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Implementation, Monitoring and Management of a Pilot Rehabilitation Measure on Degraded Sloped Pastures in Brazil

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Abstract

Dairy cattle farming at moderately to strongly inclined pasture slopes represent the main land use in the State of Rio de Janeiro, occupying more than 50 % of the States area, formerly covered by pristine Atlantic Forest areas. Inappropriate pasture management in a geo-ecologically sensitive environment with changing regional climate has led to severe pasture degradation during the last century. Sustainable and adequate pasture management strategies are urgently needed to decelerate further soil degradation and to guarantee future land productivity while maintaining essential ecosystem services. The pilot rehabilitation measure (PRM) "Slope parcelling hedgerow terraces for extensive rotational pastures" aims at breaking the erosive power of surface runoff and interflow, accelerating grass recovery and decelerating erosion along with site-compatible rotational cattle management. It is embedded in the overall concept of relocating extensively-used pastures from fragile sloped to favourable, productive and intensively-managed plain areas. The PRM represents a pragmatic and participative (farmer-oriented) approach, at rather low cost. Its modular character allows a site-specific implementation (transferability) and adaptation that integrates existing resources and (traditional) farming best practices. Only scientifically proven measures accepted by the farmer community are supposed to be successfully applied and managed over a long time. Besides bio-engineering aspects of the implementation (terrace construction, planting scheme of various native tree-species, irrigation concept, pasture melioration) and recommended management strategies of the PRM, a two year scientific monitoring of the pilot area (shrub performance on terraces, closure of vegetation cover, soil quality and erosion) is presented. The latter allows the evaluation of the measures' success and impact. The PRM will be discussed in the context of other vegetative and structural pasture rehabilitation approaches.

Keywords: Bio-engineering, degradation, pilot rehabilitation measure, rural area, sloped pasture

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