



ABDUL LATIF JAMEEL
Poverty Action Lab

TRANSLATING RESEARCH INTO ACTION

***EVIDENCE ON ACHIEVEMENTS,
UNRESOLVED ISSUES IN BUILDING
MARKETS FOR SMALL-SCALE
FARMERS***

CEGA Evidence to Action

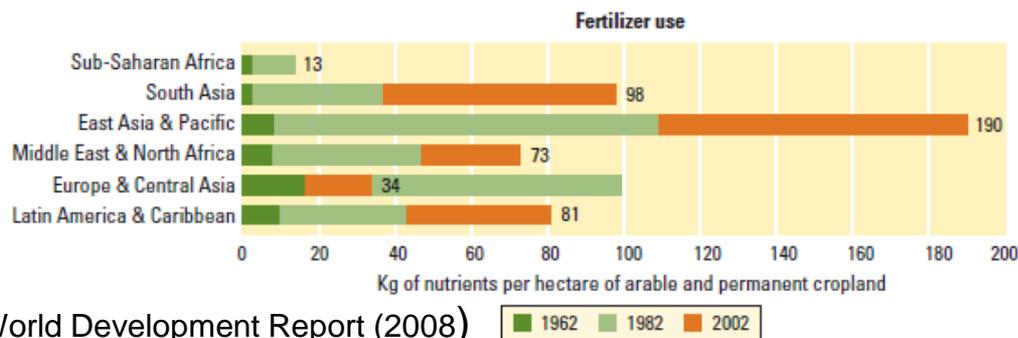
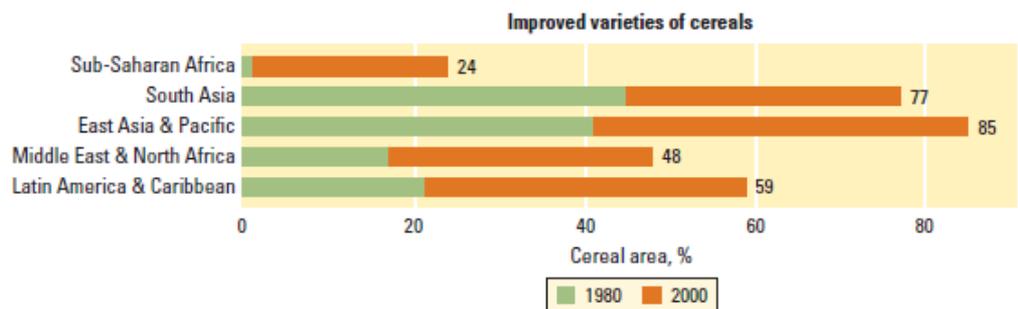
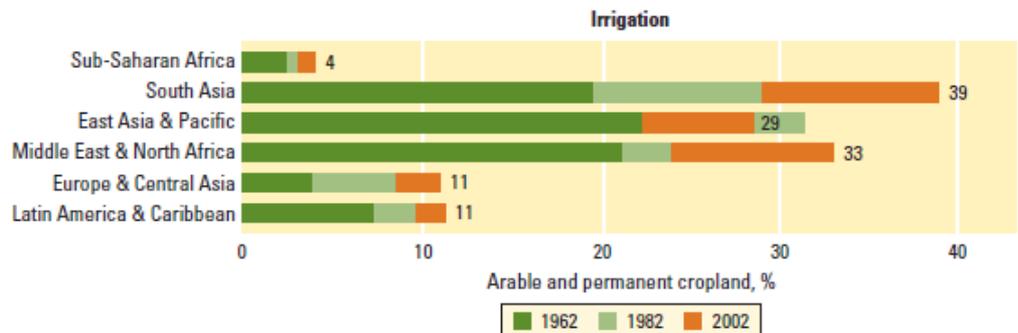
Craig McIntosh, UCSD

May 1, 2014

The core issue: low cereal yields in Africa

- Cereal yields per hectare:
 - have increased by over 150% over the past 50 years in the developed world.
 - have remained completely stagnant in Sub-Saharan Africa on average over this period.
- Increases in overall cereals output have come entirely from extensification
 - unsustainable over the longer run.
 - environmentally destructive.
 - smallholder farmers now face sharply decreasing average farm size in many countries due to population growth.

Low input use a major reason for low productivity



Irrigation, use of improved seeds, and fertilizer all lag the rest of the developing world.

