

Farmer-led joint experiment to improve the efficacy of Paliga roots (*Securidaca longipedunculata*) for preserving stored grains in NE Gonja district of Ghana

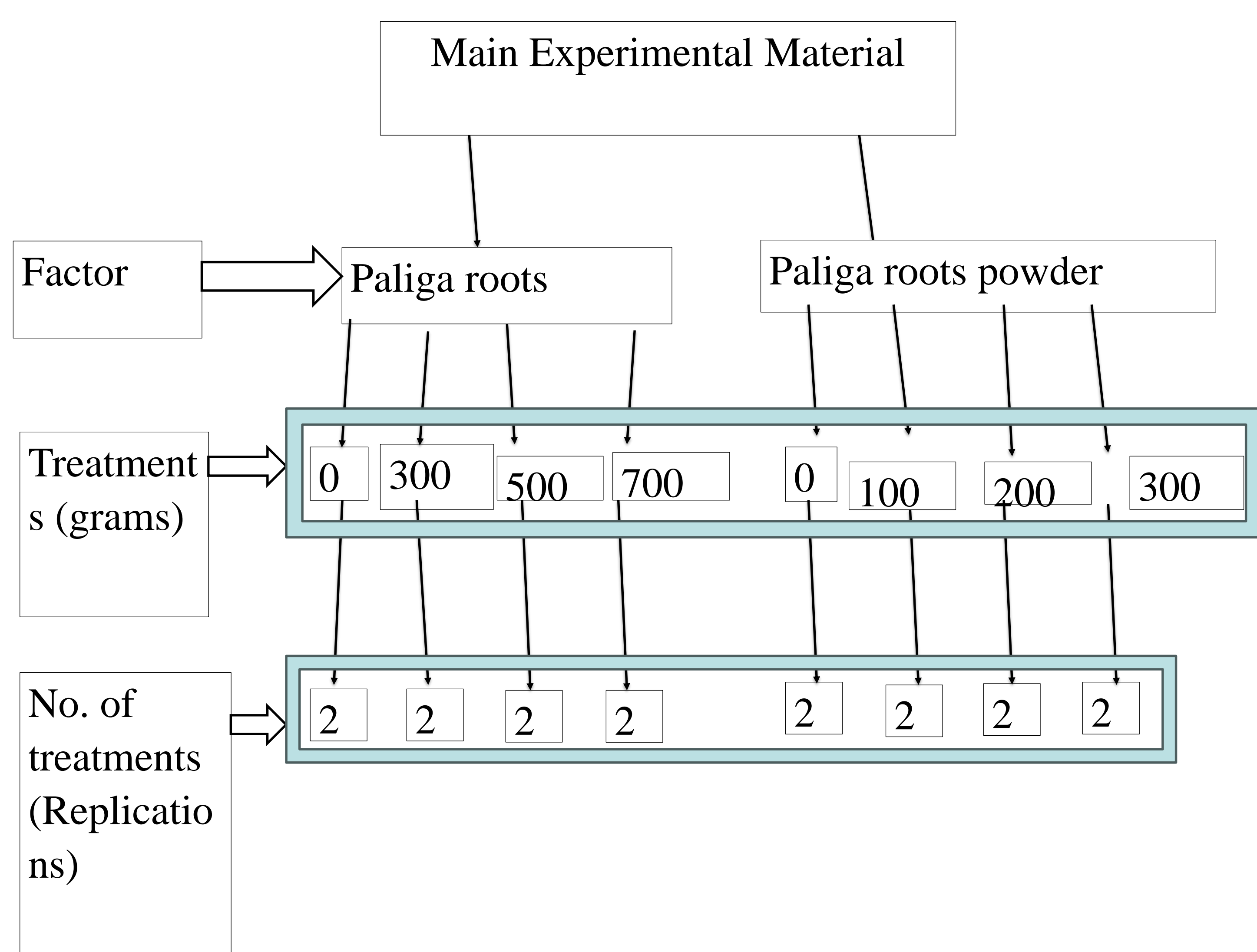
Background

Postharvest losses in the grains of farmers is a major challenge affecting food security in the district. Most farmers resort to using synthetic storage chemicals obtained from local shops, but these chemicals are expensive to afford while posing risks of poisoning the grains when processed into food. The innovation of using the Paliga (*Securidaca longipedunculata*) roots to control pests in stored grains is of high importance because of its contribution to improving food security in farm households through reducing postharvest losses in storage. Insects' spoilage also reduces the quality of food produced from the grains, thereby affecting healthy nutrition of households.

Methodology

In February 2024, Innovator Osman Sulemana from North-East Gonja District led a joint experiment to improve the efficacy of his innovation on using *Securidaca longipedunculata* (Paliga) roots powder to preserve maize grains. Together with the local multistakeholder partners comprising of formal researchers, ACDEP and staff of a local NGO (PAS Mile 7) and the Department of Agriculture (DoA) who facilitated the experiment, they designed the experiment as follows:

Main Experimental Materials: Paliga roots and Paliga root powder
Sixteen (16) farmers (including the innovator) participated in the experiment, eleven (69%) of whom were women.



Results of the Experiment

The findings revealed that farmers who applied 300 grams of paliga powder had averagely lesser number of insect invasion as compared to those who applied lower rates of 200 grams, 100 grams and zero application. 300 grams of powdered roots therefore provided the best protection of maize.

