



## RESEARCH PAPER

# Effect of neutral silica in paddy storage

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**Abstract :** The lesser grain borer (*Rhizoperthadominica*) is a major primary pest of stored paddy causing significant quantitative and qualitative damage and Angoumois grain moth, *Sitotrogacerealella* is regarded as one of the most destructive internal feeder in stored grains of rice. Although there are various approaches to addressing this issue, utilising plant based neutral silica is one of the most practical, cost-effective, and ecofriendly choice. Laboratory study was conducted with six treatments and four replications in a completely randomised design at Seed Research Technology Centre, Rajendranagar, Hyderabad during July 2024 to April 2025 to investigate the effect of plant based neutral silica on the storability of paddy seeds. Seeds were treated with plant based neutral silica and with chemical check deltamethrin and stored in HDPE bags for nine months. The parameters of insect population and seed quality were recorded in order to assess the efficacy of different concentrations of silica. Neutral silica @3500ppm (3.5g/kg) (T<sub>3</sub>) recorded the highest seed quality parameters viz., seed germination (87.75%), lowest seed moisture content (8.83%), seed damage(3.56%),nil adult emergence and maximum mortality(100%) of pulse beetle at nine months of storage. A successful seed storage management strategy that kept seed quality above MSCS level for up to nine months of storage was the neutral silica @ 3.5g/kg (T<sub>3</sub>) seed treatment.

**Key Words :** Paddy seed storage, Neutral silica, Inert dust, *Rhizoperthadominica*, HDPE bag

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## INTRODUCTION

In India the total post harvest losses at different stages have added upto about 36% in rice. Storage loss due to insect pests alone is ranging from 4 to 6% for cereals. Apart from quantitative loss, they also deteriorate quality by contaminating the grains due to which stored products get bad odour, colour and taste (Patil *et al.*, 2019).

After harvest, storage of seeds until the next cropping season without reducing their quality is crucial for successful seed production. Effective seed storage

ensures that seeds remain viable, maintaining their germination potential and vigour. The challenge lies in preserving quality of seeds over time, which can be affected by various factors such as moisture, temperature and insect pests. Post-harvest damages by insect pests have been an increasingly important constraint to food legume supplies worldwide. Insects pose a significant threat to stored seeds, often leading to substantial losses.

The lesser grain borer (*Rhizoperthadominica*) is a major primary pest of stored paddy causing significant quantitative and qualitative damage Both adult and larval