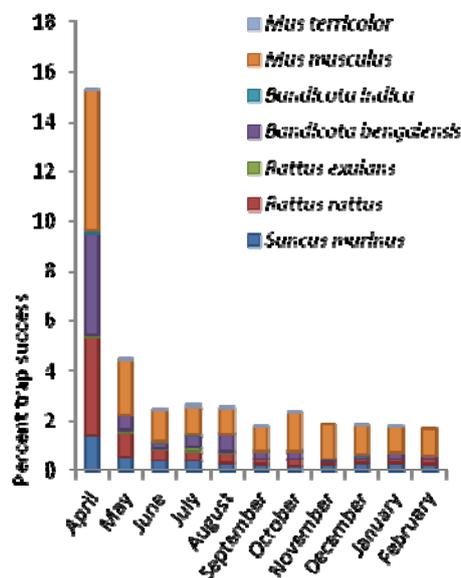


## Ecologically-based rodent management

Rodents are one of the most neglected pests the world over, attacking crops grown in the field, as well as damaging stored food in homes, warehouses and factories. Although their damage and contamination of food is problematic across the value chain, estimates of loss due to rodents are difficult to obtain. We can add to this the problems rodents cause in our cities where rodents feeding on our refuse go on to damage sewage and drainage systems and electrical wires. Diseases such as Lassa fever and plague are chronic health problems which sometimes lead to large human outbreaks. More often than not, rodent-borne diseases are not recognised and poorly treated, with many thousands of people dying from rodent diseases across the world each year. With rodents transmitting more than 60 diseases to people and domestic animals, damaging food production systems, and exacerbating sanitation problems, few would argue society's rat problems have been solved.



NRI is at the forefront of research on ecologically-based rodent management – a new paradigm that aims to overcome the challenges posed by rodents to people's livelihoods by increasing our knowledge about rodent biology and changing human management practices.

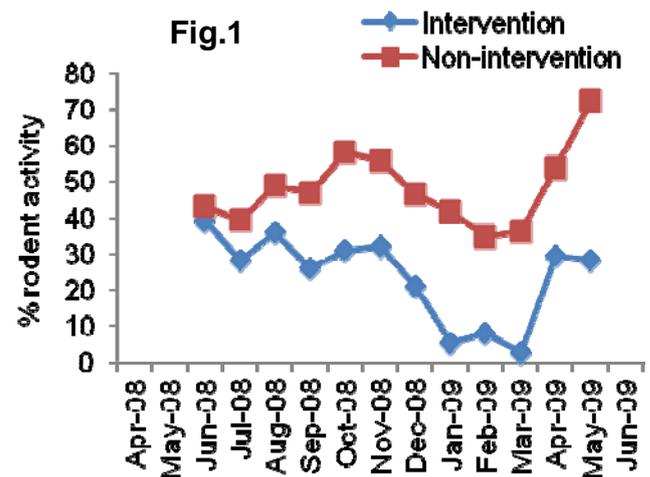


For small-scale farming communities in Africa and Asia, intensively trapping rodents every day each month can sustainably lower rodent numbers and is locally perceived as more cost-effective and safer than the use of rodenticides.



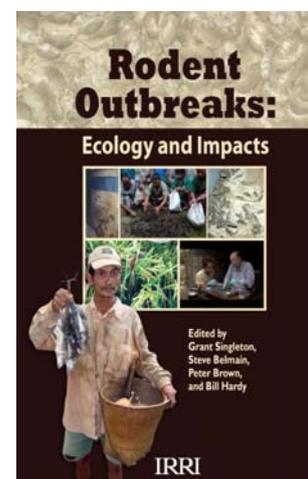
Despite being a well-recognised problem throughout the world, there has been relatively little research on rodent pest management since the advent of the anticoagulant rodenticides in the 1950's. Unfortunately, the application of rodenticide-based control measures has often resulted in treatment failures, leading to apathy and widespread acceptance of rodent pests in the environment. Rodenticides are particularly inappropriate for small-scale agricultural communities and have the potential to cause damage to human health and the environment. Many farmers suffer from low awareness, ingrained defeatism when trying to control rodents and acquiesce to rodent damage. NRI has been providing training and capacity building to farmers and institutions to improve rodent management, e.g. [www.nri.org/ecorat](http://www.nri.org/ecorat)

NRI has carried out several case-control research trials comparing the traditional *ad hoc* use of poisons (**Non-intervention**) against intensive community-trapping (**Intervention**) [Fig. 1]. These studies show rodent populations can be sustainably lowered over time in ways that are socially, economically and environmentally acceptable. NRI's activities have shown the impact of rodents on food production & storage and disease transmission can be reduced by greater than 70% compared to traditional poison-based practices.



### Further reading about NRI's rodent IPM research

- Experimental treatment-control studies of ecologically based rodent management in Africa: balancing conservation and *pest management*. *Wildlife Research*. 2012. 39(1): 51-61.
- Spatial and temporal population dynamics of rodents in three geographically different regions: Implications for ecologically- based rodent management. *African Zoology*. 2011. 46(2): 393-405.
- Impacts of rodent outbreaks on food security in Asia. *Wildlife Research*. 2010. 37:355-359.
- Understanding and managing sanitary risks due to rodent zoonoses in an African city: beyond the Boston Model. *Integrative Zoology*. 2008. 3: 38-50.
- Plague: Past, Present and Future. *PLoS Medicine*. 2008. 5(1): e3. 9-13.
- Poor housing quality increases risk of rodent infestation and Lassa fever infection in refugee camps of Sierra Leone. *American Journal of Tropical Medicine and Hygiene*. 2007. 77(1): 169-175.



Online book freely available via Google books explaining rodent population outbreak phenomena across the world