

Interactive comment on “Nitrous oxide emissions from crop rotations including wheat, rapeseed and dry pea” by M. H. Jeuffroy et al.

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General The manuscript provides a valuable account of the emissions of nitrous oxide associated with crops of cereals and peas. The authors correctly identify the scarcity of literature that compares emissions from these crops within the European context, and for that reason the manuscript provides a very valuable scientific contribution to our understanding of the behaviour of these crop within European context. The study has been carefully undertaken, and observations have been recorded over a period of three years, which provides useful assessment of inter-annual variability. The observed lack of carryover in relation to the effects of the crop residues on subsequent emissions is of considerable interest.

Suggested changes I recommend mostly minor changes to the manuscript prior to
C3835

publication. This includes the following:

I would suggest that where crops receive synthetic fertiliser nitrogen, that emission factors are calculated, and added to the table which is subsequently discussed in the manuscript. I expect emission factors from this experiment the lower than default IPCC values.

Emissions are consistently expressed unit area basis. I would suggest that a table is included that also expresses emissions per unit product. Such intensity based emissions are becoming increasingly important in literature, and would highlight further the distinction between leguminous and non-leguminous crops. Again this should be discussed within the manuscript.

2.1 Experimental site Please specify the previous land use for the site, and comment on the drainage status of the soil.

2.2 You state that the pea crop was not fertilised, but do you know if it had sufficient P and K?

2.3 Measurements State the molarity of the KCl extract (line 18)

Fig 1. The figure is far too small to read without magnification. Could the text size and symbols be increased?

Section 3.1. Could you confirm that the results in this section report N₂O and not N₂O-N.

Section 3.1 The magnitude to the emissions and the timing of N₂O peaks would have been strongly influenced by temperature and rainfall. Could it be possible for this data to be resented in some form either as a table or graph?

Presentation The standard of English could be improved. Here are some suggestions, but some further polishing would be helpful.

P 9290 Line 5 replace “allow” with “make it possible” P 9290 Line 24 replace “cumulated

with” with “added to”

P 9291 the sentence: Since the agricultural sector contributes for more than 20% of French GHG emissions in 2008 (13.5% of the global GHG emissions, of which 75% in the developed countries) and since N2O represents more than 50% of the GHG emitted by the agriculture (and 12% of the French part of the GWP, global warming potential), the alternative practices to decrease N2O emissions represent key levers to mitigate climatic change

Is confusing. Rephrase to keep global and French emissions separate

P 9299 line 12, delete “highly”

P 9300 line 20 replace “all along the year” with “throughout the period”

P 9300 line 26 replace “succeeded in catching up ” with “succeed in characterising”

P9301 line 17 replace “on the opposite” with “By contrast”

P9302 line 8 replace “precise” with “define”

P9302 line 11 replace “clearly evidenced the” with “provide clear evidence of”

Interactive comment on Biogeosciences Discuss., 9, 9289, 2012.