

## REVIEWER'S REPORT

Manuscript No.: IJAR- 58432

**Title: Pearl millet downy mildew: Prevalence and impact in farmers' fields in the Maradi Region of Niger**

### 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 Name: **ANAPANA GOPAL**

### Reviewer's Comment for Publication.

#### General Comments

The manuscript presents a field survey assessing the prevalence, incidence, severity, and yield losses associated with pearl millet downy mildew (*Sclerospora graminicola*) in farmers' fields across the Maradi Region of Niger. The study is relevant because pearl millet is a major staple crop in the Sahel, and downy mildew remains one of the most destructive diseases affecting its productivity. The survey of 38 farmers' fields provides valuable baseline information on disease distribution and identifies potential disease hotspots that could support future breeding and disease management programs.

The manuscript is generally well organized, and the field survey methodology is appropriate. However, the manuscript requires **minor revision** due to insufficient statistical analysis, limited discussion of disease epidemiology, inadequate methodological details, language issues, and several inconsistencies in terminology and presentation.

#### Minor Comments

##### 1. Novelty should be more clearly established

The manuscript reports disease prevalence and associated yield losses but does not clearly define its unique scientific contribution.

The authors should explain:

- how this survey differs from previous disease surveys conducted in Niger,
- whether this represents the first quantitative assessment of yield losses in the Maradi Region,
- the practical implications for breeding, disease surveillance, and national disease management strategies.

##### 2. Survey methodology requires additional detail

The sampling procedure is generally described; however, additional information is required regarding:

- criteria for selecting villages and farms,

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- sampling randomness,
- farmer consent,
- field management history,
- cultivar characteristics,
- previous disease management practices,
- cropping history,
- soil characteristics.

These variables may influence disease incidence and should be considered.

### **3. Statistical analysis should be strengthened**

The manuscript mainly presents descriptive statistics.

The authors should include:

- analysis of variance (ANOVA),
- confidence intervals,
- correlation between incidence, severity, and ear loss,
- regression analysis,
- spatial statistical analysis where appropriate,
- comparison among districts or cropping systems.

These analyses would considerably strengthen the conclusions.

### **4. Disease epidemiology requires deeper discussion**

The Discussion should better explain factors influencing disease distribution, including:

- rainfall patterns,
- humidity,
- temperature,
- soil moisture,
- host susceptibility,
- pathogen survival,
- inoculum sources,
- cropping practices.

A more comprehensive epidemiological interpretation would enhance the manuscript.

### **5. Yield loss assessment requires clarification**

The manuscript estimates ear loss percentages, but the methodology requires further explanation.

Please clarify:

- whether losses were measured directly or estimated visually,
- validation of the estimation method,
- relationship between ear loss and actual grain yield reduction,
- possible overestimation or underestimation of losses.

### **6. Mapping and spatial presentation could be improved**

The geographical survey is one of the strengths of the study.

However, the manuscript would benefit from:

- GIS-based disease distribution maps,
- disease hotspot visualization,
- spatial interpolation,

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- district-wise incidence maps,
- relationship with climatic variables.

### **7. Management implications should be expanded**

The manuscript concludes that disease hotspots were identified but provides limited recommendations.

Consider discussing:

- resistant cultivars,
- seed health management,
- fungicide options,
- integrated disease management,
- farmer awareness,
- early warning systems,
- climate-resilient production strategies.

### **Minor Comments**

#### **Abstract**

- Clearly state the survey methodology.
- Mention the total number of surveyed fields.
- Present the major practical implication.
- Avoid excessive numerical details.

#### **Keywords**

Consider adding:

- Downy mildew
- *Sclerospora graminicola*
- Plant pathology
- Disease survey
- Yield loss
- Food security

#### **Introduction**

The introduction provides useful background information but can be improved by:

- emphasizing the research gap,
- summarizing previous studies conducted in Niger,
- clearly stating the study hypothesis.

#### **Materials and Methods**

Please provide additional details regarding:

- survey dates,
- disease diagnosis procedure,
- confirmation of pathogen identity,
- observer training,
- GPS equipment,
- statistical software,
- quality assurance during field assessment.

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### Results

The results are clearly presented.

However:

- include statistical comparisons,
- summarize findings graphically,
- improve interpretation of Table 2,
- report variability measures where applicable.

### Figures

The diagrams illustrating the sampling procedure and disease severity scale are useful.

However:

- improve image resolution,
- standardize figure formatting,
- enlarge labels,
- include clearer captions,
- provide a regional location map showing surveyed sites.

### Tables

Tables contain valuable information but require formatting improvements.

Please:

- standardize decimal places,
- improve alignment,
- define abbreviations,
- ensure consistency in coordinate notation.

### Discussion

The discussion should compare the findings with more studies from Africa and India and provide stronger biological and epidemiological explanations rather than primarily describing the observed results.

### Language

The manuscript requires professional English editing.

Several issues include:

- grammatical errors,
- inconsistent terminology,
- awkward sentence construction,
- punctuation inconsistencies,
- repeated phrases.

One specific correction is in the ear loss formula, which incorrectly refers to "**maize downy mildew**" instead of "**pearl millet downy mildew**." This should be corrected throughout the manuscript.

### References

The reference list is relevant and generally up to date.

However, please verify:

- journal abbreviations,
- DOI formatting,

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- consistency of citation style,
- spacing,
- capitalization,
- completeness of publication details.

### Strengths

- Highly relevant topic for food security in the Sahel.
- Extensive field survey covering multiple locations.
- Practical importance for disease management.
- Clear assessment of disease incidence, severity, and yield losses.
- Useful baseline information for breeding programs.
- Appropriate use of disease severity scales and field assessment methods.

### Weaknesses

- Novelty is not clearly emphasized.
- Statistical analysis is limited.
- Survey methodology lacks some important details.
- Spatial analysis could be expanded.
- Disease epidemiology requires deeper discussion.
- English language and formatting require improvement.
- Minor terminology inconsistencies are present.

### Recommendation

#### Minor Revision