

## ***Interactive comment on “Anaerobic oxidation of methane in grassland soils used for cattle husbandry” by A. Bannert et al.***

**Anonymous Referee #1**

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General Comments: The authors of the manuscript "Anaerobic oxidation of methane in grassland soils used for cattle husbandry" investigated potential of anaerobic methane oxidation in soil based on  $^{13}\text{C}$ -labeled methane experiment. Microbial activity of methane utilizing communities was investigated by the respiration of  $^{13}\text{CO}_2$  and communities' structure by  $^{13}\text{C}$ -PLFA analysis. Special efforts are given towards measurements of possible terminal acceptors for anaerobic methane oxidation in soil. The manuscript is very well written; I did not find any technical deficiency, the experimental setup is well designed as well as methodological approach. The results are very interesting and the data are novel so far. Authors investigated very important and not enough investigated process and indicated possible new ways of anaerobic methane oxidation in soil such providing new insight into the process but also opening many new questions. To be able to answer to those questions, I would strongly like to en-

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courage authors to include molecular based approach based on DNA or cDNA (e.g. high throughput sequencing) in next experiment such to go deeply to the structure of methane utilizing communities under anoxic soil conditions. The approach and results of respective manuscript will be of interest to a wide range of readers and therefore I strongly recommend its publishing in BGD.

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