Population monitoring and management

Lessons learnt from thirty years journey of ecologically based rodent management system in Asia

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Rodents are important pests to agriculture in Asia, particularly to the staple cereal crop of rice. Importantly, the losses caused by rodents can have a substantial impact on food security of rural households. In Asia, ecologically based rodent management (EBRM) was first introduced in Indonesia following research on the ecology of the main pest species, *Rattus argentiventer*, and the factors influencing its population dynamics. Large scale EBRM has since been implemented in Vietnam, Laos, Philippines, Myanmar, Cambodia, Bangladesh, and China. EBRM components in different countries differ based on the key rodent species, cropping system, and landscape. Sustainable adoption in the community after the project ends is a considerable challenge in developing countries.

Here, we present studies from the lowland irrigated system in Indonesia and upland agriculture system in Myanmar to analyse the process and success of EBRM. An adaptive research management (AD) approach was applied in both countries, which promotes greater community adoption as well as rapid technology diffusion to the farming communities. We found that the extent of adoption depends on the farmers' priority and commitment towards rodent management (based on the tolerable level of losses caused by rodents), the interest of policy makers, and the attitude of farmers in working together as a community. In Myanmar and Indonesia, the rapid adoption (within 1-2 years) of AD-EBRM promoted an increase in rice production from 12-75%. A key lesson learned from our long-term EBRM journey in Asia was that all stakeholders need to work together harmoniously if EBRM is to be implemented successfully on a large-scale. An important foundation of outreach is the certification of EBRM as a national policy for rodent management in agricultural systems.