

**Start Date**

May 09, 2018

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May 10, 2018



## COMMUNITY EXTENSION AGENT LEGUMES HANDBOOK 2015



### Extension Agent Handbook for Soya, Cowpea and Groundnut Production in Northern Ghana





## COMMUNITY EXTENSION AGENT MAIZE HANDBOOK 2015



### Extension Agent Handbook for Maize Production in Northern Ghana



## Evidence in Agriculture in Ghana

In Ghana, as in other parts of sub-Saharan Africa, investment in agricultural inputs such as fertilizer, high-yield seeds, and farm equipment is low among smallholder farmers. Researchers working with IPA have performed several evaluations in an attempt to better understand the causes of low investment and programs which may change investment patterns and ultimately improve yields, profits, and welfare for smallholder farmers.

### Examining Underinvestment in Agriculture: Returns to Capital and Insurance Among Farmers in Ghana (EUI)

**Researcher:** Dean Karlan, Northwestern University; Robert Oloye, Institute of Statistical, Social and Economic Research (ISSER), University of Ghana; Isaac Osei-Akoto, ISSER, University of Ghana; Christopher Udry, Northwestern University

**Partners:** Agricultural Technology Adoption Initiative (TAI), ICGD Research Program on Poverty Inequality and Development, Consortium on Financial Systems and Poverty (CFSAP), Deutsche

Gesellschaft für Internationale Zusammenarbeit (GIZ), Ghana Agricultural Insurance Programme (GAIP), Government of Ghana Ministry of Food and Agriculture, International Initiative for Impact Evaluation (3ie), Preliminary Agricultural Services (PAS), Swiss Re, International Growth Centre (IGC)

**Timeline:** 2009-2012

Farmers in sub-Saharan Africa tend to underinvest in inputs such as fertilizer, hybrid seeds, and labor, though such investments could increase their agricultural yields and profits. The reasons why farmers underinvest are not clear: it may be due to a lack of cash, or it could be due to the risks of farming: if you invest all your money into your farm, you might be sorry if a crisis like a drought occurs. In northern Ghana, researchers conducted a randomized evaluation to evaluate whether access to capital or risk was driving farmers' investment decisions. By comparing farmers who received access to credit/insurance to those who received cash grants, the study found that farmers who were offered weather insurance spent more on inputs such as chemicals, land preparation, and labor than those who received cash grants—suggesting that risk, rather than money, was the major constraint on investment.

### Disseminating Innovative Resources and Technologies to Smallholders (DIRTS)

**Researcher:** Mahesh Fosu, Swiss Agricultural Research Institute (SARI), Dean Karlan, Shantihara Kotwari, International Food Policy Research Institute (IFPRI), Christopher Udry

**Partners:** GAIP, Government of Ghana Ministry of Food and Agriculture, IFPRI, SARI

**Timeline:** 2014-2017

In this project, which built on the findings of the EUI project, researchers tested whether access to two different payout levels of rainfall insurance—tested individually and in combination with improved-yield agricultural inputs, agricultural extension advice, access to input markets and delivery, and weather forecasts—led to more intensive land cultivation and increased earnings among farmers in northern Ghana. Preliminary results suggest that community extension agents helped to increase farmers' knowledge and adoption of improved practices and spurred increased investment in certain inputs, but did not lead to improvements in farmer welfare. Similarly, farmers who received access to the higher payout level of rainfall insurance spent more on inputs for their farms, but these investments did not lead to higher yields or profits for farmers.

### Testing Agricultural Technologies (TAT)

**Researcher:** Dean Karlan, Shantihara Kotwari, Christopher Udry

**Timeline:** 2015-2016

**Partners:** SARI, IFPRI

Using improved hybrid seed varieties may generate higher yields for maize farmers in sub-Saharan Africa—where agricultural productivity is low relative to other regions—but many farmers have not adopted these seeds. In conjunction with the DIRTS project, researchers investigated the performance of several different kinds of seeds. This project, which was not a randomized evaluation, studied the comparative yields of several seed varieties and farmer purchasing decisions in an effort to understand the performance and adoption of seed varieties in northern Ghana. Researchers found that there was a wide variety in yields between seeds, with farmers who grew a foreign hybrid seed on average yielding more than double what those who used a local hybrid, and the local hybrid did not perform as well as the more common local seed.



## Disseminating Innovative Resources and Technologies to Smallholder Farmers in Ghana: Results of the Community Extension Agent Program



Photo: Mohammed Ibrahim

Ghana's Ministry of Food and Agriculture currently operates an agricultural extension agency program to help teach smallholder farmers the most current farming techniques, but there are not enough agents to provide a constant presence in local communities. As part of the Disseminating Innovative Resources and Technologies to Smallholder Farmers (DIRTS) project, researchers collaborated with the ministry to test a new community agricultural extension agent program, which selected and trained local agents to supplement the existing MOFA agents and provide more frequent teaching and support.

