

Interactive comment on “Linking phosphorus and potassium deficiency to microbial methane cycling in rice paddies” by Rong Sheng et al.

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(1) The abstract. please clearly describe the patterns of methane emission fluxes in the field as a starting point in your abstract. And then explain the discrepancy of methane flux in the field by the variations of *mcrA* and *pmoA* genes and their transcripts in the context of P and K nutrient status. The soil properties and plant biomass can also be used to interpret the methane flux variations, and the abstract can be concluded with the statistically most significant factors that may determine methane flux in the field. (2) The title. The title might be reasoned whether it can actually reflect the most important findings in this study. Indeed it seems for me that soil water management played a much more important roles than nutrient fertilizers (3) The relevant reference might be added as follows. Veraart, A. J., Steenbergh, A. K., Ho, A., Kim, S. Y., & Bodelier, P. L. E. (2015). Beyond nitrogen: the importance of phosphorus for CH₄ oxidation in soils and sediments. *Geoderma*, 259-260(December), 337-346.doi:10.1016/j.geoderma.2015.03.025

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