Within the root treatment regime, farmers who applied the highest rate of 700 grams had less grains damaged than those who applied 500 grams and 300 grams rates.

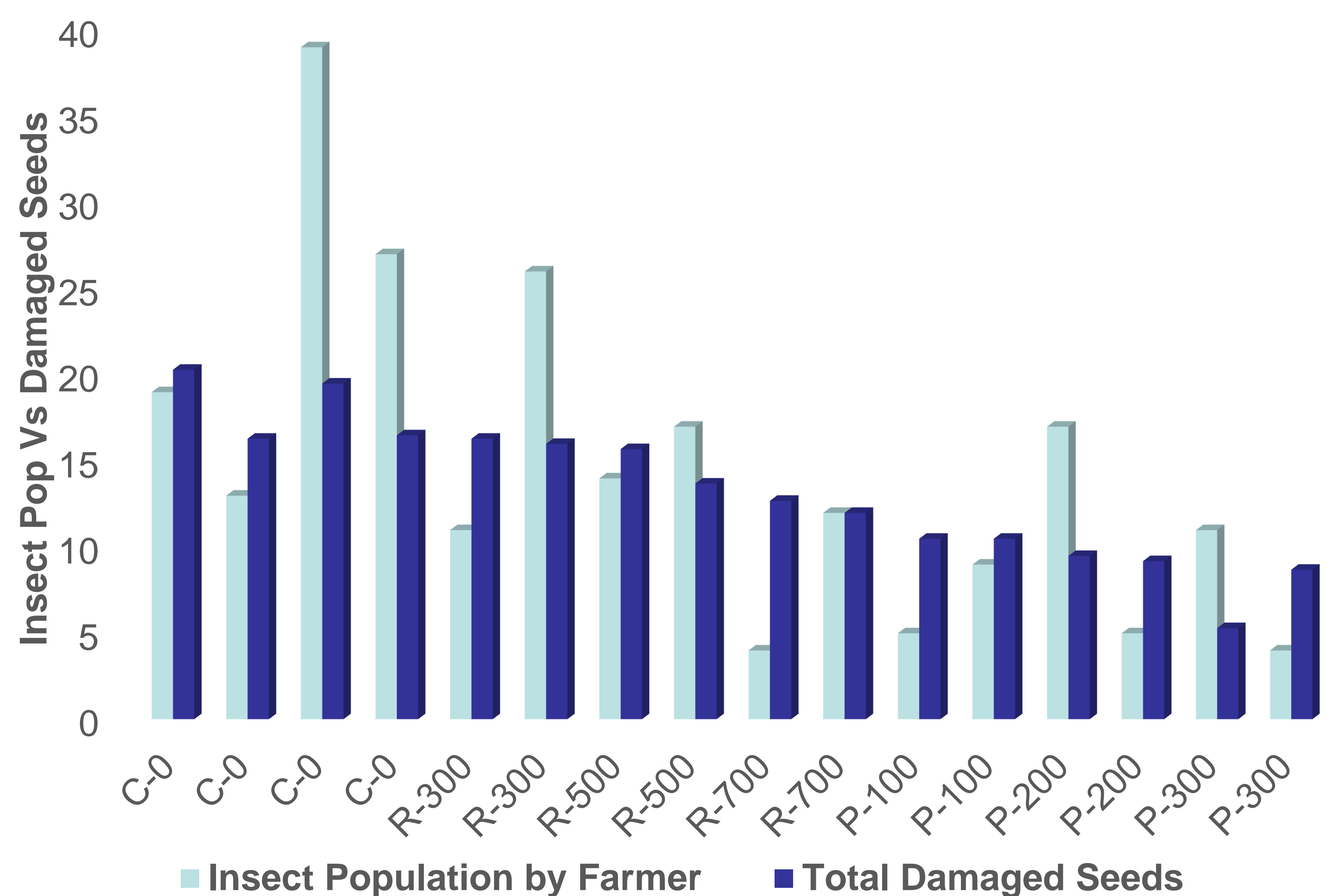
Results of the Experiment Continued

With regards to the effect of treatment on level of damaged grains, control treatments showed higher number of damaged grains than any other treatments.

Similarly, there were higher number of insects in the root treatment (R-300 grams, R-500 grams and R-700 grams) than in the powder treatment (P-100 grams, P-200 grams and P-300 grams).

These results further confirm the effectiveness of using the powder as compared to the unprocessed root to control insect in stored grain.

Total Number of Insects Vs Damaged Seeds



Conclusions

The purpose of the paliga root experiment is to reduce postharvest losses in stored grains, particularly, maize. The findings revealed that the paliga root powder when applied to maize has enhanced food security and made it safer to consume than inorganic storage chemicals that are also used to stored grains. At four treatment levels, 300grams of paliga powder for 100kg maize were found to be more effective in maize storage compared to 100 and 200grammes. Similarly, 700grams of paliga roots were more effective in maize storage compared to 300 and 500grams.

Scaling: Planned promotion through Agriculture Extension Agents of Government Department of Agriculture and NGOs using field extension and training of farmers for wider adoption of the organic pesticide.

Sustainability: Anticipated overexploitation and exhaustion of the resource (paliga plants) could be protected through propagation and establishment in backyard gardens.

Gallery of Paliga Powder Innovation



Contact Us

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