Dear Reviewer 1:

Thank you very much for your time involved in reviewing the manuscript and your very encouraging comments on the merits.

- **Comment 1**

The introduction can and should be expanded by some discussion on the mechanism of the influence of straw return on soil organic matter, it is necessary to include more references. Also, there are more than 6 soil types in the study area. but this paper only compared SOM results in 6 soil types in the section "Results and discussion".

- **Response 1**

Thank you for the useful comment. In "Introduction" part, we did not involve discussion on the mechanism of the influence of straw return on soil organic matte. Based on your opinions, we read more papers and added some contents in the section: "Straw return is beneficial for retaining soil moisture and preventing soil wind erosion, especially in the arid and semi-arid region. In addition, the decomposition process of straw promotes the activity of microorganisms and is conducive to SOM accumulation (Chang et al., 2014; Lu et al., 2009; Wang et al., 2015). Conversely, previous scholars have reported that the influence of straw return on SOM accumulation is non-significant (Pittelkow et al., 2015; Poeplau et al., 2015; Powlson et al., 2011). This may be because adding organic matter to the soil has no effect on its chemical, chemical and biological properties (Sosulski et al., 2011) or this practice may contribute to the SOM mineralization process and thus reduce SOM (Šimanský et al., 2019)." Your suggestion has greatly improved the level of the article and also brought some new inspirations for the future idea. Thank you again for your valuable suggestions

This paper only compared SOM results in 6 soil types was because Arenosols, Cambisol, Chernozenms, Luvisols, Phaezems, and Anthrosols are the main soil type in the study area. The other soil types' area was small. Therefore, other soil types were not considered in the study.

- **Comment 2**

Line 47-48, references should be added

- **Response 2**

Thank you for the detailed comment. We have added references.

- **Comment 3**

Line 53, remove "of three folds" and change to "3-fold"

- **Response 3**

Thank you for your detailed comment. We have changed "of three folds" to "3-fold".

- **Comment 4**

Line 54, add the full name of "RF"

- **Response 4**

Thank you for your recommendation. We have added the full name of "RF".

- **Comment 5**

Line 90, land-use types. This item needs more description.

- **Response 5**

Thank you for your detailed comment. We have added more description about the land-sue types: "The resolution of land-use types is 30 m in 2005 and 2018. The land-use types in 2005 and 2018 are consistent with six major classes (farmland, woodland, grassland, waters, built-up land, and unused land) and 25 subclasses. The farmland includes upland and paddy land, the woodland includes forestland, shrubbery, open woodland, and other woodland, and the grassland includes high, medium and, low coverage grass land. The land-use data were derived by manual visual interpretation of Landsat TM images."

- **Comment 6**

Line 145, needs an explanation of "RF-XY"

- **Response 6**

Thank you for your detailed comment. We have added it.

- **Comment 7**

Figure 2: Missing text of X-axis

- **Response 7**

Thank you. We have added the text of X-axis in Figure (b)

- **Comment 8**

*In Figure 6,7,8,9,10, please explained "***"*

- **Response 8**

Thank you for your detailed comments. We have corrected it.

- **Comment 9**

Table 1 If the year is not marked, are the variables used in two years?

- **Response 9**

Thanks for your advice. We have expalined it in Notes of Table 1：

- **Comment 10**

A little more discussion in section 3.3 could also help readers.

- **Response 10**

Thank you for the comments. We have added discussion in section 3.3: "Similar to our results, Wang et al. (2017) found that precipitation were the key climatic variables that affect the spatial distribution of SOM in Liaoning, northeastern China. Many studies revealed the importance of terrain parameters for predicting SOM in Northeast China (Wang et al., 2018; Ma et al., 2017). This may be because DEM-based terrain parameters cause the recombination and redistribution of temperature, water, light, soil, wind speed and wind direction, and thus affect the SOM content."

- **Comment 11**

Unified "straw return" or "straw returning"

- **Response 11**

Thank you for your detailed comments. We have unified as "straw return" for the whole text.