Review Form 3

Journal Name:	**Asian Journal of Soil Science and Plant Nutrition**
Manuscript Number:	**Ms_AJSSPN_121335**
Title of the Manuscript:	**Yield and Nutrient Uptake of pearl millet (Pennisetum glaucum) as affected by Integrated Nutrient Management Strategies**
Type of the Article	

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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 minimumof 3-4 sentences may be required for this part.	This manuscript is important for the scientific community as it investigates the effects of integrated nutrient management strategies on the yield, nutrient uptake, and soil properties of pearl millet, a crucial cereal crop. The study found that applying 100% NPK along with FYM at 10 t/ha/yr and seed treatment with PSB and Azotobacter resulted in significantly higher biological yield, nutrient uptake, and organic carbon content in the soil compared to other treatments. The manuscript provides valuable insights into sustainable agriculture practices that can enhance crop productivity while maintaining soil health. The use of organic manures like FYM in combination with chemical fertilizers and biofertilizers is an effective approach to meet the crop's nutrient demands and improve soil fertility. The study's findings are particularly relevant in the context of increasing food demands and the need to develop eco-friendly farming practices. The manuscript contributes to the growing body of knowledge on integrated nutrient management and its potential benefits for crop production and soil sustainability. One potential limitation of the study is that it was conducted in a specific geographical region (Madhya Pradesh, India) and may not be directly applicable to other regions with different soil and climatic conditions. Additionally, the study focused on a single crop (pearl millet) and did not investigate the long-term effects of the treatments on the sustainability of the cropping system. Overall, this manuscript is a valuable contribution to the scientific community as it highlights the importance of adopting integrated nutrient management strategies for sustainable crop production and soil health maintenance.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title of the article, "Yield and Nutrient Uptake of Pearl Millet (*Pennisetum glaucum)* as Affected by Integrated Nutrient Management Strategies," is suitable as it clearly conveys the main focus of the study, which is the impact of various nutrient management strategies on the yield and nutrient uptake of pearl millet. However, it could be made more engaging and specific to highlight the key findings or aspects of the research. **Suggested Alternative Titles** 1. **"Enhancing Pearl Millet Yield and Nutrient Uptake through Integrated Nutrient Management: A Field Study"** o This title emphasizes the goal of enhancing yield and nutrient uptake, making it clear that the study is practical and results-oriented. 2. **"Impact of Integrated Nutrient Management on Pearl Millet: Maximizing Yield and Soil Health"** o This alternative focuses on the dual benefits of the study: improving yield and maintaining soil health, which are crucial for sustainable agriculture. 3. **"Optimizing Nutrient Management for Pearl Millet: Insights from a Long-Term Field Experiment"** o This title highlights the optimization aspect and indicates that the findings are based on long-term research, suggesting robustness in the results. 4. **"Integrated Nutrient Strategies for Pearl Millet: Boosting Productivity and Nutrient Efficiency"** o This option underscores the productivity and nutrient efficiency aspects, appealing to readers interested in agricultural efficiency. 5. **"Evaluating the Role of Organic and Inorganic Nutrients in Pearl Millet Production: A Comprehensive Analysis"** o This title suggests a thorough examination of both organic and inorganic nutrient contributions, which could attract readers interested in comparative studies. These alternative titles maintain the focus on the key aspects of the study, including yield, nutrient uptake, and the integrated management strategies employed.	

