

**NATIONAL PROGRAMME FOR RODENT PEST
MANAGEMENT**



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**COORDINATING & MONITORING CENTRE
CENTRAL ARID ZONE RESEARCH INSTITUTE, JODHPUR**

Haematological changes as a consequence of rodenticide treatment in *Bandicota bengalensis* and *Tatera indica*

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Two acute poisons Zinc phosphide and RH-787 were administered in sublethal quantities to both the sexes of *Bandicota bengalensis* and *Tatera indica* and the haematological studies were carried out to assess their relative susceptibilities. Percent weight loss was sex dependent in gerbils and poison dependent in bandicoots. RBC count increased in both the sexes and WBC counts decreased in male gerbils, while in bandicoots only Zinc phosphide resulted in changed RBC count. Differential count of only female

bandicoots and male gerbils were altered. In bandicoots RH-787 increased platelet counts and zinc phosphide decreased the same. However only RH-787 poisoned male gerbils exhibited changes in platelets. Clotting time was dependent on sex, poison and species. The results indicate differential susceptibility of the two species and the two sexes to the poisons suggesting the necessity of a pre-control analysis of rodent populations to select the most suitable rodenticide.

Seasonal weight changes in the preputial gland of the Soft-furred field rat, *Millardia meltada* (Gray)

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Among the male accessory reproductive organs of the rodents studies on the preputial gland are relatively few. In this communication seasonal gravimetric changes taking place in the preputial gland in relation to changes in the testes weights and the body weights in *Millardia meltada* (Gray) during June 1977-May 1978 are reported.

The preputial glands are paired, broad and dorso-ventrally flattened with a small narrow stalk opening on the prepuce. Two peaks in the weights of the gland, one in October and the other in December are observed. A positive correlation exists between the testes weights and the preputial gland weights ($r=0.25$; $P<0.05$). The weight

changes of the gland parallel the body weight changes except during the regression period, when the weight is at its minimum. The decline in the weights of the preputial gland observed from

January also parallel that of the testicular weights in this species. Further studies on the histological and histochemical changes in the preputial gland under various experimental conditions are in progress.

Increased amino acids and protein degradation in the tissues of *Bandicota bengalensis* poisoned with RH-787

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Biochemical analysis of heart, kidney, liver, lung and gastrocnemius muscle of *Bandicota bengalensis* sub-lethally poisoned with RH-787 indicated the following changes:

The protein level of the tissues decreased in poisoned animals with concurrent increase in total amino acids except in kidney. The autolytic protein degradation was not evident in the liver of controls, heart, kidney and muscle but it appeared in liver and decreased in

the lung of treated animals. Significant increase in Cathepsin activity was seen in kidney, liver and gastrocnemius muscle while enhanced proteolysis was noticed in all tissues as a consequence of RH-787 ingestion. Cathepsins were the primary agents of protein disintegration in kidney, liver ($P > .001$) and lung ($P > .02$) whereas heart and gastrocnemius had greater proteolysis ($P > .01$; one way analysis of variance).

Rodent control demonstration programme in the union territory of Goa, Daman & Diu

H.Y. Karapurkar and P.G. Navelkar

Directorate of Agriculture, Govt. of Goa, Daman & Diu, Panaji

A Rodent Control Demonstration Programme was launched in 5 Villages in Bardez Taluka and 6

villages in Ponda Taluka of Goa district during the months of April 79 to June 79. The demonstrations

were proceeded by training at Farmers Training Centre, Ela, held in February - March 79.

The impact of training imparted in specialised short term courses to farmers under Farmers Training Centre is so great that awareness is created among the rural folk in

readily accepting the rodent control programme as a regular feature in the houses where major bulk of food grains are stored.

A number of film shows were arranged to draw the attention of the farmers to the extent of damage to the crops in the fields.

Rodent control week : Assam

G.K. Girish & M.S. Nishad

Deptt. of Food, Krishi Bhavan, New Delhi-1

The Rodent Control Week was observed from 25-5-79 to 31-5-79 by Save Grain Campaign Office at Gauhati. This programme was launched in six villages. During this programme 4673 rat burrows were fumigated, demonstrations on rat control measures were given in 202 houses, 2 training courses were

organised in which 137 farmers participated. One training programme was also organised for volunteers in which 60 farmers were trained. Five radio talks were delivered on rodent control. The press gave a wide coverage of the programme.

Bihar

G.K. Girish & Hadi Ali

A Rodent Control Week was launched in Bihar by Save Grain Campaign office from 25-5-79 to 31-5-79. This programme was carried out in 42 villages of six districts, 2204 houses were covered under rat control programme, 2058

dead rats were collected, 11775 rat burrows were fumigated, 113 State officials also participated in this programme. Exhibition and slide shows on the subject were organised.

Madhya Pradesh

G.K. Girish & Sonelal

The Rodent Control Week was observed in 29 villages in Madhya Pradesh from 7-6-79 to 13-6-79. During the week, attractive and catchy slogans were prepared, 10,000 handbills and 1000 posters on rat control were prepared and distribu-

ted to farmers, 600 slogans were written on the walls. During the week, 12,000 rats were killed and 4215 rat burrows were fumigated. Radio and press gave a wide coverage to this programme.

