

MANAGEMENT OF RODENT PESTS IN SOUTHEAST ASIA

Newsletter 5: March 1998

The Australian Centre for International Agricultural Research (ACIAR) funds a research project on the "Management of Rodent Pests in Southeast Asia". The project is coordinated by the Rodent Research Group of CSIRO Wildlife and Ecology. This is a twice yearly newsletter which reports on developments in rodent research in Asia, Indo-China and Australia.

DEVELOPMENTS IN THE ACIAR PROJECT

- The rodent management projects were subject to a major review in August 1997. Three external reviewers Dr Chris Dickman (University of Sydney), Dr Ibrahim Manwan (CRIFC, Indonesia) and Dr Herwig Leirs (DPIL, Denmark) (see photo from the Mekong delta) travelled to Indonesia, Malaysia, Vietnam and Australia to review the scientific progress and impact of the research in each of the collaborating countries.

The review report was generally favourable. In particular the review team was encouraged by the positive attitude and enthusiasm of all participants and the large quantity and overall quality of research and other benefits that have accrued since the projects' inception. The review recommended that the current project be extended for 12 months to enable completion of research, synthesis and analysis of results, and publication of key findings. ACIAR has also invited CSIRO to develop a new project proposal in collaboration with colleagues involved in the current project. This new proposal will focus on economic and sustainable rodent management at a village level and would run for three years beginning in January 1999.

AWARDS FOR SCIENTIFIC PERFORMANCE

Recently, accolades have been bestowed on a number of collaborators in the rodent management projects.

- **Professor Dato' Dr Sheikh Omar Abdul Rahman** (Universiti of Putra Malaysia) has not only been elevated to become Dean of the Faculty of Veterinary Medicine and Animal Science, but was also recently conferred the title “**Darjah Kebesaran Dato' Paduka Setia Mahkota Kelantan (D.P.S.K.)**” which carries the title of Dato. This title was conferred on the occasion of the birthday of His Royal Highness the Sultan of Kelantan. This honour has special meaning to Prof Omar because Kelantan is his home state.
- **Mr Nguyen Quy Hung** (Institute of Animal Sciences, Ho Chi Minh City, Vietnam) recently received a gold medal for his research on the management of rodents and locusts. This indeed is a high and deserving accolade for a person committed to the management of agricultural pests in the Mekong delta.
- The **CSIRO Rodent Research Group** (Australia) received the Chief's TEAM award for scientific achievement and impact. This was a great achievement especially as it was the first year of this award. The award was for their marked impact and influence on research directions in the Asian region in studies on the management of rodent pests.

CONGRATULATIONS TO ALL!!

Master Class In Vertebrate Pest Management

Canberra Australia - October/November, 1997

CSIRO Wildlife and Ecology, with assistance from the Vertebrate Biocontrol Cooperative Research Centre (VB CRC), conducted a very successful three-week Master Class in Vertebrate Pest Management in Canberra last year. The class was sponsored by the Crawford Fund for International Agricultural Research, the Australian Centre for International Agricultural Research (ACIAR), CSIRO and the VB CRC.

The course was aimed at mid-level scientists/managers, with the hope that they would be influential enough in their home countries to pass on benefits from the class, and develop and perhaps make changes or improvements to current research. Scientists from 12 countries attended

Presenters at the Master Class

Dr Peter Bird, Mr Peter Brown, Ms Lisa Chambers, Dr Brian Cooke, Dr John Copland, Dr Steve Cork, Dr Lyn Hinds, Prof. Bruce Holloway, Dr Jim Hone, Dr Peter Janssens, Dr Peter Kerr, Prof. Charley Krebs, Dr Luke Leung, Dr John McIlroy, Dr Lam Yuet Ming, Ms Roxanne Missingham, Dr Alan Newsome, Dr Roger

Pech, Mr Robert Perry, Dr Bob Seamark, Dr Grant Singleton, Dr David Spratt, Mr Geoff Stratford, Dr Sarah Ryan, Ms Monica van Wensveen, Dr Brian Walker, Mr John Wombey

The course involved lectures, laboratory sessions and field work including: intensive training on rodent pest management; case studies on wildlife management (rabbits, feral pigs, koalas, dingoes); biological control (disease studies and fertility control); experimental design; predator-prey interactions. The presenters were scientists, managers and technicians with expertise in a range of areas such as population ecology and virology. One week was spent at a field site in Victoria where hands-on experience was obtained for rodent population studies, census methods for birds and mammals, radio-tracking for small mammals, and analyses of field data.

Each participant presented their own talk at the start of the class, on damage caused by pests and current research to manage those species in their home countries. At the conclusion of the course these talks were revisited in light of what had been learned during the course. The high quality of these presentations on the last day was one of the highlights of the course. An important outcome for the participants was that the class provided a good basis for establishing a network for researchers in vertebrate pest management. They are now more aware of research activities in Asia, Australia, Indo-China and Africa and were eager to maintain and develop contacts and friendships they had made.

