

BARLEY (*HORDEUM VULGARE* L.) FROM THE CENTRAL HIGHLANDS OF ETHIOPIA

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Ethiopia is a secondary centre of diversity for barley (*Hordeum vulgare* L.), where farmers mainly grow local landraces over a wide range of environments. Barley is the third most important cereal crop after teff (*Eragrostis teff*) and maize (*Zea mays*). It is often grown in two different planting seasons (Meher and Belg) per year: during the long rainy season (June-September, the 'Meher' season) and the short rainy season (February-April, the 'Belg' season).

The level and structure of seed flow between seasons can have important implications for diversity. Two extreme scenarios can be considered: (1) the continuous use of seeds from one season for planting for the next season, doubling the number of generations per year, and (2) the seeds flow independently across years within the two seasons. The impact of evolutionary forces (drift, mutation migration and selection) will be different on the level and structure of diversity of the barley landraces in the different scenarios.

In 2005 we collected barley landraces in the central highlands of Ethiopia over the two main growing seasons. Thus, two collection expeditions were conducted, visiting the same sites in both seasons. We documented the occurrence of barley landraces, seed selection and seed exchange during both the Belg and Meher seasons. A total of 101 farms were visited in the Shewa province (central highlands), 48 during the Belg growing season and 56 during the Meher season. In each season, three distinct districts were visited (Ankober, Mojanawadera, and Tarmaber) so that 16-18 farms per district were considered. Collection site positions and the information from each farm were recorded. Within each district, sampling was conducted along an altitude cline (from 1500 to 3500 m a.s.l.). A total of 112 barley landrace populations were sampled on a single plant basis. For each cultivated plot, 100 spikes were randomly sampled all along the diagonal of the field, with the plants 5-10 m apart. Each collected spike was separately threshed and stored for further analysis. Before threshing, 30 spikes per population (for a total of 3450 spikes) were characterised for the following eight morphological traits: kernel row number, spike density, lemma awn barbs, glume colour, lemma type, length of rachilla hair, kernel cover, and lemma colour. The information collected during the expeditions and the results of the morphological characterization will be presented and discussed.