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Interactive comment on "An ecosystem approach to assess soil quality in organically and conventionally managed farms in Iceland and Austria" *by* J. P. van Leeuwen et al.

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This paper utilizes Criticial Zone Observatory sites in Iceland and Austria that are under agricultural land use to compare soil quality metrics under organic and conventional management. Analyses include soil physical, chemical, and biological measurements selected to represent indicators of soil quality. The key findings are that soil organism diversity and evenness were consistently greater in organic systems, while soil physical and chemical variables were not significantly influenced by management systems.

The paper is clearly written and the depth of the soil analyses conducted at each site,

including a detailed quantification of soil organisms, is a key strength. The primary weakness is the small sample size (2 pairs of farms in two countries), which limits the ability to generalize findings as representative of organic and conventional management systems. In addition, management legacy information is not presented for the different farms.

Specific comments: How long has each farm has been under the current management regime prior to the 2011 sampling? Soil C and N pools can be slow to change and previous management legacies can be evident for decades. At a minimum, it would be helpful to have a 5-year crop rotation history for the annually-cropped farms.

No total C and N input information is provided for the Austrian organic farms.

The definition of significance differs between sections within the paper. For analysis of MWD a p-value of 0.173 is considered significant whereas a p-value of 0.06 for soil bacteria is considered non-significant.

The authors make an important point that the lack of management system effects on soil C and N dynamics is likely because other factors are more variable at the larger spatial scales considered in this study relative to single-site studies. I suggest that one of these variables to consider is longer-term management legacies.

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