Strengthening Post-Harvest Management practices for Improved Seed Quality: Enhancing Seed Certification and inspections in Sierra Leone

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Abstract

Seed quality is a fundamental driver of agricultural productivity and food security. In Sierra Leone, weak post-harvest management practices significantly undermine seed quality, affecting certification outcomes and farmer trust. This study evaluates post-harvest handling practices among seed producers and examines their implications for seed certification and inspection systems under the Sierra Leone Seed Certification Agency (SLeSCA). A mixed-methods approach involving field assessments, laboratory analysis, and key informant interviews was employed. Results indicate that inadequate drying, poor storage infrastructure, and limited technical capacity contribute to reduced germination rates and increased contamination. The study recommends strengthening post-harvest systems through capacity building, improved infrastructure, and enhanced inspection protocols.

Introduction

Agriculture remains central to Sierra Leone's economy, with seed quality playing a key role in productivity. However, poor post-harvest practices reduce seed viability and certification success. This study focuses on improving post-harvest systems to strengthen certification and inspection.

Material and Methods

Study was conducted in Bombali, Bo, Kenema, Kabala, Tonkolili, Kambia and Moyamba Kailahun districts. A mixed-methods cross-sectional design was used. A sample of 120 seed producers, 15 inspectors, and 10 extension officers participated. Data collection included field observations, Key informant interviews, and laboratory seed testing following ISTA standards.

Study Area

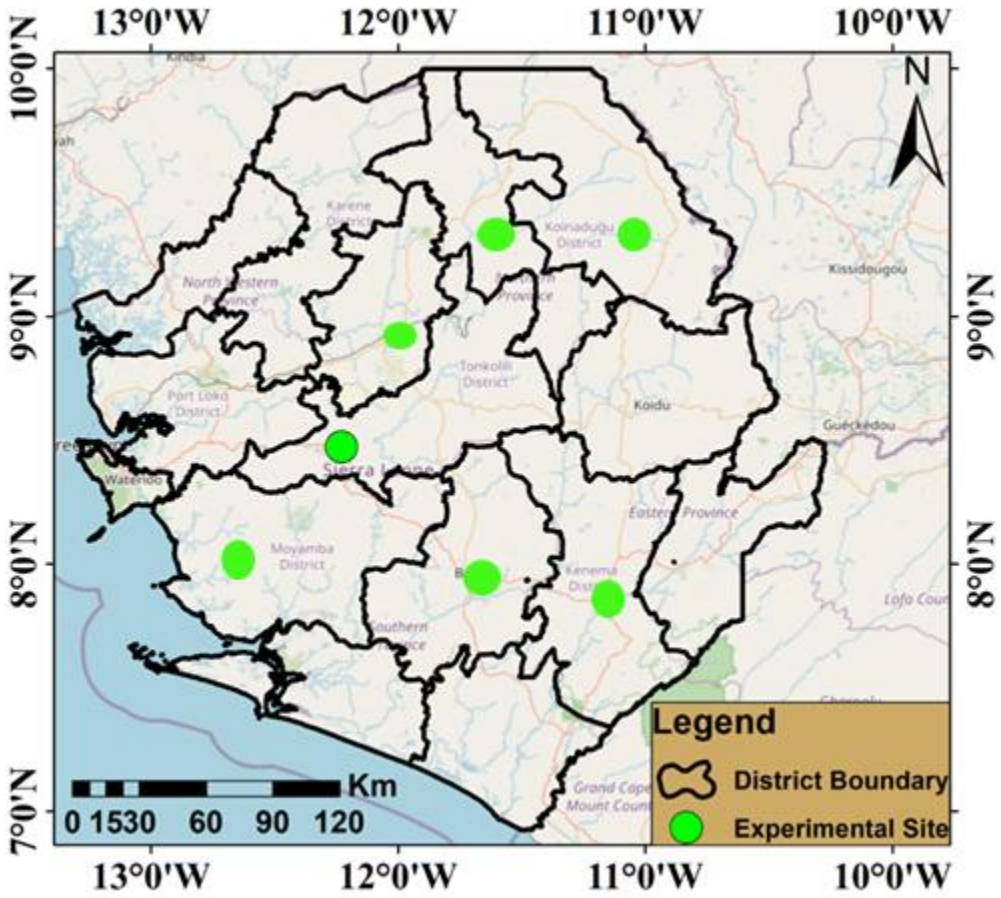

Fig 1: Map of Sierra Leone showing the study area

Sampling Size and Participant Demographics

A total of 145 sampling size were used in this study.

