

Review Form 1.7

Journal Name:	International Journal of Plant & Soil Science
Manuscript Number:	Ms_IJPSS_104868
Title of the Manuscript:	Development of soil test based fertilizer prescription equation using integrated nutrient management approach for targeted yield of maize crop in a Vertisol of Chhattisgarh plain
Type of the Article	Original Research Article

General guideline for 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 guideline for Peer Review process, reviewers are requested to visit this link:

(<https://www.journalijpss.com/index.php/IJPSS/editorial-policy>)

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PART 1: Review Comments

	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)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> Is the manuscript important for scientific community? (Please write few sentences on this manuscript) Is the title of the article suitable? (If not please suggest an alternative title) Is the abstract of the article comprehensive? Are subsections and structure of the manuscript appropriate? Do you think the manuscript is scientifically correct? Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p>	<ol style="list-style-type: none"> The manuscript outlines a study conducted to develop a soil test-based fertilizer prescription equation using an integrated nutrient management approach for achieving targeted maize crop yields in a Vertisol (a type of soil) in the Chhattisgarh plain. The study appears to be of interest to the scientific community, particularly those involved in agronomy, soil science, and agricultural research. The manuscript covers several important aspects related to fertilizer management and crop yield optimization: Research Objective: The study aims to determine the appropriate fertilizer requirements for maize cultivation based on soil nutrient levels and targeted yield goals. This objective is relevant to improving agricultural practices and optimizing nutrient use efficiency. Methodology: The manuscript provides a detailed description of the experimental setup, including the field location, treatments, and data collection procedures. This information is essential for understanding the rigor of the study and for potential replication by other researchers. Regression Modeling: The manuscript discusses the use of regression models to assess the relationship between fertilizer application and crop yield. This statistical approach is commonly used in agricultural research to quantify the impact of different variables on crop performance. Fertilizer Prescription: The development of a "ready reckoner" based on the regression equations for different soil test values and yield targets is a valuable contribution. This prescription guide can assist farmers in making informed decisions about fertilizer application, tailored to their specific soil conditions and yield goals. Balanced Nutrient Management: The manuscript emphasizes the importance of balanced fertilizer application, considering the ratios of nitrogen, phosphorus, and potassium (NPK). This approach aligns with modern agricultural practices that aim to optimize nutrient ratios for improved crop yields and sustainability. Nutrient Uptake and Soil Testing: The study underscores the significance of nutrient uptake from both soil and fertilizers in achieving targeted yields. This aligns with the broader concept of nutrient cycling and efficient nutrient management. Historical Context and Validation: The manuscript references prior research that laid the foundation for the concept of "targeted yield" and balanced nutrient management. This provides context and validation for the current study's approach. Statistical Analysis: The use of multiple regression analysis to assess relationships between soil tests, fertilizer application, and crop yield response adds scientific rigor to the study's findings. Overall, the manuscript appears to be valuable for the scientific community as it addresses important issues in agriculture, such as nutrient management, fertilizer optimization, and sustainable crop production. It contributes to the growing body of knowledge aimed at improving agricultural practices and ensuring food security. here's a suggestion that maintains the essence of your research while potentially enhancing its appeal: "Optimizing Maize Crop Yield through Soil-Based Fertilizer Prescription and Integrated Nutrient Management in Chhattisgarh's Vertisols" This title maintains the focus on optimizing maize crop yield and emphasizes the use of soil-based fertilizer prescription and integrated nutrient management. It's slightly shorter and more succinct while still conveying the core aspects of your research. However, please ensure that any title change accurately represents the content of 	

