



## AGRF 2016 – SHOWCASE REPORT

Day 4 - Thursday, September

11:00am- 12:30pm

Taking Technologies to Scale: No Farmer Left Behind.

### SESSION BRIEF

**Context:** Expanding input supply markets in Africa have fueled productivity increases among smallholder farmers, giving renewed hope that Africa can join the ranks of modernized agricultural systems. But Africa's agricultural landscape is vast and highly diverse, and as yet only a small percentage of farmers have adopted improved seed and fertilizer use. Looking ahead at the task of reaching all of Africa's farmers with improved technologies, it is important to consider the different approaches to agricultural extension, in order to gain consensus on the key elements of an effective approach. As the market demand and input supply conspire to pull larger numbers of smallholders into modernized farming practices, it is critical to review what is working – in Africa as well as globally – and also recognize what approaches have not worked so well.

#### Session objectives:

The purpose of this session was to identify the agricultural extension approaches that appear to be giving the best results among smallholder farmers in Africa in order to gain a level of consensus on a way forward for taking such efforts to scale.

#### Key Issues/ Questions:

- What technologies are particularly helpful for Africa's small farmers?
- What are some of the successful initiatives underway to test and model technology solutions for small farmers?
- What are the appropriate roles of public, private and civil sectors in developing a more sustainable system for extension in Africa?
- What are some of the challenges that may exist to taking successful pilots to scale in given countries and/or regions of the continent? What is/ can be done to address these challenges?

#### Outcome Desired:

- Illustrate the power of technology in improving the return on investment of small farmers.
- Gain insight about specific initiatives and models that are being implemented in Africa that are having an impact on smallholder farmers' lives, and that are/ may be replicable by others.
- Help identify prospective partners for expanded efforts to diffuse technology among smallholders – and those who work with them through technology adoption programs and projects.

**Organizer:** AGRF Secretariat



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Name	Picture	Discussion
<p>Mr. Kartik Jayaram, Senior Partner, McKinsey &amp; Company</p> <p>Role: Moderator</p>		<p>Mr. Kartik started the session by introducing himself and saying that there are many good ideas that have come around but very few of them have been scaled up.</p> <p>The use of fertilizers to improve the yields is a very good idea but only 19% of farmers in Tanzania use them. How can we change that?</p> <p>He asked the panelists to introduce themselves and began the discussion.</p>
<p>Mr. Rikin Gandhi, CEO, Digital Green</p> <p>Role: Setting the Stage</p>		<p>Mr. Gandhi introduced himself and his company and told the audience that his company, Digital Green, works with extension programs and strives to drive down the cost of adoption of technology.</p> <p>In particular they work with video and cellular telephony as mobile technology has been taken to scale in Africa. He spoke about the importance of extension agents and public service extension systems in helping share global good practice with Africa’s farmers.</p> <p>He continued that various technologies are good for varying interventions. Radio is useful for education. Videos and demonstrations are good for teaching agronomic practices but they are not good for exchanging small bits of information. Short messages (Sms) and cellular telephony are good for information exchange. Cellular telephony is also good for facilitating financial transactions and money exchange.</p>
<p><b>Panelists</b></p>		



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<p>Dr. Segenet Kelemu, Director General, International Centre of Insect Physiology and Ecology (ICIPE)</p>		<p>Dr. Kelemu began her presentation by explaining how insects play a critical role in support of our food value chains - and she presented the example of bees which as nature's chief pollinators are at the heart of the USD 500 billion global food industry and making a substantial contribution to the world's food system.</p> <p>She also pointed out that insects are important to understand because they transmit diseases to humans and crops. The foremost disease carried by insects is malaria involving plasmodium protozoans transmitted by mosquitoes of the genus anopheles. Malaria is the deadliest arthropod-borne disease in the world affecting some 250 million people in the world with as much as 2 million deaths annually.</p> <p>Insects can provide though a key protein substitute and be used as food for fish and even in livestock feed. The more that we know about insects, she said, the better able we are to harness their benefits.</p>
<p>Dr. Yemi Akinbamijo, Executive Director, Forum for Agricultural Research in Africa (FARA)</p>		<p>Dr. Akinbamijo began his presentation recounting a story - about how once when he was visiting farmers in Arusha, Tanzania he was told that they obtain 15 tons/ha for tomatoes. One of the farmers pointed that he once was able to cultivate 50 tons/ha . . . but that was exceptional. Dr. Akinbamijo explained to the Tanzanian farmers that farmers in Cuba obtained 100 tons/ha. He asked the farmers what they thought was the cause of such a difference? The difference he responded (asking a sort of rhetorical question) is due to the seeds used in the two countries. The moral to that story he noted was that innovation and the use of improved inputs – seed and fertilizer – is a key step toward revolutionizing crop production in Africa.</p> <p>He continued by saying that one of the key ways to take innovation in agriculture to scale is to make use of Innovation platforms.</p> <p>An innovation platform is a space for learning and change. It is a group of individuals (who often represent organizations) with different backgrounds and interests: farmers, traders, food</p>



