Review of: "Yield Forecasting Model for Maize Using Satellite Multispectral Imagery Driven Vegetation Indices"

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Potential competing interests: No potential competing interests to declare.

The paper, titled "Yield Forecasting Model for Maize Using Satellite Multispectral Imagery Driven Vegetation Indices," aims to develop a predictive model for maize yield in Kaharole, Bangladesh, relying on the commonly used NDVI. This is a generally well-structured study which proposes a practical application of optical data in agriculture, aiming to assist farmers and inform government policies. However, several aspects of the paper come under examination, ranging from issues with figure clarity and lengthy sections to concerns about the lack of methodological detail, novelty, and relevance. The following comments highlight specific areas for improvement:

General Comments:

- Figures require recreation for improved clarity and self-explainability (e.g., Figure 2).
- Consider revising the title to accurately reflect the predominant use of NDVI.
- Incorporate more recent references and literature to enhance the novelty and relevance of the study.
- Adding missing information on yield data acquisition for improved engagement.
- Provide methodological details, addressing how yield data was collected, spatially interpolated, and correlated with NDVI to enhance the study's credibility.
- Clarify the process of pixel selection, addressing concerns about potential inclusion of field borders and exclusion of useful pixels based on an arbitrary NDVI threshold.
- There is a lack of innovation regarding the predictive yield methods. Consider incorporating advanced statistical models or machine learning algorithms to elevate the sophistication and accuracy of the yield forecasting model.
- The decision to use only one NDVI image per cultivation period, based on the maximum NDVI, lacks clear justification. Provide a rationale and discuss potential impacts on model accuracy and representativeness. Address the absence of multiple satellite images throughout the cultivation period and its consequences for capturing temporal variations in vegetation indices and their correlation with maize yield.
- Explore additional vegetation indices for a more comprehensive analysis.
- Enhance the discussion section, providing insights into data behavior, comparisons with similar studies, and exploring more advanced modeling techniques for methodological innovation.