The research agenda:

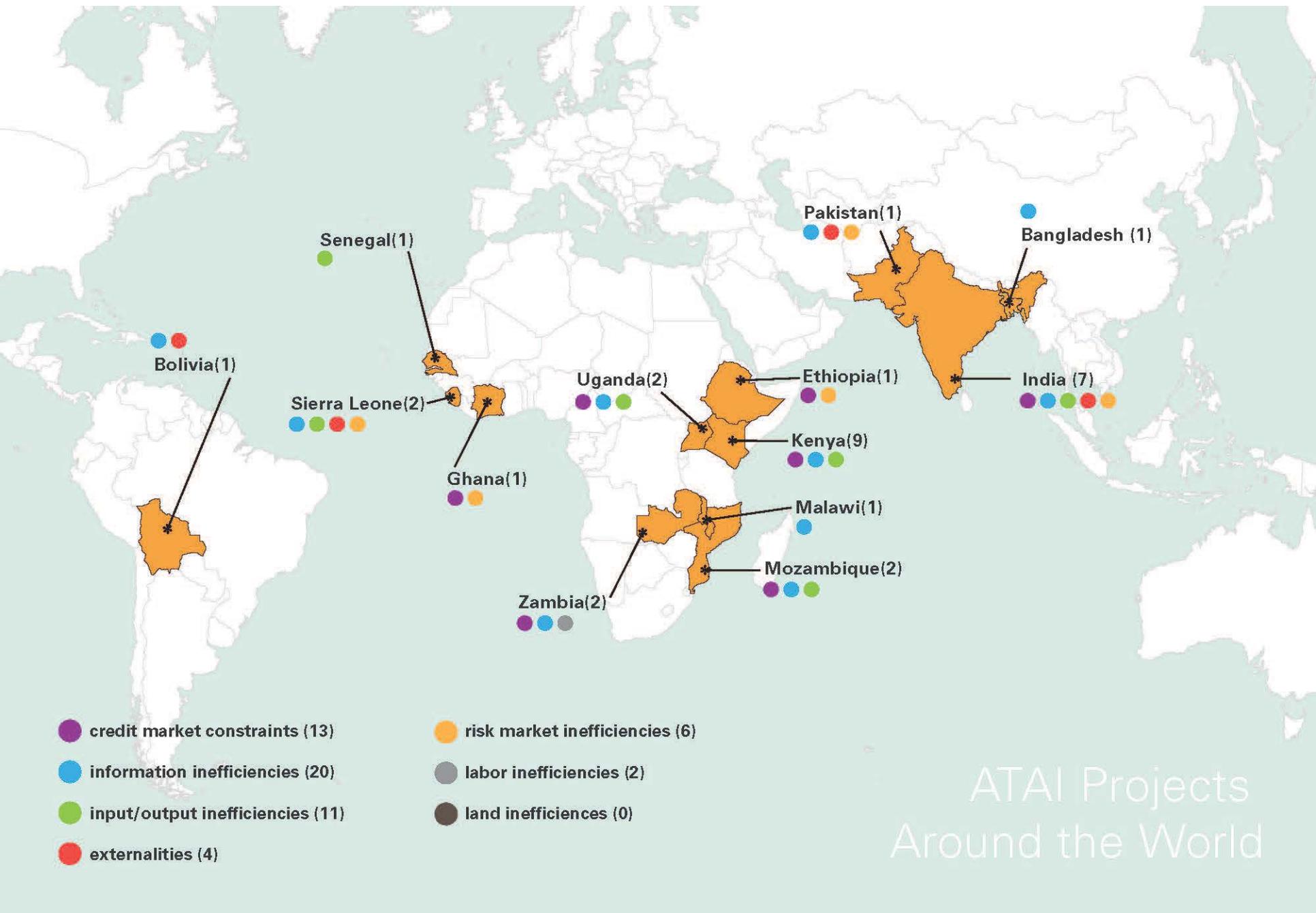
- Phase 1: why has there been such low **adoption** of new technology, and how can it be improved?
- Phase 2: what are the causal **impacts** of the technologies that have been proven to generate strong adoption?
- Phase 3: what are the **deeper impediments** to improving productivity? How can they be addressed?

The Agricultural Technology Adoption Initiative (ATAI) is a consortium of researchers from CEGA and JPAL.

- Over the past four years, field experiments on agricultural technology adoption have increased dramatically:
 - 31 field projects funded through ATAI.
 - Large expansion in the number of top researchers working on agriculture.
 - Evidence base from rigorous experimental field trials is emerging for a range of interventions.

