

Factsheet final findings Applied Research Fund Call 1



Rodent Management for post-harvest loss reduction

Summary

Rodent pests can cause serious problems for subsistence farmers through loss, damage and contamination of crops such as rice. Farmer estimates of post-harvest losses range from 5 to 40% with an average of 13%. Few farmers however, have invested in protecting their stored rice from rodent attack, which is attributed to a lack of sufficient awareness of risks. This research seeks to improve food security, nutrition and health of Bangladesh families by mapping current rodent management practices and developing improved, sustainable technologies and strategies to reduce the impact of rodents on livelihoods. Its main aim is to help Bangladesh develop strategies for the prevention of post-harvest losses by rodents.

The main focus of this project lies on the provision of appropriate tools and information to stakeholders throughout the food chain, policy makers and extension specialists. By promoting the use of cost-effective, sustainable and ecologically-based strategies, contamination and loss of stored food due to rodent pests will be diminished. In this way, the project contributes directly to two of the ARF foci: increasing sustainable agricultural production, and ensuring equitable access to better nutrition.

Core activities of the project include: Obtaining reliable data on rodent presence and monitoring of post-harvest losses in traditional farming systems; improving effectiveness of countermeasures against rodents; and increasing public knowledge about the impact of rodents.

Research Findings

In our research, farmers' damage assessments highlighted some of the more overlooked impacts of rodents, namely physical damage to houses, personal possessions, roads and fields. Ecologically Based Rodent Management (EBRM) strategies were shown to reduce the impact of rodents by 60-80 per cent for different measurable indicators. This was established through comparing intervention villages with non-intervention villages. Similarly, farmers' assessments showed Ecologically-Based Rodent Management (EBRM) strategies roughly cost the same (financial and time) as the previous practice, but with a much higher benefit (rat population reduced by >80 per cent).

Outcomes achieved

The project is now complete. During the project steps were taken to create more general understanding about the problems that rodents cause in Bangladesh. The inception meeting in Dhaka early 2015 & subsequent knowledge sharing meeting with government administration, particularly the agriculture and food departments, and NGO's, media, university students and farmer communities generated much attention because it was accompanied by a press release and several articles in Bangla newspapers. Moreover, the other activities that were undertaken tried to further expand the impact. Although it is difficult to prove a direct relation, we think that the work we have performed has even led to more attention from the government and (international) media for the topic. We organized a farmer's workshop at Comilla in September 2017 where over 400 farmers attended in order to discuss lessons learned from the project and impact on the livelihoods of the participating farmers.

Farmers in the villages of Jakunipara and Sowara are changing their rice store practices. As attitudes and awareness vis-à-vis the impact of rodents on post-harvest storage are changing, increasingly households are storing their rice in modified/recycled oil drums, which have been fitted with a lid, preventing rodents gaining access. Coming at a cost that can generally be covered by the households themselves, the new metal storing method is a major improvement over the traditionally used woven baskets.

At the rice mill level, two major changes are occurring with respect to rice storage. Greater understanding of the importance of stock rotation and improved hygiene has led to better storage management at several rice mills. Furthermore, pressure is being placed on the government to stop the use of jute bags for milled rice, as the use of jute bags has been shown to be highly unhygienic. Alternative uses for jute must be found to support those farmers reliant on jute production for their livelihoods.

Project messages to	A) Actors from private sector: <ul style="list-style-type: none">• Better management of post-harvest storage can reduce waste and contamination and improve profits. B) Civil society and practitioners organizations: <ul style="list-style-type: none">• Dissemination of information about rodent impacts on grain loss and contamination is necessary to raise awareness and to promote farmers' adoption of improved grain store structures, such as recycled oil drums. C) Policy makers: <ul style="list-style-type: none">• Jute must no longer be used for grain store bags as they become heavily contaminated with rodent urine, parasitic eggs and bacteria. Other uses of jute must be encouraged to support jute farmers.
Knowledge products	<ul style="list-style-type: none">• Post-harvest losses due to rodents vs food security in Bangladesh. Article. April 2016.• Post-harvest losses due to rodents increase: use of jute bags in storage godown is not rodent proof. Article. February 2016.• Rodents that stalk food security. Article. August 2015.• Reducing rat damage in Bangladesh, from farm to fork. Article. February 2015• Reducing harvest losses by rodents in Bangladesh. Workshop. January 2015.• Project poster. ARF workshop in Uganda. September 2015
Knowledge networks	AID-Comilla is part of several NGO networks where knowledge is shared such as Department of Agriculture Extension , Sher-E-Bangla Agriculture University , Several NGOs network such as Association for Development Agencies in Bangladesh (ADAB) and the Federation of NGOs in Bangladesh (FNB) .
Co-creation	Academic and NGO partners have been able to engage with a wide variety of stakeholders from government, private sector, farming communities, universities and the media. The project could not have succeeded without these interactions as it is based on generating new knowledge that can be used to raise awareness and encourage behavioural changes. Already, such changes are happening in post-harvest storage practices at farms and mills where the project team has engaged.
Consortium Partners	<ul style="list-style-type: none">• Natural Resources Institute, University of Greenwich (UK).• Livestock & Environment, Wageningen UR(NL).• Modern Rice Milling Unit, Comilla, Bangladesh
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