

Dear Editor,

Thank you for your thoughtful feedback on the revised manuscript. I appreciate your positive remarks regarding the changes made so far. I will address your comments as follows:

“Before that I would like to ask you to once again revise section 2.5. From the equations and text it's not clear how the water stress estimation works. There is no indication how "fw" is estimated from "fwstress, t" and it should be stated what the subscript "t" refers to. It's also not clear what the soil layer "-i" refers to. Is this done for each soil layer i and fw is subsequently summed up across all soil layers or is it done for one particular soil layer i? Also, please remove the dash from "-i" or explain why it is there. In addition, I recommend having a language check on the manuscript prior to resubmission to speed up the publication process.”

Reply:

1. Water-stress function estimation (fw)

We apologise for the confusion. Here, we have moved water stress from 2.5 (Soybean yield) to 2.3 (Carbon assimilation), as water stress directly affects photosynthesis through Rubisco activity.

- We have added Eqs. (6) – (8) to explain about how to incorporate fw in the photosynthesis process.
- Then, we explained about how to estimate fw from fwstress,t in Eqs. (9) – (11).

2. Soil layer index

We have removed the dash-i in the soil layer and revised the sentence for more clear description on the soil layer, as follow:

“The water stress factor, f_w , is determined based on the root distribution function ($f_r(i)$) multiplied by the water stress function at each soil layer ($f_{wstress,t}(i)$). The results are then summed across five soil layers (depths of 0.05, 0.25, 1, 2, and 4 m below the ground surface), as given in Eqs. (9)–(13) as follows:”.

3. Language check

As suggested, we conducted a final language check to improve clarity and readability. All revisions are marked in the PDF with tracked changes.

Please let us know if any further clarification is needed.

Sincerely,

Astrid Yusara
on behalf of all co-authors