

***Interactive comment on “Contribution of different grass species to plant-atmosphere ammonia exchange in intensively managed grassland” by M. Mattsson et al.***

**M. Mattsson et al.**

Received and published: 9 September 2008

We thank referee #2 for the evaluation and detailed comments. In consideration of the suggestions made by the reviewer we have made the following changes:

Reviewer comment #1. However, for the derivation of stomatal compensation points (Fig. 3) it is important to know the temperature at which the compensation points were derived (as the stomatal compensation point is a strong function of temperature). For this purpose, it would also be nice to see the derived gamma values (temperature independent) in a.

Author response: Compensation points at the actual canopy temperature were calculated by use of Equation (2) in Materials and methods. Gamma values were already

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shown in relation to tissue ammonium in Fig. 5.

Author response #2 to reviewer general comments on Figures: We think it suffices to show the positive standard errors and that bars are better than points for showing this kind of data. The units mM and  $\mu\text{mol g}^{-1}$  FW are practically identical because water constitutes about 90% of the leaf fresh weight. We did not determine the exact water content of the leaves and can therefore not change the units in the Figure.

#3 Specific comments: p 2584, l 13: Give the temperatures at which the stomatal compensation points were derived.

Author response: The following information has been inserted: The canopy temperature, as measured by attached sensors as well as infra-red detection, was 16.7 and 20.7 °C around noon on the 24th and 25th of May, respectively.

#p 2586, l 15-20: give reference to experiment overview paper.

Author response: Reference to Sutton et al. (2008) inserted

#p 2587, l 9: what does 'blotted dry' mean?

Author response: Sentence changed to: After infiltration, solution on leaf surfaces was removed by use of paper towels, whereupon the leaves were packed into plastic bags.

#p 2587, l 23: add reference Husted and Schjoerring (1996) to reference list

Author response: Done

#p 2587, l 24: 't2' is a strange name for the actual canopy temperature. Consider to change it into 'Tcanopy' or 'Tc', which in my opinion is clearer.

Author response: We agree, the modification has been done. In addition we have clarified the whole procedure of the compensation point calculations by inserting some missing units of constants and parameters.

#p 2588, l2: 'T2' and 't2' are confusing. Consider to show all equations in K and rename

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'T2' or 't2' in 'Tc' (see comment above).

Author response: Equation has been modified as suggested.

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Interactive comment on Biogeosciences Discuss., 5, 2583, 2008.

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