Review Form 3

Journal Name:	**Asian Journal of Environment & Ecology**
Manuscript Number:	**Ms_AJEE_129684**
Title of the Manuscript:	**ESTIMATION OF ACTUAL EVAPOTRANSPIRATION AND CROP COEFFICIENT TO IMPROVE WATER USE EFFICIENCY OF SESAMUM (Sesamum indicum L.) IN KHARIF SEASON USING DIGITAL WEIGHING LYSIMETER**
Type of the Article	**Research Article**

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

https://r1.reviewerhub.org/general-editorial-policy/

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PART 1: Comments

	Reviewer's comment	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	This manuscript provides valuable insights into improving water use efficiency in Sesamum (*Sesamum indicum* L.) cultivation, particularly during the *Kharif* season, by estimating evapotranspiration and crop coefficients. Its use of a digital weighing lysimeter to measure actual crop evapotranspiration (ETc) offers a robust method for precise irrigation scheduling. The comparison of multiple evapotranspiration estimation methods, including the Penman-Monteith and Modified Penman-Monteith approaches, adds significant depth to agricultural water management practices. By presenting locally tailored crop coefficient values, this research equips the scientific community with practical data to optimize irrigation strategies under varying climatic conditions, thus supporting sustainable agriculture.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title of the manuscript, **"Estimation of Actual Evapotranspiration and Crop Coefficient to Improve Water Use Efficiency of Sesamum (*Sesamum indicum* L.) in *Kharif* Season Using Digital Weighing Lysimeter"**, is descriptive and provides a clear indication of the study's objectives and methodology. However, it is somewhat lengthy and could be refined for conciseness while retaining its informative nature.	

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract of the manuscript is generally comprehensive, providing a clear overview of the study's objectives, methods, key findings, and implications. However, there are areas where it could be improved to enhance clarity and impact. Here are some suggestions:
	
	Suggestions for Improvement:
	
	1. **Clarity of Objectives**:
	  ○ The objectives are stated but could be summarized more succinctly. For example, instead of listing all methods in detail, the focus could be on the purpose of comparing them to enhance water use efficiency.
	2. **Key Results**:
	  ○ The abstract mentions statistical values like R^2 and percentages but does not explain their significance to a broader audience. Summarize the key findings in lay terms, such as which method performed best and why it is important for practical applications.
	3. **Practical Implications**:
	  ○ While the abstract touches on the implications of the findings, it could emphasize how these results can directly benefit farmers or policymakers in regions with water constraints.
	4. **Focus and Conciseness**:
	  ○ The abstract is slightly dense with technical details. Simplify or remove less critical numerical data to make it more concise and reader-friendly.
	5. **Conclusion and Relevance**:
	  ○ End with a stronger concluding statement highlighting the study's contribution to sustainable agriculture and water management.
	
	Suggested Revised Abstract:
	
	The study aimed to enhance water use efficiency in Sesamum (Sesamum indicum L.) cultivation during the Kharif season by estimating actual evapotranspiration (ETc) and crop coefficients (Kc) using a digital weighing lysimeter. Six methods were compared for estimating reference evapotranspiration (ETr), with the Modified Penman-Monteith method showing the highest correlation ($R^2 = 0.98$) with the standard Penman-Monteith method. Seasonal ETc was measured at 244.94 mm, and crop-specific Kc values were developed for critical growth stages, providing a locally tailored framework for irrigation scheduling. The findings demonstrate the importance of accurate ETr and Kc estimation for optimizing water use, particularly in regions with limited water resources. This research offers practical tools and insights for improving irrigation efficiency and supporting sustainable agriculture.	

Is the manuscript scientifically, correct? Please write here.	Based on the provided content, the manuscript appears to be scientifically sound, with a well-defined methodology, comprehensive data analysis, and meaningful conclusions. However, a thorough evaluation of its scientific accuracy requires a detailed review of the following aspects: **Strengths of the Manuscript:** 1. **Clear Objectives**: The study's purpose is well-defined, focusing on improving water use efficiency in Sesamum cultivation through evapotranspiration and crop coefficient estimation. 2. **Methodology**: The use of a digital weighing lysimeter and multiple methods for estimating reference evapotranspiration (ETr) is appropriate and demonstrates rigor. 3. **Data Analysis**: Statistical comparisons (e.g., R^2 values, RMSE, and NRMSE) support the evaluation of different methods, enhancing the reliability of the findings. 4. **Relevance**: The focus on locally tailored crop coefficients addresses a critical gap in irrigation management for Sesamum under specific climatic conditions. **Points to Consider:** 1. **Data Consistency**: The manuscript provides detailed numerical results, but it is essential to verify the consistency of data, equations, and their interpretation to ensure accuracy. 2. **Comparison of Methods**: While the Modified Penman-Monteith and FAO Radiation methods are highlighted as effective alternatives, a deeper discussion on why other methods performed poorly (e.g., Priestly-Taylor and Hargreaves-Samani) would add scientific depth. 3. **Significance of Results**: The manuscript discusses overestimation and underestimation of crop coefficients, but it should further elaborate on the practical implications of these variations for field-level water management. 4. **Limitations**: A section explicitly acknowledging the study's limitations (e.g., applicability to other crops or regions) would strengthen its scientific credibility. 5. **Literature References**: The manuscript cites relevant literature but should ensure that all critical studies in evapotranspiration and	

