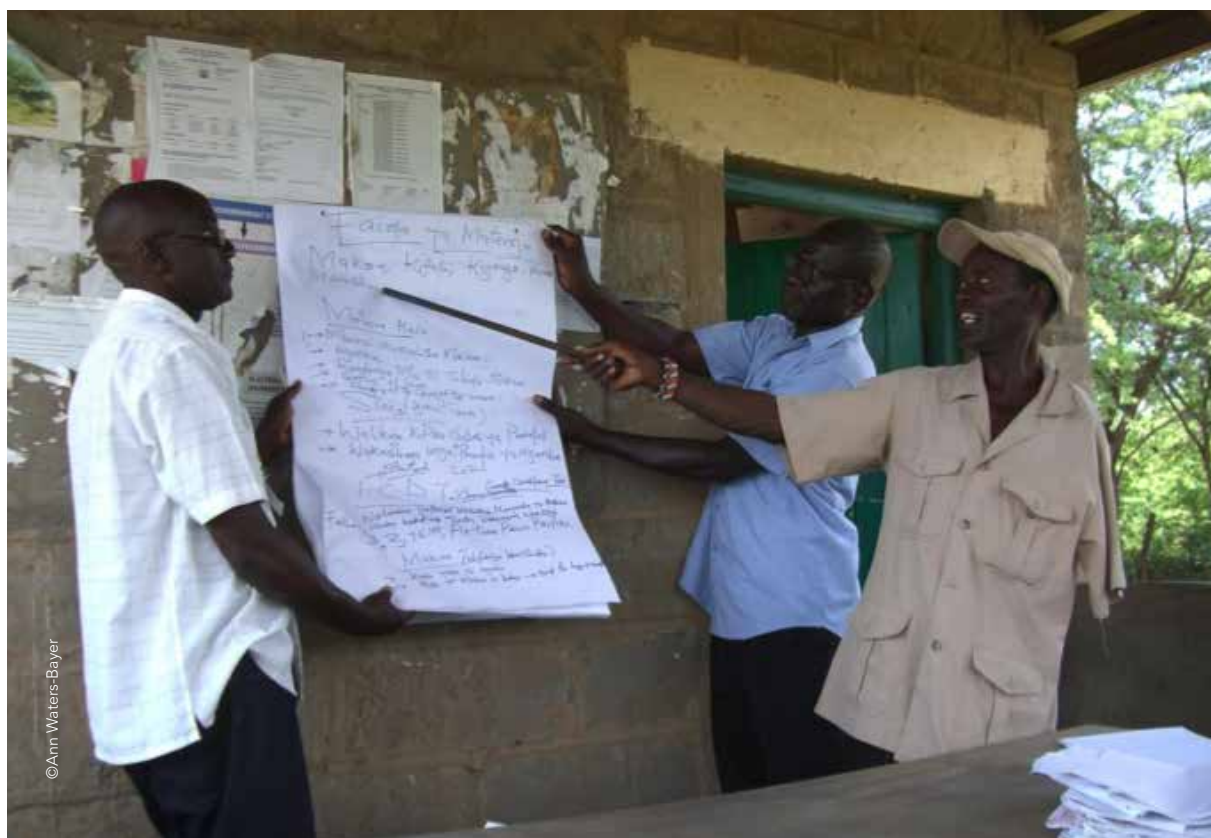


Joint Learning in Agricultural Innovation Cases

By Ann Waters-Bayer, Geoffrey Kamau and Bernard Triomphe*

Researchers are making advances in seed and fertiliser technologies, but creative solutions are also needed to improve market access, as well as to mitigate the impact of climate change among smallholder farmers. Africa's ability to improve sustainable agriculture will depend largely on processes of interactive learning and innovation in practice.



How does innovation actually happen in smallholder farming? If people involved analyse this together, can this process of joint learning advance the innovation process? These are questions behind the JOLISAA (Joint Learning in Innovation Systems in African Agriculture) project. A team of researchers from Africa and Europe identified numerous innovation cases involving smallholder farmers in Benin, Kenya and South Africa and then selected a few “lesson-rich” cases for deeper analysis. Each case assessment team, including researchers, extensionists, students

and farmers, learned together about the history of the innovation process, what the different actors contributed and how they were linked. The focus was on the role of local people's knowledge and creativity. The teams gathered information through interviews, group discussions, multi-stakeholder workshops and documents, and made timelines to identify critical points and influences in the innovation process. The African and European students working in the teams were exposed to a structured “discovery” mode of learning in the midst of development by smallholders.



This first important step was to reach a shared understanding of “innovation”. This refers to doing things in new and better ways, and can include new technologies but also new forms of organisation or new rules about how resources are used.

