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REVIEWER'S REPORT

Manuscript No.: IJAR-50553 Date: 08-03-2025

Title: FARMERS\\\' PERCEPTIONS OF THE EFFECTS OF SOIL SALINITY ON AGRICULTURAL PRODUCTION IN THE LOWLANDS OF DALLOL FOGHA, NIGER

Recommendation:
Accept as it is……**YES……**
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 Name: Tahir Ahmad

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Review Summary

The manuscript presents a comprehensive study on farmers' perceptions of the effects of soil salinity on agricultural production in the lowlands of the Dallol Fogha in Niger. The research is based on surveys conducted with 216 farmers across eight villages in the commune of Yélou. The study provides valuable insights into the causes, indicators, and impacts of soil salinity, as well as the management practices adopted by local farmers.

Key Findings

- The primary indicators of soil salinity identified by farmers include whitish efflorescence on the soil (22.5%), black efflorescence (18.1%), plant death (14.8%), and lack of crop growth (11.4%).
- The key sources of salinization in the region include capillary rise of groundwater (12.4%), naturally saline soils (17%), and naturally saline waters (17.4%).

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- The average area affected by salinity ranges from 0.77 to 4.12 hectares per farmer, with a total mean of 2.36 hectares.
- 42.4% of the respondents reported that salinity leads to the abandonment of cultivated plots.
- A significant proportion (71.8%) of surveyed farmers estimated yield losses of up to 90-100% due to soil salinity.
- Common soil salinity management practices include the use of manure (10.2%) and hulls and glumes (16%), while 59% of farmers choose to abandon affected plots altogether.

Introduction & Background

The introduction effectively sets the stage for the study by discussing the global and regional impacts of soil salinity. The manuscript highlights relevant statistics on soil degradation and its economic consequences, emphasizing its significance in arid and semi-arid regions like Niger. Prior research is appropriately cited to establish the context for the study, detailing how salinity has influenced agricultural productivity worldwide and in West Africa.

Methodology

The study employs a well-structured methodology, including field observations and surveys with a clearly defined sample of 216 farmers. The selection of villages was carried out based on Google Earth Pro mapping and field verification with local experts. The research follows a systematic approach in gathering data through semi-structured questionnaires. The methods used for data analysis, including descriptive statistics and ANOVA, are appropriate for assessing variations in soil salinity perceptions and management strategies across different villages.

Results & Discussion

The manuscript presents the results in a clear and structured manner, with quantitative data supporting the findings. The discussion highlights key issues, such as the extent of land abandonment due to salinity, the severity of yield losses, and the limited number of effective soil management practices used by farmers. The spatial variation in salinity levels and their corresponding impacts on agricultural productivity are well-documented.

Conclusion

The conclusion summarizes the major findings and underscores the need for solutions to address soil salinity. It suggests testing salt-tolerant species as a potential measure to improve

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productivity in affected regions. The study makes a valuable contribution to understanding the local perceptions of soil salinity and its impact on agriculture in the Dallol Fogha lowlands.

Overall Assessment

The manuscript provides a thorough analysis of the effects of soil salinity on agricultural production, incorporating both quantitative and qualitative data. The study is well-structured, with a clear research objective, relevant methodology, and comprehensive discussion of findings. The inclusion of local perspectives enhances the relevance of the research, making it an important contribution to soil salinity studies in arid and semi-arid regions.