A STUDY OF RODENT PESTS IN NEPAL

Mr Poorna Dass Dhaubaji Shrestha was a participant in the Master Class and is a Rodent Control Technical Officer with the Nepal Agricultural Research Council. He has conducted studies on the reproductive biology of the field rat, *Bandicota bengalensis*, rearing methods and age composition of wild populations. He has also been involved in ecological studies and the development of effective control for rodents in agriculture, and establishing a sampling method. The following is from his presentation to the Master Class, 'Study on the Ecology and Biology of the Roof rat, *Rattus rattus*, in Kathmandu Valley, Nepal'.

Rodents are regarded as the major pest in fields and farm houses in Nepal, causing 15-20% damage to crops and stored grain annually. Current research is on dispersal behaviour, age determination and population estimation of *Rattus rattus* in and around farm houses

. The main objectives include examining, the movement of rats between the houses and fields, the rate of recovery of population numbers after trapping and the relationship of eye-lens and weight and age of the rat.

Over the next few years, Mr Shrestha aims to investigate the economic efficiency of control technologies and the subsequent recovery process of the rat population, including the role of immigration and population fecundity.

RODENT MANAGEMENT IN THAILAND

The Agricultural Zoology Research Group in Thailand is part of the Entomology and Zoology Division of the Department of Agriculture in Bangkok.

Its responsibilities are to identify and study the invertebrate and vertebrate pests of agriculture. Emphasis is placed on management strategies that avoid problems associated with reliance on conventional pesticides. The AZRG has existed for 26 years with research on rodents forming the major activity. The research team consists of Mr Sermsakdi Hongnark, the group leader, Mrs Puangtong Boonsong (ecology, damage assessment, rodenticides), Ms Yuvaluk Khoprasert (rodent ecology), Mrs Kornkaew Suasa-ard (efficacy testing of rodenticides), plus three young scientists, Ms Piyanee Nookarn, Mr Prasarthong Promkerd, and Mr Kriansakdi Hamarit, who conduct a range of research.

Rice is the major crop in Thailand and damage assessment performed in central Thailand by AZRG in 1976-77 revealed that 18% of rice was damaged at the booting stage. In 1997, a nationwide rodent control strategy was developed for rice, coconut and sugarcane. This strategy focused on the use of acute and chronic rodenticides with emphasis on appropriate timing, and communication with farmers. Damage to rice has dropped to <2% in the central plains and elsewhere (AZRG 1990-1993). However, there are problems with the use of chemical rodenticides because farmers use the potentially hazardous acute poisons. Also, in oil palm plantations in southern Thailand, AZRG has witnessed extensive secondary poisoning in predatory birds due to use of second generation anticoagulants.

In 1993, a joint research project between the AZRG and Thomas Jäkel of the German Development Cooperation (GTZ) began on the potential use of the protozoan *Sarcocystis singaporensis* as a biocontrol agent against rats in Thailand. This study will be covered in a later newsletter.

Ms Puangtong Boonsong was a Master Class participant. She reports here on how farmers use rodenticides in soybean fields in northern Thailand from interviews in 1994 (123 farmers from 3 provinces) and 1995 (120 farmers from 3 provinces).

The impact on non-target species was assessed also. Several acute rodenticides were used by farmers including "Khee Yoo" (made from aldicarb; used by 74% of farmers), zinc phosphide and one unidentified liquid ("Ya-Lord"; used by 16% of farmers). Rodenticides were commonly applied 2-3 times per season but 5% of farmers in one province and 23% in another, used as many as 10 applications.

Hazards to human health occurred because some farmers hunted rodents for consumption. Poisoning of domestic animals and predators of rats through consumption of pesticides (primary poisoning) or affected rodents (secondary poisoning), was reported in 36% and 13% of interviews, respectively.

Thus, given the current practices, rodenticides in northern Thailand were hazardous for humans, domestic animals and predators of rodents. Research is required on the efficacy of poisons and the general biology of rodents in this region, in conjunction with a strongly focussed education and extension program.

COMING EVENTS

The International Conference on Rodent Biology and Management will be held in Beijing, China from 5-9 October 1998. The conference is being organised by the Institute of Zoology, Chinese Academy of Sciences and CSIRO Wildlife and Ecology.

The scientific program comprises the following symposia:

- Population dynamics, including forecasting and managing rodents
- Rodent physiology and adaptation of rodents
- Control techniques I (biological control, habitat management, ecologically-based management)
- Rodents as indicators of environmental change and their role in ecosystem maintenance
- Control techniques II (chemical control and resistance, physical control)
- Rodent behaviour and its implication for management
- Epidemiology of rodent diseases and their impact on rodent populations and humans
- Rodent chemical communication.

For further information, please contact Dr Zhang Zhibin, Institute of Zoology, Chinese Academy of Sciences (FAX: +10-625-65689) or Dr Grant Singleton, CSIRO Wildlife and Ecology (FAX: +61-2-6242-9691) or check the web page at <http://159.226.67.61/ioz/rodent98.html>

The fourth annual coordination meeting of the ACIAR-funded rodent management projects will be held at the International Rice Research Institute at Los Baños in the Philippines from April 6-9. There will be delegates attending from Indonesia, Laos, Malaysia, Thailand, Vietnam, Australia and the Philippines and possibly Cambodia and Denmark. IRRI will be hosting the meeting. A report will appear in the next newsletter.

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This newsletter presents the personal views of the individual authors and not necessarily those of ACIAR, CSIRO or collaborators in the project, "Management of Rodent Pests in Southeast Asia".

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