RODENT
Newsletter

Vol. 19(3) 1995

ALL INDIA COORDINATED
RESEARCH PROJECT ON
RODENT CONTROL

CENTRAL ARID ZONE
RESEARCH INSTITUTE,
JODHPUR 342 003

RODENT NEWSLETTER

Vol. 19(3) 1995

ALL INDIA COORDINATED RESEARCH PROJECT ON RODENT CONTROL

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CONTENTS

Autecology of *Cremnomys cutchicus medius*

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The Cutch rock-rat is a crevice-dweller, shy, gregarious and essentially nocturnal rodent abundantly found on the Aravalli range in Rajasthan. *Cremnomys* is an oriental taxon, endemic to India and various sub-species of the genus are discontinuously distributed in Bihar, Southern India and Gujarat and Rajasthan region. Sub-species *medius* and *rajput* have been merged since no significant difference was observed in their cranial character measurements. *C.c. cutchicus* found on the rocky outcrops of Thar desert is an allopatric species, which got separated from sub-species of Aravallis due to paving in of sand during the origin of Thar desert. This species is thus one of the oldest components of peninsular region — a phylogenetic relict of the region.

This rock-rat is most abundant rodent of all but riverbank and scrubland habitats in the Aravallis. Sparsely vegetated rocky habitat possessing grasses like *Sorghum halepense, Cynodon dactylon, Cymbopogon martinii* and *Apluda mutica* has been found to be the most preferred habitat of *C. c. medius*, followed by runnel. Though most preponderant rodent species of crop-field, it was second in order of abundance to insectivore, *Suncus murinus* among 13 small mammals collected from the habitat. Crop-field and runnel were found to be most species-rich habitats of Aravallis, inhabited by 13 small mammal species each. However, crop-fields support maximum small mammal numbers (32.16 per cent) among all the seven habitats. Foot hill scrubland and Oriya crop-field were found to be the most species diverse habitats on the Abu hill. A significant difference (X^2 (i) = 26.68 $P < 0.001$) in frequency of occurrence of *C. c. medius* was found in crop-fields with and without loosely piled stone walls. Due to human intervention in the hilly-ecosystem this sylvan rodent species is adapting very fast and is invading the crop-fields. Crevices and voids in between stones of fencing provide an additional niche to this wild species.

There occurs a clear altitudinal stratification in the frequency of occurrence of this species — the highest work spots (1500- 1600 m) harbour 38.94 per cent rock-rats of total small mammals, followed by 1000-1100 m (35.18

Present work was carried out under the supervision of Prof. Ishwar Prakash, INSA Senior Scientist.

per cent), 500-600 m (17.59 per cent) and foothills (8.29). The Cutch rock-rat is most abundant small mammal at all the altitudes except foothills, where plains' dwelling species are dominant. Alpha of log series computed for various altitudes indicates that foothills (2.71) is most diverse elevation among four altitudes as far as small mammalian diverstiy is concerned followed by 1000-1100 m (1.94), 1500-1600 m (1.89) and 500-600 m (1.30) altitudes. Morishita Horn Index for these altitudes reveals that 500-600 m is very different from all other altitudes and foothills and 1500-1600 m are very close to each other.

In order of abundance at Aravallis, *C. c. medius* holds number one rank followed by the insectivore, *S. murinus*; the golund, *Golunda ellioti*; the Indian gerbil, *Tatera indica* and the five-striped squirrel, *Funambulus pennanti*. Among 14 small mammal species collected from Aravallis; *S. stoliczkanus, Vandeleuria oleracea* and *Mus terricolor* are rare. A profound change in abundance of small mammals has been observed over a century at Mount Abu because of human intervention in the hilly-ecosystem by introducing irrigated agriculture. Two small mammals, Anderson's shrew, *Suncus stoliczkanus* and the tiny spiny mouse, *Mus terricolor,* have been reported for the first time from Rajasthan.

Not much difference is observed in population density of *C.c. medius* between Abu hill and the main Aravalli range. Abu hill is more species rich (harboured by 14 small mammal species) than the main Aravalli range (supporting only 12 small mammal species), however, no significant difference is observed in population densities of various small mammals except that of *S. murinus, F. pennanti, Millardia meltada, Mus platythrix, Golunda ellioti* and *Bandicota bengalensis*. The species found to be absent from the main Aravalli range are *S. stoliczkanus* and *Mus saxicola*.

