

Respected Sir,

We sincerely appreciate the detailed and constructive feedback provided by the reviewer. Below, we present our point-by-point responses, indicating how each suggestion was incorporated into the revised version.

GENERAL COMMENTS

In response, we have revised the Introduction to:

1. Clarify the scientific gap, explicitly stating that previous studies have not directly compared the sensitivity of different soil health assessment methods in detecting short-term effects of conservation practices such as terracing in subtropical no-till systems.
2. Emphasize the conceptual contribution of the study, highlighting that the novelty lies in the comparative evaluation of the diagnostic capacity of these approaches in a highly relevant subtropical agroecosystem.

SPECIFIC COMMENTS

Novelty: The introduction should more clearly state the specific knowledge gap: a direct, comparative evaluation of the sensitivity of these established methods for detecting short-term impacts of conservation practices like terracing.

This comment has been fully accepted. We have revised the end of the Introduction to explicitly address the suggestion.

“Although terracing in no-till systems is widely recognized for reducing erosion and improving water infiltration (Fuentes-Guevara et al., 2024; Lal, 2020; Panagos et al., 2015), their effects on soil health under subtropical field conditions remain poorly understood, despite the availability of multiple assessment methods. Moreover, no study has directly compared the sensitivity of different soil health approaches in detecting short-term impacts of terracing in subtropical no-till systems.”

Methods Clarification – Expert Opinion (EO): The description of the Expert Opinion (EO) method requires clarification. Specify if the initial indicator selection was purely based on expertise, while only the weighting was data-derived, to avoid a circular argument.

We reformulated

“In the EO approach, indicator selection was guided solely by prior technical expertise and evidence from the scientific literature concerning the sensitivity and functional relevance of physical, chemical, and biological soil indicators. No data-driven criteria were applied in this selection step. This selection prioritizes the indicators that are most sensitive to variations in soil function and those that are easier to determine in the field or laboratory and to interpret.”

“The SHI_EO was integrated using the covariance matrix weights, in a manner based on the approaches described by Manly (2008) and Jolliffe (2002) for different multivariate analysis methods. The SHI_EO integration method consisted of an analysis of the proportional contribution of variables to a composite index, ensuring that the integration step reflects the variability observed in the dataset while keeping the selection step independent of the data.”

Conclusions

We completely agree. The conclusion has been reformulated as follows:

“Among the approaches tested, SHI_EO and SHI_FERTBIO demonstrated greater sensitivity in detecting short-term changes in soil health.”

TECHNICAL CORRECTIONS

All line numbers mentioned in this response correspond to the revised manuscript.

L 78:

Correction made: “their effects on soil health”.

Throughout the manuscript, the word “Havest” was corrected to “Harvest”.