Agricultural delivery systems: some options for East Africa

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In 2012, the Center for Strategic and International Studies (CSIS) set out to answer the question: can genetically engineered crops improve food security? We conducted field work in Tanzania, Uganda and Kenya, and looked particularly at the potential impact for smallholder farmers and rural households. This question is an important one because the need for investment in agriculture in these three countries is tremendous; but resources are few and must be husbanded carefully.

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After 18 months of research, interviews and discussion, we concluded that genetic

engineering and biotechnology have the potential to play an important role in battling pernicious pests and diseases, as well as improving nutrition and reducing the use of water and chemicals, all of which can benefit farmers. In addition, scientific progress will be enhanced if researchers have the opportunity to push their research and findings into new areas of discovery.

However, there is an important challenge to achieve the potential benefits of genetically engineered crops: how will the farmers get them, and once they have them, how will they know what to do with them?

Focus on delivery

Without a major focus on agricultural delivery systems, the benefits of genetically modified (GM) crops will never be fully realised. This is important not just for GM crops, but also because any investment in agricultural delivery systems, from education and extension to seed multiplication and distribution, will ultimately be required for the entire agricultural sector to develop. Pathways for farmers to secure productivity-boosting inputs and information will benefit farmers, regardless of their choice of seeds. Given that these countries have very low rates of adoption of even hybrid seeds – less than 30 per cent – and low fertiliser use, it is vital to increase the use of improved inputs in order to achieve larger, more predictable harvests and reduce hunger and poverty.

Cellphones: vehicles for communication

While a good deal of discussion has revolved around the promise of cellphones as distributors of information and hubs of knowledge, they can be but a part of the answer to this challenge. Cellphones are not

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systems in and of themselves. They are vehicles for communication and information to be passed between people who like to use them. Their utility will depend upon who is involved in farming – are there local leaders within communities who can gather and share updates and information, and explain them in the local context? Are there young people who are inclined to experiment and try new approaches? If so, then cellphones and data will have much greater potential.

Re-energising old habits

In addition to experimenting with cellphones and other technologies, it is time to find new ways to use the old approach – talking to people. Farmers all around the world, and in this region in particular, want to talk to each other, share advice and ideas, and find answers to their questions. With people around them who are knowledgeable and able to share new approaches, farmers will be more likely to experiment with some of the techniques and inputs that have driven up production and farming success elsewhere.

Suggesting that the future lies with people talking with and teaching each other may seem old-fashioned; but it need not be the way it was in the past. To realise the potential for high-productivity and problem-solving crops, both GM and non-GM, we should embark on a major re-think of extension and education; it needs updating and refreshing, and there needs to be far more of it, especially in East Africa. Extension is criticised in many countries, as it has tended to be underfunded by governments, too focused on male farmers, and lacking in reach and quality. So the question is how to reach farmers with good information and continued engagement, but without replicating an outdated system that relies on major financial outlays and large staffs. Uganda, for example, revamped its system, but it still does not reach an adequate number of people, or provide adequate information.

Promoting leadership

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There is still an important role for government expertise and credibility in connecting with farmers; in addition, non-governmental organisations and other groups have had success in reaching farmers and engaging in communities through local farmers, who serve as leaders and cheerleaders, and receive ongoing training and education. Having team leaders, or community members who are viewed as good and knowledgeable farmers, can be a lower-cost approach to providing information. As with other sectors, such as the health sector, providing training and stipends to community members serves the purpose of developing an information distribution system and network, and also creates a larger base of community-owned knowledge about good farming practices. Having a hub of information and activity creates an environment where change can occur, and where new practices are more likely to stick, as people can share their experience and remind each other of the steps they are supposed to take for each new approach to intercropping, soil amendment or use of hybrid or GM seed.

Training

A mix of engagement including short seminars, training days and field days, should be explored to both educate and train farmers to serve as resources for their communities, and tie communities into a broader system of knowledge that the government and independent organisations could best provide.

The role of agribusiness

The agribusiness sector must be a key part of the system as well; seed varieties are publicly developed and approved by the government, and the seed sector is not as robust as it needs to be to breed, multiply and distribute enough seeds to meet demand. If supply is uncertain, demand will be stunted because farmers

will focus on the most reliable source of seed – their own seed, saved from the previous year's harvest. A much more intense focus must be placed on developing the agribusiness sector, focusing on beefing up skill and capabilities around production and distribution, as well as the important but sometimes-overlooked skill of marketing. Without a more sophisticated agribusiness sector, the necessary "push" of supply will not be able to drive the "pull" of demand.

Service provision

Innovation and development in the agribusiness sector must not only be focused on development and distribution of inputs. It must also be packaged with technical services; for without financing and advisory services, good seed will fall short of its potential yield. For-profit advisory services could build upon a community-based model, and could train and employ community members and farmers to assist in the distribution of information.

There is no clear path to better productivity for smallholder farmers. But it is evident that far greater emphasis is needed for the product and information systems that will push farmers to greater success. And there is room for enormous creativity and skill that puts person-to-person communication at the centre.

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