



# Seeds for Needs Policy brief no.3

## Participatory Variety Selection

Seeds for Needs is testing the performance of local varieties available in national genebanks by planting them in different climatic conditions. This process involves farmers, research partners, extension officers and the national genebank of Ethiopia. Participatory variety selection is used to select new varieties for introduction into farmers cropping systems.

Many released varieties are tested on research stations without including farmers in the decision-making process. When released, farmers may not be adopting the varieties that were pre-selected for them because they have different priorities than plant breeders. In addition, farmers do not always have access to information or access to planting material to help them select crops or varieties that better suit their local growing conditions.

Since farmers are the ones who ultimately decide whether or not to adopt a particular variety it is therefore imperative to include farmers' knowledge for the selection of promising varieties. Working in a participatory manner will as a result lead to higher adoption rates.

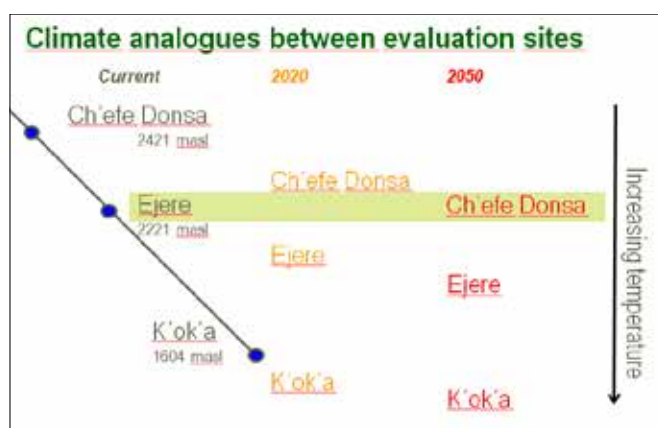


Figure 1: temperature predictions in three evaluation sites in Ethiopia



We select varieties that are better adapted to changing climatic conditions by testing out accessions collected in climatic conditions elsewhere which resemble future conditions in our research area. Climatic conditions are shifting and analogue sites provide a tool to identify areas that experience statistically similar climatic conditions (see Figure 1).

In addition we will be basing the selection of better performing varieties on the preferences of the farmers who will be using these varieties, thus exposing farmers to more crop varieties and increasing their knowledge about



## Results

Varietal preference is a carefully weighed balance between consumption and production characteristics. Farmers not only select the high yielding varieties but prefer landraces because of their taste, nutritional value and the ability to grow with fewer inputs.

Differences in temperatures, rainfall and length of the grain filling period result in major variations in performance across the three sites. In K'ok'a performance was generally poor compared to Cheffe Donsa and Ejere because of shorter seasons and higher temperatures. In contrast several varieties yielded well in K'ok'a but not in Ejere which is an area that is less stressful in terms of temperature and rainfall. This suggests that most of the good performing varieties have traits for specific adaptation.

We found that locally adapted varieties are the best option for farmers in the three sites. Farmers in Ejera and Cheffe Donsa are able to choose from many accessions due to more favorable environmental conditions. Differences between locally adapted accessions and other categories were highest in K'ok'a which suggests that there is a need for accessions with specific adaptive traits for these suboptimal conditions.

the different options which are available. In turn we can learn about traits that are important to farmers and that can provide insights on criteria for future breeding or fine tuning our methodology.

The project focuses specifically on women to understand the challenges women farmers face relating to climate variability and crop production. We asked women farmers to evaluate the accessions using their trait preferences. Yield, food quality, animal feed quality, market demand were considered to be the most important traits. As women play a key role in household food security, we promoted an approach that specifically targets their needs.

We chose 25 accessions based on their performance in the field trials measured by yield, farmer evaluation and climate profiles. Accessions were selected in different categories: accessions with a broad adaptation to different environments, best performing accessions locally for each site, accessions that have a similar climatic profile, best performing improved varieties and a few randomly selected accessions as a validation group.

## Policy recommendations

1. The need to develop and adaptation strategy for major crops based on local genetic diversity conserved either on farm or in the gene bank. The tested material can be used as the basis of innovative breeding programs.
2. The need to provide farmers with more adapted accessions to manage the existing risks posed by climate change.

Photo: Woman drying grains, Ethiopia  
Bioversity International/J. van de Gevel



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