

Interactive comment on “Ecological soil quality affected by land use and management on semi-arid Crete” by J. P. van Leeuwen et al.

Anonymous Referee #2

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General comment

The content of the paper is interesting and deals with an important topic, the quality of soils with different land use and management in semiarid zone; investigations reported on this subject with such a range of soil properties, particularly microbes and fauna, are very scarce. However, I consider that it should be revised carefully, rewritten and modified before publication.

I have serious doubts about if the experimental set up is adequate to fulfill the objectives of present study and hence to evaluate the effect of land use and management on ecological soil quality. As it is indicated in Table 1 and in the text, soils differ in elevation, climatic conditions and parent material; therefore, the effect of land use and

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soil management can't be properly determined. This is confirmed with data of some soil properties such as texture, CaCO₃, pH and organic matter, which varied among soils (Table 2), indicating that different soil types were considered for evaluating the effect of land use and management. It should be noticed also that biological properties exhibited a high inter- and intra- soil variation (seasonal, spatial) and hence measurements performed once in these three sites showed very limited information on the ms topic.

My recommendation is to redefine the aims of the paper, which should be less ambitious and more realist and focussed on the innovative aspects of the study (biological properties in semiarid soils with different management), and to analyse the data in more detail with this new perspective and to rewrite the ms.

Specific comments

-Title, it should be changed reflecting the content of the paper

-Introduction, the objective, which is very ambitious, should be redefined in a more realist way and the introduction should be addressed more specifically to the subject and aims of the paper.

-Material and methods, only three soil samples collected at one sampling time are analyzed. Since soil samples differ notably in organic matter content and biological variables are closely related to this soil property, values of biological parameters should be expressed in relative values (as percentage of organic C) in order to facilitate comparison of the estimates in sites with different management. Likewise, data should be interpreted with caution since only three sites were sampled and relationships between variables are very weak since –only three points for correlations – mean values of three sites should be used, replicates (n=9?) should not be used.

-Data should be interpreted with caution and limitations of the experimental set up should be considered (it is not possible to analyse properly the effect of land use and

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management, few data to extrapolate the evaluation the soil quality of southern European as well as the usefulness of soil quality parameters etc.). Discussion should be less speculative and focussed mainly on data here obtained with the scarce number of samples (only 3 sites collected at one sampling time).

To sum up I also consider that ms should be rewritten before publication after a detailed analysis of data taking into account the limitations of the experimental set up (see above comments).

Interactive comment on SOIL Discuss., 2, 187, 2015.