

# Innovation in Outcome Measurement

EVIDENCE DRIVING  
TRANSFORMATION  
OF SMALLHOLDER  
AGRICULTURE



**TECHNOSERVE**  
BUSINESS SOLUTIONS TO POVERTY

*From satellite imagery and drone technology to digital databases and financial management systems, there are a wide array of innovations available to more accurately measure the impact of agriculture interventions that target smallholder farmers.*

*But many donors, policy makers and others lack access to these solutions or don't know how to use them to guide critical investment decisions.*

# WHY INNOVATION IS ESSENTIAL FOR AGRICULTURE IN AFRICA

Today across sub-Saharan Africa, more than 70 percent of the region's several hundred million people rely on agriculture for food and income. But in certain ways, the dominance of agriculture is a sign of setbacks rather than success. Many farmers cultivate their land because they have no viable alternatives for securing food and income. Moreover, they are typically subsistence farmers, meaning they are only growing enough for themselves and their families—and often fall well short of that.

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The good news for farmers across the continent is that there is now broad consensus—in the public and private sector, in national governments, donor countries, international institutions, NGOs and philanthropy—that boosting production and incomes on African farms is the key to sparking broader economic progress across the continent. Over the last few years, a diverse group of agriculture interests has stepped forward. They are now promising hundreds of millions of dollars to transform production on smallholder farms and develop vibrant markets for agriculture products by taking full advantage of new technologies and innovations that have become essential features of a modern economy.

But how do we ensure that the best innovations are widely adopted—or as development professionals say, “taken to scale”? It is a difficult feat. The history of agriculture development, particularly in Africa, is full of examples of seemingly successful pilot projects that have faltered when used at a larger scale. But as many business students learn, what can be measured can be managed, and that is particularly true today in the world of agriculture development in Africa.

# LAUNCHING THE INNOVATION IN OUTCOMES MEASUREMENT (IOM) INITIATIVE

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In December of 2015, the Bill & Melinda Gates Foundation joined forces with TechnoServe to launch Innovation in Outcome Measurement (IOM). The two-year, US\$1.6 million initiative represents an intensive effort to develop more precise, cost-effective tools and methodologies that can measure, in considerable detail, the outcomes of a wide assortment of agriculture interventions. Specifically, IOM emerged from a desire to identify technologies and methods that can drive down costs of data collection, while at the same time maintaining or improving the quality of outcome data.

This is not a mere academic exercise. Without reliable methods of measuring the outcomes of various agriculture interventions, their widespread adoption is unlikely to happen. This fact is particularly true in an agriculture sector dominated by poor farmers who can't afford to experiment. Agnes Kalibata, who served as Rwanda's Minister of Agriculture and Animal Resources, and who now leads the Alliance for a Green Revolution in Africa (AGRA), has described a complex "logic of security" that guides an especially risk-averse decision-making process for subsistence farmers in Africa. Kalibata notes that because they live constantly "on the edge of destitution," most farmers will not embrace a new crop variety, farming method, or technology, "unless they can be absolutely sure of the results."

One way to reduce farmer risk is to develop a broader coalition of partners that has the expertise, resources and incentive to assume a bigger role in smallholder food production. They include decision makers in national governments, officials in local agriculture extension offices, loan officers in development banks, international aid specialists in donor countries, leaders of African farmer organizations, and local small- and medium-sized businesses that can supply smallholder farmers with inputs and purchase their produce. But to be successful, all of these partners need accurate assessments of project outcomes to help guide their investments.

## We pose these kinds of questions:

**WHAT** is the best way to measure how access to improved crop storage affects farmer income?

**HOW** does one accurately assess the impact of different livestock vaccine distribution strategies on the long-run commercial viability of distributors, or on the health of farm animals, which often are an African household's most valuable asset?

**HOW** can one identify innovations in information and communication technology that can be harnessed to improve production and expand market opportunities for smallholder farmers?

**ARE** there affordable ways to use satellite and drone imagery to measure and improve soil conditions, crop performance and agriculture infrastructure in sub-Saharan Africa?





## The Formation and Evolution of the IOM Initiative

Over the last year, TechnoServe leaders have engaged in an intensive consultation process with a wide group of partners representing a significant diversity of viewpoints, interests and expertise. Their goal was to move quickly to identify and test, in real-world settings, new approaches to measuring the outcomes of agriculture initiatives. They also wanted to use this measurement expertise to identify work in the field and in the market that has a strong potential to create a modern agriculture sector driven by smallholder farmers.

