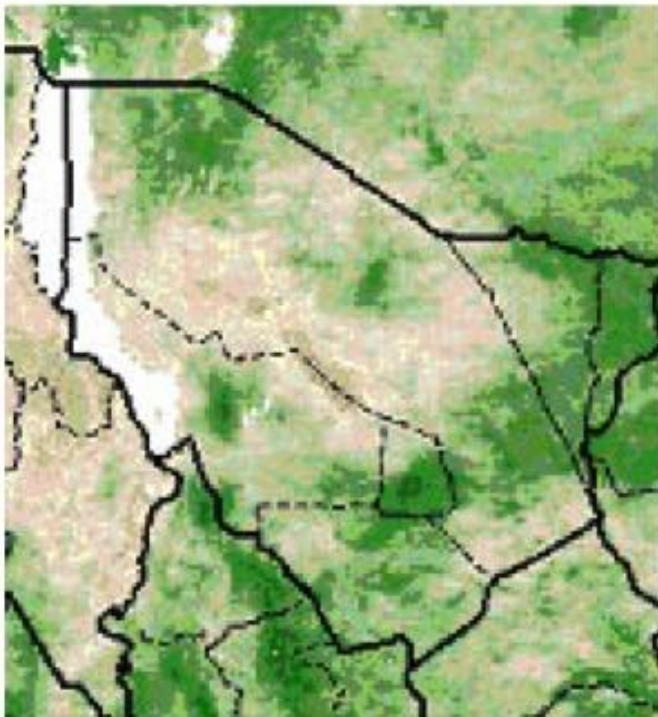
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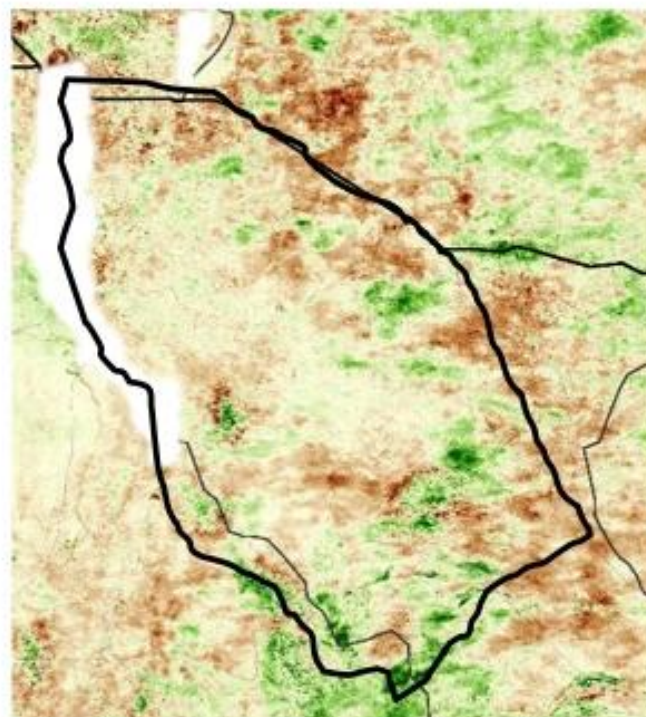


# Marsabit District, Northern Kenya

Normal year (May 2007)



Drought year (May 2009)



# IBLI Kenya: Impacts

The first payment of indemnities took place in October 2011. A survey conducted at that time asked households to predict how the insurance payments would change their coping strategies. Compared to uninsured households, insured households were:

- 22-36 percentage points less likely to draw down assets
- 27-36 percentage points less likely to reduce meals
- 42-50 percentage points less dependent on food aid
- 0-26 percentage points less reliant on other forms of assistance





# IBLI Ethiopia

- Partners: Oromia Insurance Company, Africa Re
- 1st year of the project; still working out some logistical on-the-ground challenges to sales implementation
- Link insurance with climate change adaptation
  - First, by dealing with climate change projections
  - Second, by motivating adaptations to climate change



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# Future Challenges

- How to scale-up these kinds of programs while preserving the fundamental efficacy of the contract
- Analyze, disseminate and follow-up on results of impact evaluations to assess impact and efficacy

# Thank you.

For questions or comments, please contact [basis@ucdavis.edu](mailto:basis@ucdavis.edu), or visit [basis.ucdavis.edu](http://basis.ucdavis.edu).

