

Interactive comment on “Seasonal variation of gross nitrification rates at three differently treated long-term fertilisations sites” by C. F. Stange and H.-U. Neue

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Dear Editor, dear Referees,

we want to thank the Referees for their helpful comments. According to the given annotations the manuscript will be resubmitted in a revised form as soon as possible. We will remove all chapters regarding N₂O (and N₂O leaking rates) and instead of that refocus the manuscript on gross nitrification solely. In accordance with the reviewer we agree that the extensive validation of the BaPS against the 15N pool dilution technique should be considered. Because we can not publish the validation as stand alone paper we will leave this part in the manuscript, but shorten this part adequately to remain only the most important information. Consequently we will focus on gross rate

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measurements and modelling. We agree with Referee 2 and think that the model approaches are helpful to improve process oriented agro ecosystem models dealing with the N cycle in soils. Most of them are parameterised on net rate measurements and therefore nitrification is underestimated. Additionally, the fact that net rates are the sum of production and consumption rates, temperature and soil moisture response is only a proxy for the underlying gross rates. Therefore we think that the model approaches are of great interest for a lot of reader of the journal.

We will test the very interesting hypothesis of Referee 1 that the coefficient of variation of gross nitrification and CO₂ fluxes are related. If we found appropriate results we will add these to the manuscript, or otherwise we will present these results in an additional author comment. We will rewrite the chapter conclusions and focus it more on the possible impact of our results on future N cycle research.

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6, S461–S462, 2009

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