Research Sponsored by ATAI





Since the Launch of ATAI:

Category	Total
Farmers Surveyed	84,419
Female Farmers Surveyed	32,387
Farmers Whose Behavior Has Changed	7,815
ATAI Awards	42
Countries with ATAI Projects	13
Unique ATAI Projects	31
Researchers on ATAI Projects	64

ATAI has funded projects involving 64 researchers

- Nava Ashraf
- **Oriana Bandiera**
- **Abhijit Banerjee**
- **Catia Batista**
- Lori Beaman
- Ariel BenYishay
- Eli Berman
- Tanguy Bernard
- **Emily Breza**
- **Robin Burgess**
- Marshall Burke
- Michael Callen
- **Lorenzo Casaburi****
- **Arun Chandrasekhar**
- Sylvain Chassang
- **Shawn Cole**
- Saa Dittoh
- **Joost de Laat**
- **Erika Deserranno**
- Esther Duflo
- **Pascaline Dupas**
- Asanga Nilesh Fernando
- **Erica Field**
- Gunther Fink
- Mathias Fosu
- **Paul Gertler**
- Rachel Glennerster
- **Sara Hernandez****
- **Reshmaan Hussam****
- **Mahnaz Islam**
- Kelsey Jack
- William Jack
- Alain de Janvry
- Dean Karlan
- Frances Kimmins
- Marieke Kleemans
- Michael Kremer
- Shashidhara Kolavalli
- Jeremy Magruder
- Felix Masiye
- Samba Mbaye
- Craig McIntosh
- Edward Miguel
- Mushfiq Mobarak
- **Sendhil Mullainathan**
- **Rohini Pande**
- David Raitzer
- **Imran Rasul**
- **Tristan Reed****
- **Natalia Rigol****
- **Chris Robert**
- Jon Robinson
- Elisabeth Sadoulet
- **Frank Schilbach****
- **Ashish Shenoy****
- Erik Snowberg
- Munshi Sulaiman
- Tavneet Suri
- **Jakob Svensson**
- Chris Udry
- **David Yanagizawa-Drott**
- **Dean Yang**

** Graduate Students

Researchers in **bold** are new to agriculture

ATAI Projects involved over 50 Partners

- AgriFuturo
- AusAID
- Awaaz.De
- Balasore Social Services Society (BSSS)
- Banco Oportunidade de Mozambique (BOM)
- BRAC
- Brookside Dairy
- Centre for Microfinance
- Conservation Farming Unit
- Dasher
- Development Support Center
- Dunavant Cotton
- Ethiopian Economics Association
- Farm Concern International
- Fundación Natura Bolivia
- Grameen Foundation
- Harvard University Sustainability Science Program (SSP)
- IFMR Trust
- Index Insurance Innovation Initiative (I4)
- Innovations for Poverty Action (IPA)
- International Fertilizer Development Center (IFDC)
- International Fertilizer Development Corporation
- International Finance Corporation (IFC)
- International Food Policy Research Institute (IFPRI)
- International Growth Centre (IGC)
- International Initiative for Impact Evaluation (3ie)
- International Rescue Committee (IRC)
- International Rice Research Institute (IRRI)
- Karnataka Milk Federation
- LSE
- mCel
- Micro Africa Limited
- Microfinance Investment and Technical Assistance Facility, Government of Sierra Leone
- Millenium Challenge Corporation (MCC)
- Ministry of Agriculture and Food Security, Malawi
- Ministry of Agriculture, Forestry and Food Security, Government of Sierra Leone
- Ministry of Agriculture, Government of Senegal
- Ministry of Food and Agriculture, Government of Ghana
- Mumias Sugar Company
- Nyala
- Nyala Dairy Cooperative
- One Acre Fund
- Pudhuaaru KGFS
- Savanna Agricultural Research Institute (SARI)
- Science of Generosity
- Shoreline Services Limited
- Sierra Leone Agricultural Research Institute (SLARI)
- Swiss Re
- Syngenta Foundation
- United States Agency for International Development (USAID)
- Universite Gaston Berger (UGB) in Saint Louis (Senegal)
- University of Zambia
- World Bank

Our partners in the field

- One Acre Fund served **130,400 farmers** last year, improving annual household income by an average of 52%. They are growing rapidly and are on track to serve over 200,000 in 2014 and 300,000 in 2015 as they expand into new countries.
- IRRI developed Swarna-Sub1 which is grown by over **5 million** farmers in Asia.
- One of CEGA's longest standing partners is **BRAC**, the biggest NGOs in the world.
 - Over 700,000 students are enrolled in BRAC primary schools in Bangladesh alone
 - Provided training to over 2.5 million on hygiene and sanitation.
 - Provided agricultural credit to over 300,000 farmers.
 - BRAC's Northwest Crop diversification Programme (NCDP) provided training, extension and credit over 400,000 farmers to help them diversify into higher value crops.