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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 article is comprehensive and covers the key aspects of the study, including the objectives, methodology, and main findings. However, a few suggestions can be made to improve its clarity and conciseness: 1. **Provide more details on the experimental design**, such as the number of treatments and replications, to give readers a better understanding of the study setup. 2. **Mention the specific cultivar of pearl millet used in the study** to provide more context. 3. **Highlight the most significant findings**, such as the maximum biological yield, nutrient uptake, and organic carbon content observed under the best treatment, to emphasize the key outcomes of the research. 4. **Avoid repeating information** that is already mentioned in the introduction, such as the importance of pearl millet as a crop and its nutritional value. 5. **Rephrase the conclusion** to make it more concise and impactful, focusing on the main takeaway that the treatment with 100% NPK, FYM, and biofertilizers was found to be superior in terms of yield, nutrient uptake, and soil health maintenance. By incorporating these suggestions, the abstract can be made more informative, engaging, and effective in conveying the essence of the study to the readers. For example: The study investigates the impact of integrated nutrient management strategies on the yield and nutrient uptake of pearl millet (*Pennisetum glaucum*), a vital crop in arid and semi-arid regions. Pearl millet is a significant source of dietary energy and essential nutrients for rural populations in India. However, its productivity remains low compared to other millet-producing countries. This research aims to enhance pearl millet yield through a combination of organic manures, biofertilizers, and chemical fertilizers, addressing the need for sustainable agricultural practices. The experiment was conducted at the Research Farm of Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya during the kharif seasons of 2022 and 2023. Twelve treatment combinations were tested, including 100% NPK along with farmyard manure (FYM) and seed treatments with biofertilizers. Results indicated that the treatment combining 100% NPK with FYM at 10 t/ha/year and biofertilizers significantly improved biological yield, nutrient uptake, and soil organic carbon content. Specifically, the highest biological yield recorded was 8026 kg/ha, with notable increases in total nitrogen, phosphorus, and potassium uptake. This study underscores the importance of integrated nutrient management in enhancing pearl millet productivity while maintaining soil health. By adopting these practices, farmers can improve crop yields and contribute to food security in regions reliant on pearl millet. The findings provide a framework for future research and practical applications in sustainable agriculture, emphasizing the need for balanced nutrient supply systems to optimize crop performance and soil fertility.	
Are subsections and structure of the manuscript appropriate?	The subsections and structure of the manuscript appear to be appropriate for the content it presents. The organization follows a logical flow, which is essential for clarity and comprehension in scientific writing. Here are some observations regarding the subsections: **Strengths** 1. **Clear Division of Sections**: The manuscript includes distinct sections such as Abstract, Introduction, Materials and Methods, Results and Discussion, which are standard in scientific papers. This structure helps readers navigate through the study easily. 2. **Detailed Methodology**: The Materials and Methods section is comprehensive, detailing the experimental design, treatments, and environmental conditions. This level of detail allows for reproducibility and understanding of the context in which the study was conducted. 3. **Results Presentation**: The Results section presents data clearly, often supported by tables that summarize findings effectively. This enhances the readability and allows for easier comparison of results across different treatments. **Suggestions for Improvement**	

	1. **Subsection Titles**: Consider adding more descriptive subsection titles within the Results and Discussion sections to guide readers through specific findings. For example, subsections could be titled "Effect of Treatments on Yield," "Nutrient Uptake Analysis," and "Soil Health Indicators" to clarify the focus of each part. 2. **Integration of Discussion**: While the Results and Discussion are combined, separating them might enhance clarity. A distinct Discussion section could allow for a more in-depth interpretation of the results without the immediate distraction of data presentation. 3. **Conclusion Section**: Including a separate Conclusion section summarizing the main findings and their implications for future research or practical applications would strengthen the manuscript's impact. 4. **Visual Aids**: If applicable, incorporating figures or graphs to illustrate key results could enhance understanding, especially for complex data sets. Overall, the manuscript's structure is solid, but implementing these suggestions could further improve its clarity and effectiveness in communicating the research findings.	
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 minimumof 3-4 sentences may be required for this part.	The manuscript presents a scientifically robust investigation into the effects of integrated nutrient management strategies on the yield and nutrient uptake of pearl millet (*Pennisetum glaucum*). The study is technically sound for several reasons: 1. **Methodological Rigor**: The research employs a well-structured experimental design, utilizing twelve treatment combinations with three replications. This design enhances the reliability of the results and allows for statistical analysis, which is crucial for drawing valid conclusions. 2. **Comprehensive Data Collection**: The manuscript provides detailed data on various parameters, including biological yield, nutrient uptake (nitrogen, phosphorus, potassium), and soil properties (organic carbon, pH, and electrical conductivity). This thorough approach ensures that the study addresses multiple aspects of nutrient management and its impact on crop performance. 3. **Long-Term Perspective**: Conducting the study over two growing seasons (2022 and 2023) and as part of an ongoing long-term field experiment adds to the robustness of the findings, allowing for the observation of trends and variations over time. Despite these strengths, there are some disadvantages and limitations: 1. **Geographical Limitation**: The study is conducted in a specific region (Madhya Pradesh, India), which may limit the generalizability of the findings to other geographical areas with different soil types and climatic conditions. 2. **Lack of Long-term Impact Analysis**: While the study provides valuable insights into immediate effects, it does not thoroughly investigate the long-term sustainability of the integrated nutrient management practices on soil health and crop productivity beyond two years. 3. **Non-significant Results**: Some results, such as the test weight and harvest index, were found to be non-significant across treatments. This raises questions about the effectiveness of certain treatments and their practical applicability for farmers. 4. **Limited Scope of Nutrient Sources**: Although the study includes a variety of treatments, it primarily focuses on conventional fertilizers and organic manures. The potential benefits of other innovative practices, such as cover cropping or advanced biofertilizers, have not been explored. In summary, while the manuscript is scientifically robust and technically sound, addressing these limitations could enhance its applicability and relevance to a broader audience in the agricultural research community.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The manuscript provides a sufficient number of references to support the research findings and contextual information. However, there are a few areas where the reference section could be improved:	

