

# ***Interactive comment on “Soil nutrient content in relation to women’s agricultural knowledge in the urban gardens of Kisumu, Kenya” by Nicolette Tamara R. J. M. Jonkman et al.***

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Dear Referee, first of all we would like to thank you for taking the time to read this paper and writing your review. We hope to edit the manuscript to address your concerns and would like to address your specific feedback and comments with this reply.

General Comment: The paper aims at combining soil nutrient analysis with women’s agricultural knowledge and their management decisions. While in general this is an important question, the paper is lacking theoretical and empirical (data) depth.

Specific Comments: 2. Does the paper present novel concepts, ideas, tools, or data?

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New data, but too little to be of real relevance.

Reply: It is true that the paper presents the results of a case study. However, it is a case study that has been carefully setup with the local partners from scientific institutes and NGOs with a vast experience in the area, and indeed with the women farmer groups themselves. This in itself is in our view a unique approach that, by extensive use of the local expertise, ensures the case study is representative of a typical urban gardening situation that can be found abundantly throughout Kenya, sub-Saharan Africa and indeed the developing world. We realize we may not have explained the selection process and representability of the case study well enough and aim to do this if we are given the opportunity to revise.

With respect to the perceived data paucity, it should be noted that only a selection of the acquired data was included in the paper. The interview data and the data from the focus group discussion was more extensive than shown and was not included in the attached dataset for privacy related reasons. In revisions we will more fully incorporate these results, whilst continuing to respect privacy.

Comment 4. Is the paper of broad international interest? Theoretically yes, this paper could be of interest. In practice, however the data are too limited in scope and the outlined research question is not really thoroughly addressed (one option might be to reformulate the research question, depending on the data that is available)

Reply: As noted above, the study was carefully selected as a representative case study for a phenomenon that is wide spread throughout the developing world. In addition, we will look to incorporate the data from the interviews and focus group discussions more fully to support our conclusions with revisions. At the same time we realize that we may have formulated the main research question too broadly for the scope of the research. We are confident that revising the results from the social sciences section as well as re-examining our research question will allow us to address these concerns.

Comment 5. Are clear objectives and/or hypotheses put forward? While a clear objec-

tive is set “understanding how women’s knowledge influences soil management and thereby the soil nutrient status”, it is not clearly answered. E.g. has any effort been put into understanding whether intercropping or not is influenced by knowledge? Or what the role of knowledge is in the decision to plough manure into the soil, or not?

Reply: It is clear that we did not formulate our conclusions well enough and we would like to thank the reviewer for pointing this out. For example, we had hoped to convey that intercropping as done by the women farmers in Nyalenda was imperfectly done due to gaps in the knowledge. While the women farmers have the basics of this management practices, i.e. the intercropping with a legume to improve soil N, they lack the technical knowledge to properly apply this practices. These women do not plough the legume into the soil after a certain period of time to maximize soil N input, but rather let the legume grow to maturity to harvest it as crop. This essentially leads to a more rapid extraction of nutrients from the soil. The agricultural meetings the women attend are useful, but knowledge transfer there is incomplete because of several socio-economic barriers. We will formulate this more clearly and extensively in a revised version, and see that it is better supported by data from the interviews and focus group discussions.

Comment 6. Are the scientific methods valid and clear outlined to be reproduced? The methods as such seem to be okay, but the data presented is insufficient. Information of the history of soil is missing (how long have they been cultivated with the different method): : ., quantitative estimation about the amount of manure applied is also missing, Sampling on only four fields is not really representative: : : It is unclear how the sampling plots have been chosen: : .. The interview results should be presented in more depth.

Reply: While we do not have all the background information mentioned in the 6th comment, such as quantitative estimates of manure use; there is more information regarding the history of the site available than incorporated in the article, both from literature sources and the interviews and focus groups discussions. The limited amount of fields used in the study is both a reflection of the limitations of this study as a case

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study, as well as an attempt to make the influence of the two management practices as comparable as possible. The four fields were chosen, in careful consultation with our local partners including the women groups themselves, for being most representative for the studied management practices. The interview results as noted before can and will be presented more in depth with revision of the manuscript.

Comment 9. Are the presented results sufficient to support the interpretations and associated discussion? I would say the presented results are sometimes unclear or even contradictory. e.g. 5 the paper states that people have limited technical knowledge just to continue a few lines later saying that the “women spoke of a variety of agricultural meetings”. The difference to the knowledge of men is not made clear. In general the difference between male and female knowledge should be made clear. And it should also be shown how the techniques of men and women differ because of differences in knowledge. Another example: Some statements like "no fallow periods because of a lack of land" could be analysed more deeply in order to understand how knowledge is influencing this statement.

Reply: We would like to thank the reviewer for pointing out that the results are sometimes unclear or seem contradictory and will seek to clarify the results where necessary. Likely a more thorough incorporation of the interview and focus group discussions will address the main concerns. For the specific cases mentioned, while the women spoke of a variety of agricultural management practices during the meetings and interviews they lack the technical knowledge – meaning that they have heard or tried techniques, but did often lack complete knowledge regarding their proper application. An example being that those who practice intercropping did not realize that they had to plough the entire plant into the soil about 3 weeks after planting for the soil to benefit from the intercropping.

The knowledge and techniques of men are not explored further in the paper as they were not the focus of the research and they were only included in the focus group discussions. The choice to focus on women is based on the fact that women very often

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play a leading role in the urban gardening practices, yet their socio-economic position as well as the dynamics of their contribution forms a seriously understudied area. As indicated before, it is clear that we failed to explain the selection of our sites and focus well enough and aim to amend this in a revised version. While we lack sufficient data to include the roles of men in the paper, we have noted that men tend to have more access to capital and means, meaning that their practices often differ from that of women on that basis and because of this they also have a different view of agricultural problems.

The statement regarding the lack of fallow periods could perhaps be further expanded with results from the interviews – the lack of fallow periods is not because the women farmers lack the knowledge regarding this practice, rather it is their need for revenue forcing them to continue using the land In spite of their awareness that they ought to rest the land.

Comment 11. Are accurate conclusions reached based on the presented results and discussion? From what I can see the main difference in the soils might come from a higher SOM on the plots where no intercropping is made (SOM as important for CEC). The interesting question would however be, why there is more manure on the plots without intercropping. This might help to understand the reasons behind the different outcomes more clearly. Related to this it could be discussed, whether people should know about the difference (in case the difference is influenced by management practices).

Reply: The reviewer raises a valid point and while we lack quantitative data regarding the use of manure – which may of course be of a large influence on SOM, we do know that at the very least the application method differs. The application method could have a similar if not just an important effect on the SOM levels of the soil as the amount of manure – we could expand on this further during revision of the manuscript.

Comment 15. Is the overall presentation well structured? The paper is well structured. However the introduction is not really introducing the state of the art with regards to

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(female) soil knowledge and management practices: : . The general truths for overall agriculture in Kenya, might be good to justify the research, however they are not really relevant in answering the question and are a bit too general.

Reply: The shortcomings of the introduction and background were also mentioned by the other reviewer and we are thankful for both of them for pointing this out. We will seek to improve this when allowed to revise, by using more and also more up to date literature.

Overall we would like to again thank the review for their valuable comments and we will look to use their feedback in the editing of our manuscript.

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Interactive comment on SOIL Discuss., <https://doi.org/10.5194/soil-2018-24>, 2018.

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