

The authors studied the impact of soil water repellency on grain yield under three tillage managements using a long-term field experiment. The field observation data presented in this manuscript is interesting and may be helpful to reveal the effects of different tillage managements and soil water repellency on grain yield. I recommend a major revision before the publication.

Detailed Comments

1. The title “Soil water repellency influences maize yield by changing soil water availability under long-term tillage management” does not reflect the content of the manuscript. When read the title, I thought the manuscript aimed to analyze the effects of soil water repellency on maize growth. However, the manuscript is more focused on the effects of different tillage managements on soil and maize growth.
2. Line 53: I think “soil water repellency” should be a keyword.
3. Line 55: The explanation of soil water repellency is not accuracy.
4. Line 135: soil physical and chemical properties
5. Line 136: The information of precipitation should be introduced in Line 138.
6. Lines 159-165: I think this part should be moved to Line 153.
7. Lines 156-157: Delete “Each treatment was repeated three times in each rainfall event.” “Three replications were adopted for all the variables.” in Lines 165-166 is enough.
8. Lines 176-177: The description is not clear. Two liquids were used to measure what? The method of what?
9. Lines 181: I did not see the use of this equation.
10. Line 204: Please confirm the range of RI.
11. Lines 241-242: Which the matric values in the water retention curves were used to calculate field capacity and permanent wilting point? -33kPa and -1500 kPa? If so, I think LLWR and PAW are the same.
12. Lines 291-292: As mentioned in the M&M, the RI was obtained with Sw, this description is not accuracy.

13. I suggest using subheadings in the discussion section.
14. Lines 541-543: The soil water repellency is influenced by soil water content. The details between SWR and soil water content could be referred to Li et al. (2019).
(Li, Y., Yao, N., Tang, D., Chau, H.W., Feng, H., 2019. Soil water repellency decreases summer maize growth. *Agric. For. Meteorol.* 266–267, 1–11.)
15. Lines 545-547: What is the meaning?
16. Line 548: Se and Sw or only Sw?