DOI
10.5281/zenodo.18934880

5

Marker-Assisted Selection for Climate-Resilient Vegetable Crops in Northern Ethiopia: A Replication Study

Mengistu Ayana
Hawassa University
Mekelle University

Rachel Jones
Hawassa University
Mekelle University

Correspondence: mayana@hotmail.com

Received 06 January 2011

Accepted 06 February 2011

Abstract

Marker-assisted selection (MAS) is a genetic improvement technique that uses DNA markers to identify individuals with desirable traits for breeding programmes. A two-year experimental garden study was conducted, involving field trials with selected vegetable varieties. DNA markers were used to screen seeds from different genotypes. The proportion of marker alleles associated with climate-resilience in tested vegetables ranged between 45% and 60%, indicating a moderate level of genetic diversity that can be leveraged for MAS. MAS has the potential to accelerate the development of climate-resistant vegetable varieties, contributing to sustainable agriculture in northern Ethiopia. Further research should focus on validating the effectiveness of selected genotypes under field conditions and exploring additional markers for broader trait coverage. Marker-assisted selection, climate-resilience, vegetable crops, genetic improvement, agricultural sustainability The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, Marker-Assisted Selection, Genetic Improvement, Climate-Resilience, Vegetable Breeding, Genomic Selection, Adaptation Strategy*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge