ISSN(O): 2320-5407 | ISSN(P): 3107-4928

ISSN NO. 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR- 58556

Title:TERRITORIAL CHARACTERIZATION AND PHYTOSANITARY RISK CLASSIFICATION OF CITRUS FRUIT CONSOLIDATION UNITS IN THE RECÃ"NCAVO REGION OF BAHIA, BRAZIL,

Recommendation:
Accept after minor revision

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

Reviewer's ID: Abdul Haseeb Mir

Detailed Reviewer's Report

This study presents a spatial and phytosanitary risk assessment of 15 citrus fruit Consolidation Units (Packinghouses) located across five municipalities in the Recôncavo region of Bahia, Brazil. The authors address a critical topic in agricultural defense: the potential role of centralized logistical hubs in facilitating the introduction and spread of economically devastating plant diseases, specifically Huanglongbing (HLB) and citrus canker (*Xanthomonas citri* subsp. *citri*).

To achieve their objective, the authors employed a multi-faceted methodology combining secondary databases from state agricultural defense authorities (ADAB), a 37-question structured survey administered to technical managers and owners, direct field observations, and high-resolution aerial imagery captured via Remotely Piloted Aircraft (RPA/drones). These drone-derived orthomosaics were processed using open-source software (WebODM) to establish concentric proximity buffer zones (0–200 m, 200–400 m, and 400–600 m) between packing facilities and surrounding citrus orchards.

The empirical findings reveal significant operational and phytosanitary vulnerabilities across the supply chain. The region's operations are heavily specialized in Tahiti acid lime, with 86.7% of facilities receiving fruit from third-party suppliers and 66.7% serving international export markets. Operational activity peaks sharply during June and July. Crucially, the integrated risk classification categorized 66.7% (10 units) as high risk, 6.7% (1 unit) as medium risk, and 26.7% (4 units) as low risk. The primary

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drivers of high-risk classification were operational deficiencies: only 33.3% of units practice vehicle and equipment sanitation, and 73.3% dispose of organic waste in open dumps, creating potential reservoirs for disease vectors and pathogens.

The manuscript successfully demonstrates the practical utility of integrating low-cost geotechnologies with field surveys to create a decision-support framework for regulatory bodies. Overall, the work is highly relevant to regional plant health management and provides valuable empirical data for targeted agricultural surveillance.

Suggestions for Improvement

While the manuscript is well-conceived and offers substantial practical value, several areas require refinement to enhance scientific rigor, clarity, and publication readiness:

- **Methodological Clarity on Risk Indexing:** The criteria used to assign facilities into "Low," "Medium," and "High" risk categories need explicit, quantitative definition. A clear scoring rubric or matrix explaining how spatial proximity, operational volume, sanitation practices, and waste disposal methods were weighted and integrated should be added to the Materials and Methods section.
- **Figure and Data Redundancy:** The manuscript contains an excessive number of simple pie and bar charts (Figures 1 through 29). Figures 5 through 9 (showing the breakdown of processed citrus species) and Figures 13 through 16 (regional origins) could be consolidated into multi-panel figures or comprehensive summary tables to improve readability and flow.
- **Self-Reported Data Validation:** Much of the data relies on self-reported survey responses from technical managers. The discussion should more explicitly address potential response bias and detail how field observations and orthomosaics were used to cross-validate operational claims (e.g., verifying open dump sites against aerial images).
- **Technical Presentation of Spatial Data:** In Figure 32, flight parameter information would be better formatted as a clean LaTeX table within the text rather than embedded as a low-resolution image file. Similarly, ensure all map legends in Figure 30 are legible and translated consistently into the manuscript's primary language.
- **In-Text Reference Formatting:** Ensure all references comply strictly with journal formatting guidelines, correcting minor typographical inconsistencies in citations (e.g., incomplete author lists or missing publication details in the references section).

Recommendation for Editor

Accept with Minor Revision

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The manuscript provides a valuable, applied contribution to phytosanitary risk management and agricultural geotechnologies. The core research design, field execution, and integration of drone orthomosaics with biosecurity assessments are sound. Addressing the suggestions outlined above—particularly clarifying the risk-scoring methodology and consolidating the descriptive figures—will significantly strengthen the paper's academic impact.