Environmental Change & Maize Innovation in Kenya: Exploring Pathways In and Out of Maize

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6 Living in Parallel Worlds? Bridging Formal and Informal Seed Systems

In semi-arid areas of Eastern Kenya many small-scale farmers plant local maize seed, saved from the previous year, or obtained from within the community, rather than purchase commercial seed from their local agro-dealers and stockists.

There are a number of reasons for this. Firstly, farmers are reluctant to invest scarce resources in inputs in the context of unpredictable climate and frequent drought. But, secondly, these farmers often have more confidence in the quality and reliability of these seeds and, in particular, their likely performance in local agro-ecological conditions.

Why do farmers have such confidence in local seeds? They are produced within local seed systems that rely on knowledge and skills passed down through the generations. Furthermore, local varieties are often more reliable than commercial varieties in these harsh environments, particularly in light of problems with 'fake' and mislabelled seeds in the formal system.

Farmer seed selectors: the vital link in the chain

Within local seed systems there are people known for their track record in providing good-quality, reliable seed. Small-scale farmers themselves, each year they select seed from their harvest and save it for planting the following year. The quality and quantity of their seed is such that they become an important resource for the wider community (see Box 1). In recent years, however, successive droughts have eroded their stock; especially as they were unable to turn away neighbours in need. As a result, many farmer seed selectors now face the prospect of having to rebuild their stock of seeds.

Box 1: Farmer seed selectors in Sakai

The seed selection process begins at the field level. After identifying a good maize cob in the field, the maize plant is marked, for example, by cutting two leaves before drying. At harvest time, the seed selector goes to the marked plants and harvests these cobs first. The cobs are stored in pairs over a fire place for a year. During this time, the maize is hardened by the heat from the fire and also covered by a layer of soot, increasing resistance to pest infestation. This storage method is used in preference to chemical methods, particularly in light of recent concerns about fake pesticides.

The issue of trust is very important. One seed selector explained that her seeds are reliable because whatever she plants 'never fails to harvest'. Also, she always ensures she has enough popular seeds in stock. Another seed selector pointed out that farmers are more likely to trust local seed selectors than the commercial seed stockists because they are assured availability of seed adapted to local conditions and at a price they can afford.

Seed selectors work closely with younger members of their families, so they are able to pass their knowledge to the next generation. Others have trained neighbours and passed on their knowledge through farmer-to-farmer initiatives and field days.

Building on the informal: assisted seed multiplication

Today, many initiatives seek to extend the formal seed system so that the informal one is no longer needed. This assumes that informal seed systems are simply a last resort for those who cannot afford to participate in the formal system. The findings of this research suggest that this is an oversimplification; and that these informal systems endure because they respond directly to local needs and circumstances. For example, in the multi-criteria mapping interviews, many farmers commented that they were able to get seeds from the neighbours in times of drought, but this became more difficult as the drought has persisted, in which case they had to rely on commercial seed stockists. When available, though, farmers prefer the local seed, as Figure 1 (below) shows.

Interestingly, while both rich and poor farmers prefer local seed, a key differentiating factor is their perception of the uncertainty and ambiguity involved in relying on local seed systems, especially for maize. Low-income farmers are more clearly susceptible to changing conditions; so the performance ranking is more variable and the uncertainty and ambiguity expressed is almost twice as high.

The question, then, is how external interventions can strengthen local seed systems. One approach pioneered by the ARLMPII project is assisted seed multiplication (see Box 2). This involves introducing improved seed, along with training in seed multiplication, to groups of farmers who 'bulk' the seeds for their own use and for local exchange and sale. In this way, improved seed (obtained from the formal system) is introduced as an additional resource available within the local, informal seed system.

