

Comment on soil-2021-113

Anonymous Referee #2

Referee comment on "Transition to conservation agriculture: how tillage intensity and covering affect soil physical parameters" by Felice Sartori et al., SOIL Discuss., <https://doi.org/10.5194/soil-2021-113-RC2>, 2022

In this study, the authors have evaluated how the conversion of conventional agriculture to conservation agriculture could affect soil physical properties. For this purpose, the authors have monitored different soil physical properties during 3 years in plots with different tillage treatments and different cover crops. These soil physical properties were the bulk density (BD), penetration resistance (PR), hydraulic conductivity (Ks), and sorptivity (S). The work results showed that the absence of tillage enhances soil physical properties. At the same time, the use of some cover crops also improves the soil physics. In general, the research makes sense since it looks to increase the knowledge about the effects caused in the soil during the transition to conservative agriculture. However, the manuscript needs a few improvements before its publication. Some parts of the text are a little difficult to read. The experimental method could be clarified to improve its understanding. Moreover, in the results section, there is too much information in parentheses. I would recommend only writing the necessary numeric values to well describe the work results. Some parts of the text should be rewritten to do it more readable and intelligible. Finally, the part of references shows some little mistakes. I specify them below. Please, correct them.

L10. I would recommend to write the short version of bulk density and penetration resistance in parenthesis the first time that appear in the text.

L10. I consider that 'soil hydraulic measures' is unspecific. I would recommend to be more specific when writing an abstract. Please, change this to 'saturated hydraulic conductivity (Ks) and sorptivity (S)'.

L25-28. Please, add some references that support it.

L74-77. There was no hypothesis in the sentences where you defined the aims of the research. What were the expectations for this research? What results did you expect to obtain? On what previous evidences were based your expectations?

L95. BD and PR have been already used before (L66-77). Write in parentheses only the first time you mentioned.

Figure 1. Why were not bulk density and penetration resistance analysed in 2019?

L114-115. Why was not the penetration resistance analysed in 2018 (time 0)? Please, explain it.

L128-129. Were the normality and homoscedasticity of data checked? Please, specify it.

L139-140. Define GWC in the Table 1 caption.

L165-168. It would be interesting to know if there were differences in the penetration resistance among the different cover crop for each tillage treatments every 10 centimetres along the soil profile. Were these differences analysed? If affirmative, were significant these differences?

L325. The reference is not correct. The name of authors and the year of publication are missing. Please, correct it.

L356. The DOI appears twice. Please, correct it.

L363. The DOI is missing. Please, correct it.

L406. See comment for line L363.

L429. See comment for line L363.