# Bedasa Mekonnon Dosho

Current Position

PhD Student in Agrobiosciences
Sant'Anna School of Advanced Studies, Pisa, Italy
For my PhD thesis I am doing research on Barley heterosis using phenotypic and transcriptomics data

## WORK EXPERIENCE

October 2022 - present

### PhD Student in Agrobiosciences

Sant'Anna School of Advanced Studies, Pisa, Italy

Courses and skills acquired: Introduction to Metabolomics, R for Data Analysis in Agrobiodiversity, Element of Genetics, Elements of Molecular Biology, Introduction to R software, Experimental approach and data analysis in crops, Open Science and Research Data Management, Introduction to Metabolomics, and English for scientific communication.

PhD Title: Dissecting heterotic potential in barley (*Hordeum vulgare* L.) using transcriptomics approaches

September 2017- September 2022

### Research Associate

Haramaya University, 138, Dire Dawa, Ethiopia

During my stay at Haramaya university, I collected more than 350 quality protein maize (QPM) and Provitamin-A maize inbred lines, and hybrids those both tolerant to drought and low-soil nitrogen from International Institute of Tropical Agriculture (IITA-Nigeria), and International Maize and Wheat Improvement Center (CIMMYT-Zimbabwe). With my colleagues, we were evaluated those maize genotypes across different environments in Eastern part of my country Ethiopia, in which many small holder farmers benefited from.

Still Harmaya university is utilizing those maize inbred lines for further maize improvement programme, which are one of the most important genetic materials for improving maize protein concentration (methionine & tryptophan) and provitamin-A.

Outreach: So far, two students were collected their MS.c thesis research on the maize germplasm and other students have been doing their M.sc thesis research as well on the same maize germplasm I collected when I was at the University.

October 2015 – August 2017

### Lecturer and Maize researcher

Haramaya University, 138, Dire Dawa, Ethiopia

During this period, I was involved in teaching plant breeding course for undergraduate student, and I also involved in a field trail data collection and analysis for maize breeding program

November 2013 - September 2015

### Lecturer and Barley researcher

Aksum University, 1010, Aksum, Tigray, Ethiopia.

During this period at Aksum University, I was fully involved in teaching undergraduate student's courses: plant breeding, biometry for plant sciences and plant genetics.

February 2010 – September 2011

### Graduate assistance

Aksum University, 1010, Aksum, Tigray, Ethiopia.

As a graduate assistant, I was involved in conducting research on barley breeding and improvement.

I was the first graduate assistance who received research grant from Aksum university to conduct research on barley drought tolerance.

## EDUCATION AND TRAINING

October 2013 — **MS.c in Plant Breeding** — Marks 4.0/4.0

Bahir Dar University, 79, Bahir Dar, Ethiopia.

- During my M.Sc study I took courses: Plant breeding, Biometry for plant breeding, Molecular markers and Experimental design for plant breeding.
- Thesis title: Genetic Diversity and Interrelationship of Characters in Ethiopia Food Barley (*Hordium Vulgare L.*) Landraces.

July 2009 — **B.Sc in Dryland Crop and Horticultural Sciences (Agronomy)** — Marks 3.48/4.0

Mekelle University, 231, Mekelle, Tigray, Ethiopia.

During this time, I took courses: Plant breeding, plant genetics, Biometry for plant science,

## PERSONAL SKILLS

Mother tongue(s): Afaan Oromo

Other language(s)

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | B2 | B2 | B2 | B2 | B2 |

Current research: For my PhD thesis currently, I am working on barley heterosis. My PhD research focuses on understanding the molecular mechanisms controlling heterosis in Barley using Pan-transcriptomics approaches. For my research, I generated F1 barley hybrids by using one recurrent parent (HB-1307) and other 14 parental lines. The parental lines were selected from highly diversified Ethiopian barley germplasm. The F1 hybrids and their parental lines were grown in the field and under controlled environment for phenotyping and RNA isolation, respectively. RNA was extracted from leaves of the F1 hybrids and their parental lines and sequenced it using ONT on the PromethION platform. By combining transcriptomics with phenotypic data, I aim to understand the molecular mechanisms controlling crop heterosis, particularly in autogamous species, using barley as a model crop. This research is very important in selective breeding, as it can inform plant breeder strategies of enhancing global agricultural production.

