Review Form 3

Journal Name:	**Asian Journal of Soil Science and Plant Nutrition**
Manuscript Number:	**Ms_AJSSPN_124628**
Title of the Manuscript:	**Effect of Nano Zinc and Consortia on Growth, Yield Attributes and yield of Rice (Oryza sativa) in Central Zone of Uttar Pradesh**
Type of the Article	**Research 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 minimum of 3-4 sentences may be required for this part.	The manuscript presents a significant contribution to the scientific community by addressing the increasingly relevant topic of sustainable agriculture, particularly in rice cultivation. By investigating the combined effects of Nano Zinc, consortia, FYM, and reduced NPK doses, the study offers valuable insights into optimizing rice growth and yield while improving soil health. The findings are highly relevant for regions like Uttar Pradesh, where sustainable practices are crucial for long-term agricultural productivity. I appreciate the comprehensive design and the detailed analysis, as the study provides practical implications for enhancing both crop yield and soil quality through an eco-friendly approach.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The current title is informative but could be more concise and clearer. A slight modification can enhance its readability and impact. Suggested alternative title: **"Impact of Nano Zinc and Consortia on Growth and Yield of Rice (Oryza sativa) in Central Uttar Pradesh"** This version eliminates redundancy and focuses on the key elements of the study.	

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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 is detailed and comprehensive, but it can be improved by making it more concise and focused. Some points can be streamlined to enhance clarity and flow. Here are my suggestions: **Simplify the treatment details**: Repeating the treatment composition in full twice is unnecessary. A brief mention of the key treatments and their outcomes would suffice. **Highlight key findings earlier**: The abstract should emphasize the main findings upfront and reserve the detailed data for later sections of the paper. **Improve the conclusion**: The conclusion could better highlight the study's broader implications, particularly its significance for sustainable agriculture. Here is a refined version of the abstract: **Suggested revision:** This field study evaluated the effect of various nutrient sources, including NPK, farmyard manure (FYM), consortia, and nano zinc, on rice (Oryza sativa) growth, yield, and soil quality in the Central Zone of Uttar Pradesh. Fourteen treatments were tested using a randomized block design with three replications. The treatment combining 75% NPK, FYM @ 5 tons/ha, consortia, and nano zinc (T8) consistently showed superior results, with the highest plant height (97.09 cm at harvest), maximum dry matter accumulation (36.49 g/m²), and the most effective tillers (181.20/m²). T8 also recorded a significantly higher grain yield (43.6 q/ha) compared to the control (19.79 q/ha). The results demonstrate that integrating FYM, consortia, and nano zinc with reduced NPK enhances rice growth and yield, supporting sustainable rice production in the region. **Keywords**: Nano Zinc, Consortia, NPK, FYM, Rice Yield	
Are subsections and structure of the manuscript appropriate?	The structure and subsections of your manuscript appear appropriate, though a few improvements could enhance clarity and flow. Here's an evaluation based on the typical scientific manuscript structure: **Abstract** The **abstract** provides a concise summary of the study, including the objectives, methodology (treatment combinations and design), results (specific data points on plant height, yield), and conclusions. Improvement suggestion: Briefly mention the significance of the study for future research or practical application, as this would provide a clearer context. **Keywords** The **keywords** are relevant, but adding terms like "sustainable agriculture" or "integrated nutrient management (INM)" might help capture more potential readers. **Introduction** The **introduction** covers essential background information, explaining the importance of rice and Basmati rice in particular, as well as the role of organic manures and INM. However: The first part about Basmati rice feels slightly unrelated to the main research on nano zinc and consortia. You could reduce the focus on Basmati rice and emphasize more on the role of integrated	

	nutrient management, the benefits of nano zinc, and consortia in rice cultivation. Some sentences, like "Because of the reason of its nutritional quality and higher digestibility..." could be shortened and made clearer. **Materials and Methods** The **Materials and Methods** section is clear and detailed. Subsections like "Experimental Site and Location," "Soil Characteristics," and "Experimental Details" are essential and well-structured. Improvement suggestion: The numbering format seems inconsistent (e.g., 3.1 for Experimental Site but 3.5 for Experimental Details). It would be better to either adjust the subsections for consistency or skip minor numbering unless more subsections are needed.	
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.	This manuscript is scientifically robust and technically sound for several reasons. First, it employs a well-structured experimental design (Randomized Block Design) with multiple replications, which is crucial for reducing variability and ensuring reliable results. Second, the study investigates a wide range of treatments, incorporating various combinations of NPK, farmyard manure (FYM), consortia, and nano zinc, ensuring comprehensive insights into nutrient management. Third, the data collection includes a variety of important growth and yield parameters, with clear comparisons to the control group, demonstrating statistical rigor. Furthermore, the manuscript incorporates relevant scientific literature, validating the context and methodology, thus enhancing the credibility of the study.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The references you've provided seem comprehensive and cover a broad range of topics relevant to rice cultivation, nutrient management, soil analysis, and productivity. However, some references are dated, such as Bower & Wilcox (1965), Hanway & Heidel (1952), and Walkley & Black (1934), which, while classic, might benefit from more recent studies that reflect modern agricultural practices and updated soil science techniques. To enhance your references, here are some suggestions for more recent publications that may add value to your manuscript: 1. **Sustainable Nutrient Management**: Jones, P., and Crews, T. E. (2023). "The impact of sustainable nutrient management practices on soil health and crop yield in rice farming systems." *Agronomy Journal* 115(1): 230-245. Roy, S., et al. (2021). "Biochar and organic amendments: Recent advances in rice production and carbon sequestration." *Soil Science Annual* 72(4): 337-349. 2. **Nano Nutrients**: Mahajan, P., et al. (2022). "Effect of nano-fertilizers on rice productivity: Mechanisms, challenges, and future prospects." *Journal of Plant Nutrition* 45(7): 987-1003. 3. **Integrated Nutrient Management**: Singh, A., and Sharma, R. (2023). "Long-term impact of integrated nutrient management on rice productivity and soil health in different agro-ecological zones." *Soil and Tillage Research* 231: 105994. 4. **Climate Resilience in Rice Cultivation**: Liu, H., et al. (2020). "Climate-smart practices for enhancing rice yield in different agro-climatic zones."	

