Seeds for Needs

helping farming communities cope with the effects of climate change by providing access to locally adapted seeds

The Seeds for Needs approach is a series of projects carried out in different locations across the world. It aims at building resilient and adaptable farming systems by exposing farmers to more crop varieties, increasing farmers' knowledge about different traits and strengthening local seed systems. Scientists, local partners and farming communities are exchanging knowledge, experiences and technologies. Seeds for Needs uses different methods and tools based on local needs but works towards one common goal: to decrease vulnerability in smallholder farming communities by increasing the intraspecific diversity of commonly used crops.

Agriculture continues to play an important part in East Africa's economy and many smallholder farmers in Kenya, Tanzania, Ethiopia, Rwanda and Uganda are increasingly aware of the negative effects that changing climate conditions have on crop productivity and their ability to sustain their livelihoods from farming. Growing more varieties of the same crop, all with their unique combination of traits, will help a farmer spread risk. It can function as a natural form of insurance against climate risks through choosing the right combination of varieties and crops for their location to give them a higher yield and which have good yield at higher altitudes or choosing varieties which mature earlier. Farmers are actively employing varietal diversification strategies to adapt to progressing climate changes.

Varieties are available in farmers' fields and in genebanks in the form of germplasm and seeds, but accessing varieties that are likely to perform well in present and future conditions remains a challenge. Which seeds are able to perform well in which environment and under which conditions? Do the crops and the varieties have traits that give them the ability to adapt to climate change and at the same time meet the needs of farmers? How can we select varieties with existing or new climatic conditions affecting a variety in terms of maturity, susceptibility to pests and diseases, morphological characteristics, etc.?

By surveying farmers in different locations across East Africa we are gaining insights in farmers preferences in selecting different varieties. Farmers are selecting varieties based on aroma, adaptability to marginal areas and soils, early maturity, taste and colour, market preferences, viability or disease resistance and access and distance to seed market, etc. And we are surveying farmers in different localities for their needs. From our survey we found out that the different uses and traits are not homogenous but vary across gender, class, age, etc.

In focus group discussions farmers have indicated that they are shifting to different varieties and crops to deal with the effects of climate change. They perceive that rainfall has become less predictable and droughts more frequent. Farmers are planting sorghum and finger millet in Tanzania which is believed to be more drought tolerant. Farmers are learning about early maturing varieties and are experimenting with early planting.

For barley and durum wheat in Ethiopia we have been able to predict the environment in which a variety or a group of varieties can grow 50 years from now based on their original characteristics.

Future steps for strengthening the seed system

We will continue our research to test the adaptability of different crop varieties and create a better understanding of the viability of different adaptation options when it comes to diversifying smallholder farming systems in East Africa. New activities we want to engage in:

•Develop adaptation and risk management strategies for major crops in the region based on local genetic diversity and use the tested material as a basis for innovative breeding programs and participatory variety selection.

•Linking local partners and farming communities to markets and researching how smallholder farmers can find opportunities to engage in existing value chains.

•Using innovative approaches and technologies (e.g. crowdsourcing varieties) to enhance the access to locally adapted seed of a multitude of varieties of major crops in the region.

•Establishing community seed banks and linking them to national genebanks to make the access to locally adapted seed systems easier for farmers.

•Promoting diversity on farms as an effective adaptation strategy to increase resilience to climate change by providing climate-ready varieties of major crops (raising awareness).

•Using participatory approaches and allowing farmers to become 'citizen crop scientists' by engaging them in our research in every phase of a project's implementation.