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## REVIEWER'S REPORT

**Manuscript No.: IJAR- 59785**

**Manuscript Title: Social innovations and collective management of fall armyworm (Spodoptera frugiperda) in maize production in northern Benin: From collective learning to collective action?,**

**Recommendation:**
Accept after minor revision

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

**Reviewer Name: Dr. Abdul Haseeb Mir**

***Detailed Reviewer's Repot***

**General Overview**

The academic article titled "Social innovations and collective management of fall armyworm (*Spodoptera frugiperda*) in maize production in northern Benin: From collective learning to collective action?" offers an insightful empirical investigation into how agricultural social innovations operate and persist in smallholder pest management. Surveying 76 maize farmers across five villages in N'Dali municipality who reported 111 instances of participation in nine distinct organizational arrangements, the authors classify these initiatives into learning, relational, and regulatory dimensions grounded in Ostrom's principles of common-pool resource governance and Rogers's diffusion of innovations theory. The study demonstrates that while externally facilitated learning arrangements—such as farmer field schools and demonstration plots—successfully promote agroecological pest-control practices, they frequently collapse after project withdrawal (62.0% discontinuation vs. 17.9% for relational arrangements) and rarely establish the formal rules, shared field monitoring, or graduated sanctions needed for true landscape-level pest regulation.

A major strength of the manuscript is its analytical rigor and clear theoretical synthesis. By pairing non-parametric tests and qualitative interview excerpts with clustered binary logistic regression models, the authors convincingly disentangle an innovation's external project origin from its functional dimension—

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showing that discontinuation is driven primarily by a reliance on technician-led learning structures rather than external origin alone ($OR = 8.01$; $p < 0.001$). Furthermore, the discussion thoughtfully reconciles the fragility of formal training infrastructures with the resilience of endogenous relational networks (farmer groups and village meetings), illustrating how social capital sustains farmer-to-farmer diffusion of botanical practices even after project exit. The authors also display commendable methodological transparency by acknowledging sample-size constraints, self-report biases, non-independence of multiple mentions, and their institutional affiliation with the implementing laboratory.

To prepare the manuscript for final publication, only a few minor editorial and formatting corrections are needed. First, a few corrupted or truncated sentences appear in the text and require repair: on page 4, the sentence ending the analytical framework reads *"through which practices et al., 2022)"* (missing the verb and first author name for Assogba et al., 2022); on page 2, *"N'Dalimunicipality"* lacks a space and line 102 contains a stray fragment (*"farme."*); and on page 10, a stray line (*"| challenges U"*) appears beneath the paragraph. Second, minor typographical and spacing artifacts should be cleaned up across the text and tables—including duplicated words (*"management manag"* in the Abstract), missing spaces in Table 1's footnotes (*"Percentageofgroupmemberswho"*), a truncated axis label in Figure 4C (*"aput availability and price"* instead of *"Input availability and price"*), and irregular spacing in several reference entries. Finally, the embedded figures (Figures 1–5) are accompanied by raw extracted text duplicates beneath the images, which should be removed during final typesetting. Addressing these minor presentation details will ensure a polished and compelling contribution to rural development and agroecological governance scholarship.

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