

Interactive comment on “Application of soil quality indices to assess the status of agricultural soils irrigated with treated wastewaters” by A. Morugán-Coronado et al.

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Received and published: 26 December 2012

This is an interesting manuscript dealing with the effects of purified wastewater irrigation on agriculture soils. The novelty and interest of this study is based on the use of soil quality indices, which combine in a unique value the integration of different physical, chemical and biological properties, showing a holistic impact of treatment of soil. The indices represent a balance among properties in steady state ecosystems. So, their use can reflect how relations among properties are distant from this modeled steady state.

Comments

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P1486/L5-6. Delete “the equilibrium reached”. You have not explained anything about equilibrium and it is difficult to understand what you mean

P1486/L10. Include, after “regressions.” The following sentence “These indices represent the balance reached among properties in “steady state” soils”.

P1486/L10-11. Rewrite as follows “This study was carried out in four study sites from SE Spain irrigated with wastewater”.

P1487/L12. Delete the comma after “world”

P1487/L16. Rewrite as follows: “. . . is soil degradation. In some cases. . .”

P1488/L15. Rewrite as “quality index”

P1490/L2. Rewrite as “all analyses”

P1490/L6. Rewrite as “. . . undisturbed forest soils in SE Spain, representing the relationships between soil parameters at “steady state”.

P1491/L5. Write “p” from p-nitrophenol in italics

P1491/L6. Write “P” of phosphorus without italics since in this way it can be read as P-value
P1491/L20. Delete “de”

P1492/L15-16. Replace “,” by “.” after (Gee and Bauder, 1986) and after (1934).

Statistical analysis. If you developed a T-Student there is no need for a post-hoc. Thus, rewrite as follows: “. . . a T-Student test was developed at $P < 0.05$. All statistical analysis was. . .”

P1493/L10. Rewrite: “Table 3 shows”

P1493/L15. Rewrite: “. . . soils irrigated with wastewater showed significant highest contents of soil carbon, phosphatase activity and available phosphorus. In addition, a significant decrease in pH was observed in this area compared with its control site.”

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P1493/L20. Add a comma (,) after "...of irrigation applied"

P1493/L23. Replace "," by ";" after "...irrigated with fresh water"

P1494/L5-6. Add a dot (.) after 88 g kg⁻¹. Delete "also the", so that there is a new sentence starting with "EC has increased..."

P1494/L11. Is the expression "In not one of the " correct? I am not English speaker and never saw it before. Check.

P1495/L11-13. Rewrite as follows: "...with treated wastewater; although at the moment of sampling this value was not high, it could be a risk in the long-term for soil, as it indicates an increase of the saline concentration. As a consequence, electrical conductivity..."

P1495/L20-21. Delete the sentence "that was as a consequence of the...of the wastewater". It is evident and previously reported, no need to include it in here.

P1496/L27 – P1497/L9. However, Biar2 showed a different pattern. Could it mean that alteration in this site is more severe? I would encourage the authors to further discuss about the best option of using SQ1 or SQ2 for each situation, using the sites studied here to support the arguments. I see that these results confirm that SQ1 more clearly evidences severe state of degradation, while SQ1 is more adequate to indicate initial or fast perturbations in soil.

Table 1. Rewrite table title as: "Study sites, irrigation methods, climatic parameters and soil characteristics". The values of sand, silt and clay do not make 100%; revise values so that the sum makes 100%. In OM column, use the same decimal digits for all sites.

Table 3. In table foot, do not write "P" indicating phosphorus in italics

Fig 2. Add at the end of caption "Different letters indicate significant differences between means at P<0.05 after a T-Student test. Error bars denote standard deviation."

Fig 3. Add at the end of caption "Different letters indicate significant differences be-

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tween means at P<0.05 after a T-Student test. Error bars denote standard deviation."

Interactive comment on Solid Earth Discuss., 4, 1485, 2012.