

Water erosion and soil organic matter loss in a coffee organic farm

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INTRODUCTION

Modelling can provide a diagnosis of the dynamics of soil organic matter (SOM) in agricultural production systems, and assist the proposing of conservationist measures.

Therefore, this work aimed to estimate SOM losses due to water erosion in an agricultural production system, through the use of modelling techniques.

MATERIAL AND METHODS

Study area is located in southeastern Brazil (Figure 1). The area of the farm is around 75 ha, and the main agricultural product is coffee (78%).

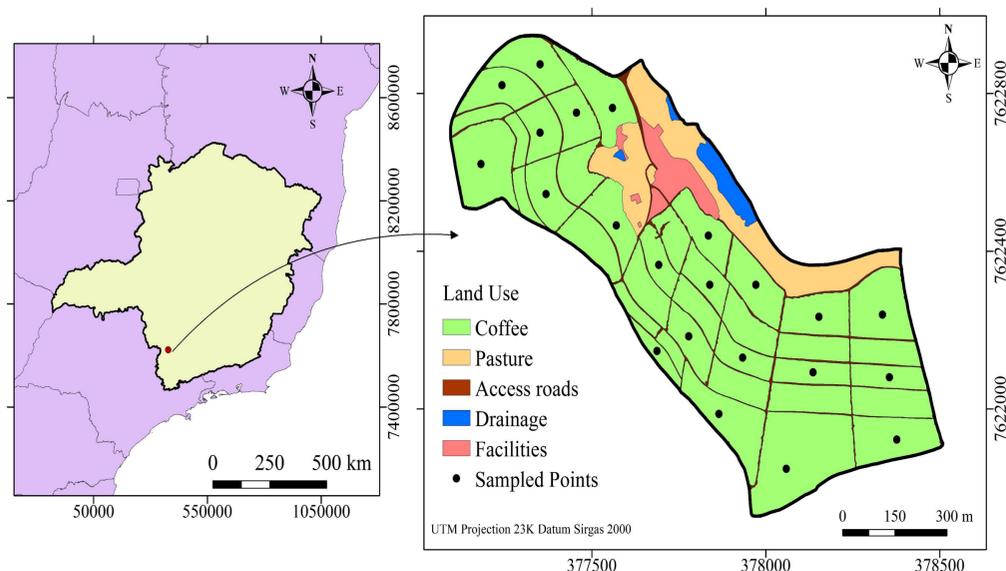


Figure 1. Location and land use of Fazenda Santo André, Municipality of Divisa Nova, south of Minas Gerais, southeastern Brazil.

To the SOM determination, soil samples were collected at 20 points, distributed over the area, in the surface layer (0-20 cm), in March 2018.

Modeling

Soil Losses
(RUSLE)

X

SOM (%)

RESULTS AND DISCUSSION

The organic matter content on the farm ranged from 1.20 to 2.46%, while the average soil loss was 25.70 Mg ha⁻¹ year⁻¹, with higher erosion rates in steepest sites.

The estimated loss of total organic matter at 31.87 Mg year⁻¹, with an average of 0.42 Mg ha⁻¹ year⁻¹.

CONCLUSIONS

The observed results reveal the need to implement conservationist management measures to reduce soil losses, and the consequent SOM losses.

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