### Key Findings\*

After three years:

- Community extension agents successfully increased local farmers' knowledge and improved their practices.
- Delivering specific information about a practice close to the time when the practice should be adopted may be an important component of a successful program.
- However, farmers' improved knowledge and implementation of best practices did not ultimately translate into increased yields or more earnings for the farmers.
- Farmers who received the program invested more in the use of chemicals, but not other inputs.

\*These results are preliminary and may change after further data collection and/or analysis.

**Researchers:** Mathias Fosu, Dean Karlen, Sheshadras Kolavali, Christopher Udry  
**Partners:** Ghana Agricultural Insurance Programme (GAIP), Ghana Ministry of Food and Agriculture, International Food Policy Research Institute (IFPRI), Savanah Agricultural Research Institute (SARI)  
**Timeline:** 2014-2018  
**Study Sample:** 3,240 households in 162 farming communities in Northern Ghana.

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## Comparing Yields and Profits of Seed Varieties in Northern Ghana



Photo: Stephen J. Bazzi

Improved seeds varieties can generate significantly higher agricultural yields for farmers, but recent data indicates that only 20 percent of farmers in northern Ghana use improved seeds. This study, known as the Testing Agricultural Technologies (TAT) project, compared yields and profits of several seed varieties and looked at farmer purchasing decisions to understand the performance and adoption of seed varieties in northern Ghana.

### Key Findings\*

Over the course of one growing season:

- The seed comparison found a wide variety in yields between seeds, with farmers who grow the foreign hybrid seed, Adzido, on average yielding no more than double that yielded from the local hybrid seed, Nimaabe.
- Contrary to expectations, the commonly-used local seed, Obasidanga, outperformed the local hybrid seed, Nimaabe.
- The study suggests a farmer cultivating one hectare of land who switched from Obasidanga to Adzido would harvest about 1.8 tons more maize, translating into an increase in profit of more than 1,600 GHS.
- It is important to note these results are particular to this context and conditions, and during the growing season studied there was ample rainfall. These results cannot speak to characteristics of seeds not tested under these conditions, such as drought resistance.

\*Results are preliminary and may change after further data collection and/or analysis. Note this study was not a randomized evaluation.

**Researchers:** Mathias Fosu, Dean Karlen, Sheshadras Kolavali, Christopher Udry  
**Partners:** Savanah Agricultural Research Institute (SARI), International Food Policy Research Institute (IFPRI)  
**Timeline:** 2015-2016  
**Study Sample:** 10 districts in three northern regions of Ghana

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## Disseminating Innovative Resources and Technologies to Smallholder Farmers in Ghana: Results of the Weather Forecasting Program



Photo: Mohammed Ibrahim

In Ghana, and many other countries in sub-Saharan Africa, farmers invest little in inputs, such as improved seed, fertilizer, and other chemicals to improve their yields. One reason for this may be risk associated with factors out of their control, such as weather. As part of the "Disseminating Innovative Resources and Technologies to Smallholder Farmers" project, researchers partnered with a weather forecasting firm to test the impact of providing daily short-term weather forecasts by SMS.

### Key Findings

#### After 1 year:

- Farmers who received the forecasts, as well as farmers living nearby, used this information to change their behavior, timing planting and chemical application for days when light rain was forecast.
- However, there was no discernable impact of the service on farmers' overall profits.
- Overall, the results suggest that forecasts are inexpensive and effective at changing farmer behavior, but they were not sufficient to increase overall profits alone.

**Researchers:** Mathias Foua, Dean Karlen, Shashidhara Kolavalli, Christopher Udry

**Partners:** Ghana Agricultural Insurance Programme (GAIP), Ghana Ministry of Food and Agriculture, International Food Policy Research Institute (IFPRI), Savanna Agricultural Research Institute (SARI)

**Timeline:** 2014-2018

**Study Sample:** 3,240 households in 162 farming communities in Northern Ghana

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## The Effects of Land Title Registration on Tenure Security, Investment and Production

### Evidence from Ghana

Niklas Buehren

Africa Gender Innovation Lab, World Bank

May 9, 2018



## Designing Insurance Contracts when Clients "Greatly Value Certainty"

Elena Serfilippi<sup>1</sup>  
Michael R Carter<sup>2</sup>  
Catherine Guirkinger<sup>3</sup>

<sup>1</sup>Committee on Sustainability Assessment  
<sup>2</sup>University of California, Davis, Giannini Foundation & NBER  
<sup>3</sup>University of Namur