CEGA/ATAI Matchmaking

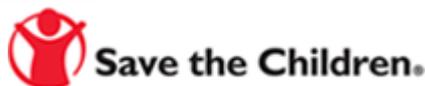
Conference Attendees



Standing Panel on Impact Assessment



AFRICAN DEVELOPMENT BANK GROUP



INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT



atai results timeline

 project
  project with preliminary results

 credit market constraints

 information inefficiencies (7)

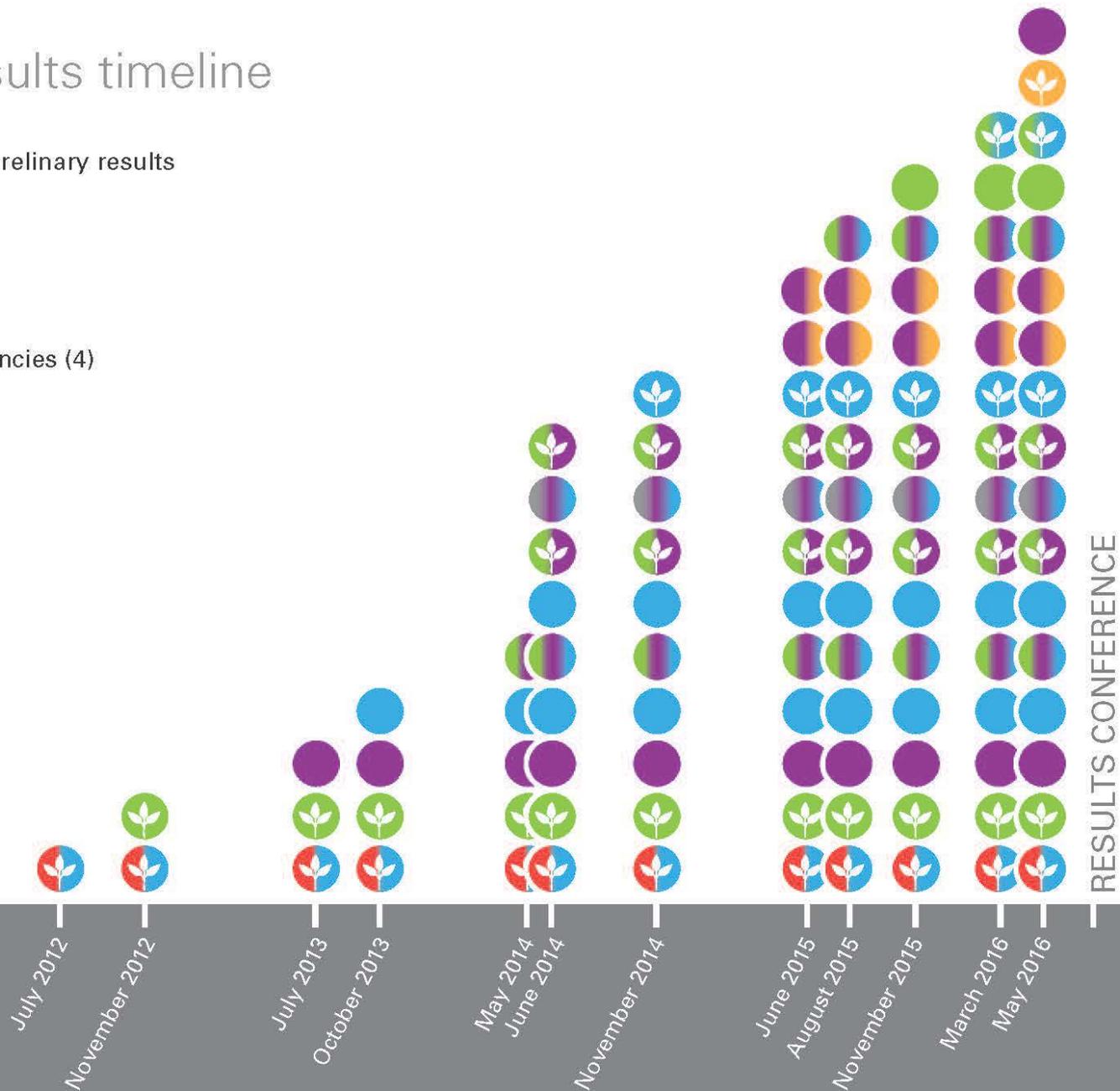
 input/output market inefficiencies (4)

 externalities

 risk market inefficiencies

 labor inefficiencies

 land inefficiencies



Progress on barriers to adoption:

1. Credit markets

2. Risk markets

3. Information

4. Externalities

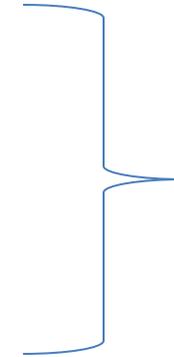
5. Input and output markets

6. Labor markets

7. Land markets



Strong focus on research in these areas



Fewer ATAI studies in these areas

Policy Lessons: Information.

