

September 13<sup>th</sup>, 2016

Dr. Miriam Muñoz-Rojas  
Topical Editor  
SOIL

Dear Dr. Muñoz-Rojas,

I am pleased to submit on the behalf of co-authors, the responses to reviewers' comments on the paper entitled "Soil organic carbon stocks in semi-arid West African drylands: implications for climate change adaptation and mitigation", which was submitted to your journal a couple of months ago. I am really sorry for the delayed feedback due to the fact that I just wrapped up yesterday, a Regional Research Conference to validate the research program, which preparation consumed my time over the past months.

Nevertheless, I look forward to your feedback about the next steps towards the final publication of this article in your journal.

Very truly yours

Jerome Ebagnerin Tondoh  
WASCAL Competence Center  
BP 9507 Ouagadougou 06  
Burkina Faso  
Email: [tondoh.e@wascal.org](mailto:tondoh.e@wascal.org)

## Reponses to Reviewer1' comments

### ***General comments***

We take the viewpoint of the reviewer and are ready to make necessary corrections to bring the manuscript up to the publication quality as per his statement.

We also thank him for availing an annotated version that will greatly help to being specific and concise in the revision.

### ***Specific comments***

**Line 49.** Reference to the need to take into account the scale at which management is occurring is well noted.

**Lines 70-71.** This rewording is noted and approved.

**Line 82.** Indeed, this sentence applies only to African landscapes.

**Line 91.** Yes, the word "Action" is necessary as it is part of the terminology used in the CGIAR Drylands Program. The action-sites are meant to be sites within the entire West African landscape, where research activities will be conducted. The current study targeted the Wa/Bobo-Dioulasso/Sikasso action-site that belongs to the sudanian savanna zone.

**Line 117.** Wealthier farmers apply inorganic fertilizers (NPK in most cases) to their fields at a rate of 125 kg ha<sup>-1</sup>.

**Line 118.** No, cotton is the main cash crop that is fertilized through incentives received by farmers. The residual fertilizer is thereafter taken up by the maize. This system has contributed to improving maize yields in cultivated areas.

**Lines 129-130.** A sentinel site of 100 km<sup>2</sup> consists of 16 clusters composed of 10 georeferenced sampling plots of 0.1 ha each. For sampling purposes, each plot was further divided into four subplots of 0.01 ha, where soil sample collection was undertaken.

**Line 135.** The bulk density was taken at the central subplot in each plot.

**Lines 178-179.** This is good point. The semi-natural lands are portion of land that have not been cultivated for a while. Since it was not possible to determine precisely their ages, we assumed that they aged at least 20 year-olds that corresponds to the length of the continued cropping lands.

**Line 196.**  $\pm$  is for standard error.

**Lines 228-238.** Okay, this is noted.

**Line 244-249.** This is well noted.

**Line 254.** This is noted.

**Lines 259-267.** The observation is true as the entire paragraph gathers comments on figure 7. The remarks on Table 5 are also relevant and well taken. Necessary corrections will be done accordingly.

**Line 287-288.** This is noted.

**Lines 313-318.** This comment has already been captured in line 49 (see page 2).

**Lines 319-330.** There is a need for rewording here in such a way to highlight the two main reasons of low values in SOC stocks that are most likely soil acidity and the fairly high erosion rate owing to the steep landscape at Finkolo site.

**Lines 354-356.** The point made is well taken. We will rephrase insisting on the role of management practices in the recovering of SOC stock depletion.

**Lines 375-376.** This is noted.

**Line 377.** This is noted. The mistake will be corrected.

**Lines 392-393.** The reviewer made a good point since we are not emphasizing fluxes in this study.

In conclusion, we are thankful to the reviewer for the valuable comments, which will assuredly contribute to improving the quality of the manuscript.