To that end, the IOM initiative has two key components: (at right).

A major milestone for the IOM initiative occurred in April of 2016 with the successful convening of over 40 scientists, researchers and development professionals in Washington, DC, for a two-day conference titled *Charting the Future of Agricultural Measurement and Innovation*.

Institutions represented included the International Food Policy Research Institute (IFPRI), the World Bank, the International Livestock Research Institute (ILRI), the Alliance for a Green Revolution in Africa (AGRA), Yale University, Stanford University, the US Agency for International Development (USAID), Pix4D, Measure, Global Open Data for Agriculture Assistance (GODAN), Root Capital, the CGIAR Standing Panel on Impact Assessment (SPIA), the CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS), Innovations for Poverty Action (IPA), and the 3ie international impact evaluation initiative.

It was during this conference that the key goals and activities of the IOM initiative came into sharper focus. Specifically, the partners identified a set of innovations, such as satellite and drone imagery, and new soil testing technology, which are most likely to improve project measurement, while also singling out agriculture innovations that seem particularly promising for smallholder farmers.

### IOM component 1

#### **MEASUREMENT INNOVATIONS:**

The objective is to pilot tools and methodologies that have a strong potential to significantly improve measurements of agriculture outcomes across a wide range of interventions. The goal: cheaper, better, faster ways of evaluating agriculture projects.

### IOM component 2

#### **AGRICULTURE INNOVATIONS:**

The objective is to identify innovations capable of transforming smallholder agriculture with an emphasis on using improved measurement tools to identify barriers to wider adoption and rapid scale-up.

## Measurement Innovations

Working closely with input from a wide range of partners, the IOM initiative has identified a set of measurement innovations to evaluate over the coming year. They were selected based on a wide range of criteria, including technical promise, cost and contribution to existing measurement systems. They also needed to provide practical tools for assessing the different types of crop and livestock production systems, and farming households found across sub-Saharan Africa.



**SATELLITE IMAGERY:** Innovations in the quality and use of satellite imagery can help measure such things as the amount of land under cultivation, distribution of crop types, farm productivity and areas dedicated to agroforestry. All of these insights can be useful for evaluating interventions focused on diversifying crop production or encouraging adoption of different farm technologies and practices.



**DRONES OR “UNMANNED AERIAL VEHICLES” (UAVS):** Drone imagery can be even more precise than satellites in measuring farm area and crop productivity, and in assessing use of inputs and innovative farm practices. Drone imagery can also help buyers make informed decisions by providing estimates of harvests and revealing distances between production regions, transport facilities and markets.



**SOIL QUALITY MEASUREMENT TECHNOLOGIES:** The focus is on evaluating new, low-cost techniques for gaining more nuanced and accurate assessments of soil quality, which is important for monitoring the many interventions now underway to improve depleted soils.



### **TOOLS AND TECHNIQUES FOR ESTIMATING HOUSEHOLD WELFARE AND RESILIENCE:**

Developing better methods that can be used by farmer groups, development organizations and donors to understand the capacity of rural communities to embrace agriculture innovations.



### **ASSESSING LOT QUALITY ASSURANCE:**

Evaluating techniques that processors and other buyers can use to assess product quality, which could lead to tiered pricing policies based on product grade.



### **IMPROVED FINANCIAL AND OPERATIONAL SYSTEMS:**

Evaluating innovative ways for commodity purchasers to track costs and source raw materials from smallholder farmers.

## Agriculture Innovations

Extensive partner consultations have identified a set of agriculture innovations that are the subject of ongoing projects in sub-Saharan Africa and display a strong potential for significantly boosting production and incomes on smallholder farms. Like the measurement innovations, agriculture innovations were selected based on technical promise, cost and practicality for smallholder farmers—and also based on their potential impact on the welfare of farming families and rural communities.

Agriculture innovations to be studied include:



**BIOLOGICAL AGENTS:** Innovations such as microbial inoculants that can improve plant and soil health while reducing farmer costs and improving yields.



**PACKING AND STORAGE:** Innovations that can maintain produce quality post-harvest and allow farmers to sell when market conditions are best.



**ANIMAL VACCINES:** Innovative vaccine products with a longer shelf life that don't require refrigeration, as well as unique supply and distribution models that support vaccination services and improve farmer access.



**FINANCIAL PRODUCTS:** Innovative ways to fund costlier purchases, like processing and irrigation equipment, tractors and cold chain solutions for preserving vaccines.

