

Interactive comment on “Assessing biogeochemical effects and best management practice for a wheat–maize cropping system using the DNDC model” by F. Cui et al.

Anonymous Referee #2

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This manuscript is an important contribution to the validation of the DNDC model. I however still find some issues not very clear (and some I raised before).

Materials and methods 1- I am not clear what the fertiliser applied was, I assume it was inorganic fertiliser. I presume this is in the supplement but I can not access it. This should be stated in the methods section.

2- I raised this point in my previous revision: the model version used is quoted as DNDC95. Did you use the web based version or a modified version of that one? This is very important as there are several versions of the model and there is extensive discussion at the moment on how to deal with these multiple versions. If the web version

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has been modified this needs to be stated in the paper. If modified, it needs to be said what were the modifications and is this accessible to others? 3- Also raised previously: The authors state: “To simulate the effects of nitrification inhibitors, the efficiency and the effective duration was set as 0.6 and 30 days for dicyandiamide, and 0.9 and 30 days for 3, 4-dimethyl pyrazole phosphate” It is not explained how these assumptions were made, is there a publication to support these values? Also, how was this taken account of in the model? Discussion Observed data are unpublished in several of the figures, also quoted in the text in several occasions. I disagree with the use of unpublished data. Figure 7 shows data modelled using 20 yr means. Did the authors average the rainfall too? This is questionable as rainfall is a very important parameter for N₂O emissions, a rainfall mean of a long period does not mean anything. Authors should use different rainfall datasets perhaps generated randomly or using extreme weather years. Other corrections: P8569, Para 15: “and they are curial for simulating crop growth” replace curial for crucial. P8571, Para 20: “with the former be dominant in the past”, replace be for being. P8581, Para 5: “simulated NH₃ volatilization” I presume it meant “stimulated”? P8581, Para 5: “According the results given” According to the results... P8586, Para 5: “both the unfroze water”, unfrozen? P8587, Para 5: “to be popularized right away”, to implement.. “Use of nitrification inhibitor”, inhibitors.. Figure 7 caption: “for the sceanrios with”, scenarios.

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