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3 October 2022

Dear Dr Madejón,

Thank you very much for your comments. As indicated, we are uploading a new version of the text in which we have incorporated some changes following the last comments from the Topical Editor (Dr. Materechera). We thank Dr. Materechera for his final thorough review and helpful comments and suggestions that helped to improve our manuscript. His insightful recommendations have been fully taken into account in the new revised manuscript.

The responses to each of the comments are detailed point by point below.

Sincerely,

Alaitz Aldaz-Lusarreta and co-authors.

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Topical Editor Revision

Comments to the author:

Lines 95 and 99 -replace analysis with properties

Fine thanks. We replaced the term “analysis” with “properties”.

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Line 105 -instead of 'see below' provide specific reference section, table or figure.

Fine, instead of saying ‘see below’, we indicate the section: ‘section 2.2’.

Line 106-it is not clear to say 'values were extrapolated to 30cm depth; what does this mean?

25 The Editor is right, this sentence is rather ambiguous. It was rephrased as follows: “However, based on field standard soil description, it is fairly safe to assume that the bulk density is roughly constant up to 30 cm depth”.

Table 1 in the title, reference to topsoil as 0-30 cm is misleading, better remove 'topsoil'.

Fine, to avoid misleading the word ‘topsoil’ was replaced by just ‘soil’.

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Line 110-What is a subarea?

Subarea means a piece of the total study area.

Lines 110-112-What is the use of this? What do you mean by statistically different are in bold?; Why is the clay fraction in
35 bold?

This was made in response to reviewer #4, who said “In the results as well as in Table 1 you should indicate where the differences were significant.” And our answer to his/her request was: “The reviewer is right [...] Table 1 has been completed and significant differences ($p < 0.05$) have been marked in bold.”

Line 126- What is meant by vegetation was 'dried with herbicide'?

40 The sentence was improved: “This vegetation was controlled with herbicides”.

Line 125- Conventional tillage is up to 15 cm, so why do you use 30 cm as top soil?

In fact, for topsoil we mean ‘upper soil layer’, which is not necessary limited to the ploughing layer.

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Line 137-Which directive is being referred to here?

Please, note that the reference to the Directive was already indicated at the end of the sentence i.e., EU Directive 91/676 (Council of the European Union, 2008).

50 Line 138- What is meant by 'it was checked'? please clarify.

The Editor is right, this sentence is not clear. It was reformulated as follows: “To avoid [...] it was ensured that the two last crops of the rotation before the study both in OPM and CM were the same”.

Line 141-Is sampling was carried out in fall and before soil preparation, where are these values? why were they collected at only 5 cm depth?

55 Samples were taken at 5 cm depth; however, as explained above (Line 25 of this response letter), these topsoil samples are indeed, representative of the soil up to 30 cm depth. This issue was indeed brought up by reviewer #1 (see comment and response #5 in the response letter to this reviewer), and clarified therein and in the text.

Line 148-Spell out SWRC at first mention.

60 Please note that SWRC was already spelt out at first mention in line 67.

Line 154-How did you determine the gravimetric water content?

Water loss and then gravimetric water content, was determined by weight differences of the soil sample register with the balance of the Hyprop© device (see line 154 of the manuscript, where it is said that both suction and weight were registered in a continuous manner).

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Lines 161-164: Did you measure the biological wilting point for comparison?

We only measured the classical permanent wilting point (i.e., at 1500 kPa) which facilitates comparison since it is a widely accepted threshold. However, we remind the reader that the classical wilting point must be taken with caution since it may differ from the biological –hence, plant-dependent– wilting point as for instance in wheat and barley on sandy soils (Wiecheteck et al., 2020).

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Lines 166-173: It is important to indicate here specifically which shape of the SWRC was used and why instead of just explaining the literature.

75 The different mathematical functions proposed in the literature to better adjust SWRCs depend on - or are conditioned by- the general shape of the curve, i.e. J-shape and S-shape. Then, we think it is important to show the corresponding references, before explaining our particular results (S-shaped curves, see lines 274-275 in the manuscript).

80 Lines 162-264: The use of three replicates for a study of this nature is of great concern as it comprises the rigour of the statistical analysis.

Please note the Editor that your concern regarding sampling was already addressed in the first revision in response to some reviewers. For instance, Reviewer #3 already pointed out this aspect in his revision.

85 We responded by saying that it was necessary first to clarify that “the OPM area is close to the CM area, and the whole surface accounts for only around three hectares. In relation to the comparability of the two practices, this means that fields are close enough to consider management as the only relevant factor of change. Three composite samples –including three sub-samples each– for each treatment (OPM and CM) were taken. Both composite samples and subsamples were randomly taken within the whole studied area.”

90 In short, the experimental area is small and homogeneous in terms of soil characteristics, so that the number of samples, although small, would be sufficient for an acceptable statistical analysis. In the first revised manuscript we already made a better description of the experimental area indicating without the ambiguities of the original manuscript its size and homogeneity.

Line 264-What is meant 'statistical treatments'?

Sorry, it is 'statistical analysis'.

95 Check out the one sentence paragraphs!

Fine, we reformulated the whole text in order to avoid the unnecessary one sentence paragraphs.

What is the value of presenting the individual replicates and not just the averages?

100 The purpose of showing individual values in Table 5 was to better highlight the dispersion of values. But now we realize that this is redundant since the dispersion is sufficiently shown by the standard deviation already indicated in the text, so table 5 has been discarded in the final version of the manuscript.

What is meant by repetition in Table 5?

Table 5 has been eliminated.

105

Figures have been presented separately from the text (at the end of text), why not do the same with tables?

Sorry we did not correctly interpret the Copernicus Publications Word template since no specific instructions are given with respect to tables. We will relocate all the tables at the end of the text.

110 Please check the references for conformity to the format-there are some that are not complying.

Fine thanks. We checked it.

Lines 158-159 is not clear; Please rephrase for clarity

Fine, the statement was rephrased and then improved.

115

References

Council of the European Union: Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, , L 269, 1–15, 2008.

120 Wiecheteck, L. H., Giarola, N. F. B., de Lima, R. P., Tormena, C. A., Torres, L. C., and de Paula, A. L.: Comparing the classical permanent wilting point concept of soil (–15,000 hPa) to biological wilting of wheat and barley plants under contrasting soil textures, *Agric. Water Manag.*, 230, 105965, <https://doi.org/10.1016/j.agwat.2019.105965>, 2020.