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Biogeosciences Discussions

Interactive comment on "Maize root and shoot litter quality controls short-term CO_2 and N_2O emissions and bacterial community structure of arable soil" *by* Pauline Sophie Rummel et al.

Anonymous Referee #2

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It is a thoroughly conducted study and a well written manuscript, that warrants publication. I have several only minor questions and requests for some clarifications: 1) My biggest confusion when reading the manuscript was the regression analyses between the emissions and the amounts of added litter. Were not the same amounts of litter with the same properties added to each treatment? If that is correct, with only two treatments, how is it possible to do a regression? If that is not correct, better explanations are needed in the Methods. 2) There is a need to describe the reasoning for some of the experimental choices and decisions that the authors made. a. What was the purpose of growing plants at two different N rates? I presumed that since you had plants grown at two different N levels you would use their litter separately. If the

point was that the plants grown at two different rates will generate different N levels in the soil, would it not be just easier to add N to the soil prior to the incubation? b. Why the samples were not just incubated in the dark as, commonly done? 3) Some improvement in organization might be warranted. Section 2.2 - I would start the section with a general description of the experiment (what is currently located on ll. 119-120); then add the specific details about shoot and root plant preparations later. As is, it is confusing. 4) Minor suggestions: a. L.273-274 – this information will be more visible when reported in a table, instead of being buried in the text. b. In some places you talk about statistical significance and provide p-values, in others you say how things are different but without mentioning the statistical significance. I suggest being consistent and either only talk about statistically significant differences or specify what is being regarded as numeric and what as statistically significant difference. c. L. 351-354 and l. 368-370 – I don' believe that just the correlation results can warrant the conclusions that are stated in these two cases.

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