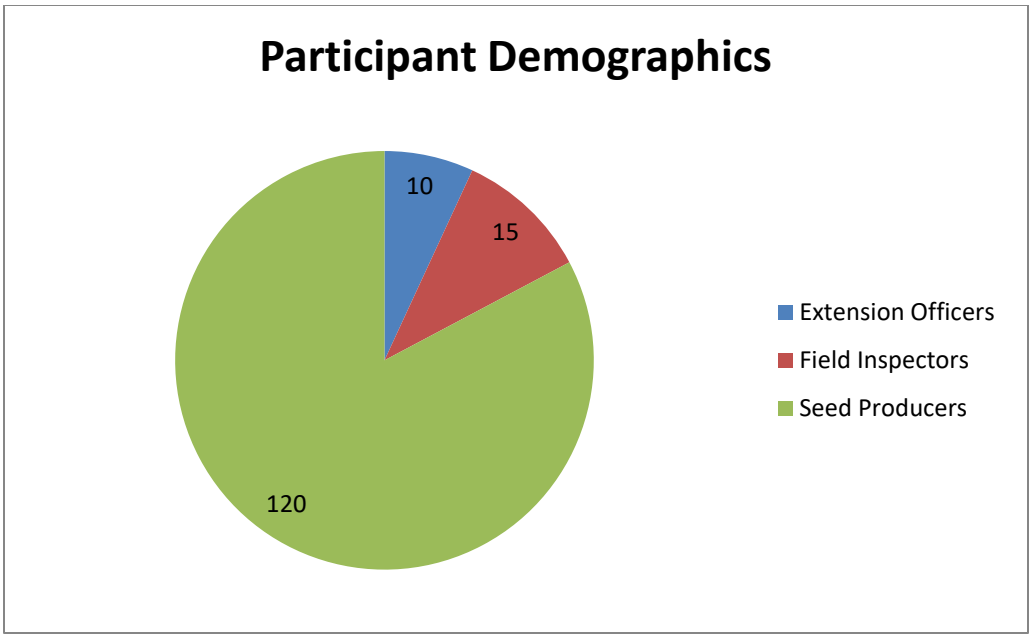

Fig 2: A Pie Chart showing number of participants for seed producers, field inspectors, and extension officers

Results

Findings show widespread use of traditional drying methods due to poor drying facilities, poor storage facilities, and limited equipment. These practices significantly reduced seed germination and purity.

The foundation seed fields for cassava, cowpea, and maize were well manage in some areas and need improvement of rogueing in theTomkolili district.

Little or no knowledge of certification and fields inspections by some producers

The cassava seed fields were growing very well and maintained good agronomic practices. 120 foundation seeds producers were inspected only 45 indicates results especially for the maize and soybean. All cassava fields are maintained

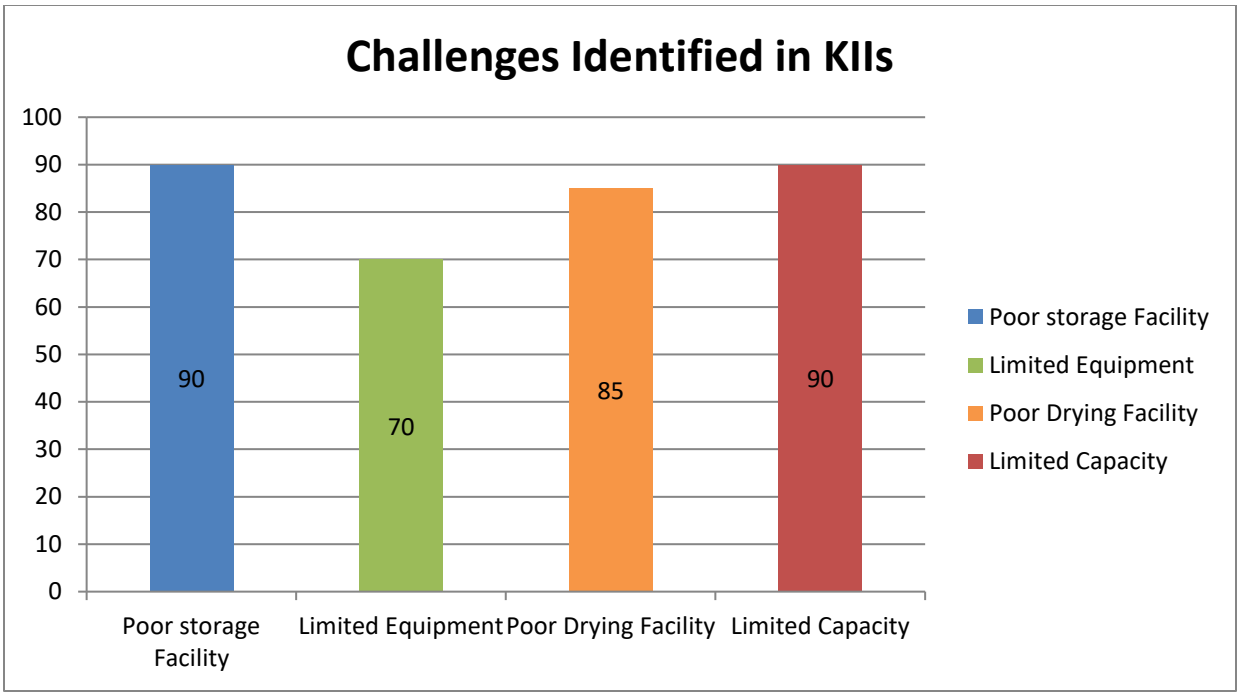

Fig 3: Bar Chart showing challenges identified during the work

Discussion

Results align with regional studies showing poor post-harvest handling reduces seed quality. Strengthening systems will improve certification efficiency and farmer access to quality seed.

Conclusion

Improved post-harvest management is essential for strengthening seed certification systems and ensuring seed quality in Sierra Leone.

References

FAO (2020); ISTA (2023); OECD (2019); AFSTA (2022).

International Rules Seed Testing | Official ISTA Guidelines
ISTA 2024 https://www.seedtest.org/api/rm/RPTP2JTYH9BX924/ista-accreditation-standard-for-seed-testing-and-s-4.pdf

Appendices

Appendix 1: Picture showing poor storage facility

Appendix 2: Picture of poor drying facility (traditional drying method) during the field visit

Appendix 3: Picture showing soybean field

Appendix 4: Picture showing Cassava field

Appendix 5: Picture showing infected maize seeds in a traditional storage facility