

REVIEWER'S REPORT

Manuscript No.: IJAR-56766

Title: Phenomenon of Soil Characteristic Digging: Enhancing the Clustering Schemes and Sorting with kNN-Algorithm for Soil Parameter Calculation at KGI Campus

Recommendation:

Accept

Rating	Excel.	Good	Fair	Poor
Originality		Yes		
Techn. Quality		Yes		
Clarity	Yes			
Significance		Yes		

Reviewer Name: Dr. Ashish Yadav

Detailed Reviewer's Report

Reviewer's Comment for Publication.

Acceptance comments are mentioned below suitable for the paper titled “Phenomenon of Soil Characteristic Digging: Enhancing the Clustering Schemes and Sorting with kNN-Algorithm for Soil Parameter Calculation at KGI Campus”

Reviewer Comments: Accept

Reviewer Comments –

Introduction:

The introduction establishes the broader context of artificial intelligence in precision agriculture, highlighting the role of machine learning, computer vision, and IoT in optimizing crop management and resource allocation. The authors connect these technological advancements to the pressing challenges of global population growth and environmental sustainability. The study is situated within the context of KGI Campus, with reference to NG-AIA (next generation agriculture incorporated with AI) as a conceptual framework. However, the introduction lacks specificity regarding the precise problem being addressed—namely soil parameter calculation—and does not clearly articulate the research gap or the unique contribution of this study to the existing literature.

Literature Review:

The literature review touches upon various AI and machine learning applications in agriculture but remains largely general and descriptive rather than critically analytical. The authors reference algorithms relevant to agricultural development but do not provide a systematic synthesis of prior work specifically addressing soil parameter calculation using clustering schemes and kNN algorithms. The review would benefit from a more focused examination of existing studies on soil nutrient prediction, comparative

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analysis of different machine learning approaches for soil classification, and identification of gaps that this study aims to fill. The current presentation does not sufficiently demonstrate the authors' command of the relevant scholarly landscape or justify the methodological choices made in this study.

Solution Approach:

The solution approach describes the use of clustering schemes and the kNN algorithm for soil parameter calculation at KGI Campus, though the methodological details are presented with insufficient clarity and rigor. The authors do not specify critical elements such as the size and composition of the soil dataset, the number and type of soil parameters measured, the preprocessing steps applied, the specific clustering methodology employed, or the rationale for selecting kNN over alternative classification algorithms. The absence of detailed information on data collection protocols, sample collection depth, geographic coverage within the campus, and validation procedures significantly limits the reproducibility of the study. A more comprehensive description of the experimental design and analytical framework is essential.

Results and Discussion:

The results section lacks substantive presentation of findings, with no quantitative data, tables, or figures demonstrating the performance of the clustering schemes or kNN algorithm in soil parameter calculation. Metrics such as accuracy, precision, recall, or F1-score that would typically accompany a machine learning-based classification study are absent. The discussion does not interpret the results in relation to the research objectives, nor does it compare the findings with prior studies on soil parameter prediction using AI/ML approaches. The authors miss the opportunity to discuss the practical implications of their findings for precision agriculture at KGI Campus or to address limitations and potential sources of error in their methodology.

Conclusion:

The conclusion reiterates the broader potential of AI in agriculture but does not effectively summarize the specific findings or contributions of this study. The authors do not articulate how the application of clustering schemes and kNN algorithm at KGI Campus advances the field of soil parameter calculation or precision agriculture more broadly. The conclusion lacks concrete takeaways for practitioners, recommendations for future research, or acknowledgment of the study's limitations.