



Tropentag, October 7-9, 2008, Hohenheim

“Competition for Resources in a Changing World:  
New Drive for Rural Development”

## Morphological Variation in Ethiopian Barley Germplasm (*Hordeum vulgare* L.)

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### Abstract

Ethiopia, with its diverse agro-ecological and climatic features, is well known for being one of the 12 Vavilovian Centers of Diversity. Barley (*Hordeum vulgare* L.) is one of the oldest cultivated crops and has been grown in Ethiopia for at least 5000 years. The altitudinal variation, which ranges from 110 m below sea level in areas of Kobar Sink, to 4,620 m a.s.l. at Ras Dashen, temperature and rainfall differences coupled with edaphic factors creates a wide range of ecological conditions in the country. Barley landraces, having evolved across thousands of years in a multitude of environments and local farming systems, have developed abundant patterns of variation and would represent a largely untapped reservoir of useful genes for adaptation to biotic and abiotic stresses. In Ethiopia Barley growing areas gradually diminish due to the expansion of wheat and rye cultivation in some regions. Currently the crop is pushed to marginal areas (to very high altitudes where frost prevails) and threatened by genetic erosion. Therefore, rare morphotypes are declining in frequency of occurrence through time.

The objectives of this study were to assess the extent of morphological variation in barley accessions in respect to regions and altitude of collection, to classify the accessions into relatively homogenous groups and to identify the major traits contributing to the overall genetic diversity of the germplasm. For this study a total of 199 barley landraces collected from 10 administrative regions of Ethiopia and four released cultivars were evaluated for 10 agronomic traits. The trial was conducted at Holeta and Bekoji Agricultural Research Centers, Ethiopia, in the main cropping season of 2006. In this contribution, results of this study will be presented and discussed.

**Keywords:** Ethiopia, genetic diversity, landraces, morphological variation