

## Response to RC2

1. I consider that the topic is within the scope of the journal and has international relevance. The manuscript is in general well-structured and written. However, I agree with the concerns presented by the editor and the reviewer 1.

Answer: Thank you for your suggestions. We have revised the manuscript according to the concerns presented by the editor and the reviewer 1.

2. Page 4, Line 70. Is this sentence implying that tillage affects soil texture?

Answer: Sorry for this confusion. In fact, texture is not affected by tillage. Therefore, “texture” has been changed to “organic matter content”.

3. Page 10, Line 203-205. Suggestion: add the treatments that are being compared, to the sentence.

Answer: Thank you for your suggestion. In the revised manuscript, we have indicated that for surface soil  $K_{sat}$ , the mean effect sizes under CS conversion were 0.039 (95% CI: -0.543 to 0.661), -0.002 (95% CI: -0.086 to 0.075), 0.307 (95% CI: 0.079 to 0.561), -0.130 (95% CI: -0.441 to 0.124), 0.045 (95% CI: -0.186 to 0.268) and 0.385 (95% CI: -0.033 to 0.766) for hood infiltrometer, tension disc infiltrometer, ring infiltrometer, constant/falling head, Guelph permeameter and rainfall simulator, respectively (Fig. 3a). However, the mean effect sizes of subsurface  $K_{sat}$  under CS conversion were 0.234 (95% CI: -0.364 to 0.800), -0.131 (95% CI: -0.314 to 0.123), 0.036 (95% CI: -0.188 to 0.249), 0.212 (95% CI: -0.026 to 0.466), and 0.314 (95% CI: 0.062 to 0.566) for tension disc infiltrometer, ring infiltrometer, constant/falling head, Guelph permeameter and rainfall simulator, respectively (Fig. 3b).

4. Page 11, Line 208. It is suggested to replace the wording "under CS" for “under CS conversion”.

Answer: Thank you for your suggestion. As the content of the paper has been greatly revised according to the comments from the editor and reviewers, this statement has been deleted in the revised paper.

5. Line 210. Consider an alternative for this wording: reverse response

Answer: Sorry for this confusion. As the content of the paper has been greatly revised according to the comments from the editor and reviewers, this statement has been deleted in the revised paper.

6. Line 261. Eliminate the word “which” or revise the sentence for alternatives.

Answer: Sorry for this error. In the revised manuscript, we have indicated that soil compaction under CS can lead to a reduction in macroporosity and an increase in bulk density and microporosity.