

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.

Msc Hemminger (Referee)

karoline.hemminger@zalf.de

Received and published: 29 August 2018

General Comment: The case study combines in an innovative way soil nutrient analysis with farmer interviews. This approach is very useful in order to derive management recommendations that are feasible to the farmers. However the research questions should be formulated more clearly and it should be explained how they were developed from existing literature. Being a case study, it is important to explain which general conclusions can be made from the results.

Specific Comments:

C1

1. Does the paper address relevant scientific questions within the scope of SOIL? yes
2. Does the paper present novel concepts, ideas, tools, or data? The data on soil nutrient content are new.
3. Does the paper address soils within a multidisciplinary context? yes
4. Is the paper of broad international interest? The relevance and relation to results and questions of international research still needs to be better explained. There is a growing body of research on urban agriculture in Africa, which is not sufficiently mentioned (see e.g. Orsini et al. 2013, Hamilton et al. 2014 →please see the reference list in the supplement). Regarding Gender Analysis it would be interesting to analyse whether the plots managed by women have a different soil nutrient status than those of men (see literature on Gender Gap in agricultural Productivity) and what constraints women face in their production (access to resources and time issues, ("triple burden" childcare, production and community tasks)
5. Are clear objectives and/or hypotheses put forward? I think your question “how does women’s knowledge influence soil nutrient content through their management” is not quite clear. Do you propose the hypothesis that higher knowledge will lead women to apply more effective management practices and the soil nutrient content will be higher? Consider that knowledge of a technique does not equal implementation of the technique. There might be financial or time constraints and also cultural and individual factors that influence a person’s decision to use a certain agricultural practice. Your results show that an advocated technique (intercropping) leads to lower soil nutrient content, did you propose that the women using this technique had less or more knowledge? Maybe it could be an idea to structure your objectives like this: Aim: Derive recommendations for soil management in urban gardens in Kisumu, Kenya Questions: a) What is the soil nutrient content? (Discuss whether the results you are found are favourable or nonfavourable for agricultural production, should the nutrient content be raised? Might leaching be a problem etc.) b) Which of the recommended soil man-

C2

agement practices (suggested based on evidence of agricultural science) are feasible to the women farmers? c) What are research gaps and limits of current agricultural extension activities?

6. Are the scientific methods valid and clear outlined to be reproduced? There is still information missing: What method did you use to choose the sample plots? In how far are they representative for the area? Regarding the interview results, there is not sufficiently stated which information was gained from the 2 women farmers cultivating the sample plots, the women group and the mixed group. Did the two women farmers cultivating the plots participate in the FGD? Why did you choose to organize a female and a mixed group instead of a female and a male group, which would have allowed for comparison of male and female knowledge?

7. Is the soil type/classification adequately described? In your abstract and introduction you refer to nutrient deficiencies in Kenyan agricultural soils and poor soil management as one possible cause. Yet your results are that soil nutrient content is high for both sample plots. Did you record the amount of fertilizer and organic material that was applied to the fields by the farmers? Are the plots examples of high input vegetable production and thus difficult to compare to the average (rural) agricultural soils? (see Predotova et al. 2011; Lompo et al. 2012). Is the overall decline in agricultural productivity in Kenya also observed in Urban agriculture?

8. Are analyses and assumptions valid? See above

9. Are the presented results sufficient to support the interpretations and associated discussion? I think the presentation of the soil nutrient analysis is clear. Please try to document the interview results more clearly. What are interview results, what are FGD results? E.g. how many of the participants know that plants need nutrients from the soil? With which questions did you measure technical knowledge?...

10. Is the discussion relevant and backed up? Be careful not to mention new results in the discussion part (page 9, 6-15) and do not discuss your results in the results section

C3

(p.12 12-14).

11. Are accurate conclusions reached based on the presented results and discussion? I think the conclusion is written very clearly, could you add your conclusion whether intercropping is useful or not? When you mention gender-differentiated knowledge, could you specify in your results what knowledge was specifically male or female? Did men have less sensory knowledge than women? Did men have more technical knowledge than women? What could be advantages of the traditional practical and sensory knowledge these women have? Do you have results whether male and female farmers apply different techniques and have different yields?

12. Do the authors give proper credit to related and relevant work and clearly indicate their own original contribution? You clearly indicated your own contribution. Please have a look at the FAO State of Food and Agriculture Report 2010-2011 "Women in Agriculture- Closing the gender gap for development" and Doss et al. 2018 regarding women having lower yields than men in dev. countries (p. 3, l 15)

13. Does the title clearly reflect the contents of the paper and is it informative? For me nutrient content in relation to knowledge is not clear (see point 5 above)

14. Does the abstract provide a concise and complete summary, including quantitative results? The introduction part in the abstract could be shorter and should mention urban agriculture.

15. Is the overall presentation well structured? I think starting the introduction with the global relevance of your topic would help to understand your research aim.

16. Is the paper written concisely and to the point? yes

17. Is the language fluent, precise, and grammatically correct? yes

18. Are the figures and tables useful and all necessary? yes

19. Are mathematical formulae, symbols, abbreviations, and units correctly defined

C4

and used according to the author guidelines?

20. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? Please clarify the legend of figures 1a-f, available, exchangeable and total (Does total include available and exchangeable?, then the color scheme is misleading)

21. Are the number and quality of references appropriate? Please see the references below.

22. Is the amount and quality of supplementary material appropriate and of added value? yes

References

Doss, C., Meinzen-Dick, R., Quisumbing, A., Theis, S. Women in agriculture: Four myths (2018) *Global Food Security*, 16, pp. 69-74. DOI: 10.1016/j.gfs.2017.10.001

Hamilton, A.J., Burry, K., Mok, H.-F., Barker, S.F., Grove, J.R., Williamson, V.G. Give peas a chance? Urban agriculture in developing countries. A review (2014) *Agronomy for Sustainable Development*, 34 (1), pp. 45-73. DOI: 10.1007/s13593-013-0155-8

Hovorka, A.J. Urban agriculture: Addressing practical and strategic gender needs (2006) *Development in Practice*, 16 (1), pp. 51-61. Cited 27 times. DOI: 10.1080/09614520500450826

Lompo, D.J.-P., Sangaré, S.A.K., Compaoré, E., Papoada Sedogo, M., Predotova, M., Schlecht, E., Buerkert, A. Gaseous emissions of nitrogen and carbon from urban vegetable gardens in bobo-dioulasso, burkina Faso(2012) *Journal of Plant Nutrition and Soil Science*, 175 (6), pp. 846-853. DOI: 10.1002/jpln.201200012

Orsini, F., Kahane, R., Nono-Womdim, R., Gianquinto, G. Urban agriculture in the developing world: A review (2013) *Agronomy for Sustainable Development*, 33 (4), pp. 695-720. Cited 86 times. DOI: 10.1007/s13593-013-0143-z

C5

Predotova, M., Bischoff, W.-A., Buerkert, A. Mineral-nitrogen and phosphorus leaching from vegetable gardens in Niamey, Niger (2011) *Journal of Plant Nutrition and Soil Science*, 174 (1), pp. 47-55. DOI: 10.1002/jpln.200900255

Theis, S., Lefore, N., Meinzen-Dick, R., Bryan, E. What happens after technology adoption? Gendered aspects of small-scale irrigation technologies in Ethiopia, Ghana, and Tanzania (2018) *Agriculture and Human Values*, 35 (3), pp. 671-684. Cited 1 time. DOI: 10.1007/s10460-018-9862-8

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

C6