## ADDITIONAL INFORMATION

Publications:

- Bedasa Mekonnon, Berhane Lakew and Tadesse Dessalegn. (2015). Morphological Diversity and Association of Traits in Ethiopian Food Barley (Hordeum Vulgare L.) Landraces in Relation to Regions of Origin and Altitudes. Journal of Plant Breeding and Crop Science. Vol.7 (2) 2015 44-54. https://academicjournals.org/IPBCS.
- Bedasa Mekonnon, Berhane Lakew and Tadesse Dessalegn. (2014). Genotypic Diversity and Interrelationship of Characters in Ethiopian Food Barley (Hordeum VulgareL.) Landraces. International Journal of Plant Breeding and Genetics. Vol. 8(3): 164-180. https://scialert.net/abstract/?doi=ijpbg.2014.164.180.
- Bedasa Mekonnon (2014). Selection of Barley Varieties for their Yield Potential at Low Rain Fall Area Based on both Quantitative and Qualitative Characters Northwest Tigray, Shire, Ethiopia: - Research article. International Journal of Plant Breeding and Genetics. Vol. 8(4) 205-213. https://scialert.net/abstract/?doi=ijpbg.2014.205.213 .

## Conferences/Poster:

- Dissecting Heterotic Potential in Barley (*Hordeum vulgare* L.) using Pan-Transcriptomics Approaches. Proceedings of the LXVIII SIGA Annual Congress, Viterbo-Italy, 09-12 September 2025. ISBN: 978-88-944843-6-6. https://sigaannualcongress.it/lxviii-siga-annual-congress/ Poster Communication Abstract – 1.25.

- Dissecting Heterotic Potential in Barley (*Hordeum vulgare* L.) using Pan-Transcriptomics Approaches. European Plant Phenomics Symposium. 16-19 September 2025. Bonn Germany. https://epps2025.plant-phenotyping-network.de/EPPS_Programme. Abstract Book. Y15.

- National Symposium on "Trends and Challenges in Adoption of Science, Technology, and Innovation in Local Development Endeavours" Genetic Diversity and Association of Traits in Ethiopian Food Barley (Hordeum Vulgare L.) Landraces using Both Qualitative and Quantitative Characters. Wollega University. October 20-24, 2015.

## Short term training:

- Training school: Phenotyping Practice, Machine Learning and Industry Insights. 12-15 September 2025. Bonn, Germany

- Summer School. AgriTech, Climate Transition and Sustainability: How the application of technology and digital tools to farming is key. July 1-5, 2024, Venice, Italy.

- International Plant Variety Protection Course and Introduction to the UPOV System of Plant Variety Protection under the UPOV Convention. June 12-21, 2015. The Netherland.

## supervision

- When I was at Haramaya University I supervised three M.Sc. students entitled:

  (i) Genetic variability and association among yield and yield related traits in pro-vitamin-A maize (*zea mays* l.) inbred lines at Haramaya, East Haraghe, Ethiopia,
  (ii) Genetic Variability and Association of Traits in Bread Wheat (Triticum Aestivum L.) Genotypes for Drought Tolerance in Middle Awash, Ethiopia, and
  (iii) Genetic Variability and Association of Agro-morphological Traits and Quality Attributes among Malt Barley (*Hordeum vulgare* L.) Genotypes in the Highlands of Ethiopia.

## Skills and experiences:

- DNA and RNA extraction from plant tissues
- Maize and barley crossing techniques
- Management of crops in a field, green house and growth chamber
- Field data management and analysis using R-software

Pisa, Italy
October 6th, 2025