May 9, 2018



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Serfilippi, Carter & Guirkinger Greatly Value Certainty

## Infrequent Payments as Saving Device: Evidence from Kenyan Dairy Farmers

Lorenzo Casaburi  
University of Zurich and IPA  
(with Rocco Macchiavello, LSE)



## Joint Liability, Asset Collateralization, and Credit Access: Evidence from Rainwater Harvesting Tanks in Kenya

William Jack  
Georgetown University

Michael Kremer  
Harvard University

Joost de Laat  
Utrecht University

Tavneet Suri  
MIT, Sloan

Joost de Laat  
Utrecht University – Centre for Global Challenges / Utrecht School of Economics

9 May 2018  
Accra, Ghana



# Testing Agricultural Technologies in Northern Ghana: A Seed Experiment

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Federica Di Battista

(Research Coordinator, IPA Ghana)

May 9<sup>th</sup>, Accra

Identifying and addressing barriers to low  
adoption of agricultural inputs in Burkina Faso



Andrew Dillon  
Aissatou Ouedraogo  
Maria Porter

Michigan State University



UNIVERSITY OF GHANA

**Is seeing really better than listening?  
The impact of inoculant technology  
dissemination via video and radio  
listening clubs in northern Ghana**

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Fred Dzanku, ISSER, University of Ghana

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## The State of Agriculture in Ghana

Karl Pauw

*Towards Agricultural Innovation in Ghana: An Evidence-Based Approach*

9 May 2018, Accra



GHANA

## Are contract farming schemes a solution to improving maize productivity and profitability?

Catherine Ragasa, Isabel Lambrecht, Doreen Kufoalor  
Research Fellow, International Food Policy Research Institute

May 10, 2018  
Accra, Ghana



## DIRTS: Addressing Constraints to Agricultural Transformation In Northern Ghana

Christopher Udry  
Professor of Economics  
Northwestern University

9 May 2018



## Will Urban Migrants Formally Insure their Rural Relatives?

Harounan Kazianga  
Oklahoma State University

Zaki Wahhaj  
University of Kent

Accra, 10 May 2018

"Towards Agricultural Innovation in Ghana: An Evidence-Based Approach"



## Towards Agricultural Innovation in Ghana: An Evidence-Based Approach

While the world works toward the Sustainable Development Goals, important transformations of the agricultural sector will be required to achieve food security, the eradication of poverty and hunger, and sustainable economic development in sub-Saharan Africa.

This is particularly true in Ghana, where the agricultural sector contributes 19 percent of GDP and absorbs 45 percent of total national employment. Low productivity in agriculture is strongly associated with poverty: 78 percent of the poor population of Ghana lives in rural areas.

These figures indicate that a more competitive and productive agricultural sector can support poverty eradication. Government and other key stakeholders must create the enabling environment to boost agricultural productivity and profitability.

Rigorous studies in the agriculture sector conducted in Ghana and across Africa are available, and can provide insight into how to pursue this goal. However, lessons from such studies are often not readily available to policymakers and institutions. For Ghana to design informed policies aiming at promoting rural development, bridging the gap and creating a constructive dialogue between researchers and policymakers is of paramount importance.

*Towards Agricultural Innovation in Ghana* brought together researchers, local and international NGOs, inter-governmental organizations, and policymakers working in the agricultural sector to facilitate dialogue among different parties about rigorous studies on the impact of agricultural interventions. By creating more visibility for such existing studies and discussing their implications, the event promoted the use of rigorous evidence from both Ghana and elsewhere within the region, with the ultimate goal of designing informed policies

and programs to improve food security and reduce poverty in the country.

### Themes of interest

*Towards Agricultural Innovation in Ghana* offered the opportunity to present rigorous research studies and discuss their implications. Contributions focused on thematic areas that are relevant for policy decision-making and are bottlenecks for Ghanaian agricultural development. These themes included:

- Agricultural extension services
- Microfinance products for agriculture
- Technological innovation and adoption in agriculture
- Rural labor markets
- Agricultural value chains

### Scientific committee of the conference:

Prof. Dean Karlan (Innovations for Poverty Action) - [dkarlan@poverty-action.org](mailto:dkarlan@poverty-action.org)

Dr. Shashidhara Kolavalli (IFPRI) - [s.kolavalli@cgiar.org](mailto:s.kolavalli@cgiar.org)

Prof. Robert Darko Osei (ISSER) - [rosei@ug.edu.gh](mailto:rosei@ug.edu.gh)

Prof. Christopher Udry (Northwestern University) - [christopher.udry@northwestern.edu](mailto:christopher.udry@northwestern.edu)

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## Country

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