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Comment

Interactive comment on “Carbon losses from pyrolysed and original wood in a forest soil under natural and increased N deposition” by B. Maestrini et al.

B. Maestrini et al.

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We are grateful to the reviewer for the careful comments he provide on our manuscript, here below are our answer to the referee comments.

The manuscript reports the results for carbon loses in the form of CO₂ and DOC from pyrogenic organic matter (PyOM) and pine wood under ambient and increased N deposition in a forest soil under field conditions. ¹³C enriched pine word and PyOM were used in the experiment that allowed the measurement of C losses and priming effect in the experiments. It is a well conducted field experiment study which has provided some novel results that are worth publishing in the journal. I have reviewed the manuscript

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earlier so not much to add except for a few minor editorial comments as listed below:

P2 L8-9: Insert a 'comma' before 'respectively' at both places. Text edited accordingly.

P2I20-25: The justification could be improved and expanded a little more considering the push for soil application of biochar or PyOM for long-term carbon storage etc. We revised the introduction also according to the comments of the other reviewers, nonetheless this paper is not specific to biochar, but would rather comprehend the broader category of Pyrogenic organic matter that includes also the fire derived charcoal.

P4 L21, 23 and 24: in the units 'g C kg⁻¹ PyOM-C' insert a space between 'C' and 'kg⁻¹'. Text edited accordingly.

P4L29: No need for a new paragraph here. P6L3: Insert a space between 'N' and 'ha-1'. P6L16: Revise as 'The soil at the experimental site is: : :'. Text edited accordingly.

P6L17: Insert a space between 'C' and 'ha-1'. Done P6L18: Replace 'we tested' with 'consisting of'. Text edited accordingly.

P7L8-10: Revise the sentence for clarity. Revised substituting "catch up" with "recover".

P7L23: Check the units 'g C m' for PyOM and wood. Checked

P8L26: Insert a space before 'Waltham'. Text edited accordingly. P13L16-18: Write the units correctly for wood-C, '0.077±0.008 and 0.081±0.008% d⁻¹ of the wood-C added: : :'. Changed to 0.077±0.008% day⁻¹ and 0.081±0.008% day⁻¹

P13L22: Not clear whether you are describing the mineralization rate of PyOM or wood. We added the specification "of the two substrates".

P13L22-23: Is it positive or negative priming effect, please specify? Specified to: i.e. no significant positive or negative priming

P14L2-3: Insert 'the' before 'initial' at both places. Done

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P14L7: Change 'treatment' to 'treatments'. Done

P14L9: Change to 'with the organic treatment and different' to 'with the organic treatment and different'. Done

P14L24-25: Use the full units for the decomposition rate in the sentence. Added "of initially added C"

P15L26: I suggest you change the reference to Fang et al. 2011 to Fang et al. 2014 (Fang, Y., Singh, B., Singh, B.P. and Krull, E. (2014). Biochar carbon stability in four contrasting soils. European Journal of Soil Science, 65, 60–71. doi: 10.1111/ejss.12094). We updated the reference.

P16L2: Change 'date' to 'dates'. Done P16L11-12: Insert 'with' before '22-26%'. Done

P16L17: Replace 'in field conditions' with 'under field conditions'. Done

P17L16: Insert 'the' before 'initially'. Done

P17L28: Replace 'more' with 'well'. Done

P19L7-8: It is not clear which experiment you are referring to here, I assume yours, please clarify this. Clarified that it was in our experiment.

P19L8-10: N adsorption or fixation is applicable to 'NH4' form of nitrogen only. We agree with the reviewer, this was also the interpretation of the authors of Santos et al. (2012), we noted that in the revised text.

P19L23: Put 'Lehmann et al, 2011 in parentheses'. Done

P19L24: Insert 'the' before 'findings'. Text edited accordingly

P20L15-18: I suggest you make two sentences for the text for clarity. Done

Table 1: Normalise sand, silt and clay 5 values to a total of 100. Done

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BGD

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