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		<p>processors, researchers, government officials, etc. The members come together to diagnose problems, identify opportunities and find ways to achieve their goals. They may design and implement activities as a platform or coordinate activities by individual members. Innovation platforms are particularly useful in agriculture because agriculture issues tend to be complex. They involve different biophysical, socioeconomic and political factors and concern various formal and informal institutions.</p> <p>By bringing together stakeholders in various sectors and from different levels, innovation platforms may be able to identify and address common concerns more effectively.</p> <p>Once the proof of concept is done, and there is an innovation that can be commercialized, we need the private sector to take it to scale. It is important to involve the private sector from the beginning.</p>
<p>Mr. Paul Seward, MD, Farm Input Promotions-Africa (FIPS)</p>		<p>Mr. Seward began his presentation by introducing himself to the delegates and explaining that his organization, FIPS, helps farmers improve their food security by empowering them in villages through the use of technology.</p> <p>He shared further that “hybrid” maize has had a successful adoption rate of 60-70 percent in Kenya. Mr. Seward presented maize from not hybrid seed and maize from hybrid seed. The difference was substantial; the one from the hybrid seed was almost twice as big as the other one.</p> <p>He also showed the audience the sachets that had the improved seed, called the Unilever sachets because Unilever started this way of packaging. The hybrid seeds have increased the yields from 1.5 ton/ha to 5 tons/ha.</p>



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<p>Dr. Joseph DeVries, Chief, Agricultural Transformation Program, Alliance for a Green Revolution in Africa</p>		<p>Dr. DeVries began his presentation by sharing with the delegates the fact that hybrid maize in Burkina Faso has been adopted by several thousand farmers and the seeds are now being used in Mali.</p> <p>He explained further that the seeds have been produced under the Program for Africa’s Seed System (PASS) and the Scaling Seed and Technologies Partnership. The PASS value chain includes four elements: education, breeding, production and delivery.</p> <p>Education - Under the education component the strongest universities are identified, a support grant is established, top-level fellows are recruited for the program, the PASS management exercises curriculum oversight and oversees the research thesis.</p> <p>Breeding - Under the breeding component of PASS, we identify breeding teams, develop a breeding strategy, establish a grant support program, undertake breeding oversight, link breeders supply chains, and provide assistance in commercialization.</p> <p>Production - Under the production component, we identify seeds enterprises, establish a production market strategy, establish a grant support program, coordinate the training, monitor the production and the marketing and link the enterprises to investment funds.</p> <p>Delivery - Under the delivery component we identify the service providers, establish the grant support program, oversee the training, oversee the credit guarantee and create links to farmers.</p>
	<p><b>Questions:</b></p>	<p>In a context of low infrastructure, limited extension service and changes in weather pattern due to climate change, how does a model go to scale?</p> <p>How do we partner and with whom do we partner to accelerate the adoption of innovation?</p> <p>What explains the success of the ICIPE’s bio pesticide?</p> <p>What does it take for farmers to adopt what works?</p>
<p><b>Answers</b></p>	<p>Mr. Rikin Gandhi</p>	<p>In each demonstration there is a hidden role of expansion.</p>



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		<p>Studies show that there is an increase of 16% in adoption rate of innovations when there is a demonstration compared to when there is no demonstration.</p> <p>Video technology allows for the acceleration of a demonstration going to scale using existing resources.</p>
	Dr. Yemi Akinbamijo	<p>There are farmers’ associations such as PAFO, the Pan African Farmers’ Organization, that can be partners to help accelerate the adoption of innovations. They are registered and their members are geo-referenced. However, the governance of these institutions is weak, and their financial capacity limited - they need to be strengthened.</p>
	Dr. Segenet Kelemu	<p>It is the role of the private sector to take innovations to scale. ICIPE has partnered with Real IPM Ltd, a Kenya-based private sector company, and a company from Switzerland that has licensed their bio-pesticide fungus in Europe and America and will pay them royalties based on the sales.</p> <p>Two ICIPE bio pesticides are being commercialized as Campaign (icipe69) and Achieve (icipe78). Campaign has been registered in Ethiopia, Kenya, Ghana, South Africa and Tanzania where it is being used against mealy bugs, trips and fruit flies in crops such as cucumber, mango, papaya, roses and tomatoes among others.</p> <p>The campaign is receiving much attention across Africa for its effectiveness as a drench treatment to kill soil-dwelling stages of fruit flies.</p> <p>ICIPE has been bioprospecting novel arthropod pathogens, especially, entomopathogenic fungi for their efficacy against insect pests’ disease vectors. Entomopathogenic fungi, which include taxa from several of the main fungal groups act as parasites causing infection in insects either killing or seriously disabling them. They are known to specifically attack pests and vectors and because they do not produce toxic residues, they are also environmentally safe.</p>



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	<p>ICIPE research has led to the formulation of several bio pesticides using isolates from metharizium anisopliae, an entomopathogenic fungus, which occurs naturally in the soil. These products have been found to be compatible with other components of ICIPE’s integrated pest management strategy.</p>
<p>Mr. Paul Seward</p>	<p>Farmers are smart and rational. Their plot is everything they have to raise their family. They can’t risk everything on a new technology until they are sure that it works and it is available.</p> <p>They can experiment on a small patch of 2X5 m with little risk and village advisors can provide improved seeds. The planting is done using strings that show the correct distance between the seeds and the number of seeds. 20 seeds are planted at a 25 cm distance. 3 months later the farmers are back to the local agents.</p> <p>In order to take technologies to scale we need the private sector to be engaged.</p>

### Summary

Innovations grow to scale when they are already part of peoples’ daily lives. There is a need for capacity improvement, improvement of the capacity to innovate, the need to provide training to farmers in order for them to adopt innovation, and a great need for government to create an enabling environment for scientists.

There are not enough extension workers within the public service in Africa and thus the private sector should play a greater role, through the recruitment of agro-dealers and the use of video technology to build the capacity of farmers.

It is dangerous to try to do everything for everybody and provide too many services. This has led to failures of some big companies in India. Partnerships are crucial to build; no company no matter how big can go at it alone. Partners should consolidate their efforts for the benefit of the smallholder farmer.