Review of: "Spatial Analysis of Soil Fertility Using Geostatistical Techniques And Artificial Neural Networks"

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Potential competing interests: No potential competing interests to declare.

The article has an adequate structure, is well written, and is scientifically relevant. I highlight some points that deserve attention and that can be improved.

- Figure 1 does not present adequate cartographic elements. It does not show the geographical coordinates, scale and pink of the winds in the images and an indication of the reference system used and sources adopted, as well as who prepared the maps.

- The authors could include information regarding the use for which the area is intended. If the area is used for agriculture, for what types of crops? Describe the study area in detail.

- Indicate the brand of GPS equipment used to obtain the coordinates of the points and their respective measurement accuracy.

- How was the sample mesh defined? Why did the authors define this spacing?

- What types of soils were analyzed not indicated in the methodology. Use the global soil classification.

- Do the authors have licenses for the SPSS® and ArcGIS software? If so, they must enter the license numbers, otherwise they must obtain them. There is a plugin for QGis called Smart-Map (https://github.com/gustavowillam/SmartMapPlugin/wiki) that is free and that does the entire krigage process. I suggest that authors learn about the tool. Here is the reference from the article about the tool developed:

Pereira, G.W.; Valente, D.S.M.; Queiroz, D.m.d.; Coelho, A.L.d.f.; Costa, M.M.; Grift, T. Smart-Map: An Open-Source QGIS Plugin for Digital Mapping Using Machine Learning Techniques and Ordinary Kriging. Agronomy 2022, 12, 1350. https://doi.org/10.3390/agronomy12061350

- Figure 2 does not present all the mandatory cartographic elements (geographic coordinates, adopted reference systems, and information sources).

- The authors should provide more details on how the validation of the predictive capacity of soil fertility classes was conducted, as it was not described thoroughly, making it difficult for other researchers to reproduce it later. Explain the criteria used for the implementation of canonical multivariate analysis.

- The authors should present the results of the normality tests and box plot graphs. These results could be included in

supplementary material to provide greater credibility to the findings.

- Figure 5 does not include geographic coordinates on the maps.

- The caption for Figure 8 should be in English, not Spanish.

- There was no discussion of the results in relation to other studies. Only at the end of the results and discussion section did the authors mention three studies (Zhu et al. (2008), McKay et al. (2010), and Valera and Orta (2018)), which are somewhat outdated references and were not discussed in relation to the results.