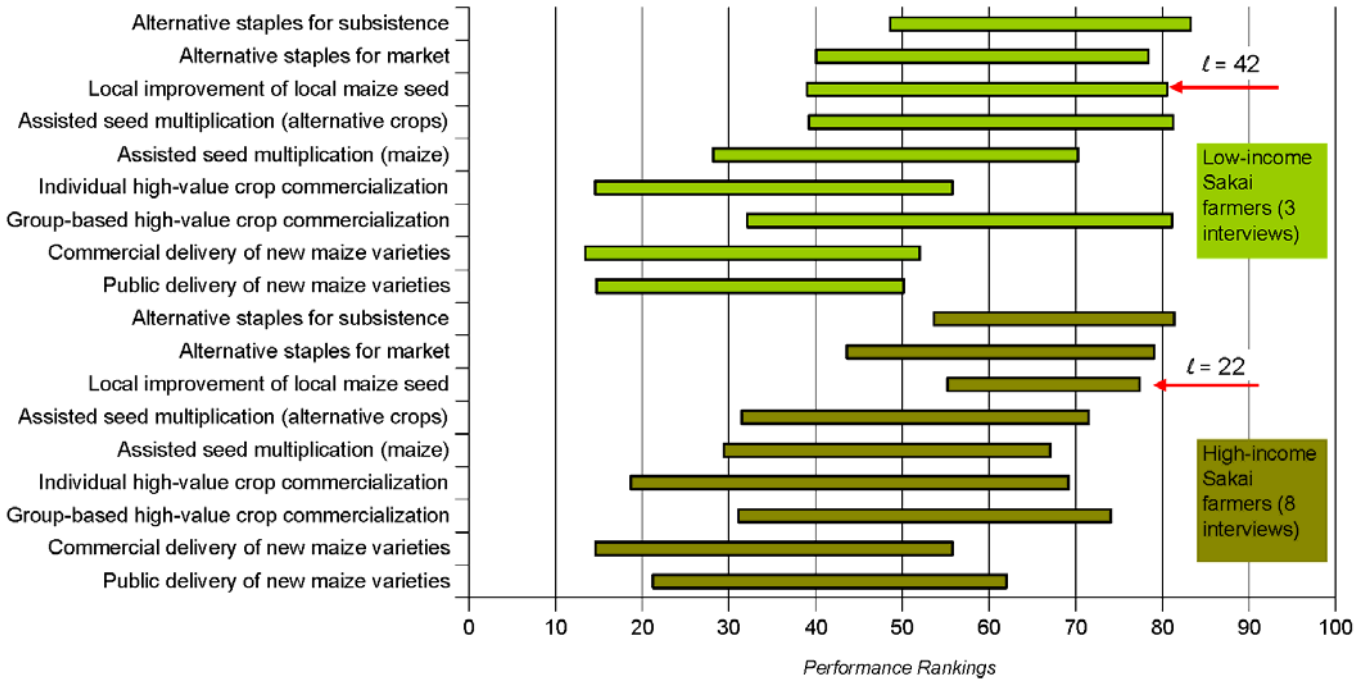
Box 2: 'Informal assisted' seed bulking in Sakai

In 2006 a group of 40 farmers were selected to participate in a community seed multiplication initiative – part of the Government of Kenya's Arid Lands Resource Management Project (ALRMPII) under the Ministry of State for the Development of Northern Kenya and other Arid Lands – and in 2007 the project was extended to include 40 more farmers.

The initiative involved a range of crops, but farmers were most interested in the drought-escaping KCB and DLC maize varieties (produced at KARI's Katumani station). As the district agricultural officer explained, the challenge with maize cultivation in areas like Sakai area is "to get farmers to have a basket of varieties so that at no time will they have a zero harvest".

The project started well and but faltered in later years, mainly because forecasted rains did not arrive for two years in succession. But government officers and farmers in the area maintain that the principle behind the project remains a promising one, and, of the original 40 farmers, some are still producing KCB seed for themselves and their neighbours.

