



Adoption Trends of Smart Irrigation Systems among Ethiopian Coffee Farmers in the Highlands,

Tadesse Abera^{1,2}, Girma Abiye^{2,3}, Mamo Tekle³

¹ Jimma University

² Gondar University

³ Hawassa University

Published: 26 June 2001 | **Received:** 01 February 2001 | **Accepted:** 30 May 2001

Correspondence: tabera@gmail.com

DOI: [10.5281/zenodo.18732998](https://doi.org/10.5281/zenodo.18732998)

Author notes

Tadesse Abera is affiliated with Jimma University and focuses on Computer Science research in Africa. Girma Abiye is affiliated with Hawassa University and focuses on Computer Science research in Africa. Mamo Tekle is affiliated with Hawassa University and focuses on Computer Science research in Africa.

Abstract

This study examines the adoption of smart irrigation systems among Ethiopian coffee farmers in the highlands. Data was collected through structured interviews with a sample of 150 randomly selected coffee farmers, supplemented with remote sensing data for validation. A total of 67% of surveyed farmers reported adopting at least one type of smart irrigation system within the study period. The main drivers were increased water efficiency (mean increase in yield by 25%) and reduced labour costs (10 per hectare). *The adoption rate was higher among younger farmers with better access to technology, indicating* $\hat{\theta} = \operatorname{argmin}_{\theta} \sum_i \ell(y_i, f_{\theta}(x_i)) + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: *African Geography, Smart Irrigation Systems, Adoption Theory, Coffee Farming, Highlands, Precision Agriculture, Technological Diffusion*

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