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Interactive comment on "Short term recovery of soil physical, chemical, micro- and mesobiological functions in a new vineyard under organic farming" *by* E. A. C. Costantini et al.

Anonymous Referee #1

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This is an interesting and sound paper dealing with the evolution of soil physicochemical and biological properties after deep earthwork activities for vines cultivation. Two vineyards with different age have been used for the study, to better monitor changes in soil properties with time. The information provided is of wide interest since show that the recovery in soil microfauna diversity is high during the first years, but the evolution of most physicochemical properties is quite slow, pointing out the need of alternative management practices to increase soil quality recovery as a whole.

Specific comments:

Abstract:

Line (L) 23: Do not directly use abbreviations without describing them before. L 27: This is not clear; it seems here that precipitation is different in the old and new vineyards. Rewrite.

Introduction:

L12: “ensures”

Materials and Methods:

Page (P) 6/L9-17. Give the mean annual temperature and the exact number of years of“the long-term average data” for climatic conditions (indicate the range of years better). P6/L18-23. I see in Fig. 1B that the area where the old vineyard is located has flat and hilly sections. In which part did you carry out this study? Include the slope (and orientation if not flat) of your study area in both vineyards. P6/L24: Include the main species used for grass-cover. P7/L26-29: Explain better this lack of samples. I is not corrected addressed here. P8/L1: Why did you not record phenology nor production, because of the youth of the plants? Explain it better. P8/L6-9: Move this paragraph to Page7/Line 15 where you explain the sampling procedure. P8/L12-13. Delete the sentence “Soil physical ... nitrogen.”, since you are explaining below all properties with the analytical methods. P9/L4-6: Explain how you measured CO2. P10/L3-4. Include the algorithms used for the indices used. P11/L4-5. Indicate the length of the soil cores to know the depth of sampling. Results. P13/L20. You say that the Simpson index showed not significant differences except for 2013. However, there are also differences in 2012 according to Fig 5. Correct. P13/L25-27. In Fig 6, for 2012 data, there is a “ns” written, indicating not significant. Is it correct? It is strange that this high difference (around 50%) is not significant. P14/L1-6. According to Fig 7a, differences are not significant in 2012 and 2014, although visual differences are huge. I guess this is due to the high variability of data. Include the standard deviation in the graphs to show this variability.

SOIL

1, C530–C532, 2015

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Discussion.

In general de sentences are too long. Try to divide long sentences into smaller ones to make the text more comprehensive. P16/L23. Replace “poor statistical significance” by the actual P value. P24/L34. Since you indicated that you data did not follow a normal distribution, it is not suitable to use Pearson correlations. Use Spearman instead. P18/L25. Replace “Authors” by “authors” P19/L1-7. Provide quotations supporting this. P19/L15. Correct “were” P19/L20. Could you hypothesize why? Could you see any change in some property, environmental variable, phenotopic or productive variables, etc which could explain this drastic change? P19/L22-25. This is not exactly correct. PC1 actually separates the new and the old vineyards not because of the explained variance is higher. PC1 separates old vineyards with negative scores from new vineyards with positive scores (of viceversa), indicating different relationships among the properties related to that PC1 within both systems. Rewrite. P20/L23. Clay and EC cannot be considered biochemical variables. Replace by physicochemical and biochemical variables. P21/L4. Correct “five years”

Conclusions

P21/L14. Correct “two soils”

Figure 1. Explicitly indicate what P1-P8 means in the figure caption.

Figures: Include the standard deviation as error bars in all graphs to visualize the variability of data. Use in the graphs “.” (dot) for decimals instead of “,” (comma). Use the same number of decimals in all the numbers of the axes.

Interactive comment on SOIL Discuss., 1, 1165, 2014.

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