

Manuscript ID: egusphere-2025-453

Manuscript Title: Developing an eco-physiological process-based model of soybean growth and yield (MATCRO-Soy v.1): model calibration and evaluation

Dear Editor,

During the proofreading stage, I identified several clear typographical errors in the accepted manuscript. The mistakes do not affect any analyses, simulations, or conclusions because all computations were performed using the correct formulations and values.

Below, I provide a detailed explanation of each correction requested.

1. Correction to **Equation (28)**

Incorrect (currently in proofs): $L_{leaf} = \begin{cases} 0 & , \text{ if } DVS < DVS_{deadleaf1} \\ P_{dleaf}(W_{leaf} - W_{glu}), & \text{ otherwise} \end{cases} \quad (28)$

Correct: $L_{leaf} = \begin{cases} 0 & , \text{ if } DVS < DVS_{deadleaf1} \\ P_{dleaf}(W_{leaf} + W_{glu}), & \text{ otherwise} \end{cases} \quad (28)$

Explanation: The minus sign is a typographical error. In the model, both W_{leaf} (leaf reserve) and W_{glu} (glucose reserve) **contribute positively** to the total available substrate for leaf maintenance and senescence, where $W_{leaf} + W_{glu}$ represents the total available reserve. Using a minus sign would incorrectly reduce the available substrate, contradicting the logic and ratio used in the dead-leaf allocation process.

2. Parameter r_{root} = rate of root depth increase (Incorrect unit: **mm day⁻¹**, Correct unit: **m day⁻¹**)

Explanation: This was a unit-transcription error introduced during manuscript preparation. Using “mm day⁻¹” in the published table would misrepresent the root growth and make the model non-reproducible.

3. Corrections of parameter value in Table 2

(a) DVS_SLN1 = specific leaf nitrogen parameter (Incorrect value: **0.4**, Correct value: **0.15**)

(b) SLN_Y3,h = specific leaf nitrogen parameter (Incorrect value: **0.75**, Correct value: **2.25**)

Explanation: Both values were incorrectly typed during manuscript preparation. The correct values were used in all simulations and are required for consistency between the text and the actual model implementation.

I kindly request the editor’s approval to:

1. Change the sign in **Equation (28)** from “-” to “+”.

2. Correct the unit of r_{root} in Table 1 from “mm day⁻¹” to “m day⁻¹”.
3. Correct the parameter values in Table 2 for **DVS_SLN1** (from “0.4” to “0.15”) and **SLN_Y3,h** (from “0.75” to “2.25”).

Thank you for your understanding and consideration.

Sincerely,
Astrid Yusara

On behalf of all authors