Sufficiency and Recency

- The references cover a good range of topics related to pearl millet production, nutrient management, and soil health. However, the majority of the references are from the 1980s and 1990s, with only a few more recent ones from the 2000s and 2010s.
- To enhance the recency of the references, consider including more studies from the past 5-10 years. This will ensure that the manuscript incorporates the latest research and trends in the field.

Diversity of Sources

- The references are primarily from Indian journals and publications, which is appropriate given the context of the study. However, including a few references from international journals could broaden the scope and provide a more global perspective on the topic.
- Consider searching for relevant articles published in journals such as Field Crops Research, Agronomy Journal, or Nutrient Cycling in Agroecosystems to diversify the reference sources.

Uniform Writing of References

- The writing style of the references is consistent throughout the manuscript, following a standard format. However, there are a few minor inconsistencies, such as the capitalization of article titles and the use of italics for journal names.
- Ensure that all references are written in a uniform style, adhering to the journal's guidelines or a recognized citation style (e.g., APA, MLA, or Chicago).

Problems, Flaws, and Shortcomings

- The references are generally well-written and relevant to the study. However, a few references lack essential information, such as the volume and issue numbers for journal articles or the publisher's name and location for books.
- Double-check each reference to ensure that it includes all the necessary information for easy identification and retrieval of the source.

To enhance the manuscript's reference section, consider including the following types of studies:

1. **Long-term studies on the sustainability of integrated nutrient management practices in pearl millet production systems**
2. **Meta-analyses or systematic reviews that synthesize the current knowledge on the effectiveness of organic and inorganic nutrient sources in improving crop yields and soil health**
3. **Studies that investigate the economic and environmental benefits of adopting integrated nutrient management strategies in pearl millet cultivation**
4. **Research articles that explore the role of biofertilizers and their interactions with organic and inorganic fertilizers in enhancing nutrient use efficiency and crop performance**

Suggestions for AdditionalReferences
To enhance the manuscript's reference section, consider including recent studies that address integrated nutrient management and its effects on crop yield and soil health. Here are some up-to-date article titles that could be relevant:

1. "Integrated Nutrient Management for Sustainable Agriculture: A Review"
2. "Effects of Biofertilizers on Crop Yield and Soil Health: A Meta-Analysis"
3. "Long-Term Impact of Organic and Inorganic Fertilizers on Pearl Millet Production"