Figure 1: Performance rankings of the nine pathways by low-income and high-income Sakai farmers



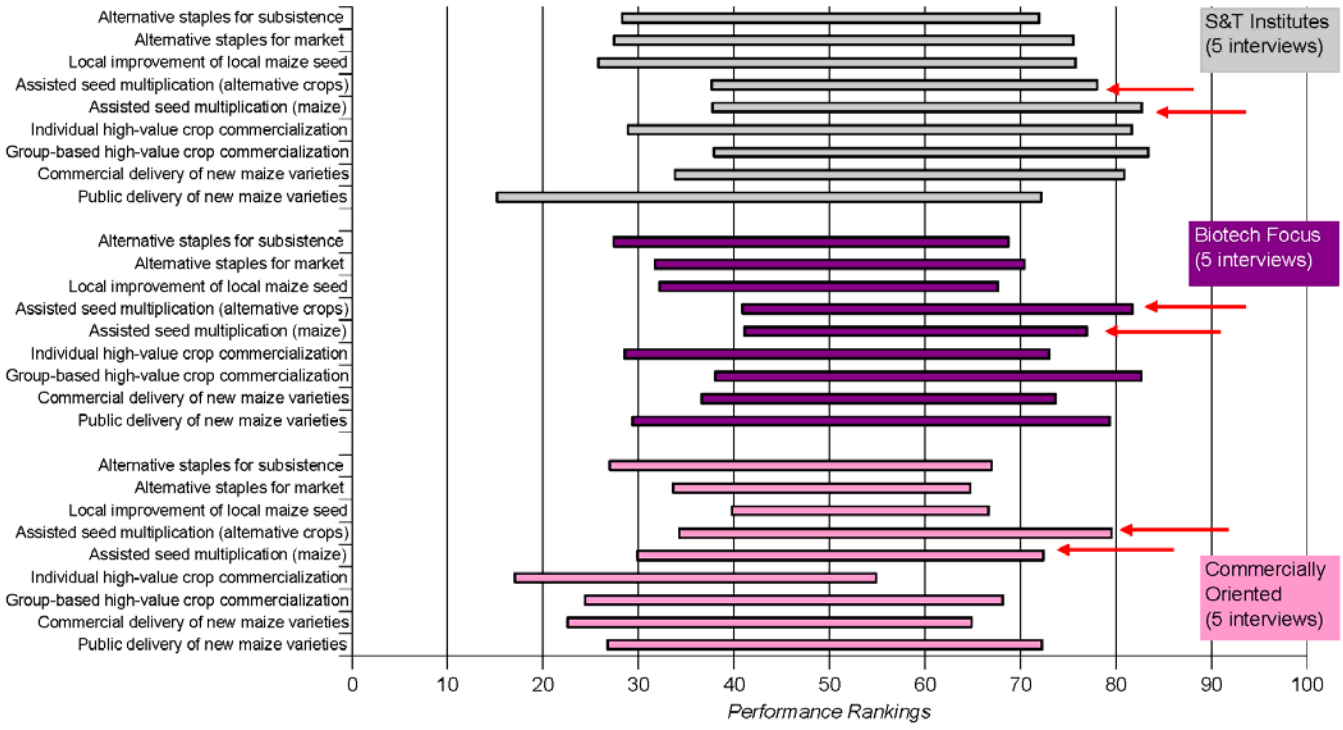
Farmer seed selector, Sakai

Among participants in our multi-criteria mapping interviews the 'assisted seed multiplication' pathway, for maize and for alternative dryland crops, proved the most 'consistent performer'. In other words, while it was not always given the highest ranking, it rarely had the lowest and, importantly, was consistently given a favourable assessment under less favourable conditions. This was especially the case with those stakeholders outside Sakai who expressed enthusiasm for strengthening the 'overlap' between informal and formal systems (see Figure 2).

Policy implications: seed regulation and quality control

These findings suggest that, while efforts to bridge informal and formal seed systems face significant challenges, there is a surprising degree of support and good will in their favour. A key challenge arises at the interface with the national seed regulatory system, however. In Kenya, the national importance of maize has led regulatory authorities to require full certification of all maize varieties that are commercially traded. This means that while plant breeding institutes and private companies may freely access local materials for use in developing new varieties for sale; farmers are legally prevented from trading in seeds selected on their own farms. A key question, therefore, is how to address this disparity and create alternative regulatory pathways to enable farmers to trade noncertified seeds in local markets.

Figure 2: Performance rankings of the nine pathways by science and technology institute managers, biotechnology focused informants, and those with commercially oriented perspectives



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