- Telling people things they know is ineffective!
- In the presence of market intermediaries, simply providing information about prices to farmers is not effective at increasing profits
 - Does not shift their bargaining power.
- So where can information interventions work?
 - If market power of intermediaries is changed.
 - If information is provided about new technologies, methods where farmers don't have much experience.
 - new tech may have *no* or *negative* impact without training.
 - If 'nudges'; timely provision of information & reminders that help farmers to overcome self-control problems.
- ▶ Need to think about improving *profits*, not *yields*.

Policy Lessons: Insurance.

- Index insurance has seen limited demand at market prices.
 - Basis risk & product complexity are problems
 - Large subsidies likely needed to build market.
 - Emphasis now shifting to ‘risk layering’?
- Where insurance products have worked, there is a shift towards riskier production.
 - When output more sensitive to rainfall, wages of ag laborers can become more volatile.
 - Insurance leads to greater exposure for many.
- Technologies that have risk-reducing properties may have the opposite effect?
 - Promise of risk-reducing inputs to protect both farmers and laborers.

Policy Lessons: Credit.

- Evidence from Ethiopia, Morocco, and Mali that ag activity and profits increase when access to credit is expanded.
- Financial literacy training not effective
- Agriculture provides some novel opportunities for collateralizing through leasing.
 - Water tanks in Kenya
- Careful timing of loans appears to have major promise in agriculture:
 - Loans that allow farmers to alter when they sell their crops can have good returns with short duration.
 - These loans look more like microfinance loans; promising area for expansion?

Moving forward:

- African agriculture has seen some success in exporting high value, light crops
 - horticulture in Kenya and Ethiopia.
 - improvements in value chains for coffee, cacao, tea.
- These seem to have little relevance for the food crops that are the key to food insecurity.
 - Africa's population projected to quadruple over next 90 years.
 - Currently 40% of children on the continent are stunted or malnourished (WFP).
- What are the special ills that effect markets for grains, and what is a research agenda around this?

Market depth:

- Most staple grains in SSA are produced and consumed within a local market. This leads to shallowness.
 - Poor co-integration of markets across space.
 - Markets slow to respond to localized shortfalls
 - major contributor to food insecurity
 - Very large fluctuations in price within seasons
 - everybody sells at the wrong time, everybody buys at the wrong time!
 - Steep demand curves.
 - disincentive to productivity enhancements; producers see that surpluses generated by increased input use will drive down prices.

The research questions:

- Poor spatial integration: what is the problem?
 - Transport:
 - how much does market integration improve when roads are built?
 - Information and search costs:
 - can technological interventions that decrease search costs improve integration?
 - do we need to structurally alter the market power of smallholders relative to intermediaries in order to improve integration?
 - how can technology assist smallholders in achieving scale? The 'virtual cooperative'?

The research questions:

- Poor temporal smoothing of prices
 - Is it storage?
 - How much can be achieved by simply training farmers in better post-harvest handling?
 - Is there a need for heavy infrastructural investment here?
 - Is it credit?
 - financial services can solve this problem if the intra-seasonal price fluctuation exceeds the interest rate.
 - Don't need the entire market to smooth in order to see a large decrease in volatility. What is the 'saturation' at which it makes sense to treat these markets?

A research agenda around depth:

- The intersection between depth & incentives:
 - We know these markets are shallow, but . . .
 - To what extent is the anticipation of a steep demand curve tomorrow inhibiting the desire to adopt productivity-enhancing technology today?
 - Need to pilot input enhancements with and without interventions that address these output-side problems.
 - If this is a serious problem . . .
 - The Supply Chain is really a Supply Loop:
 - Profits from last year's investments provide the liquidity for this year's adoption.
 - Anticipated profits from sales drive decisions at planting time in a manner linked to market depth.
 - Basic issue of enhancing SSA's cereal yields cannot be divorced from problem of market depth.

Thank you!

