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Journal Name:	Asian Journal of Soil Science and Plant Nutrition
Manuscript Number:	Ms_AJSSPN_121199
Title of the Manuscript:	The Effect of Nutrient Seed Priming on Nutrient Concentration and Uptake of Soybean
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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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>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.</p>	<p>Regarding the importance of the manuscript for the scientific community, this work presents a comprehensive study on the effects of nutrient seed priming on the nutrient concentration and uptake in soybean crops. The detailed experimental setup, including the use of a randomized block design, a variety of treatment combinations, and thorough nutrient concentration analysis methods, provides valuable insights into the practical benefits of seed priming techniques. Specifically, the findings demonstrate the superiority of combined micronutrient priming with Zn, B, Mo, Fe, and S, along with recommended doses of fertilizers, over control treatments and individual nutrient applications. What stands out is the manuscript's contribution to addressing micronutrient deficiency problems in Vertisols of Maharashtra, potentially applicable to similar agro-ecological zones facing nutrient management challenges. By elucidating the positive impacts of nutrient priming on soybean nutrient content and uptake, this research could guide the development of cost-effective and efficient nutrient management practices that enhance soil health, crop yield, and nutritional quality. However, the manuscript could be improved by including a more detailed discussion on the mechanism behind the observed benefits of seed priming with specific micronutrients. Also, integrating a comparison of the economic benefits of these practices in terms of input costs versus yield improvement would provide a more holistic view of the practical implications for farmers. Lastly, expanding on the environmental implications of these practices, such as potential impacts on soil health over time, would be beneficial for a comprehensive understanding of the sustainability of nutrient seed priming.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title of the article, "The Effect of Nutrient Seed Priming on Nutrient Concentration and Uptake of Soybean," is suitable and accurately reflects the main focus and findings of the study. It encapsulates the primary research objective, which is to investigate how nutrient seed priming influences the nutrient concentration and uptake in soybean plants. The abstract and the results section confirm that the study specifically examines the impact of various nutrient seed priming treatments on the nutrient dynamics within soybean crops, making the title appropriate and directly relevant to the content of the article. The title is clear, concise, and informative, providing potential readers with immediate insight into the research topic and its scope within the field of agronomy and plant nutrition.</p>	

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<p>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.</p>	<p>The abstract provided for the article "The Effect of Nutrient Seed Priming on Nutrient Concentration and Uptake of Soybean" outlines the basic structure of the study including its design, methodology, and a brief overview of the results. However, for it to be comprehensive and fully serve its purpose, there are several points that require addition or refinement</p> <ol style="list-style-type: none"> 1. Objective clarification. The abstract starts by stating the title of the investigation but does not explicitly mention the primary objective of the study. It is crucial to briefly state the research question or objective to provide the reader with a clear understanding of the purpose of the study. For example, "This study aimed to evaluate the impact of nutrient seed priming on the nutrient concentration and uptake in soybeans and its subsequent effect on crop yield." 2. Specific details on methodology. While the abstract mentions the use of a randomized block design (RBD) and the treatments applied, it lacks specificity regarding the key aspects of the methodology that directly relate to the study's scope. Including a brief mention of the main types of nutrient seed priming solutions and their expected impact on soybean nutrient uptake would enrich the abstract. For instance, "We investigated the effects of priming soybean seeds with solutions of micronutrients including Zn, B, Fe, S, and Mo, alone and in combination, on their nutrient uptake and concentration." 3. Results overview. The abstract provides a general statement about the findings, indicating that priming with a combination of micronutrients and RDF was superior. However, it lacks specific data or a quantitative summary that highlights the magnitude of the effect or its significance. Adding a sentence that includes key statistical findings or specific data points would make the results more tangible to the reader. For example, "Priming with a combination of Zn, B, Mo, Fe, and S along with RDF resulted in a significant increase in nutrient uptake, with a X% increase in nitrogen concentration in the soybean grain compared to the control." 4. Conclusion and implications. The abstract does not include a concluding statement or mention the broader implications of the findings. A brief sentence summarizing the main conclusion and its potential implications for agricultural practices or future research would provide a more rounded and informative abstract. For example, "Our findings suggest that nutrient seed priming could be a cost-effective strategy to enhance the nutrient profile of soybeans, potentially improving crop yield and nutritional value." 5. Keywords. The current keywords provided in the manuscript appear to duplicate terms already present in the title and abstract. For better indexing and searchability, I recommend revising the keywords to include broader or related terms that are not repetitive. This will enhance the discoverability of the article by expanding the scope of search terms that might lead researchers to your work. 	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The structure and subsections of the manuscript titled "The Effect of Nutrient Seed Priming on Nutrient Concentration and Uptake of Soybean" appear to follow a conventional scientific research article layout, including sections such as Abstract, Introduction, Material and Methods, Results and Discussion, and Conclusion. However, there are areas where the structure could be improved for better clarity and coherence. Here are specific suggestions</p> <ol style="list-style-type: none"> 1. Subsection of Material and Methods: This section is detailed, covering the experimental design, treatments, and procedures. However, it would benefit from subsections for clarity, such as "Experimental Site and Design," "Treatments," and "Data Collection and Analysis." Subsections would help readers navigate through the information more effectively. 2. Additional subsection for Results and Discussion: Integrating the discussion more closely with the results for each nutrient, including comparisons with existing literature, would make the findings more impactful. 	
<p>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.</p>	<p>The study uses a randomized block design (RBD), which is a standard and widely accepted method in agricultural research for controlling variation among experimental units. This design enhances the reliability of the findings by minimizing the effects of confounding variables. The inclusion of 12 treatments, replicated three times, and conducted over two consecutive years, further strengthens the scientific validity by ensuring that the results are reproducible and consistent over time and conditions. The manuscript outlines a diverse range of treatments, including a control, nutrient application only, and various combinations of macronutrients and micronutrients. This comprehensive approach allows for a detailed examination of the effects of nutrient seed priming on soybean nutrient concentration and uptake. The inclusion of a control group (absolute control) and a treatment with only recommended dose of fertilizer (RDF) provides a baseline against which the impacts of micronutrient priming can be accurately assessed. The manuscript describes the use of established analytical techniques for nutrient analysis, which are standard in soil and plant analysis, lending credibility to the reported results. The</p>	