Maharashtra

G.K. Girish & G.R. Sagalgile

The work was carried out in five districts from 21-5-79 to 28-5-79. Demonstrations on the use of anti-coagulants were given in 921 houses and 6200 rat burrows were fumigated covering an area of

834 acres. The programme was publicised through press. The radio talks were delivered and 10 farmers' seminars were organised. Twelve training courses were organised in which 410 farmers participated.

Varanasi

G.K. Girish & B.D.N. Singh

Rodent Control week was organised in 8 villages adjoining each other of Sevapuri Block, District Varanasi. Small training camps were arranged in which more than 200 farmers were trained on rodent control techniques. The demonstration programmes were given in 334 houses. 535 farmers

attended the demonstration programme on rodent control in field. 55 slogans were stencilled on the walls regarding the control of rodents. One small farmers' seminar was arranged to inculcate the message of rodent control to the farmers. Various local papers gave a wide publicity to this programme.

Control of rats by the use of Phorate

S. Varadarajan

Asstt. Entomologist, Paddy Experimental Station, Aduthurai

Thimmet 10 G. contains active ingredient phorate O, O diethyl S-(ethylthio) methyl phosphoradithioate 10%. The LD₅₀ is 2-4 mg/kg oral. The mammalian toxicity was effectively deployed on rats.

namely 2.5, 5.0, 7.5 and 10 grams were dissolved in 10 litres of water separately.

Field rats dipped in the solutions of the different concentrations were kept in cages and watched for reaction. The rats began licking the wet limbs and the observations on mortality are given below:—

Testing of lethal dose : Phorate granules of different quantities,

Treatment	Time needed for kill
	Hr. Min.
Phorate 10 g/10 litres	1 — 52
7.5 „	2 — 36
5.0 „	2 — 36
2.5 „	2 — 45

It was concluded that the solution 2.5 g/10 litre was effectively lethal.

A small burrow may require 10 litres of the solution. A large burrow may require upto 50 litres of water. In such cases, requirement of water can be approximately judged in advance. If 40 litres

Field test : Adopting the dose of 2.5 g/10 litres, solutions were prepared and applied to rat-burrows.

Date of treatment	Number of burrows treated	Number burrows deserted	Number of dead rats	Number of live rats
5th January	10	5	5	Nil
10th „	19	—	20 (adults)	Nil
12th „	6	1	16 (young)	Nil
			5 (adults)	Nil
26th „	16	7	8 (young)	1
			22 (adults)	

is the estimate, 10 g of the granules are dissolved in the first 10 litres of water and subsequently 30 litres of plain water is dashed into the burrow opening. Observations made 24 hours after treatment are summarised in the Table.

The treatment was effective on all type of rats, field mouse (*Mus booduga* G) grass rat (*Millardia*

meltada), bandicoot (*Bandicota bengalensis*) that have average body weights of 20, 60 and 100 g respectively.

This method of application will help controlling rats without opening bunds. Adjoining areas of mango, coconut and banana gardens and hay stacks can easily be treated and rats can be controlled.

Breeding of *Rattus rattus*

P. J. Deoras

Sahitya Sahawas, Bandra (E) Bombay-51

Seven specimens of the roof rat *Rattus rattus rufescens* collected in Bombay were transported and bred at specially built laboratory situated between Bhilad and Vapi in Gujarat.

The Jai Research Foundation that sponsored the project built in a room with doors on a raised wall and arrangements to prevent the escape of rats. Wooden boxes with long bamboo exits were kept for their shelter alongwith waste cotton to act as a bedding for breeding. Besides, strips from the boxes to hinges on walls acted as areas for rats to move and exercise. The room was littered with rice husk, that was changed per month, and earthen pots kept for food and

poultry water pots for drinking. The animals were fed on paddy, wheat, groundnut and some green vegetables, while soaked bengal gram was given once a week.

It took them four months to acclimatise to the new surroundings, and since then they have bred bringing the present total number to 60. During the last 6 months, there have been only three deaths of rats in the room.

Major movements by the rats are during the dark periods. However they do come out in the day time to pick up food and water. The rodents are living in groups as colonies and are collected for

work in wonder traps when required.

Disease free Rats for rodenticide trials, behaviour studies and

class room work could thus be reared, and it is the first time that such a rat colony has been bred and maintained in India.

Visit of the Russian Delegation

An officially sponsored 5-Member Soviet Delegation with Dr. V. A. Bykovsky as its Leader, visited India from 26th October to 12th November, 1979 to study the work done in India on harmful rodents and methods of their control as well as to exchange experience. The delegation visited the Department of Zoology, Punjab Agricul-

tural University, Ludhiana; Rodent Control Project, Sidhpur; Indian Grain Storage Institute, Hapur; the Directorate of Plant Protection, Quarantine and Storage, Faridabad; and the Coordinating and Monitoring Centre for Rodent Research and Training, Central Arid Zone Research Institute, Jodhpur.

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The next issue will appear in Feb. 1980. Contribution for inclusion in the Newsletter may please be forwarded to :

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