

Our replies to all comments are shown in blue and the original referee's comments are shown in black.

RC1: '[Comment on egusphere-2025-3542](#)', Anonymous Referee #1, 22 Oct 2025

The manuscript "Soil erosion in Mediterranean olive groves: a review" by Andres Peñuela et al. present the results of a review study including several studies conducted across last decades about the estimation of the entity of soil erosion processes that occur in olive groves in some Mediterranean countries. Many studies report estimation made by direct measurements, some using erosion models. The topic addressed by the manuscript is relevant in the context of soil science applied to agriculture, since soil erosion is known as one of the main soil degradation processes affecting olive groves (and other permanent crops) in the Mediterranean area. Many studies have been conducted in last decades, but the absence of a common framework for soil erosion assessment has led to heterogeneous results, as this work highlights. In this framework, the review collects results obtained from tens of studies with different evaluation approaches, with the aim to identify the extent of soil erosion in this agroecosystem and the factors influencing it, taking into account of different scales (temporal and spatial) of the problem. Data collection was performed in order to obtain a homogeneous dataset to be analysed accordingly to methods usually adopted for similar studies. Considering the broad issue, the results of the data collection and analysis are presented in a concise form, in general complete but that can be improved, and discussion help the reader to understand a clear picture on the topic. In my opinion the work is well structured and written, even if a revision of English can be beneficial. The abstract provides a concise and complete summary. Some specific comments on other sections follow:

[We thank the reviewer for their positive assessment and helpful suggestions regarding the statistical presentation and data organization.](#)

- introduction: this section provides an overview on the research about soil erosion in Mediterranean olive groves, specifically on its quantification with different methods and over different temporal and spatial scales; whereas for direct measurement methods, they were briefly introduced with some references, example of models used for soil erosion estimation are not cited in this section, thus I suggest to add some references to most used models, beyond RUSLE. In fact, as a review, some readers could not be aware of models for this purpose. See some other details in the attached pdf.

[We will add references to other models commonly used in the introduction to provide a broader context of the modelling landscape.](#)

- Methods: data collection: vegetation cover is not mentioned among collected variables, but it is used in the analysis. Please add it. Statistical analysis: I suggest to add here details about test performed to check assumptions (now they are named in results)

[This was an oversight in the text. We will update the "Data Collection" section to explicitly list "vegetation cover \(%\)" as a collected variable. We will add a specific subsection in the Methods describing the diagnostic tests used to check for normality and homoscedasticity, rather than introducing them in the Results section.](#)

- Results: Table 2: I suggest to add the variable vegetation cover and indicate the plot's dimension. Section 3.2: since they are mentioned, I suggest add in the Table 3 results for CP and No-CP.

[Table 2: We will add columns for vegetation cover range and plot size range where available.](#)

[Table 3: We will add these values for "No-CP" \(No Conservation Practices\) and "CP" \(Conservation Practices\) to explicitly show the average erosion rates for each management style.](#)

Section 3.3: I suggest not to indicate results for model that are not definitive, thus only discuss log-transformed model's results if assumptions are not satisfied.

We agree that presenting failed models clutters the text. We will remove the detailed statistics for the non-significant OLS models. We will state that the initial OLS assumptions were violated and proceed directly to presenting and discussing the robust results from the log-transformed models.

Section 3.3.2: no information is given about variable vegetation cover in the presented dataset: is it vegetation cover only between tree's rows or also under trees? What method is used to measure it?

This is a crucial distinction. In the context of the analysed studies, "vegetation cover" almost exclusively refers to the ground cover (inter-row crops or spontaneous vegetation) rather than the olive tree canopy itself. We will clarify in the Methods section that "vegetation cover" refers to the percentage of ground covered by herbaceous vegetation or cover crops in the inter-row areas.

Section 3.4: since this section does not present results, I suggest to consider it as discussion.

We clarify that Section 3 is explicitly titled 'Results and Discussion'. Therefore, subsection 3.4 ('Final thoughts and future challenges') is intentionally positioned here to serve as the synthesis component of this combined section

Please see minor comments in the attached pdf, also in conclusion sections.

In my opinion the requested changes are of minor significance with respect to the relevance of the manuscript, even if I suggest the authors to consider my suggestions. Finally, I suggest to accept the paper with request of minor revisions.
