



## Seeds for Needs Policy brief no.4

Ethiopia is known for having a high diversity of durum wheat landraces. Most farmers in East Shewa'a have been replacing their landraces with modern varieties. These uniformly performing varieties require significant amount of external inputs and have less genetic variability and adaptive capacity to grow under more extreme climatic conditions. With changing climatic conditions there is a need for crops and varieties that can be grown in harsher environments. This project focuses on durum wheat and barley which are important cereals in the smallholders' production systems.

Wheat is among the most important crops for home consumption in the research area. Modern varieties of bread wheat are typically attained through government cooperatives while durum wheat landraces are acquired through community genebanks. Additional sources of seed are the local market, seed multiplying organizations (SMOs) and farmer-to-farmer exchange networks. While a majority of the seeds are acquired through the formal seed system 30 percent of the farmers find their seeds in the informal market. Differences in seed sourcing are also influenced by social status: poorer farmers are more likely to obtain seeds from informal sources. In addition female farmers are less likely to source seeds from the government cooperatives and rely more on relatives and farmer-to-farmer exchanges.

Barley is considered a minor crop: less than half of the population is growing barley on a small portion of their farm. Barley seeds are mostly sourced through the informal sector (local markets, relatives) and seed lots are changed on average every 10 years. Farmers value barley for its fast maturity and

low-input requirements. These traits can be used to promote barley for use in climate change adaptation strategies since fast maturity will become more important under shorter rain seasons, as farmers are already observing. Low input requirements offers opportunities for mitigation through decreased use of chemical fertilizers and better adaptation to poor soils.

### Perceptions on climate change

Farmers in our research area are reporting a trend towards hotter and drier weather with shorter cultivation seasons: the main growing season Meher is now starting later in the year and ends earlier too. A third of the farmers we surveyed felt that climatic changes are negatively impacting the performance of their crops. For example in Ejere and Chefe their main variety of wheat and to some extent chickpea and teff varieties have been reportedly giving fewer yields. In K'ok'a maize, teff and haricot beans were said to be negatively affected.

The frequency of extreme weather events such as drought or floods is predicted to increase because of climate change. If projections suggest that weather extremes will affect the East Shewa'a area more frequently in the future than risk management and the provision of information on the potential impacts should be prioritized. This will also call, for example, to identify varieties resistant to logging.

A few farmers are adapting to climate change by adjusting their planting times, shifting to fast-



maturing varieties and engaging in water harvesting and tree planting activities. But additional adaptation strategies should be explored.

An important way to adapt to climate change is to grow different, better adapted varieties for variable and evolving climate situations. Access to information and seeds are essential for smallholder farmers to be able to change varieties. There is a need to increase awareness and to ensure a continuous supply of seeds of wheat and barley varieties that meet farmers' needs. Knowledge is key for creating demand and a constant seed supply is important to satisfy that demand.

In the case of Ethiopia, supporting growth of sales outlets for landraces of durum wheat will help to incentivize cultivation. Some farmers regularly try new crops, but the majority is unaware of sources of novel varieties other than through government distribution channels. Farmers' seed enterprises and seed multiplying organizations can offer a successful route for delivering novel landraces, but this is only part of the solution. Seed systems need to become more flexible in meeting the demands of farmers.

Adaptive seed systems are seed systems that are able to deliver seeds and information in a timely manner, taking into account the diversity and changes in environments and varying requirements. Bioversity is investigating the use of information and communication technologies (including the use of mobile phones) to speed up and find low-cost alternatives for the continuous evaluation and delivery of climate and culturally appropriate seeds to farmers.

## Policy recommendations

- Design more flexible so-called 'adaptive seed systems' which allow farmers to have continuous access to planting material which fit with their ever-changing needs.
- It is important to promote more diversity on farms as an effective adaptation strategy to increase resilience to climate change and provide climate-ready varieties of barley and wheat to support food security and poverty reduction.
- Understanding of the socio-economic context of the sites and farmers' criteria to select accessions
- Agreement signed with community gene banks managers for making accessions available to farmers.



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