Letter to the Editor: Recovery test results as a prerequisite for publication of gaseous exchange measurements

Dear Editor:

In the last decade, various applications of gaseous exchange measurements have been developed for quantifying the production or consumption of particular gases by animals. Notably, booming research into methane emissions has led to an expansion of the number of facilities in which such measurements are made. Recent research by Gardiner et al. (2015) has confirmed our concern that not all research groups comply with the same standards. It is alarming to read full system recoveries of facilities in the UK to vary between 59 and 115% (6 facilities, 22 individual chambers measured). We are convinced that such unacceptable recoveries also occur elsewhere. From two courses on indirect calorimetry that we organized, directly following the ISEP conferences in Davis in 2013 (Davis, CA) and Krakow in 2016 (Poland) we learnt that recovery tests are not consistently performed around the world. The urge for performing such tests has also recently been emphasized by Hammond et al. (2016).

We are of the opinion that for all techniques aiming at quantification of gas exchange or production, notably indirect calorimetry, methane emissions by chamber technique, ventilated hood or head box techniques, full system recovery tests of the relevant gas should be performed. Such tests should be performed immediately prior to or following the measurement periods. The results of these tests for each chamber or unit should be reported in the *Materials and Methods* section of the manuscript. Currently, results of recovery tests are rarely reported. Procedures for recovery tests are fairly simple and can easily be found in references included below.

LITERATURE CITED

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With kind regards,

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