Review Form 3

Journal Name:	**Journal of Advances in Biology & Biotechnology**
Manuscript Number:	**Ms_JABB_125770**
Title of the Manuscript:	**Impact of row configuration and biofertilizers on yield and quality of sorghum (Sorghum bicolor (L.) Moench.) intercropped with cowpea in the Southern Laterites of Kerala, India**
Type of the 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:

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Important Policies Regarding Peer Review

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PART 1: Review Comments

Compulsory REVISION 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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This study is of moderate importance to the scientific community, particularly in tropical agriculture and agroecological intensification. The manuscript addresses an under-researched aspect of intercropping involving sorghum, a significant crop for food security in many developing countries, and cowpea, a common leguminous intercrop. However, the novelty is somewhat limited. The authors should make clearer connections between their work and how it addresses critical knowledge gaps in intercropping systems or biofertilization. For instance, how do the findings advance the current understanding of crop interaction dynamics or nutrient cycling in intercropping? Without this, the impact of the study may seem incremental rather than transformative.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	While the title is descriptive, it could be made more engaging by specifying the core findings or implications of the research. A possible alternative title could be: "Optimizing Sorghum-Cowpea Intercropping through Row Configuration and Biofertilizers for Yield and Nutrient Enhancement in Southern Laterites of India."	
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 is well-composed but lacks depth in conveying the broader significance of the findings. A more explicit mention of how the results could be applied in similar agro-climatic regions would strengthen its relevance. Additionally, quantitative data from key results (e.g., percentage increases in yield, protein content, or nutrient uptake) should be included to make the findings more compelling and immediately understandable.	
Are subsections and structure of the manuscript appropriate?	The introduction provides a good context for the study but could be improved by a clearer articulation of the scientific gap. The authors cite studies showing the benefits of intercropping and biofertilizers, but they do not adequately highlight what is unknown or contentious in these interactions. More critical engagement with existing literature is needed. For instance, how do the specific conditions in Southern Laterites challenge or support broader conclusions about biofertilizer efficacy in intercropping systems? Moreover, citing more recent studies (within the last 3-5 years) on biofertilizer application and row configuration in intercropping would demonstrate that the study is built upon a cutting-edge understanding. Methodology: The experimental design is robust, with appropriate treatment combinations and statistical analyses. However, several methodological details are missing or unclear: Soil properties: While soil characteristics are briefly mentioned, there is no comprehensive discussion about how soil nutrient content (especially nitrogen and phosphorus) could have influenced the outcomes. Given that AMF and Rhizobium rely heavily on nutrient-poor soils for their efficacy, it would be essential to contextualize the results based on the soil's initial fertility status. Duration of the study: One field season may be too short to draw broad conclusions about the performance of the cropping system, particularly in the case of biofertilizers, whose effects can accumulate over time. The authors should either justify this limitation or propose follow-up research for longer-term effects. Measurement techniques: The manuscript mentions the use of an Atomic Absorption Spectrophotometer for mineral content analysis, but no details are provided on the calibration process, or instrument precision and accuracy. Providing this would enhance the study's technical credibility.	

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Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The scientific findings are sound, but several areas need deeper analysis: Resource competition between crops: While the authors mention that sorghum benefited from a lower population of cowpea in the 2:1 ratio, they should delve into the belowground interactions. For instance, what specific root interactions facilitated this response? Were there any observations related to root exudates or soil microbial diversity? A mechanistic explanation for why certain configurations yielded better outcomes is lacking. Impact on cowpea: The manuscript focuses almost entirely on the impact of intercropping on sorghum. It is important to discuss the effects on cowpea yield or nutrient uptake to provide a balanced evaluation of the intercropping system. How does cowpea perform under the different row ratios, and what are the trade-offs? Biofertilizer efficacy: While the authors report a positive impact of AMF and Rhizobium, more critical analysis is required. For instance, why did AMF alone (b1) result in the highest crude protein content? Can this be attributed to increased nitrogen uptake, or is there another mechanism at play? The authors should also consider including soil microbiological data, which could strengthen their claims about biofertilizer interactions. The results are comprehensive, but the presentation could be improved in several ways: Tables and Figures: The tables are informative but cluttered with too much data. Separating key parameters such as yield and nutrient content into separate tables or figures may improve readability. Additionally, bar charts or graphs to visualize the differences between treatments would make the comparisons clearer for readers. Discussion of statistical significance: The manuscript reports statistical significance for several parameters, but the biological significance of these findings is not always clear. For instance, how do these increases in yield or nutrient content translate to real-world farming systems? Would the observed benefits justify the additional costs of biofertilizer application?	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. -	The references are adequate but could benefit from the inclusion of more recent research. Given the fast-evolving field of microbial inoculants, some key studies from the past few years are missing. Additionally, citations of meta-analyses or systematic reviews would provide a more robust context for the findings	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	English and Language Quality: The manuscript contains several grammatical errors and awkward sentence constructions that may hinder readability. A thorough language edit is recommended. For example, the sentence "The interaction between AMF and cowpea was observed to significantly increase..." could be rephrased for clarity. Formatting Issues: Ensure consistent formatting for headings, subheadings, and references according to journal guidelines.	
Optional/General comments		

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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