### Why study measurement & agriculture innovations simultaneously?

A key consensus among IOM partners is that the best way to understand the utility of various measurement innovations is to pilot them on the ground, as part of an effort to implement a particular agriculture innovation. Testing measurement innovations as part of ongoing agriculture interventions can help reveal the strengths and weaknesses of various measurement tools and methodologies faster and more effectively than a standalone project could achieve.

For example, there are many efforts underway across Africa to improve production and incomes on smallholder farms with the help of different types of information and communications

technology. But as these ICT projects proliferate, there is growing interest in accurately and consistently measuring the return on investment.

One IOM study will take advantage of data generated by the ICT applications themselves to evaluate their impact on commercial relationships between farmers and local agriculture businesses. The study, which may incorporate imaging data from drones, will also test whether ICT services can provide affordable tools for monitoring farmer access and adoption of critical products and services, such as fertilizers, improved crop seed, financing, and post-harvest handling and storage innovations. ICT and imaging data also may prove useful for measuring production and sales volumes.

A key reason crop yields in Africa lag far behind the global average is that soils are severely depleted of essential nutrients and farmers often lack access to improved crop varieties. Efforts to address these shortcomings need to be supported with precise, detailed information on soil conditions and crop performance.







# INITIAL IOM STUDIES AND PARTNERSHIPS

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Over the last year, TechnoServe has collaborated with a range of partners to design and launch an initial set of six practical and highly rigorous pilot studies that will test critical measurement and agriculture innovations. This first round of work will be carried out in 2017 at locations across East Africa with a broad coalition of public and private sector organizations committed to making smallholder farming a productive and profitable enterprise. The topics explored in the studies include:

1. Assessing Soil Conditions and the Economics of Soil Health
2. Mapping and Evaluating the Geospatial Services Industry in the Region
3. Seeking Effective Ways to Increase Coverage with Livestock Vaccines
4. Information and Communication Technology in the Agriculture Sector
5. Long-term Engagement: Smallholder Farmers and Agriculture Businesses
6. Satellite and Drone Imagery to Assess Agriculture Project Performance

To ensure this work contributes to practical decision-making and increased investment in agriculture, TechnoServe has taken a decisive, market-led approach to stakeholder engagement. Key partners are engaged before the launch of each study. They help guide the study design to ensure the findings are relevant for key market players.

TechnoServe, in consultations with its funder and partners, is also constantly monitoring the various studies, exploring potential add-ons and considering the potential of launching new studies.

TechnoServe anticipates all IOM studies will be completed by August 2017, with the exception of the soils project, which is slated to culminate in October 2017. Stakeholder engagement will conclude by the end of October 2017. A final IOM report is set to be drafted by the end of November 2017.

TechnoServe and its partners also are continuously exploring other innovations, including: digital mini commodity exchanges, lot quality assurance sampling (LQAS), validation of agricultural indices, and livestock mapping.

# 1

## Assessing Soil Conditions and the Economics of Soil Health

### WHY IT'S IMPORTANT

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A key reason crop yields in Africa lag far behind the global average is that soils are severely depleted of essential nutrients and farmers often lack access to improved crop varieties. Efforts to address these shortcomings need to be supported with precise, detailed information on soil conditions and crop performance. But today, a lack of reliable and affordable data at the farm level has emerged as a major barrier to improving food production in Africa.

There are several approaches available to provide these insights. For example, new, low-cost soil testing tools can generate an abundance of data. And there are new software innovations available that can mine that data to produce recommendations for seed and fertilizer selection. The Africa Soil Information Service (AfSIS), funded by the Bill & Melinda Gates Foundation, and supported by the World Agroforestry Centre (ICRAF), is taking the lead in making these advances available to projects that aim to boost production on smallholder farms.

### INNOVATIONS TO BE TESTED

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- New fast and affordable ways to analyze soil and plant conditions, such as using artificial intelligence to extract useful information from large data sets.
- Using remote technology, including drones and the web-based Collect Earth satellite imagery tool, to evaluate soil and plant health and forest density.
- Using analytical tools developed in the field of “decision science” to measure agricultural outcomes and evaluate impacts.
- New, geographically targeted fertilizer blends that can reduce run-off and waste while increasing productivity.