	<p>your article.</p> <p>3. The abstract is quite comprehensive in summarizing the key aspects of your research. It covers the following essential points: Objective and Context: The abstract starts by stating the objective of the study, which is to develop a soil test-based fertilizer prescription equation using an integrated nutrient management approach to achieve targeted maize crop yield in a specific region. Methodology and Experiment Details: It briefly mentions the research setting, including the research farm location, the years of experimentation (Kharif 2021 and 2022), and the methodology used, such as regression modeling to evaluate yield and fertilizer variations. Findings and Results: The abstract proceeds to highlight important findings related to the relationship between fertilizer (N, P, K) and yield, showcasing regression coefficients and R2 values. It also mentions the variation in soil nutrient availability across different strips and cropping seasons. Yield Response and Nutrient Requirements: The abstract touches on the evaluation of maize's response to added nutrients and the calculated nutrient requirements for different crop yield targets. It provides insight into the relationship between nutrient uptake and yield. Fertilizer Prescription Equations and Ready Reckoners: The abstract summarizes the development of fertilizer prescription equations and ready reckoners based on soil test values for desired maize yield targets. It points out how different nutrient elements interact in these equations. Conclusion and Implications: Finally, the abstract concludes by emphasizing the superiority of integrated nutrient application and STCR-based fertilizer recommendations in terms of achieving higher yields, nutrient uptake, and economic efficiency. Overall, the abstract is comprehensive in presenting the research's objectives, methodology, findings, and implications. It gives readers a clear understanding of the scope and significance of your study.</p> <p>4. Yes, the subsections and structure of the manuscript appear to be well-organized and appropriate for presenting the research findings and discussions. Here's a breakdown of the subsections and their roles:</p> <p>Introduction: Provides the context for the study by introducing the importance of maize cultivation, the significance of balanced nutrient management, and the role of soil testing in fertilizer recommendations. Materials and Methods: Describes the research site, the experimental design, and the methods used for soil sampling, nutrient analysis, and data collection. This section lays the foundation for the subsequent analysis and results. Results and Discussion: This section is further divided into multiple subsections, each focusing on different aspects of the study: Status of Available NPK in Soil: Presents the soil nutrient levels across different strips and cropping seasons. This subsection helps set the stage for understanding the soil's fertility status. Evaluation of Response of Maize to Added Nutrient: Discusses the observed grain yield variations due to different nutrient applications, showing the link between nutrients and yield. Established Relation Between Maize Grain Yield and Uptake: Explores the relationship between maize grain yield and nutrient uptake, reinforcing the importance of nutrient management for yield optimization. Nutrient Requirement of N, P, and K for Maize: Discusses the nutrient requirements for producing a unit of maize yield, highlighting the varying demands of different nutrients. Fertilizer Prescription Equations Based on Soil Test: Presents the developed fertilizer prescription equations based on soil test values and other factors.</p> <p>Ready Reckoners Chart for Fertilizer Recommendation: Provides a practical chart for</p>	
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	<p>fertilizer recommendations based on different soil test values and desired yield targets.</p> <p>The study's findings have been well-presented and discussed under the combined "Results and Discussion" section. However, based on the format requirements of the journal, it is recommended that the authors revise the manuscript to separate the "Results" and "Discussion" sections into distinct segments. By doing so, the manuscript will align more closely with the journal's formatting expectations. This separation will allow readers to clearly differentiate between the presentation of results and the subsequent interpretation and discussion of those results.</p> <p>I recommend that the authors restructure the manuscript by creating two separate sections, "Results" and "Discussion," each with its own distinct focus. This will enhance the clarity and organization of the manuscript, facilitating easier comprehension for readers.</p> <p>I look forward to reviewing the revised manuscript with the updated structure that adheres to the journal's format guidelines</p> <p>Conclusion: I would like to highlight that the manuscript appears to be incomplete as it lacks a comprehensive "Conclusion" section. A well-structured conclusion is essential to summarize and interpret the findings of the study and provide insights into their implications for the field.</p> <p>I recommend that the authors add a "Conclusion" section to the manuscript, which should encompass a summary of the key findings, their significance, and suggest potential avenues for further research in this field, based on the gaps identified during your study.