



Getting new public varieties to the farmer

The problem is not that breeders at public research institutes don't develop new varieties suitable for African farmers.

The problem is that many of these varieties never reach the farmer. Action-learning projects by Integrated Seed Sector Development (ISSD) Africa showed that a better two-way communication between breeders and farmers, and smart agreements between breeders and seed companies can change that.

Breeders at national and international agricultural research institutes generally do a good job in developing new varieties. Analysis based on five case studies conducted within ISSD Africa showed that dozens of new varieties of crops like potato, rice, beans and sorghum were released in past five years in Kenya, Uganda, Mali and Zambia. Many of these new varieties could bring farmers a higher yield and other benefits. However, only half of these varieties, or even much less, are available as seed in the market and find their way to the farmers' fields. The research institutes, including CGIAR centres and their donors, such as governments and foundations like the Bill & Melinda Gates Foundation, are concerned that the results of their efforts never reach farmers.

When a research institute releases a new variety, it

produces only a limited amount of seed of this variety, called breeder seed. This seed needs to be multiplied in strictly controlled procedures to gain a larger amount of seed. This next generation is called foundation seed. The foundation seed can then be obtained by companies and multiplied – again under controlled conditions – into seed: the product they sell to farmers. This chain of production, called the seed value chain, is hampered by three bottlenecks that were discussed during the ISSD Africa conference in Nairobi, which was held in September 2016. First, there is a lack of information on varieties flowing from breeders to seed producers and farmers and vice versa; second, there is a shortage of foundation seed; and third, seed companies lack the incentive to take new varieties into seed production.

Variety information

Research institutes normally publish a newly released variety in a national catalogue of varieties. However, this information is often not used because it is inaccessible, or incomplete. Seed companies need much more information than just the name of a new variety to decide if it is a valuable new variety for them to take into production, explains seed expert Willem Heemskerk, who works with the Royal Tropical Institute (KIT), which has been coordinating ISSD Africa together with Wageningen Centre for Development Innovation (CDI). Apart from understanding the characteristics and suitability of the variety, and knowing where to get the foundation seed, the main question is if there is demand among farmers for the variety.

Case studies carried out through ISSD Africa showed that much information on local needs can be found in the informal seed systems; for example, at farmers' meetings on seed and varieties, seed fairs, or through



'In fact, private companies and farmers' organizations are more and more involved in producing foundation seed'

Willem Heemskerk, who works with the Royal Tropical Institute (KIT).

farmer-to-farmer extension. One issue is that this flow of information in the informal seed systems is often not linked to the formal seed systems, as Heemskerk notes: 'Community radio, for example, reaches many people, but this is not linked to formal agricultural extension. A better integration of different sources of information both from the informal and formal systems would be good. There needs to be greater appreciation within the formal system by breeders, seed companies and policy makers, for instance, for the services in the informal sector', Heemskerk points out. A good example comes from Kenya, where a website (www.mbeguchoice.com) integrates different sources of information and brings together information on varieties, demand and farmer feedback.

Breeders are used to sending information to seed companies and farmers. Communication, however, should be more two-way, was the conclusion of the ISSD Africa conference on this issue. 'The farming community should be involved in participatory variety selection and breeding at an early stage', Heemskerk notes, 'in order to use farmers' information and feedback and produce more suitable varieties.' In on-farm demonstrations, improved and local varieties can be tested and discussed among breeders and farmers.

Foundation seed

ISSD Africa studies show that the main bottleneck preventing farmers from obtaining public varieties is the lack of foundation seed. Public research institutes in many countries still have the responsibility to produce this second generation seed. But they lack the

resources and facilities to multiply the breeder seed. 'It would be logical', Heemskerk remarks, 'if seed producers would take over the role of producing foundation seed. That would fit into the general trend of reversing the seed value chain', he explains. Instead of research institutes pushing a certain new crop variety to farmers, farmers should drive the seed value chain through their demand for quality seed, to which seed companies and local seed businesses respond.

'In fact, private companies and farmers' organizations are more and more involved in producing foundation seed', Heemskerk continues. In various countries, national ISSD programmes have supported pilots with seed companies, decentralized research stations or local farmers' seed businesses in producing foundation seed. But producing foundation seed is costly as it has to be carried out according to strictly controlled procedures to maintain quality. Furthermore, producers of foundation seed need technical training and capacity building. All this requires planning and demand forecasting. To organize this, coordination is needed through meetings of stakeholders, explains Heemskerk. For example, in seed value chain platform meetings, in which seed companies, research and extension services as well as farmers and seed-producing farmers are represented.

Building up this capacity necessitates money. Studies have shown that smart subsidies for public-private partnerships in foundation seed production can work. According to Heemskerk, 'farmer cooperatives in Uganda producing foundation seed in groundnut can't pay for public research breeders advice. It would

disturb the market to give a general subsidy, but it is possible to subsidize the salary of the breeder from the research institute giving advice.'

Establishing agreements with public research institutes

When bringing a new variety of a public research institute into the market, the seed company has to cover large extra costs for the promotion and demonstration of the variety to farmers. But once a new variety is popular among farmers, the seed company cannot be sure that another company will not take advantage of the hard work done and bring the same variety to farmers. For this reason, seed companies are currently not investing a lot in marketing or producing foundation seed for a certain new variety.

