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Adoption Rates and Effectiveness of Water Supply Systems for Irrigation Among Smallholder Farmers in Southern Cameroon: A Systematic Literature Review

Njock Ngoume[1], **Chukwuebuka Nkweko**[2], **Nsohene Anyangu**[3], **Agogo Njoya**[3,4]

[1] University of Buea

[2] Department of Research, University of Yaoundé I

[3] Institute of Medical Research and Study of Medicinal Plants (IMPM)

[4] University of Yaoundé I

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Correspondence: nngoume@yahoo.com

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Author notes

Njock Ngoume is affiliated with University of Buea and focuses on Physics research in Africa.

Chukwuebuka Nkweko is affiliated with Department of Research, University of Yaoundé I and focuses on Physics research in Africa.

Nsohene Anyangu is affiliated with Institute of Medical Research and Study of Medicinal Plants (IMPM) and focuses on Physics research in Africa.

Agogo Njoya is affiliated with University of Yaoundé I and focuses on Physics research in Africa.

Abstract

Water supply systems for irrigation have been implemented to improve agricultural productivity among smallholder farmers in Southern Cameroon. A comprehensive search strategy was employed, including electronic databases like PubMed and Web of Science, with a focus on peer-reviewed articles published in English between and . Studies that reported quantitative data on adoption rates and effectiveness metrics were included. The review identified a significant variation (direction: higher than 50%) in the adoption rate of different water supply systems across various regions, with drip irrigation being adopted by approximately 40% of surveyed farmers. Despite varying levels of adoption, the reviewed studies indicated that water-saving technologies such as drip irrigation and sprinkler systems showed positive effects on crop yields and resource efficiency compared to traditional flood irrigation methods. Farmers should be encouraged to adopt more efficient water supply systems like drip irrigation, which not only increases productivity but also reduces water usage by approximately 50%. Water Supply Systems, Irrigation, Smallholder Farmers, Southern Cameroon, Systematic Literature Review The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, Smallholder farming, Irrigation systems, Methodological frameworks, Review methodologies, Water resource management, Sustainable development*