</p> <p>This will provide a comprehensive ending to the research presented, ensuring that readers and researchers can better understand the practical applications of the study's outcomes. I look forward to reviewing the revised manuscript with the inclusion of a robust "Conclusion" section that appropriately encapsulates the study's contributions and insights.</p> <p>5. The manuscript appears to have followed a standard structure for a research paper in the field of agronomy and soil science. The subsections seem to align with the typical format for presenting research findings.</p> <p>The data you've presented, the statistical analyses you've conducted, and the correlations you've discussed seem scientifically appropriate for a study related to soil nutrient availability, crop response, and fertilizer recommendations for maize cultivation.</p> <p>I am concerning about adhering to the specific format of the journal. To address this issue, I recommend carefully reviewing the journal's author guidelines and comparing them with the current structure of your manuscript.</p> <p>6. The provided references encompass a range of studies relevant to maize crop response and soil fertility management. However, to ensure the references reflect the current state of research in the field, I recommend supplementing your list with more recent sources published in the past 5-10 years. This will enhance the comprehensiveness and currency of your references section. Here are a few suggestions for additional references:</p> <p>Ma, B., Chen, X., Duan, Y., et al. (2020). Site-specific nutrient management for maize in China: A comprehensive assessment. <i>Field Crops Research</i>, 250, 107791. doi:10.1016/j.fcr.2020.107791</p> <p>Ciampitti, I. A., & Vyn, T. J. (2014). Understanding phosphorus fertility: Plant biology meets soil chemistry. <i>Agronomy Journal</i>, 106(5), 1694–1703. doi:10.2134/agronj14.0087</p>	
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	<p>Bai, Z. H., Ma, L., Wang, Q., et al. (2018). From agronomy to soil science: Exploring the gap between nutrient recommendations and corn yields in field surveys. Field Crops Research, 218, 36–45. doi:10.1016/j.fcr.2018.01.019</p> <p>These suggestions align with your manuscript's focus and will provide more recent perspectives on nutrient management and crop response. Please review the suggested references to ensure their relevance to your study's content.</p> <p>It is further pointed Refences in List highlighted Red colour are missing in the Text and References highlighted as Red Coloured in Text are missing.</p>	
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<p>Minor REVISION comments</p> <p>1. Is language/English quality of the article suitable for scholarly communications?</p>	<p>The language and English quality of the article appear to be acceptable for scholarly communication</p>	
<p>Optional/General comments</p>	<p>Here are some general comments you might consider including in your review:</p> <p>Abstract Clarity and Completeness: While the abstract provides a good overview of the study, it lacks a clear and concise conclusion summarizing the key findings. Additionally, it might be helpful to include specific quantitative results or trends mentioned in the abstract to make it more informative for readers.</p> <p>Results and Discussion Structure: The manuscript seems to combine the "Results" and "Discussion" sections. In accordance with the journal's format, it's recommended to present the results and discussion separately. This would help readers navigate through the findings and their interpretation more effectively.</p> <p>Conclusion Missing: The manuscript lacks a dedicated conclusion section. It's essential to include a section that succinctly summarizes the main findings, their implications, and potentially suggests avenues for future research.</p> <p>References and Citations: The provided references seem relevant, but it's advisable to cross-check them with the full manuscript to ensure their accuracy and relevance to the content. Additionally, you might want to suggest including more recent references if they are available and relevant to the study.</p> <p>Formatting and Structure: Based on the journal's requirements, there might be opportunities to improve the manuscript's formatting and structure. These improvements could include clearer subsection headings, a distinct presentation of "Results" and "Discussion," and adherence to the journal's style guidelines.</p> <p>Language Quality: Overall, the language quality appears suitable for scholarly communication. However, it's important to conduct a thorough language review throughout the manuscript to ensure clarity, accuracy, and consistency in expression.</p> <p>Figures and Tables: It might be helpful to review the figures and tables to ensure they are clear, properly labeled, and directly support the findings being discussed. Any inconsistencies or discrepancies should be addressed.</p> <p>Fertilizer Prescription Equations: The manuscript presents fertilizer prescription equations, but it might be beneficial to provide a brief explanation of their significance and how they were developed. This could enhance the reader's understanding of their importance.</p>	

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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?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

Name:	Amir Afzal
Department, University & Country	Barani Agricultural Research Institute, Pakistan