

***Interactive comment on “Interactions between organisms and parent materials of a constructed Technosol shape its hydrostructural properties” by M. Deeb et al.***

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Congratulations: a nice publication, you did a great job with a lot of work and gained interesting results!

I have some suggestions concerning the title and at the end I have three questions, but first I come to the title. In view of your results I suggest giving the title a more progressive and positive message such as: Organism restore hydrostructural properties of a constructed Technosol

now some suggestions how to improve the text:

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page 1310 Abstract: The first two sentences are not necessary. Start with: There are only few information on how organism influence hydrostructural properties of constructed Technosols. In a laboratory experiment... line 17: micropores, but not.... line 18: biomass resulting in positive effects... line 19: ...materials affected positively the hydro-structural (without thus!)

page 1311 line 12: ...Technosols because these materials could be used as an alternative to topsoil material.... line 20: materials. Thus, the evolution of Technosols is different compared to the pedogenesis of ... line 27: This importance should be more considered in the Soil Science community.

Page 1312 line 20: you mean: Technosols are often influenced by compaction? line 22: ...water regulation services and to supply vegetation requirements . line 23: Therefore we are also interested in...

Page 1313 line 5: ...have a significant influence (not Influence) on soil soil aggregation.... line 8: which guarantee the exchange of gases in the vadose zone. line 9: aggregates by wetting-drying cycles (delete whose strengthened by)

Page 1314 Materials and methods line 4-5: This material is typical for ... line 8: ...with the aim having a representative sample composition that is typical for... line 10: ...Carbonate content (lime)... line 11: ...with the aim line 16: EDH reached very low levels line 19: ...which is relatively high compared to natural soils,... line 21:... containing 21.41%...

Page 1315 line 1: delete ...for ten minutes line 5: with a total capacity line 22: at the end of the experiment line 24: according to the manual instructions of Eijkelkamp (referee)

Page 1316 line 13: ...(shrinkage phases) due to the four types... line 15: odes (aggregates formed by clay particles) line 19: were called plasma (without also)...properties according to Bovin et al., 2004 and

Page 1317 line 23: introduce an equation for:  $V_{ma} = \dots$  (6)  $V_{mi} = \dots$  (7)

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Page 1318 line 3: = equation becomes now no (8) line 6: introduce an equation in line 10:  $\Theta(ma) = \dots = \dots$  (9) line 12: analyses, requiring non disturbed soil properties. line 24: errors of the... line 25: ...curves using the ...

Page 1319 line 1: ....phase, both the .... line 24:....effect on both dry below ground and aboveground biomass... line 25: GWC percentage had almost no influence on total biomass (??) but increases plant production (message right?... was not clear to me)

Page 1320 line 4: In average, earthworms.... line 6: was significantly higher than all other mixtures... line 14: ....parent materials on the hydrostructural... line 24: Earthworms showed a positive... line 26: ...positive for 10 up to 50%

Page 1321 line 9: organism had a similar effect ....like GWC. line 24: Taking both together, the single...(rest is not clear to me)

Page 1323 line 4: for the micropore volumetric water content. line 5:...affected micropores and... delete line 6 to line 11: the reader don't need them, go on with: The presence... line 13: available water contents. (delete macro pore and micropore). For example

Page 1324 line 6: reduce Title: delete "in Technosols" the whole manuscript is about it! line 12: ( $P > 0.001$ ). However, the difference in... line 15 and 16: I suggest creating a table showing these both equations, these are your results! line 21: soils line 22: has never been studied before.

Page 1325 line 2: Thus, the behavior of the mixtures... line 4 and 5: Because ....was often observed in.... line 7: delete "from a hydro-structural viewpoint" line 9: just take: Influence of waste compost line 14: delete "more" ....recently line 18: just take Influence of earthworms line 23: ...in climates with droughts.

Page 1326 line 25: earthworms can be interpreted as an feedback influence of the plants.

Page 1328 line 4: Thus, Pedogenesis, in this case Technosol pedogenesis appears...

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At least my more or less principal questions and I hope you can insert some answers into the manuscript:

1) In Fig. 1 you use gravimetric water content, why not volumetric like in Fig. 7? 2) you are not showing water retention curves, why? 3) what is the advantage of using hydro-structural parameters?

Good luck and success!

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Interactive comment on SOIL Discuss., 2, 1309, 2015.

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