### WHAT THIS STUDY WILL DO

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The overall aim of the work is to generate an evidence-based approach for developing cost-effective and environmentally sustainable crop production systems. The study will use measurement innovations to assess soil conditions across large areas while also testing how crops respond to soil supplements. The work should provide, among other things, explicit recommendations on the soil nutrients required to achieve specific yield targets.

The goal is to develop a new paradigm for measuring soil and plant health and to quantify the costs and benefits of this approach compared to traditional methods.

### TIMELINE

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Study to be completed by October 2017 for publication/dissemination December 2017

### KEY PARTNERS

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Yieldwise, UBOS, World Bank/LSMS, Univ. of Maryland/STARS in Kenya and Uganda

### PARTNER PROFILE

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ICRAF is a CGIAR research center where scientists study the many ways trees or “agroforestry” can improve production on smallholder farms. ICRAF and TechnoServe are investigating innovations for measuring soil health and crop performance and mapping tree cover and density in the context of ongoing ICRAF programs in Kenya and Tanzania.







# 2

## Geospatial Services Industry Mapping and Evaluation Study

### WHY IT'S IMPORTANT

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Over the last few years, there has been a rapid growth of commercial satellite providers in Africa, and in Kenya alone there are now more than 20 firms offering geographic information services (GIS) and remote sensing capabilities.

Yet imaging innovations are not widely used in the African agriculture sector, even though they have the potential to greatly improve agriculture policy and investment strategies. Imaging services can be used to monitor soil health, crop performance and rural populations, while also guiding risk assessments for crop and livestock insurance policies.

### INNOVATIONS TO BE TESTED

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- Products and services that offer geospatial data collection and analysis which support agricultural transformation
- Improved, pro-active geospatial product design and development methods, driven by the needs (or potential needs) of the consumer

### WHAT THIS STUDY WILL DO

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IOM partners will conduct a detailed analysis of private sector providers of imaging and geospatial information services, with an emphasis on those operating in East Africa. They will study current and potential future demand for these services in both public sector institutions and private sector firms.

They will catalog the range of services currently available, competition among providers, and barriers to broader use in the agriculture sector. They also will consider how the entry of additional providers and an expanded menu of product offerings could affect the agriculture in the region. The study results will be used to develop industry marketing strategies and products and services that more effectively meet the needs of agricultural firms, as well as clients across all subsectors. Expanded use of geospatial products and services has the potential to revolutionize decision-making in agriculture businesses and thus accelerate the growth and competitiveness of the African agricultural sector.

### TIMELINE

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Study to be completed by April 2017 for publication/dissemination May-June 2017

### KEY PARTNERS

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Oakar Services,  
Autonomous Systems  
Research

### PARTNER PROFILE

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Nairobi-based Oakar Services provides a wide range of imaging and mapping products and technologies that are being used to improve land surveys, guide road and dam construction, and monitor natural resources.

# 3

## Seeking Effective Ways to Increase Coverage with Livestock Vaccines

### WHY IT'S IMPORTANT

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For the majority of smallholder farmers in Africa, livestock are by far their most valuable assets. They provide milk, meat and fertilizer (in the form of manure) and routinely contribute to farm labor by pulling ploughs and carts. As a quick disposable asset for family income, they also play a major role in the overall economy. For example, in Kenya, livestock account for 12 percent of the country's overall GDP and 47 percent of agriculture GDP.

Livestock health is therefore of paramount importance to the future of smallholder farming. And livestock vaccines play an important role in keeping farm animals productive while protecting farmers from devastating losses. For example, outbreaks of the tick-borne disease East Coast Fever can be ruinous for dairy farmers and pastoral herders. Recent outbreaks in East Africa have killed cattle at a rate of two per minute and up to 1.1 million per year.

### INNOVATIONS TO BE TESTED

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- › Innovative commercial models for vaccine distribution
- › Geospatial data collection and analysis tools to assess and design vaccine distribution strategies

### WHAT THIS STUDY WILL DO

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IOM is partnering with the Global Alliance for Livestock Veterinary Medicines (GALVmed) and the International Livestock Research Institute (ILRI) to assess different approaches to distributing vaccines against East Coast Fever in Kenya, Tanzania and Uganda.

For example, its experts will identify barriers to expanding commercial distribution and assess how vaccines can be profitable or at least break even for farmers, distributors and veterinary service providers. They will also assess the role of public sector support, and how to balance that assistance with the need to create a sustainable commercial sector.

