

RC2: Anonymous Referee #2, 11 Jan 2022

RC1 comments	Authors' answers
<p>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.</p>	<p>We thank the reviewer for the precious comments. We will improve the manuscript accordingly. Particularly, we will better describe the methods as observed by all the reviewers, we will also clarify the results, highlighting the significant difference while summarizing the other information. The references will be carefully revised to avoid inhomogeneity. Finally, the whole manuscript was revised by a professional English reviewer and will be revised after the editing to guaranty the language correctness and clarity.</p>
<p>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.</p>	<p>We will modify accordingly.</p>
<p>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)'.</p>	<p>We will clarify accordingly.</p>
<p>L25-28. Please, add some references that support it.</p>	<p>We will add this reference: HOBBS, Peter R.; SAYRE, Ken; GUPTA, Raj. The role of conservation agriculture in sustainable agriculture. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363.1491: 543-555.</p>

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?	We will clarify the hypothesis: the introduction of reduced tillage system was expected to negatively impact on the studied soil physical properties, but the combination of reduced tillage system with tillage radish was expected to alleviate these drawbacks. This hypothesis results partially rejected as only some of the studied parameter resulted negatively affected by CA introduction, while TR seemed to have limited impact.
L95. BD and PR have been already used before (L66-77). Write in parentheses only the first time you mentioned.	We will modify accordingly.
Figure 1. Why were not bulk density and penetration resistance analysed in 2019?	Both BD and PR are invasive tests and excessive repetitions could impact on soil structure. BD particularly requires heavy machinery which could cause soil compaction, while penetration resistance was performed with many replicates, which results in soil disturbance. Thus, we retained more important to have two measures in the last experimental year, to monitor the evolution of these parameters along a single growing season, when the first effects of conversion to CA a should start to be evident. In fact, literature reports long conversion time and often in the first years negative and positive CA effect are not easily assessable.
L114-115. Why was not the penetration resistance analysed in 2018 (time 0)? Please, explain it.	As mentioned in the first comment, all the sampling we performed are destructive, and required specific pedoclimatic conditions together with field accessibility, and absence of the main culture. Particularly PR required enough soil moisture, and the studied soil results often too dry for this analysis.
L128-129. Were the normality and homoscedasticity of data checked? Please, specify it.	We tested these properties. We will add this information.
L139-140. Define GWC in the Table 1 caption.	We will revise accordingly.
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?	No significant differences were founded between these treatments. We will explain this finding.
L325. The reference is not correct. The name of authors and the year of publication are missing.	We will revise this reference.

Please, correct it.	
L356. The DOI appears twice. Please, correct it.	We will remove the repetition.
L363. The DOI is missing. Please, correct it.	We will add this information.
L406. See comment for line L363.	We will add this information.
L429. See comment for line L363.	We will add this information.

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