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	<p>results and conclusions are supported by references to existing literature, indicating that the findings contribute to and align with the broader body of research in the field.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. :</p>	<p>The references listed in the provided text are a mix of relatively recent and older studies, with publication years ranging from 1965 to 2018. This suggests a breadth in the temporal scope of the literature reviewed. However, the field of agricultural science, particularly aspects related to nutrient management and seed priming, is rapidly evolving. Thus, while the existing references provide a solid foundation and context for the study, incorporating more current research could enhance the relevance and applicability of the findings. Specifically, the references include key foundational studies and methodologies that are essential for understanding nutrient uptake in soybeans. However, the inclusion of more recent studies (post-2018) would be beneficial to capture the latest advancements in the field of nutrient seed priming and its effects on soybean nutrient concentration and uptake.</p>	
<p><u>Minor</u> REVISION comments Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language and English quality of the article provided demonstrate a level of proficiency that is generally suitable for scholarly communications. However, there are a few sections where the language could be refined to improve clarity and communication.</p>	
<p><u>Optional/General</u> comments</p>	<ul style="list-style-type: none"> • Lack of objective: The transition from the introduction to the methodology and from the results to the conclusion is abrupt. The text jumps into detailed descriptions without providing a clear rationale for the study or smoothly leading the reader through the research process. For example, The shift from "Introduction" to "Material and Methods" lacks a concluding sentence that connects the background information to the objectives of the current study. I suggest to end the introduction with a sentence that explicitly states the research question or objective. For example, "Given the critical role of micronutrients in soybean production, this study aims to investigate the impact of nutrient seed priming on soybean nutrient concentration and uptake." • Lack of coherence between paragraphs: There's a lack of coherence in how the results are presented, jumping from nitrogen to phosphorus and potassium concentrations without clear transitions or summaries that help the reader understand the significance of the findings. The results section transitions from discussing nitrogen concentration directly to phosphorus concentration without summarizing the implications of the nitrogen findings. After presenting each nutrient's results, add a summarizing sentence that links to the next section, highlighting the comparative importance or relationship between the nutrients studied. • The explanation of treatment is too dense and hard to follow: The explanation of treatments (e.g., "T1: absolute control, T2: Only RDF, T3: RDF + Zn@ 3g kg-1 seed...") is dense and hard to follow. I suggest to introduce a table to list and describe the treatments. This will declutter the text and make it easier for readers to reference the specific treatments being discussed. • Lack of hypotheses and statistical test: The "Material and Methods" section starts immediately with details of the experimental design without first outlining the specific objectives or hypotheses the study aims to test. • Limitations: I recommend that the discussion section include a more detailed consideration of the limitations of the study. For instance, it would be valuable to address the generalizability of the findings, particularly in relation to different climatic conditions or soil types that were not represented by the study site. Discussing these limitations will not only provide a balanced view of the research but also help in understanding the potential applicability of the results to other regions and contexts. 	

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PART 2:

	Reviewer's comment	Author's comment <i>(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)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	No any ethical issues

Reviewer Details:

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