

SOIL Discuss., referee comment RC1
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Comment on soil-2021-25

Anonymous Referee #1

Referee comment on "Changes in soil physicochemical properties and bacterial communities at different soil depths after long-term straw mulching under a no-till system" by Zijun Zhou et al., SOIL Discuss., <https://doi.org/10.5194/soil-2021-25-RC1>, 2021

The paper soil-2021-25 entitled "Changes in soil physicochemical properties and bacterial communities among different soil depths after long-term straw mulching under a no-till system" presented interesting results about soil fertility and bacterial community related to straw management in an important rice and wheat production region in China. With just two mulch treatments, the authors collected adequate data and tried to tell a good story. However, some questions should be addressed before considering for publication.

There were some syntax errors through the manuscript. The language should be improved.

Introduction:

In this section, the authors enumerated numbers of findings and literatures and gave too much general information on conservation tillage/no tillage as well as microbial ecology. The introduction is long (with long paragraphs), with subjects dispersed in paragraphs. This section should be rewritten more concisely. Suggesting delete some unrelated description and readjust this section.

Materials and methods:

P6, L175: Fertilization details should be added, such as fertilization rate and time.

P6, L181: Did these depths cross over soil horizons, or were they all still disturbed from previous tillage before the experiment started?

P7, L196-L197: "The air-dried soil samples were analyzed for soil pH, TOC, TN, TP, TK, AP, and AK as described by Lu". Even though a reference is given for the procedures, mentioning the extractants used will be very useful to readers.

P7: Please add the citation the DOC and TOC results, since they were published in your previous study (the reference on p33, lines 982-985) though you used different presentations and statistical methods.

Lines 243-252 should be moved to part 2.6.

Results:

Some statistical methods were repeated in this part, which should be removed, such as line 332 and line 364.

P19, L504-508: Rewrite the first sentence "Proteobacteria and Bacteroidetes, often classified as copiotrophic groups, preferentially consume labile soil organic pools and have higher growth rates under conditions with abundant resources, while oligotrophic groups, such as Acidobacteria and Chloroflexi, are highly abundant in low-nutrient environments (Fierer et al., 2007, 2012; Liang et al., 2018; Ling et al., 2017)", as the definition of the copiotrophic groups was mentioned in the P18. It is repeated.

Discussion:

The discussion is too long and covered everything. The repeat of the results should be removed.