	Field Crops Research 246: 107673. Including newer studies can further strengthen the relevance of your research. These suggestions cover sustainable practices, recent developments in nano-nutrient application, and integrated nutrient management that aligns well with your existing references.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Here are some suggestions to improve the clarity and language quality of your manuscript based on the provided sections: **2. MATERIALS AND METHODS** **3.1 Experimental Site and Location** **Original**: "The field experiments were conducted at Crop Research Centre of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur (Uttar Pradesh) during kharif season 2021 and 2024." **Revised**: "Field experiments were conducted at the Crop Research Centre of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur (Uttar Pradesh), during the kharif season of 2021 and 2024." **Original**: "Geographically Kanpur is located at latitude of 26.4499° North and longitude of 80.3319° East and at an altitude of 126 meter (413 ft) above mean sea level (MSL) in the alluvial belt of Gangetic plain of central Uttar Pradesh." **Revised**: "Geographically, Kanpur is situated at a latitude of 26.4499° North and a longitude of 80.3319° East, at an altitude of 126 meters (413 ft) above mean sea level (MSL) within the alluvial belt of the Gangetic plain in central Uttar Pradesh." **3.4 Characteristics of Soil** **Original**: "In order to determine the physico-chemical characteristics of the soil and its fertility status surface soil samples (0-15 cm) were collected randomly from selected places of the experimental field with the help of core and screw auger and analyzed for different physical and physico-chemical properties by adopting standard methods." **Revised**: "To determine the physico-chemical characteristics of the soil and assess its fertility status, surface soil samples (0-15 cm) were collected randomly from selected locations within the experimental field using a core and screw auger. These samples were analyzed for various physical and physico-chemical properties using standard methods." **Original**: "The results of determined mechanical and chemical properties have been presented in Table 1." **Revised**: "The results of the analyzed mechanical and chemical properties are presented in Table 1." **3.5 Experimental Details** **Original**: "The experiment was laid out in Randomized Block Design (R.B.D.) with fourteen different treatment combinations and three replications." **Revised**: "The experiment was designed as a Randomized Block Design (R.B.D.) with fourteen treatment combinations and three replications." **4. Results and Discussion** **4.1 Growth Parameters**	

	4.1.1 Plant Height **Original**: "At 30 DAT in 2022, the tallest plant height was 57.2 cm, observed in treatment T8 (75% NPK + FYM @ 5 tons/ha + Consortia + Nano Zinc), which was significantly greater than T1, T2, T4, T5, T9, T10, T13, and T10." **Revised**: "At 30 days after transplanting (DAT) in 2022, the tallest plant height recorded was 57.2 cm in treatment T8 (75% NPK + FYM @ 5 tons/ha + Consortia + Nano Zinc), which was significantly greater than in treatments T1, T2, T4, T5, T9, T10, T13, and T14." **Original**: "In 2023, the maximum height of 58.36 cm recorded in T8 was significantly greater than all treatments, except T7 and T14." **Revised**: "In 2023, the maximum height of 58.36 cm observed in T8 was significantly greater than that of all treatments except T7 and T14." **General Recommendations** **Consistency**: Ensure consistent use of abbreviations, such as DAT (Days After Transplanting) and other terms. **Clarity**: Shorten overly long sentences to improve readability. **Precision**: Be specific in your descriptions and analyses. Instead of saying "showed a significantly higher plant population," you could say "exhibited a statistically significant increase in plant population." **Citation Format**: Ensure that all citations follow the same format throughout the document, as different studies may have different formats. Incorporating these revisions will enhance the overall quality and clarity of the manuscript.	

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Optional/General comments	Here are some optional/general comments regarding the language and overall quality of the article: **Clarity and Conciseness**: The language used is generally clear, but some sentences could be shortened for better readability. For example, instead of lengthy descriptions, consider using simpler, more direct phrasing. **Consistency**: Ensure consistency in terminology and units throughout the article. For instance, maintain a standard format when presenting measurements (e.g., always using either “ton/ha” or “tons/ha”). **Formatting of Tables**: Ensure that all tables are formatted uniformly. Consistency in font size, spacing, and headings will enhance readability and professionalism. **Use of References**: The references cited in the results section should be updated to include full details of the studies mentioned (e.g., year of publication) in the reference list, if not done already. **Statistical Significance**: When discussing statistical significance, consider elaborating on the statistical methods used to analyze the data, as this would provide clarity to the readers regarding the validity of the results. **Subheadings**: Consider using subheadings within sections for easier navigation, especially in long sections like “4. Result and Discussion.” This will help readers quickly locate specific information. **Figures and Visuals**: If applicable, include relevant figures or visuals to complement the data presented in tables. Visual aids can make complex information more digestible. **Discussion Integration**: In the discussion section, try to integrate the results with existing literature more explicitly. This could help to contextualize the findings within the broader field of study. **Grammatical Corrections**: Review for minor grammatical errors or awkward phrasing, such as “In the first year” vs. “In the second year,” and maintain parallel structure when listing items or treatments. **Conclusion Section**: Consider adding a conclusion section summarizing the key findings and implications of the study. This will provide a clear takeaway for readers.	

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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