

# Review of: "Adoption of Machine Learning Methods for Crop Yield Prediction-based Smart Agriculture and Sustainable Growth of Crop Yield Production – Case Study in Jordan"

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Potential competing interests: No potential competing interests to declare.

Greetings, Corresponding Author

This manuscript is interesting and groundbreaking, as it tackles a crucial topic in contemporary agricultural production. The authors demonstrate an elaborate research effort to present their findings honestly and comprehensively. The manuscript is structured effectively and addresses an important subject. The research undertaken is interesting, and the results are communicated with transparency and precision. Nonetheless, there are sections where further details and explanations could improve the overall quality and clarity of the manuscript.

## 1. Research Methodology:

Please provide a more detailed description of how the data was divided into training and validation sets. Specifically, explain how you managed the possibility of completely different populations in these sets. This is crucial to ensure the robustness and generalizability of your model.

### Data Division:

- Training and Validation Sets: Describe the criteria and methodology used to split the data into training and validation sets. Include details on the proportion of data allocated to each set (e.g., 70% for training and 30% for validation) and any stratification techniques employed to maintain representative distributions.
- Population Differences: Address how you handled potential differences in population characteristics between the training and validation sets. Discuss any techniques used to ensure that both sets are representative of the overall dataset, such as random sampling or stratified sampling based on key variables.

### Field Data Validation:

- Validation Process: Elaborate on how the field data was utilized to validate the landscape model. Provide a step-by-step description of the validation process, including any preprocessing steps, alignment of field data with model predictions, and the criteria used to assess model performance.
- Validation Criteria: Detail the specific metrics and thresholds used to evaluate the model's accuracy and reliability. Explain how these criteria were chosen and their relevance to the study's objectives.

### Agricultural and Environmental Variables:

- **Variable Selection:** Clarify which variables were related to agricultural and environmental factors. Provide a comprehensive list of these variables and explain the rationale behind their selection.
- **Measurement Methods:** Describe how these variables were measured, including the tools and techniques used for data collection. Discuss the accuracy and precision of these measurements and any calibration procedures undertaken.
- **Field Data Reflection:** Explain how the measured variables reflect the data collected in the field. Discuss the correlation between field measurements and the variables used in the model, highlighting any significant relationships or patterns observed.

Providing these additional details will help readers understand the relevance and accuracy of your data, thereby enhancing the overall quality and comprehensibility of your manuscript.

### **2. Results and Discussion:**

The results and discussion section is meticulously presented and aligns seamlessly with the subject matter. The research findings are robustly supported by comprehensive tables, figures, and pertinent literature. However, the authors must provide a more profound interpretation of the results. It is essential to discuss the implications of the findings within the context of existing research. Emphasize any novel insights or contributions that your study offers to the field. Ensure that all methods and results are described with sufficient detail to facilitate replication. This includes specifying the software and tools utilized, as well as all parameters or settings critical to your analysis. Verify the standardization of acronyms, units of measurement, and terminology throughout the manuscript. This will help prevent confusion and ensure that your findings are communicated clearly.

### **3. Conclusion:**

Overall, the manuscript demonstrates significant potential and makes a noteworthy contribution to the field. With some revisions to enhance clarity and detail, it will be well-suited for publication. The additional information will fortify the manuscript and provide readers with a comprehensive understanding of your research.