Response to Reviewer Comments

Reviewer 1:

We sincerely appreciate the reviewer's comments.

Comments:

Authors did some changes in the paper which improved undrstanding of the paper. They even formulated aim of this work. Methodology of this work is clear and simpler, but not new. But novelty of the method is not so important.Important is, if the paper is bringing somethink new. And this is not the case. But, the critical is not appropriate technics of rice in the lysimeters evapotranspiration measurement.

The main objection of mine is, that the basic data, which are actual evapotranspiration (and potential one as well in this case) measured by the lysimeter (see Fig.2) are not correct, due to „rim" effect of the walls of the lysimeter marked as „A". I have really a lot of experiences with such type of measurement and I guess that te effect „rim" about 35 cm above the soil surface can significantly decrease evapotranspiration rate, usually more than 30% in comparison tot the field. In the volume of the air between water table in the lysimeter and the upper rim of the lysimeter is high air humidity and low coefficient of water vapour transport from water (and rice surfac) to the atmosphere just above. Therefore to use such data to calculate „real" evapotranspiration and crop coefficient can lead to false results, and crop coefficiens estimated by this way will be lower, as well as irrigation doses, based on such results.

(This effect is very easy to verify. Take two glasses, one fill by water up to the top of it and the second water table will be e.g. 10 cm below the upper edge of the glass. After one day you can see significant differences, the water table deep below the upper edge of the glass will not change significantly, but the second one will lose much more.)

I am sorry, but publishing a such paper with elementary errors in data estimation, is not a good idea.

- **Response**: *Thank you for your kind suggestion. We agreed with the reviewer's comments and already mentioned the limitation of the research investigation. Due to rim effect, actual evapotranspiration estimation was affected but only up to 10% for 15-20 days after transplanting. In case of modified non-weighing lysimeter, the set of drums were installed about 36 cm above the ground, we observed that the microclimate (Tmin slightly increased and Tmax slightly decreased about 0.1–0.3 ^0C as compared to open field while relative humidity varied by 1-2%) within the drum differed from the entire field and affected AET_C estimation but only up to 15-20 days after transplanting. After that plants' height increased*

and come from the outside drum and entire field covered by paddy canopy, even drums are not visible. Therefore, the microclimate had not much affected AETc estimation. Similar research has been carried out used locally constructed paddy lysimeter to quantify $AET_{c,}$ which is simple in design, inexpensive, and provides satisfactory results (Sivapalan et al. 2015 and Shiraki et al. 2021). However, the exposed rim of modified lysimeter also causes local advection but not much affected the AET_C estimation. In addition, a similar configuration of non-weighing paddy lysimeters was used by (Dastane, N. G. (1974). Effective rainfall in irrigated agriculture. FAO Roam.) to estimate actual crop evapotranspiration of paddy crop. Similarly, research on the potential impacts of advection on flooded rice has not reported any substantial advection implications (Alberto et al. 2011). Even precise lysimeters have their own limitations. Therefore, in the absence of lysimeters, such methodology can be used to estimate actual evapotranspiration along with the regional crop coefficient which may aid in actual crop evapotranspiration compared to using FAO developed values. The FAO crop Kc values were developed for temperate climatic conditions which may not be suitable in the sub-tropical countries like India due to changes in the crop physiological and agronomical aspects. We found that if we are using pan evaporation approach, then need to revise the pan coefficient values for local conditions, it may give reliable results for estimating actual crop evapotranspiration rather than using heuristic approaches.

References

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