What was discovered? The teams in Benin, Kenya and South Africa found that innovation does not occur in a linear way from “Research” to “Extension” to “Farmers”. Instead, it involves complex and “messy” networks of many different types of people who use ideas from different sources and make adjustments and improvements along the way. The innovation path often takes quite different directions than expected by the people who started with a new idea.

In some cases, a research organisation, an NGO or an externally funded project was very active in initial stages (e.g. on-farm experimentation), while farmers and their organisations or local entrepreneurs become more active in later phases. In many cases, formal research did not initiate or play a leading role; indeed, sometimes researchers were not involved in the innovation process at all.

What triggered innovation was sometimes a problem, such as declining soil fertility or reduced water supply, and sometimes a market opportunity or the introduction of new practice (e.g. a new way of boiling rice in Benin), which led to a whole chain of innovations by diverse people.

The teams found that, to be able to understand how innovation happens, it is not enough to look at only a year or two. For example, in Kenya, where the joint learning was coordinated by Kenya Agricultural Research Institute (KARI), the innovation history of *Prosopis* went back to the 1980s, when the Food and Agriculture Organisation (FAO) introduced this “miracle plant” to save the drylands from desertification. Initially, it was considered a success but then the local people found that the shrub invaded and ruined their pastures. Then Farmer Field Schools were formed to find ways to control *Prosopis* by cutting and pruning, using pods as feed and making charcoal. This meant that laws against charcoal burning had to be changed. Thus, technical innovation was linked with organisational and institutional innovation.

This and many other cases showed how innovation “success” stories turned out to be more complex and less rosy than presented by projects. The project staff was often blind to what was going on outside what the project had planned. Yet recognising such “innovation in the wild” (unplanned innovation) is essential for making an innovation process into a real success and to keep it going.

Another example is that of aloe in Baringo District of Kenya. The case assessment team started looking at an EU project designed to prevent overuse of wild aloe. Aloe was to be cultivated, a processing factory set up and a new value chain created. At the same time, local aloe harvesters continued to sell their products to boilers who were supplying Somali traders. Local innovations were developed in the informal value chain. Traders trained boilers how to produce better-quality gum. Some local small-scale enterprises emerged for soap and cosmetics. Some harvesters started cultivating Aloe, independent of the project. All of this happened unbeknown to the project.

The teams found that well-documented innovation cases were usually connected with projects. In theory, such projects can stimulate innovation by helping to overcome initial barriers until a critical point is reached where the innovation can really “take off” and continue on its own momentum. However, many projects artificially promote short-term uses of technologies – often depending on external inputs – that may not be sustainable, trigger opportunistic behaviour, lead to a dependency mentality and overlook locally developed low-cost and potentially more sustainable innovations. Examples of farmer-led innovation processes were more difficult to find, because they are seldom noticed or documented.

What was learnt? The process of learning together about an innovation case helped the people involved to understand better what was happening. In some cases, the multi-stakeholder workshops offered the first opportunity for the different actors in the case, e.g. farmers, processors, traders and researchers, to meet and communicate directly with each other – and to consider how the innovation process could be improved. The joint learning about innovation was meant to provide lessons not only for the people directly involved in the cases. It should also show policymakers, researchers and development practitioners how to support innovation processes that enhance the knowledge, creativity and linkages of smallholders. Some lessons include:

- Innovation is happening in rural areas also without intervention; African smallholders are actively responding to challenges and seizing new opportunities, and this should be recognised by formal research and development;
- Innovation processes unfold in unpredictable and unplannable ways. Ultimate success is more likely if rigid and prescriptive schemes are avoided and if existing innovation processes are supported over a long time in a flexible way adapted to the specific context and the evolving opportunities;
- Innovation processes can be boosted through appropriate policy (e.g. to allow charcoal making from *Prosopis* or to facilitate informal aloe harvesting and trade) and by strengthening links among actors;
- Smallholders’ knowledge, experience and creativity make a vital contribution in innovation processes that can improve the livelihoods of millions of rural households in a sustainable way.

Integrate joint learning in agricultural education

Greater recognition of the existing and potential role of smallholders in innovation provides a better basis for their partnership with other stakeholders. Showing ways to recognise local initiatives and link these with externally funded initiatives will make it easier to pool energies and knowledge in a continuing process of innovation to reduce poverty and increase food security. The approach of joint learning by diverse actors involved in innovation cases should be integrated into formal agricultural education. There are innumerable farmer-led innovation cases still to be documented. This is a way to learn from and change perceptions about smallholders and to motivate everyone to keep innovation happening in African agriculture.

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Social Learning at the Eastern African Farmer Innovation Fair

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Learning can take many forms and happen in many different places, not only – and indeed, not primarily – in institutions of formal education. A particularly effective way for people to learn is through exposure to something new and unexpected, which stimulates them to rethink.