	irrigation science are covered to support its conclusions. **Overall Assessment:** The manuscript is scientifically correct in its approach and findings, as far as the provided details suggest. It adheres to standard scientific practices, including the use of established methods, robust statistical analyses, and meaningful discussions. Minor refinements in the discussion of results, comparison of methods, and acknowledgment of limitations would further enhance its scientific rigor.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The manuscript includes a good number of references that are relevant to the topic, covering foundational works and studies on crop evapotranspiration and lysimeter-based research. However, some areas could benefit from additional or more recent references to ensure the work aligns with the current state of the field. Here's an assessment and suggestions:	
Is the language/English quality of the article suitable for scholarly communications?	The language of the manuscript is generally understandable and conveys the scientific content effectively. However, there are areas where the quality of English could be improved to meet the standards of scholarly communication. Here are some observations and suggestions: **Strengths:** 1. **Clarity of Scientific Concepts**: o The manuscript effectively communicates the objectives, methods, and results, which is critical for scholarly communication. 2. **Structure and Flow**: o The overall structure, including sections like the abstract, introduction, methodology, results, and conclusion, is logical and consistent. **Areas for Improvement:** 1. **Grammar and Syntax**: o Several sentences are lengthy and could benefit from rephrasing for better readability. For example, sentences like "The study was conducted on Estimation of Actual Evapotranspiration..." could be simplified to improve flow. 2. **Wordiness**: o Some parts are overly detailed, such as the exhaustive listing of numerical results in the abstract. Condensing such sections will enhance clarity and reader engagement. 3. **Repetition**: o Certain points, like the description of methods and statistical analysis, are repeated, which can make the manuscript feel redundant. Streamlining these sections would improve readability. 4. **Technical Jargon**: o While technical terms are necessary, some terms like "index of agreement" or "normalized root mean square error" could be briefly explained or contextualized for a broader audience. 5. **Consistency**: o There are minor inconsistencies in terminology (e.g., "ETc" versus "crop evapotranspiration") and formatting, such as capitalization in headings and units. **Examples of Suggested Revisions:** • **Original**: "The Modified Penman Monteith method had the highest correlation (R^2=0.98) with the standard Penman-Monteith method, while the FAO Radiation and Pan Evaporation methods also performed well." **Revised**: "The Modified Penman-Monteith method showed the highest correlation (R^2=0.98) with the standard Penman-Monteith method, followed closely by the FAO Radiation and Pan Evaporation methods." • **Original**: "Crop evapotranspiration (ETc) of Sesamum crop, measured using a digital weighing lysimeter, ranged from 0.61 to 5.65 mm/day, with a total of 244.94 mm for the season and the Crop coefficients (Kc) values were calculated by ratio of crop Evapotranspiration (ETc) with Reference Evapotranspiration (ETr)." **Revised**: "Sesamum crop evapotranspiration (ETc), measured using a digital weighing lysimeter, ranged from 0.61 to 5.65 mm/day, with a seasonal total of 244.94 mm. Crop coefficients (Kc) were calculated as the ratio of ETc to reference evapotranspiration (ETr)." **Overall Assessment:**	

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	The manuscript's English quality is adequate for scholarly communication but requires moderate editing for grammar, conciseness, and readability. Professional language editing or proofreading is recommended to refine the manuscript further and align it with the standards of high-impact scientific journals.	
Optional/General comments	Here are some optional/general comments to consider for improving the manuscript: **General Comments:** 1. **Relevance and Impact**: ○ The study is highly relevant to sustainable agriculture and water management, particularly in regions with water scarcity. Highlighting the broader impact of the findings, such as potential contributions to climate resilience and resource efficiency, could enhance the manuscript's appeal. 2. **Graphical Abstract or Visual Aids**: ○ Including a graphical abstract or additional visual aids, such as a simplified flowchart of the methodology, would help readers quickly grasp the study's key elements. 3. **Practical Applications**: ○ While the study focuses on scientific accuracy, emphasizing its practical applications—such as recommendations for farmers, extension services, or policymakers—could make the manuscript more impactful. 4. **Comparative Discussion**: ○ Expand the discussion to compare the findings with similar studies from other crops or regions. This would contextualize the results and demonstrate the study's broader relevance. 5. **Limitations and Future Work**: ○ Including a dedicated section on limitations (e.g., specific to the climatic region or crop) and future research directions (e.g., testing methods on other crops or under different environmental conditions) would strengthen the manuscript. 6. **Reference Updates**: ○ Incorporate recent studies, particularly those published in the last five years, to ensure the manuscript reflects the current state of research. 7. **Formatting and Presentation**: ○ Ensure uniformity in headings, tables, figures, and citations. Adhering to a journal's specific formatting guidelines will save time during the submission process. 8. **Engaging Title and Abstract**: ○ Consider revising the title and abstract for a broader audience by simplifying technical terms and focusing on the practical importance of the findings.	

PART 2:

	Reviewer's comment	**Author's comment** ***(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)***
Are there ethical issues in this manuscript?	***(If yes, Kindly please write down the ethical issues here in details)***	

Reviewer Details:

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