



ACP SCIENCE & TECHNOLOGY PROGRAMME

StopRats: Sustainable technology to overcome pest rodents in Africa through science

The strengths of agricultural research and extension institutions to develop technologies to overcome rodent pests will be combined. Smallholder farmers in Tanzania, Swaziland, Namibia, Madagascar, South Africa and Sierra Leone will benefit from innovations in sustainable rodent pest management technologies. Evaluating current knowledge, attitudes and practices about the impact and management of rodents will be used to inform and develop (inter)national networks of stakeholders (business, research, policy, extension) related to rodent management. A space will be created for stakeholders to network, building their capacity to effectively communicate on rodent pest issues to the scientific and policy-making arenas.

Grant
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Co-ordinator
Natural Resources Institute (NRI) - University of Greenwich, UK

Partners
University of Namibia, Namibia
Association Vahatra, Madagascar
Concern Worldwide, Sierra Leone
Plant Protection Research Institute - Agricultural Research Council, South Africa
University of Venda, South Africa
University of Swaziland, Swaziland
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36 months
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Challenge



Sustainable Technologies to Overcome Pest Rodents in Africa through Science

Rodents have a significant impact on people's livelihoods in many ways, causing damage to many different crops, contamination of stored food, damage to buildings and personal possessions and the transmission of

60+ diseases. Commonly recommended approaches for managing rodents using rodenticides are usually inappropriate for small-scale agricultural communities and have the potential to cause damage to human health and the environment.

Focus

Innovative research and knowledge extension are required to tackle the rodent problems faced by African communities. As the main beneficiaries, small-scale farming communities will work together with agricultural researchers, non-governmental organisations (NGOs), private sector and government policy makers and extensionists from six African countries to develop ecologically-based rodent management strategies that can significantly reduce the impact of rodents on people's lives. Through information generation on rodent ecology, training, networking and awareness raising, new innovations about rodent management will be developed and disseminated to end users and institutional stakeholders such as research institutions, private sector businesses, policy makers, community-based organisations and NGOs throughout Africa and worldwide.

Rationale

The need for innovations in Africa with respect to rodent management is particularly important not only because of their relatively high impact in the Tropics, but because there is a major disconnect between rodent research activities and priorities in developed and developing countries. In developed countries, research is generally

limited because rodent pests are not considered a big market or problem because people's proximity to rodents is relatively low in developed countries. However, human proximity to rodents is high in Africa, and most smallholder farmers have high numbers of rodents in their houses and crop fields. Rodenticides are not a solution for Africa, because they are expensive and easily misused. Innovative research on rodent management is not happening in Africa due to a shortage of private companies and limited private sector rodent management services. This divergence between developed and developing countries means that Africa's problems with rodents will not be resolved by knowledge transfer from Europe or North America. Africa must take charge of its own agenda and realise that appropriate solutions to its specific problems with rodents must be 'home-grown'. Consequently, it will be necessary to build scientific and technological capacity among African universities, research institutes, civil society and the private sector.

Method

Activities are designed to deal not only with agriculture and food security, but with the entire set of problems that rodents cause, including for human and livestock health and general wellbeing. Methods to develop and disseminate



The multimammate rat, *Mastomys natalensis*, the predominant rodent pest species in sub-Saharan Africa (2000). © University of Greenwich



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Training farmers on new effectively designed rat traps can result in major improvements in sustainable rodent pest control (Namibia, 2008). © University of Greenwich



Rodent damage to maize just before harvesting (South Africa, 2006). © University of Greenwich



Rat damage to stored maize: the embryo has been removed from each seed, reducing nutritive content and severely reducing seed germination if used for planting next year's crop (Tanzania, 2009). © University of Greenwich

ACP regions and countries involved

Eastern Africa –
Madagascar, Tanzania
Western Africa –
Sierra Leone
Southern Africa –
Namibia, South Africa,
Swaziland

Programme theme(s)

Agriculture and food security

Sector

Agricultural development
Food crop production
Agricultural education / training
Plant and post-harvest protection and pest control

Keywords

rodents
rats
mice
small mammals
ecologically-based rodent management
crop protection
post-harvest
pest management
social anthropology
field biology
technology innovation
capacity building

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inate new technology and information in a rural context have been advanced by the participating institutions. In order for communities to be able to implement ecologically-based rodent management, it is necessary for them to understand certain knowledge-intensive ideas, e.g. population dynamics, economic injury levels, and preventive management. Capacity building for schools and community-based organisations will raise awareness among farmers as well as address important questions about ecology and socio-economics that could not be adequately dealt without the participation of farming communities where rodent ecology is intimately tied to living conditions and farming practice.

National and international networks of current and prospective stakeholders will be developed to create an African-appropriate response for rodent pest management problems. Workshops on participatory impact pathways bring stakeholders together, which ultimately leads to the establishment of government-sanctioned expert advisory panels on rodent issues that are able to provide governments with appropriate information on which to base their policy interventions. Current knowledge, attitudes and practice at household, institutional and national levels with regard to impact and management of rodents will be evaluated to feed rationally-based policy recommendations.

By establishing a multi-stakeholder capacity-building platform about African rodents, stakeholders will be trained in effective communication about pest rodent issues in the scientific and policy-making arenas. This will provide national and pan-African teams with a forum for the provision of knowledge and advice to end users, civil society, and practitioners on best practice rodent management and new technologies. This virtual 'centre of excellence' will remain act as a gateway for knowledge dissemination on rodents and their management across Africa.

A training and awareness-raising programme will create regional training hubs for African field biologists to receive training on rodent biology, ecology, and on practical collection of samples and data to increase scientific knowledge. Teachers will receive on-the-job training and training materials, so that rodents can be dealt with as part of biology, health and environmental lessons. Raising awareness at all levels of society about rats and the damage they cause, as well as demonstration of rodent management solutions to end users and civil society groups, will help point the way to sustainable pathways for knowledge dissemination about rodents across Africa.

Results

- Priorities for innovation on rodent-related research identified and policies formulated to improve rodent management and reduce the impact of rodents on food security.
- National and international capacities developed to deliver, manage and monitor African-appropriate innovations for rodent management.
- Awareness increased among decision makers and the general public about the multiple impacts of rodents on people's livelihoods in order to influence technology investment priorities.
- An African 'centre of excellence' which contains an interactive internet information portal where knowledge and expertise on rodents can be shared.
- National level expert panels and advisory services that inform government and the general public.
- More capable and motivated education, research and extension staff on rodent-related issues.
- New national and international linkages among institutions that will facilitate innovative rodent research to reduce the impact of rodents on African livelihoods.



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