

Comment on soil-2021-132

Anonymous Referee #2

Referee comment on "Combined application of animal manure and straw benefit soil fauna community in dryland farming" by Ling Sun and Jinggui Wu, SOIL Discuss.,
<https://doi.org/10.5194/soil-2021-132-RC2>, 2021

Sun and Wu's paper entitled "Combined application of animal manure and straw benefit soil fauna community in dryland farming" provides valuable insights on the possible relationships of organic amendments and soil invertebrates composition and abundance. The paper needs to be better structured. Moreover, the language/wording needs some improvements as it becomes confusing and colloquial in parts. In the study, the soil invertebrates' communities are exclusively the ones inside the nylon bags, not representative of the surrounding soil and associated invertebrate community. The assembly found in the bags could be explained by selected colonisation of the organisms that inhabit the surrounding soil (exchange/movement with the surrounding environment through the 2 mm mesh); however, this is not discussed/mentioned in the study or not targeted in the objectives. This has profound implications for the research claim, and the goals need to embrace the limitation of the scope. The paper needs a major restructuring and more clarity in the methods section. The manuscript is not appropriate for publication in SOIL and requires a significant revision in its present form.

I have attached an annotated pdf file for guidance, but below, you can find some more comments:

Introduction: The introduction needs to be made more concise overall as there are several redundant parts. For instance, Lines 37-48 section needs to be more concise, and a transition to the conservation approaches is required. Also, the paper needs to accommodate the focus on nylon bags and clarify the objectives.

Methods: The bag/ mesocosm approach needs clarification as it is unclear how the approach relates/overlaps with the soil amendment experiment. Also, a schematic representation of the experimental field design, and position of the bags experiment, shape of the plots, could be added as a supplementary figure. The quantity of soil included in each bag is not precise, or if even soil was included. If the soil was included, you need

to state if any standardisation was applied (e.g., sieved to a certain size, defaunation, dry, etc.) and the essential physico-chemical characterisation (Ph, OM content, CTC, etc.). Overall, the statistical approaches need more clarity (the author need to give factors used and all the variables measured).

Furthermore, some results seem to be incorporated in the methods, or in case this comes from a different study, a source for the data needs to be given (Table 1). The bags were sampled in a per month manner for the duration (5 months?). However, it is not clear if time was considered a factor in the statistical analysis and how changes in abundance and richness are evaluated across the experimental time. Also, how the experimental time overlaps with the seasons, months in the year needs to be described.

Results: When mentioning statistical significance, this needs to be accompanied by the test statistic value and degrees of freedom, not only the probability value. Would you please check the annotations in the pdf file.

Discussion: This section needs to be restructured to match the impact of their results on the bags. Some parts are a repetition of the introduction (Lines 289-285), so it should be made more concise and integrated based on their results. Overall, some contradictions need to be corrected, and please see the annotated pdf.

Please also note the supplement to this comment:

<https://soil.copernicus.org/preprints/soil-2021-132/soil-2021-132-RC2-supplement.pdf>