	4. "Sustainable Practices in Pearl Millet Cultivation: A Comprehensive Review" By incorporating more recent and diverse references, the manuscript can strengthen its theoretical foundation and provide a more comprehensive understanding of the research topic.	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language quality of the manuscript has several strengths but also contains grammatical and spelling errors that need to be addressed for suitability in scholarly communications. **Grammatical and Spelling Errors** 1. **Subject-Verb Agreement**: o Original: "The test weight and harvest index was found non-significant..." o Correction: "The test weight and harvest index were found non-significant..." 2. **Punctuation and Clarity**: o Original: "The significantly higher biological yield (8026 kg/ha) and total nitrogen uptake (89.84 kg/ha), total phosphorus uptake (17.90 kg/ha) and total potassium uptake (111.50 kg/ha) was registered under T12-100% NPK +FYM..." o Correction: "The significantly higher biological yield (8026 kg/ha), total nitrogen uptake (89.84 kg/ha), total phosphorus uptake (17.90 kg/ha), and total potassium uptake (111.50 kg/ha) were registered under T12-100% NPK + FYM..." 3. **Redundancy**: o Original: "The organic carbon content of the soil due to application of Farm Yard Manure might be due to the deposition of organic matter in the soil in the crop residues..." o Correction: "The organic carbon content of the soil due to the application of Farm Yard Manure may result from the deposition of organic matter from crop residues..." 4. **Inconsistent Terminology**: o Original: "The pH and electrical conductivity were found non-significant..." o Correction: "The pH and electrical conductivity were found to be non-significant..." **Overall Quality for Scientific Publication** The English language and quality of this article need improvement before it is suitable for scientific publication. While the manuscript conveys the necessary information, the presence of grammatical errors, awkward phrasing, and punctuation issues detracts from its professionalism and clarity. **Use of Specialized Terms** The article correctly uses specialized terms relevant to the field of agronomy and soil science, such as "integrated nutrient management," "biofertilizers," "organic manures," and "physico-chemical properties." However, it would benefit from ensuring that all technical terms are consistently defined or explained, especially for readers who may not be familiar with the terminology. In summary, addressing the grammatical errors, improving clarity, and ensuring the consistent use of specialized terms will significantly enhance the manuscript's quality for scientific publication.	
Optional/Generalcomments	Here are some suggestions to improve the structure and clarity of the manuscript: **Subsections and Organization** • The subsections are clearly labeled and follow a logical flow, which is appropriate for a scientific paper. However, some minor improvements can be made: • Consider adding more descriptive titles to the subsections within the Results and Discussion, such as "Effect of Treatments on Yield," "Nutrient Uptake Analysis," and "Soil Health	

	Indicators." This will guide readers through the specific findings more effectively. • Separate the Results and Discussion into distinct sections. While combining them is acceptable, separating them could enhance clarity by allowing for a more in-depth interpretation of the results without the immediate distraction of data presentation. **Introduction** • The introduction provides relevant background information on pearl millet, its importance, and the rationale for the study. It clearly states the objectives and the need for integrated nutrient management strategies to enhance productivity and soil sustainability. • To further improve the introduction, consider adding a summary of the key findings from previous studies on integrated nutrient management in pearl millet or other crops. This will help contextualize the current research and highlight its significance. **Materials and Methods** • The Materials and Methods section is detailed and comprehensive, providing information on the experimental design, treatments, and environmental conditions. This level of detail is essential for reproducibility and understanding the context of the study. • To further strengthen this section, consider adding more information on the soil characteristics (e.g., texture, pH, organic matter content) before the experiment begins. This will help readers understand the baseline conditions of the experimental site. **Conclusion** • The manuscript does not have a separate Conclusion section. Consider adding one to summarize the main findings and their implications for future research or practical applications. This will strengthen the impact of the study and provide a clear takeaway for readers. • In conclusion, emphasize the most significant findings, such as the superiority of the treatment with 100% NPK, FYM, and biofertilizers in terms of yield, nutrient uptake, and soil health maintenance. Highlight the potential benefits of adopting integrated nutrient management strategies for sustainable pearl millet production. By implementing these suggestions, the manuscript's structure and clarity can be further improved, making it more effective in communicating the research findings to the scientific community.	

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)*	

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