

Peer Review

Review of: "Determination of Evapotranspiration and Crop Coefficients of Irrigated Legumes on Different Soil Textures Using the FAO56 Approach"

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This study provides valuable location-specific crop coefficient (Kc) data for cowpea and soybean under different soil textures in southern Nigeria using the FAO56 approach, addressing an important gap in African agronomic water management research. The factorial design, detailed soil characterization, and stage-wise estimation of ETc and Kc strengthen the technical foundation of the work, and the comparison with previous studies enhances contextual relevance. However, the manuscript would benefit from clearer methodological rigor and tighter data presentation. Specifically, the use of remotely sensed NASA POWER data should be justified with validation against local station data (if available), and an uncertainty analysis for ETp and ETc estimations should be included. The assumption of zero runoff, drainage, and capillary rise needs stronger experimental justification. Statistical reporting should be improved by presenting full ANOVA tables (including interaction effects), effect sizes, and confidence intervals rather than relying mainly on LSD comparisons. Some tables contain typographical inconsistencies and unit ambiguities (e.g., mm/m vs mm), which must be corrected. The discussion could be deepened by linking LAI dynamics quantitatively to Kc variations and by comparing results more critically with FAO56 standard coefficients. Additionally, repeating the experiment across multiple seasons or incorporating soil moisture sensors (e.g., TDR) would improve robustness. Overall, the study is practically relevant but would gain greater scientific impact through stronger validation, improved statistical transparency, and clearer mechanistic interpretation of soil–crop–atmosphere interactions.

Declarations

Potential competing interests: No potential competing interests to declare.