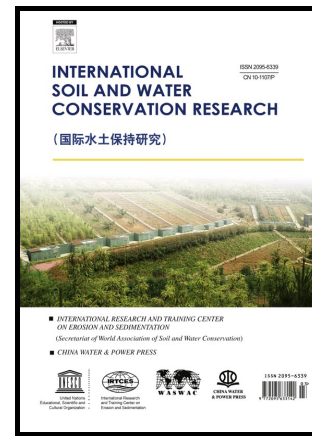


Author's Accepted Manuscript

Effect of biological soil conservation practices on soil properties and farmers' perception toward the practices: In case of Lemo District, Southern Ethiopia

Tamrat Sinore, Endalikachew Kissi, Abebayehu Aticho



www.elsevier.com/locate/iswcr

PII: S2095-6339(17)30006-0
DOI: <https://doi.org/10.1016/j.iswcr.2018.01.004>
Reference: ISWCR127

To appear in: *International Soil and Water Conservation Research*

Received date: 9 January 2017
Revised date: 20 January 2018
Accepted date: 25 January 2018

Cite this article as: Tamrat Sinore, Endalikachew Kissi and Abebayehu Aticho, Effect of biological soil conservation practices on soil properties and farmers' perception toward the practices: In case of Lemo District, Southern Ethiopia, *International Soil and Water Conservation Research*, <https://doi.org/10.1016/j.iswcr.2018.01.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Original Research Article

Effect of biological soil conservation practices on soil properties and farmers' perception toward the practices: In case of Lemo District, Southern EthiopiaTamrat Sinore^{1*}, Endalikachew Kissi², Ababayehu Aticho²¹Ethiopian Institute of Agricultural Research; P.O.Box:2003, Addis Ababa, Ethiopia²Jimma University College of Agriculture and Veterinary Medicine, Department of Natural Resources Management, P. O. Box: 307, Jimma, Ethiopia.*Corresponding author email: sinoretamirat@gmail.com**ABSTRACT**

Land degradation is the critical ecological and agricultural challenges in Ethiopia. To combat this, the government and local farmers' have undertaken soil and water conservation measures (physical, biological and integrated) across the country since the 1970's. This study investigates the use of elephant grass (*P. purpureum*) and sesbania sesban (*S. sesban*) as a biological land rehabilitation measure on soil properties and farmers' perception on the conservation practices. Composite soil samples (0-30cm) were randomly collected from lands treated with sesbania, elephant grass, and adjacent degraded grazing land, and a structured questionnaire was used to assess farmers' perceptions. Statistical results showed that elephant grass and sesbania significantly ($P < 0.05$) improved degraded soil bulk density, pH, CEC, OC, TN, Av.P, K, Na, Ca, Mg and clay characteristics. Moreover, there was a significant ($P < 0.05$) difference between farmers' perception of the effectiveness of physical, biological and integration of the two practices to control soil erosion. 48% of the farmers perceived that using both biological methods and the integration of biological with physical structures was more successful for controlling erosion and improving soil fertility. Logistic regression analysis revealed the strong association ($R^2 = 0.84$) between farmers' perception on elephant grass and sesbanias' roles in soil conservation and groups of explanatory variables. Among the variables age, education and extension service significantly ($P < 0.05$) influenced farmers' perception on the practices. Generally, elephant grass and sesbania are effective biological practices for rehabilitating lands and improving soil properties through minimizing erosion.

Keywords: soil erosion; soil and water conservation; biological soil conservation; Sesbania; Elephant grass

Download English Version:

<https://daneshyari.com/en/article/8865104>

Download Persian Version:

<https://daneshyari.com/article/8865104>

[Daneshyari.com](https://daneshyari.com)