

Interactive comment on “Effects of mowing on N₂O emission from a temperate grassland in Inner Mongolia, Northern China” by L. Zhang et al.

Anonymous Referee #2

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The manuscript is well structured and within the scope of BG. The topic is interesting but the authors have more work to do. The main drawback is that the authors jumped to strong conclusions that were not supported by observation. I decline the major conclusion mostly due to low frequency measurement.

P19220 L14-15 Is the effect significant? Please give p value. L16-17 Pay attention to the statement. A significant co-relationship does not have to indicate an underlying driver. I do not accept the co-relation between N₂O flux and MBN i.e. Fig. 4b. Obviously the series of MBN do not follow normal distribution meaning the frequency of measurement is not high enough to catch the variations in MBN. L18-19 Considering soil temperature in such narrow variations (could be systematic error), I do not accept the co-relation between N₂O flux and other factors i.e. Fig. 4f. L20-25 The authors

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need to highlight the N₂O mitigation is valid during the growing season. However, before jumping to this strong conclusion the authors have to discuss the uncertainty of low frequency N₂O flux measurement.

P19222 L22-24 The authors do not need to hypothesize that N₂O flux is affected by both soil biotic and abiotic factors. This makes no sense. Is there any other factors?

P19224 L22-23 I do not understand the word “biweekly”. Does it mean twice a week or once two weeks? Either case, the authors have to discuss the uncertainty in N₂O flux induced by low frequency measurement that may overthrow the major conclusions.

P19227 L15 Here and throughout the text, could the authors give a simple value rather than “data not shown”?

P19232 L10-13 I do not follow the authors here. In fact I do not understand Fig. 5. L20-21 I do not get the authors' point here. Relationship between N₂O flux and soil moisture is not a big discovery. I do not approve that the authors focus on Fig. 4a and, perhaps, Fig.5 which I do not understand exactly. The manuscript deals with the effect of mowing and also soil moisture on N₂O flux, while the effect of mowing on soil moisture is not clear (P19226 L20-21). Why is that?

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