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REVIEWER'S REPORT

Manuscript No.: IJAR-58017

Title: EFFECTS OF AN ORGANIC BIOSTIMULANT ON THE AGRONOMIC AND ECONOMIC PERFORMANCE OF GROUNDNUT CULTIVATION IN REAL-WORLD CONDITIONS IN THE NAKAMBE REGION OF BURKINA FASO

Recommendation:

Accept as it is .....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

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

Reviewer's ID: JPR- 002

Detailed Reviewer's Report

The manuscript investigates the influence of different doses of an organic biostimulant on the physiological, agronomic, and economic performance of groundnut cultivation under field conditions in Burkina Faso. The topic is relevant and timely, particularly considering the increasing interest in sustainable agricultural practices, soil fertility management, and climate-resilient crop production systems. The study provides practical information on the use of biostimulants as an alternative to chemical fertilizers and demonstrates their potential impact on yield improvement and farm profitability. The manuscript is generally well organized and follows a logical scientific structure, including introduction, materials and methods, results, discussion, and conclusion.

The introduction adequately highlights the importance of groundnut production in Burkina Faso and presents the rationale for evaluating biostimulants under local farming conditions. The literature review provides sufficient background information on the role of biostimulants in crop productivity. However, the introduction could be strengthened by providing more recent and region-specific studies on biostimulant applications in legume crops and by clearly identifying the research gap addressed by the study.

The materials and methods section is detailed and allows reproducibility of the experiment. The experimental design, treatment structure, agronomic practices, and measured parameters are clearly

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described. The use of a randomized block design with four replications is appropriate for field experimentation. Nevertheless, additional information regarding soil variability among plots, rainfall distribution during the cropping season, and environmental conditions during the experiment would improve the scientific rigor of the study. Furthermore, details regarding the exact economic calculations and market price assumptions used for gross margin analysis should be presented more explicitly.

The results are presented systematically with appropriate tables and figures. Statistical analyses are generally adequate, and the findings demonstrate significant effects of the biostimulant on flowering, maturity, pod production, seed number, biomass accumulation, and economic returns. The presentation of physiological and agronomic parameters is clear and easy to understand. However, some tables could be improved by including letters indicating statistical groupings from the Newman-Keuls test to facilitate interpretation of significant differences among treatments. Additionally, confidence intervals or standard errors could be included to enhance statistical transparency.

The discussion effectively relates the findings to previous studies and provides plausible explanations for the observed responses. The authors successfully demonstrate that the 1 L/ha biostimulant dose produced the highest grain yield and economic return, whereas the 3 L/ha dose favored vegetative biomass production. The discussion would benefit from a more critical analysis of why higher doses did not further improve grain yield and whether excessive vegetative growth may have affected reproductive development. Moreover, limitations of the study should be acknowledged, particularly the single-season and single-location nature of the experiment.

The conclusion is consistent with the presented results and highlights the practical implications of biostimulant application for sustainable groundnut production. The recommendation of 1 L/ha for grain production and 3 L/ha for haulm production is supported by the experimental findings. However, the authors should avoid broad generalizations until multi-location and multi-season validation studies are conducted.

From a language perspective, the manuscript is understandable but requires moderate English editing. Several grammatical inconsistencies, typographical errors, and formatting issues are present throughout the text. Standardization of terminology (e.g., "Groundnut" versus "groundnut"), improvement of sentence structure, and careful proofreading would significantly enhance readability and professionalism.

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Overall, the study contributes useful information to the field of sustainable crop management and offers practical recommendations for groundnut producers. Subject to minor to moderate revisions addressing methodological clarifications, statistical presentation, language improvement, and discussion enhancement, the manuscript is suitable for publication.