General comment: 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.

Response: We appreciate you very much for these positive and constructive comments on our manuscript. Those comments are all valuable and very helpful for revising and improving our paper. We have studied your comments carefully and have made revision which is marked in red in the revised manuscript.

Comment 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.

Response: Thank you for the insightful comment. We have revised the previous title and now the title is "Effects of long-term tillage management on corn yield and some soil physical properties: insight to soil water repellency".

Comment 2: Line 53: I think "soil water repellency" should be a keyword.

Response: Thanks for your kind advice. The "soil water repellency" has been listed as a keyword in line 53.

Comment 3: Line 55:The explanation of soil water repellency is not accuracy.

Response: Thank you for pointing this out. We have changed the explanation from "SWR is an intrinsic physiochemical property" to "SWR is a common phenomenon in coarse- to fine-textured soils" in line 55.

Comment 4: Line 135: soil physical and chemical properties

Response: Thanks for your kind advice. We have revised the sentence as your suggestion in line 135.

Comment 5: Line 136: The information of precipitation should be introduced in Line 138.

Response: Thanks for your kind advice. We have added the information, "the mean annual precipitation is 483 mm", in line 137-138.

Comment 6: Lines 159-165: I think this part should be moved to Line 153.

Response: Thanks for your kind advice. We have moved the part to line 153-160.

Comment 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.

Response: Thanks for your kind advice. We have deleted it.

Comment 8: Lines 176-177: The description is not clear. Two liquids were used to measure what? The method of what?

Response: Thanks for your kind advice. We have added the information in line 170 and 176. "A micro infiltration device was applied for measuring SWR according to the sorptivity method (Hallett and Young, 1999)" in line 170 and "Two liquids, distilled water and ethanol (95% v/v), were used in the study to measure water and ethanol sorptivity" in line 175-176.

Comment 9: Lines 181: I did not see the use of this equation.

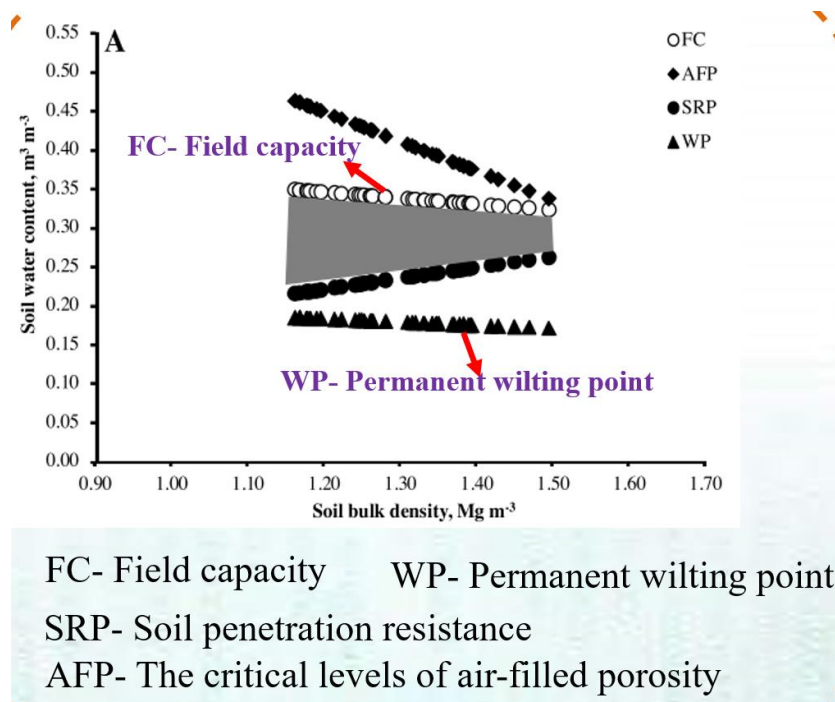
Response: Thank you for pointing this out. The equation is used to calculate the pressure head that was shown in line 181. However, the value of pressure head at the soil surface was -2 cm in this study according to the previous study (Hallett and Young, 1999) and we didn't use the equation to measure pressure head. Hence, we directly deleted the equation.

Comment 10: Line 204: Please confirm the range of RI.

Response: Thanks for your kind advice. We have checked some references carefully and ask someone who is professional in soil water repellency and the method. The range of RI is no problem and we also added two references to confirm it in line 201-202.

Comment 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.

Response: The matric values in the water retention curves that were used to calculate field capacity and permanent wilting point were -33 kPa and -1500 kPa. We have added the information in line 239. However, the LLWR and PAW are not same. The LLWR is determined by four parameters and PAW is only determined by two (field capacity and permanent wilting point). The following picture showed the change of soil water content with bulk density under a field and the picture is shown as an example. As you thought, the upper limitation is the field capacity, which is the same for LLWR and PAW. However, the lower limitation of PAW is permanent wilting point and the lower limitation of LLWR is the soil water content at PR of 2 MPa. Hence, LLWR was an aggregative indicator including not only soil penetration resistance but also air porosity and soil water potential, which is not same as PAW. It is possible that the description about their calculations confused you and we have revised this part in line 235-240 and 244-249. There are four possibilities for calculating LLWR, which is showed in line 246-249.

FC- Field capacity   WP- Permanent wilting point
SRP- Soil penetration resistance
AFP- The critical levels of air-filled porosity

Comment 12: Lines 291-292: As mentioned in the M&M, the RI was obtained with Sw, this description is not accuracy.

Response: Thank you for pointing this out. We have deleted the description.

Comment 13: I suggest using subheadings in the discussion section.

Response: Thanks for your kind advice. We have added three subheadings in line 386, 434, and 485. The first, *"The SWR, penetration resistance, total porosity, MWD, and SOC under tillage management."* The second, *"The effect of SWR on soil water content, PAW, and LLWR"*. The third, *"The effect of SWR on grain yield compared to penetration resistance, total porosity, MWD, SOC, and soil water availability"*.

Comment 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.)

Response: Thank you for recommending the reference. It is really a good paper and I have read it many times. We have added the content in line 452-453 and 550-551. "because the degree of SWR increases with the decrease in soil moisture (Hermansen et al., 2019; Li et al., 2019; Vogelmann et al., 2017)."

Comment 15: Lines 545-547: What is the meaning?

Response: We have revised the sentence to make it more clearer in line 553-554. 'Nevertheless, the Sw and Se had a closer relationship with grain yield than RI under conservation tillage practices'

Comment 16: Line 548: Se and Sw or only Sw?

Response: We have checked it again and confirm that they are 'S_e and S_w' according to Fig. 5. Maybe the word, "was", make you confused. We have changed 'S_e and S_w was a more important factor' to 'S_e and S_w were more important factors' in line 554-555.