Measurement innovations will play a key role, providing insights that can help identify successful approaches to vaccine distribution, while also guiding future assessments of livestock immunization strategies in sub-Saharan Africa. Measurement efforts will focus mainly on collecting and analyzing data on livestock location, density and health, in addition to data on distances between farming households, vaccine distribution nodes and livestock markets.

They will catalog the range of services currently available, competition among providers, involvement of public sector and barriers to broader use in the livestock sector. They also will consider how the entry of additional providers and embedding vaccines in an expanded menu of product offerings could affect uptake of the technology by smallholder farmers.

### TIMELINE

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Study to be completed by May 2017 for publication/dissemination August 2017

### KEY PARTNERS

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GALVmed, ILRI

### PARTNER PROFILE

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The Nairobi-based International Livestock Research Institute (ILRI) works with partners worldwide to protect and improve farm animals that are critical to the well-being of hundreds of millions of poor people in places like sub-Saharan Africa and Southeast Asia. ILRI research partnerships help farming households keep their animals alive and productive. ILRI is particularly committed to developing and improving access to livestock vaccines, which can be a very effective and affordable tool for fighting poverty in the developing world.







# 4

## Information and Communication Technology in the Agriculture Sector

### WHY IT'S IMPORTANT

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Over the last few years, a major agriculture innovation has involved using information and communications technology (ICT)—including mobile phones, mobile apps and Internet services—to connect farmers with market services, seed and fertilizer providers, weather forecasts, government agencies, NGOs and technical advisers. In addition to making many aspects of farming more efficient and affordable, these ICT services also are amassing a wealth of data on farm types and locations, crops under cultivation, production and sales volume, input demand and use, and farmer adoption of ICT technology.

At the launch of the IOM initiative, ICT applications were singled out as crucial to measuring the performance of agriculture innovations. That makes this particular project unique within the IOM portfolio. It is assessing different ways of using ICT services to boost production and income on smallholder farms while also studying how ICT services themselves can contribute to much more precise measures—often in real time—of key performance indicators across the sector.

### INNOVATIONS TO BE TESTED

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- ICT systems to improve farmer access to inputs, financing and markets
- ICT innovations that facilitate agriculture business relationships
- Using ICT systems to measure progress across the agriculture sector

### WHAT THIS STUDY WILL DO

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The IOM ICT study will focus on an array of agriculture applications that have been successfully rolled out in Kenya and potentially could be scaled up to expand their reach. The goal is to consider their success in improving farmer access to inputs, financial services, markets and technical information, while reducing transaction costs.

The goal of this study is to assess the performance of each innovation individually while also exploring their potential to be used in combination. Issues to be studied include the costs and revenues that accrue to all involved—including ICT service providers, farmers, input suppliers and produce buyers—and the particular functions of the services that make them commercially viable.

The project will assess farmer adoption of and overall demand for the ICT services. It also will test using ICT and imaging services to measure farmer adoption of packaging innovations for cereal crops and biological agents for soil health. Ultimately, the project can help guide public and private investments by identifying the ingredients of a successful agriculture ICT platform in sub-Saharan Africa and opportunities for scale-up and replication.

### TIMELINE

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Study to be completed by August 2017 for publication/dissemination October 2017

### KEY PARTNERS

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Esoko, Akili, Bamba and Yieldwise

### PARTNER PROFILE

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Our partner, Akili Inc., is linking smallholder farmers to market opportunities through a software platform that connects producers, buyers and processors. The ICT system helps manage a range of activities, including local purchasing, selling and commodity aggregation, while also providing payment-processing services.



# 5

## Long-Term Engagement: Smallholder Farmers and Agriculture Businesses

### WHY IT'S IMPORTANT

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Smallholder farmers in sub-Saharan Africa face a host of challenges in finding market opportunities that allow them to consistently earn income from their harvests. They often must negotiate with a confusing array of intermediaries that largely operate like cartels and there are usually long-distances separating producers from consumers.

One way to provide a more solid foundation for smallholder farming as a business is to facilitate long-term commercial relationships between smallholder farmers and various market players, including commodity traders, processors and exporters. Such relationships can be mutually beneficial by establishing clear standards for product quality in exchange for price guarantees for farmers who meet them.

### INNOVATIONS TO BE TESTED

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- › Formal engagement between smallholder farmers and market traders to facilitate sustainable access to agricultural services, inputs and markets
- › Formal organization of market traders as an avenue for market formalization and transformation
- › Mobilizing and engaging farmers by addressing multiple market challenges, including access to input suppliers, financiers and produce buyers
- › Innovative tools and processes that improve access to credit by providing transparent assessments of farmer finances and predicting future income from produce sales.