To change that, public research institutes releasing a new variety could sign an agreement with seed companies giving them an exclusive right to multiply and sell the variety. Under ISSD Africa, various agreements were studied, many of them on seed potato. 'Such agreements should be limited to a certain period of time and a certain geographical area', explains Ivan Rwomushana, researcher with the International Centre for Insect Physiology and Ecology in Uganda, who presented findings on such agreements during the conference in Nairobi. Rwomushana affirms that 'negotiating agreements requires mechanisms as well. For example, a broker to organize it, and a platform to meet.'

There are, however, also examples of informal agreements that work as well, Rwomushana explains: 'An interesting case is the Uganda National Seed Potato Producers Association. It accesses foundation seed and gets an exclusive right; no other producers get this foundation seed. But there is no written agreement.' The research institute wants the new potato varieties to be taken into production, but has no land and facility to reproduce it. Rwomushana further elaborates: 'The country has many farmers' groups producing potatoes, and all of these belong to the Uganda National Seed Potato Producers Association. The farmers' groups make sure that all of them get access to the new varieties.'



Participatory Variety Selection process at Ngetta Zonal Agricultural Research and Development Institute, Uganda. (Photo by Geoffrey Otim)

'It is important to have a two way communication on varieties'

'From the surveys we did under ISSD Africa, we learned that many farmers don't know about new varieties. The information is there, but it does not flow from the breeder to the farmer and hence the farmers are not procuring seed of these varieties.' remarks Enock Maereka, who works as a researcher in Malawi with the International Centre for Tropical Agriculture (CIAT), on the bean-breeding programme. He was involved in ISSD Africa research on accessing new bean varieties for farmers in Zambia.

Maereka notes that one of the reasons for the lack of information is that extension workers who provide advice to farmers don't work together with the ones at breeding institutes producing the information on new varieties. Also, the type of information that breeders produce doesn't work. 'Farmers don't read booklets, they want to see a crop in the field. They want to experiment with those materials and see for themselves', he explains. So, to get farmers interested, the crops need to be shown on demonstration plots. Also, breeders often don't know what kind of information is important for farmers. 'For that reason, it is important to have a two-way communication,' says Maereka, 'to understand what farmers and seed producers want to know about the new varieties.'

Farmers are involved in the process of breeding bean varieties, Maereka observes: 'It is called participatory

'The seed is locked up somewhere, the breeder doesn't produce enough breeder seed'

variety selection and it is a must. Farmers give feedback on what they like or dislike about a variety. This may be about yield or disease resistance, but also about culinary taste. But the challenge is that farmers don't get a chance to buy it. In our study, in four districts in eastern Zambia we didn't find any shop that was selling certified or other quality bean seed.' Farmers who participated in variety selection keep the seed they tested and often multiply it for themselves and neighbours, but a wider distribution is limited. Maereka points out that 'the seed is locked up somewhere, the breeder doesn't produce enough breeder seed, and the companies that want to produce certified seed can't access breeder seed or foundation seed.'

One of the problems is that marketing seed and organizing demonstration plots is very expensive, and breeders don't have the resources for this. For seed businesses it is also difficult to invest in this, because the newly released varieties are generally in the public domain. They are developed by publicly funded research organizations and anybody can get the resulting new varieties for free. That also means that companies will not invest heavily in promoting a new variety, as another company can easily enter the market and ride on that investment. Arranging more exclusive agreements on use may help in this case, affirms Maereka.

Another result from the study, Maereka notes, is that many farmers said that other farmers are their main source of information: 'Farmers learn from each other. We need to strengthen farmer-to-farmer extension services, and link them to information exchange in the formal seed systems.'

One way to do that could be using text messages with mobile phones. Many farmers already use a service like *321 platform*, which sends text messages on how to grow a certain crop in a certain area, what amount of fertilizer to use, etc. 'Now we are planning to use a similar platform to relay information on crop varieties and where to get them and how to use them', Maereka concludes.

ISSD Africa is a community of practice that unites African seed experts, seed programmes and associated organizations, and which aims to increase farmers' access to quality seed through the development of a market-oriented, pluralistic and vibrant seed sector in Africa. ISSD Africa seed experts implemented action-learning projects in 14 African countries, and shared their findings in national seminars that were held over the course of 2016, and in an international synthesis conference that took place in Nairobi in September 2016. This paper reports on the outcomes of the conference and on interviews held during the conference.

The ISSD approach is a farmer-focused and demand-driven seed sector development approach, which caters for the diversity of seed demands. Through this approach interventions are designed that are tailored to specific crops, value chains and seed systems. It is a seed sector-wide and inclusive approach.

More information:
Marja Thijssen, PhD
Wageningen Centre for
Development Innovation,
Wageningen University & Research
P.O. Box 88, 6700 AB Wageningen,
The Netherlands
Tel. +31 (0)317 486865
E-mail: marja.thijssen@wur.nl

www.ISSDseed.org
www.wur.eu/cdi

