

Recovery of hardpan «cangahua» soils: experience in Chimborazo and new conservation perspectives

Edison Campos¹

Siembra 13 (3) (2026): Special Edition
PROCEEDINGS OF FIRST INTERNACIONAL
SYMPOSIUM ON SOIL HEALTH

DOI: [10.29166/siembra.v13i3\(Especial\).9603](https://doi.org/10.29166/siembra.v13i3(Especial).9603)



¹ Universidad Nacional Agraria La Molina, Facultad de Agronomía. Lima, Perú*

Correspondence: fmontesdeoca@uce.edu.ec

Abstract

Abstract

Chimborazo is one of the poorest provinces in Ecuador, 6.30% of its territory is hardpan «cangahua» soils, which corresponds to 82,778.05 ha. The cangahuas are sterile volcanic tuffs, their rehabilitation and management present several environmental, social and economic challenges that considerably slow down agricultural development. The recovery of the cangahuas opens the possibility of revitalizing depressed agriculture. The experience of restoring eroded and degraded soils through physical and biological systems carried out in 3 cantons and 10 communities of Chimborazo allowed the recovery of 79.15 ha for agricultural production. Through soil plowing, incorporation of green manures, delivery of native plants and ongoing technical assistance and training. This allowed the soil organic matter to increase from 1.7% to 1.91% in recovered soil, also increased the economic income of 438 producers by an average of 10.12%.

Keywords: Degraded soils, Soil organic matter, Green manures

SIEMBRA
<https://revistadigital.uce.edu.ec/index.php/SIEMBRA>
ISSN-e: 2477-8850
Frequency: half-yearly
vol. 13, issue 3 Special, 2026
siembra.fag@uce.edu.ec



© The Authors 2026

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License