SOIL Discuss., 2, C528–C529, 2015
www.soil-discuss.net/2/C528/2015/

SOIL Discussions Open Access

Interactive comment on "Biochar's effect on soil nitrous oxide emissions from a maize field with lime-adjusted pH treatment" *by* R. Hüppi et al.

R. Hüppi et al.

hueppir@ethz.ch

Received and published: 6 October 2015

Author response to editor comment by Karsten Kalbitz
Response: Dear Karsten Kalbitz
We thank you for editorial work and the balanced comments on the review. We can surely enhance the argumentation regarding the choice of soil type and put it into the perspective of agriculturally used soil types in Switzerland. Our research question focuses on whether or not biochar is a viable option for the fertile agricultural soils we find in Switzerland/temperate Europe. In addition, biochar is proposed and increasingly used as soil amendment in Switzerland. There is an ongoing legislative effort for its wider application.

Comment: *As R. Fuss I do not understand the motivation for selecting a Eutric Mollic Gleysol for this field experiment. In the introduction you mentioned the positive effects of biochar application for soils with "a small cation exchange capacity and low organic carbon content"*
Response: Correctly, the main reason for applying biochar in temperate agriculture is not to improve soil fertility, but more so to positively influence the soil's greenhouse gas balance. Eutric Mollic Gleysol is a very common soil type in Switzerland, often used for agriculture, and the pH is supposed to be typical according to standard agricultural practice. In fact; we have selected the soil around our Institute with the lowest pH. Also high CEC and high organic C content is very usual for Swiss agricultural soils. The question is, whether also in these soils, biochar has an effect on N_2O emissions. Seeing some effects even in such soils would be an even stronger argument to promote biochar use in temperate agriculture.

Comment: *You have to explain what kind of pH effect you expected at such a soil with a pH of 6.3. I would expect that effects might be different comparing an increase in pH from 5 to 6 with 6 to 7. I would suggest to discuss differences in potential mechanisms as well.*
Response: We explained possible mechanisms of biochar at higher soil pH ages in our response to reviewer R. Fuss and will add this point to the discussion.

Interactive comment on SOIL Discuss., 2, 793, 2015.