The PROLINNOVA (PROMoting Local INNOVation in ecologically oriented agriculture and resource management) network seeks to encourage people concerned with Agricultural Research and Development (ARD) to engage in forms of “social learning” that bring together different groups – particularly smallholder farmers, scientists and rural advisors – to change their mindsets. One example of this is the Eastern African Farmer Innovation Fair held on 28–29 May 2013 in Nairobi.

A group of Kenyan governmental and non-government organisations concerned with smallholder-oriented ARD, coordinated by PROLINNOVA–Kenya and AgriProFocus Agri-Hub Kenya, organised this first-ever regional farmer innovation fair in eastern Africa. With support from numerous quarters – above all, the CCAFS (Climate Change, Agriculture and Food Security of the CGIAR) research programme – 50 women and men farmer innovators from Ethiopia, Kenya, Tanzania and Uganda converged in Nairobi to showcase and share their achievements in improving farming and livelihoods.

Focus on small-holder farmers

The event celebrated the creativity of smallholder farmers and gave them public recognition as innovators and entrepreneurs. It drew attention to the importance of farmer innovation in agricultural development and brought policymakers and the general public into direct contact with farmer innovators. The farmers who travelled to Nairobi from rural areas in the four eastern African countries had a chance to engage with policymakers, researchers, development practitioners, entrepreneurs, students, teachers and consumers, as well as with each other. Visitors could discuss with these outstanding farmer innovators and learn from them in an open and convivial setting.

The fair offered a platform for sharing ideas and expertise on various products, services and technologies related to agriculture. It included exhibition sessions and panel discussions on four themes: crop production, livestock production, soil and water management, and marketing and social institutions. A short video of selected innovations set the scene for the panel discussions, which led to tips on further developing and upscaling the innovations, triggered joint learning, opened up marketing and networking opportunities, and encouraged farmer-led innovation for food and nutrition security and good environmental management.



The fair reflected a rich diversity of good ideas developed and put into practice by smallholders. Some examples from Kenya (captured on video in YouTube) include:

- LoFoDa (Locally Formulated Dairy) goat meal developed by the Nyandago Farmers Group, represented at the fair by Joe Ouko
- Pre-determining sex of chicks through the shape of the eggs, an innovation developed through trial and error by Christine Kilonzi
- A chicken incubator developed by Ronald Nyagaka, made of locally available materials and using the warmth from the fireplace; it can incubate 300 eggs at once with a success rate of over 90%
- The “Jack 2” avocado developed by Jack Rware after over 20 years of own on-farm research by combining local breeds of avocado and a variety brought by missionaries to produce a huge fleshy avocado fruit weighing almost 2 kg



- The Market Access Center (MAC) started by the Keekonyokie slaughterhouse in Kiserian to assist pastoralists in adding value to meat products.

The liveliest tent was that of the Ethiopians, who offered coffee and popcorn using the 3-in-1 cooking and serving pot developed by Yebeyere Assefa, who won the award as best woman innovator at the fair.

Notable in the Uganda group of innovators was the involvement of youth in the innovation process, such as in developing a greenhouse made of empty water bottles, presented at the fair by Joshua Kyagulanyi.

The fair also gave an opportunity for participants in the international workshop on Agricultural Innovation Systems in Africa (AISA) to meet and engage with the farmer innovators. Indeed, the workshop was opened at the fair, thus putting smallholders' front and centre from the very outset. The workshop was co-organised by several international initiatives – including JOLISAA (JOint Learning in Innovation Systems in African Agriculture), PROLINNOVA, CCAFS and the

AusAID-funded FSIFS (Food System Innovation for Food Security) project. It sought to gain a better understanding of agricultural innovation processes, with a focus on recognising the role of smallholders. The AISA workshop participants – researchers, academicians and policymakers from Africa, Europe and Australia – observed, listened and learned at the market booths. Then women and men farmers from each of the four eastern African countries gave their messages to the AISA participants about what to remember during the rest of the workshop. In this way, smallholders' voices guided the AISA participants in their further deliberations on how research, practice and policy can strengthen innovation processes in smallholder agriculture.

The farmers urged the scientists to visit them in their fields to see what is actually happening and advised the scientists not to be in a hurry if they want to understand local innovation. They invited scientists to work together with them in improving their innovations. The farmers were proud to be able to show the formal research world that farmers are also researchers. Indeed, Michael Makuthu, a Kenyan innovator who showcased a technology to control aflatoxins in grain storage, called himself a “freelance scientist”.

The EAFIF was an eye-opener not only for scientists and academicians but also for the general public. The feedback and requests received by the farmers during the fair suggest that this event was highly effective in stimulating social learning that links local and scientific knowledge and changes how farmers and scientists regard each other. The fair also offered a marvellous learning opportunity for university students who served as guides, translators and social media communicators during the event.

More information, blogs and photos from the fair can be found at www.prolinnova.net/content/fair-and-workshop-recognising-farmer-innovation-eastern-africa and <http://aisa2013.wikispaces.com/farmer+fair>

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