

Biogeosciences Discuss., referee comment RC1
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Comment on bg-2020-464

Anonymous Referee #1

Referee comment on "Effects of elevated CO₂ and extreme climatic events on forage quality and in vitro rumen fermentation in permanent grassland" by Vincent Niderkorn et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2020-464-RC1>, 2021

The manuscript is well written and the results are interesting and important for further grassland studies with reference to climate impact research. As the authors mention in the manuscript, to obtain reliable evidence of climate change effects on forage quality, it is important to consider all relevant site conditions and climate effects.

However this manuscript still raises some questions, especially in the methods section:

Line 160-167: I wonder how it was determined which was the most appropriate mixed model. Was the model always used as a full-factorial model with all interactions or was the model reduced for non-significant interactions? Were the models evaluated for their goodness of fit, e.g. based on the Akaike information criterion? And which covariance type was used (e.g. first-order autoregressive process)? I think the model application should be described in more detail.

Some minor things:

Line 78: what kind of extensively management, e.g. how many cuttings, fertilization regime?

Line 80-81: it may be of interest to know what the dominant plant species in the botanical composition are.

Line 286: I would not start the sentence with an abbreviation.