### WHAT THIS STUDY WILL DO

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A key partner for this IOM study is YieldWise, a US\$130 million project initiated by the Rockefeller Foundation, which is helping smallholder farmers reduce post-harvest losses, in part by connecting them with market opportunities that help them invest in safe storage and handling. IOM and YieldWise are working in Kenya with two local firms, Agriprocity and Akili, to facilitate long-term contractual relationships between small, local mango producers and regional traders and exporters. The work stresses the importance of produce quality to gaining access to premium markets that can offer guaranteed prices.

Among other things, the IOM study will identify incentives and market conditions that encourage farmers and buyers to engage in long-term business relationships. The study will also reveal actions by governments and donors that can either encourage or discourage these kinds of commercial partnerships.

### TIMELINE

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Study to be completed by August 2017 for publication/dissemination October 2017

### KEY PARTNERS

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Esoko, Akili, Bamba and Technoserve Kenya's Yieldwise



# 6

## Satellite and Drone Imagery to Assess Agriculture Project Performance

### WHY IT'S IMPORTANT

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A lack of reliable data on issues such as land holdings and farming practices can make public and private sector partners reluctant to commit resources.

Today, there are new technologies and analytical tools that translate data generated by satellites and aerial drones into a steady stream of insights relevant to farm performance. These imaging products can lead to more informed investment decisions in the public and private sector and expand opportunities to monitor and evaluate their performance.

### INNOVATIONS TO BE TESTED

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- Collecting and analyzing agriculture-related data extracted from satellite and drone imagery
- Improving the sustainability and quality of project monitoring and evaluation efforts by utilizing pricing and volume data, and other information collected by commercial partners
- Using geospatial data collection and analysis to improve performance of local agri-businesses

### WHAT THIS STUDY WILL DO

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For several years, the Integrated Bread Basket (IBB) project initiated by the Alliance for a Green Revolution in Africa (AGRA) has been working with partners in Mbeya and Iringa in Tanzania to provide extension services that can help maize farmers improve production and income. But lack of data on basic outcomes, like changes in crop yields from season to season, has impeded efforts to evaluate whether these interventions have been successful.

This IOM study seeks to assist AGRA's evaluation work by using data generated by satellites and drones to assess farm performance. It will determine the capacity of different imaging technologies to deliver accurate and affordable insights on issues such as plant and soil health, fertilizer and pesticide usage, crop yield and post-harvest handling practices.

The IOM team will work with AGRA's partners to gather satellite and drone imagery that can be used alongside outcome data from more traditional sources, such as household surveys. The goal is to develop a process that can be applied to future monitoring and evaluation efforts, including work related to the new YieldWise initiative. YieldWise is an ambitious effort launched by the Rockefeller Foundation to limit food losses on smallholder farms caused by rot and pests, which routinely claims 40 percent of harvests.

### TIMELINE

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The study will collect data through April, with a tentative plan to report results by May 2017, in time for the results to be incorporated into the baseline survey for the YieldWise project that commences in June 2017

### KEY PARTNERS

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AGRA and its implementing partners for the IBB, YieldWise, the Inclusive Green Growth of the Smallholder Agriculture Sector (IGGSAS) Projects, and Sokoine University of Agriculture (SUA)





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# MEASURING UNIQUELY AFRICAN SOLUTIONS

Almost no region anywhere in the world has achieved sustained economic progress without first establishing a strong agriculture sector. This link has been well documented, from Europe and the United States in the early 20th century, to China, India and Southeast Asia in more recent times.

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But what worked for the agriculture sectors of Asia, Europe and the Americas cannot simply be replicated in Africa. From its unique, diverse portfolio of crop types, to its widely varying growing environments and different levels of infrastructure development, Africa's agricultural challenges demand uniquely African solutions.

The Innovation in Outcome Measurement initiative can play an important role in identifying the best solutions available. Through its extensive network of partners and detailed studies, IOM promises to deliver more accurate and affordable ways of assessing the many different activities underway across the continent that seek to build a vibrant, prosperous agriculture sector for Africa.

*There is now broad consensus that boosting production and incomes on African farms is the key to sparking broader economic progress across the continent.*





TechnoServe works with enterprising men and women in the developing world to build competitive farms, businesses and industries.



**TECHNOSERVE**  
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