

## ***Interactive comment on “Parametrization consequences of constraining soil organic matter models by total carbon and radiocarbon using long-term field data” by L. Menichetti et al.***

**Anonymous Referee #1**

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This paper discuss the use of SOC and SO<sub>14</sub>C by changing relative weighing of these two data and by changing model structure. I enjoyed this paper a lot and I think this paper has value to be published in this journal. I agree that we have still lack data for sustaining more detailed mechanistic models. I have following technical comments.

Page 6, Line 14 (P6L14): 56 kg ha<sup>-1</sup> -> -1 should be superscript. Same for line 15 and 16. P6L16: 1 t -> 1 Mg P6L18-19: Are these properties of topsoil? Is so, please mention it and please describe the depth of topsoil. P6L21: and by-products -> and above-ground part of by-products ? Is it OK? If so, please describe what happened with below-ground part. Was it incorporated into soil? or removed? P7L8: Levin, Ingeborg and Kromer 2004 -> Levin and Kromer 2004. Same for line 10-11 P10L15-16: Maize is

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C4 plant. Is it OK to neglect this? P13L7: S3 appears here before S2 appears. Please arrange them in order as it appears in the text. P13L21-22: 10,000, 5000, 100,000 -> 10,000, 5,000, 100,000 ? Please unify notation. P16L9: Fig. 8 appears here before figs 3 to 7. Please arrange in a order. P17L4-18: I think this part should be moved to "Results" parts. The beginning of section "3.3" may be good. P19L24-25: ") after "feedbacks" ? P22L14: "I, II and III" may be wrong. Please check and correct. P25L2: Bolinder, M. a. et al., -> Please put all authors names. Table1: Unit of SOC should be Mg ha<sup>-1</sup>, not Mg ha<sup>-1</sup> y<sup>-1</sup>. Please put information of depth to which SOC values were calculated. "\*" is not in this table though "\*=average" indication. N2P2K2Mg -> Please use subscript for numbers, or indicate just "Chemical fertilizer". Figure3: Please explain what A - F indicate. Figure9: What is "E"?

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