Due to colonization of plains' dwelling (most of which are enzootic hosts to *Yersina pestis*, the plague bacillus) at higher altitudes and also due to niche alteration by *C. c. medius* (to stone walls on the periphery of crop fields), this sylvan species is sharing niche with many enzootic and epizootic hosts. Hitherto, nothing is known about epidemiology and susceptibility of *C. c. medius* to non-host-specific fleas. It needs investigations before it becomes serious threat to public health.

Though the rock-rat is essentially a phytophagous and seedivorous rodent, it is an opportunistic feeder as insects and fish pieces were also found in the stomach contents. A peninsular species of termite (*Odontotermes redemanni*) was among 8 insect orders recorded from rock-rats stomachs. Alongwith

stem and leaf parts, bark of various flora was found in such a high proportion that this rodent species might be hampering regeneration process of the vegetation in the hilly-ecosystem. No seasonal variation in feeding habits of *C. c. medius* in nature was observed.

C. c. medius is a seasonal breeder. Fecund males are found from January to September and the testes regress considerably during non-reproductive season. Senile regression was not observed in this species. The mean monthly paired weight of testes run parallel to per cent fecundity and prevalence of pregnancy. The females were found to be pregnant from February to September. Monthly prevalence of pregnancy varied from 18.18 to 100 per cent in reproductive season and on an annual basis 31.53 per cent of adult female rockrats were found pregnant. The breeding intensity of Cutch rock-rat run parallel to mean monthly rainfall except in the month of July, when due to torrential rains the intensity of breeding declines a bit. The production of ova in females range from 3 to 10, average being 5.23. Maximum number of females produce 4 ova. Litter size also vary from 3 to 10 and the average number of embryos per pregnant female is 4.62. The larger little size occur during post-monsoon season, when the optimum survival conditions are prevailing. Pre-embryonic and post-embryonic losses account for 11.46 and 0.72 per cent, respectively. Transfer of blastocyst and superfoetation, though very common in other rodent species, were respectively rarely and never observed in this species of rock-rat. The annual productivity by female has been computed to be 15.54 young ones/female breeding season. Reproduction is not a stress factor in this wild species as revealed by comparison of adrenal weights of nulliparous and pregnant females.

Mean monthly body weight of adult rock-rats fluctuates around 58 g in both sexes, however, male rock-rats tend to be heavier than their counterparts. Sexual maturity in both the sexes is attained around body weight of 40 g as revealed by smear of cauda epididymis in males and presence of corpora lutea in the females. The proportion of sub-adult rock-rats collect during first half of year is significantly less (X^2 (i) = 27.73, $P < 0.01$) than later half of year. The male : female sex ratio does not deviate significantly (X^2 (i) = 0.86) from the hypothetical 50:50 ratio. Various organs, viz. heart, lungs, liver, spleen, kidneys, adrenals and gonads are positively and significantly correlated with body weight in females. In males, however, no significant correlation is found between liver ($r = 0.052$), spleen ($r = 0.091$), adrenals ($r = 0.010$) and body weight. All the organs in females except lungs and liver tend to be heavier than their counterparts. All the organs of male

and female *C. c. medius* are heavier than male and female *C. c. cutchicus* respecively. The adrenal weight is positively and significantly correlated with body weight and body length in both the sexes of *C. c. medius*. The weight of adrenal run almost parallel to trap index indicating that crowding or social interaction is a stress factor rather than reproduction in this sylvan rodent species.

Ethological observation on *C. c. medius* in the laboratory reveal that this rock-rat is essentially a nocturnal species, though rarely active during light periods also. Just after dusk and just before dawn, the activity of rock-rats is at peak.

The experiments on food preference behaviour indicate that pearl millet is preferred among six exposed foods in whole form during no choice te Same foods when given in cracked forms during no choice test have a difference in consumption (green gram takes number one rank of consumption). The consumption of green gram and bengal gram increases in cracked forms while that of rest four decreases. During multiple food choice tests cracked pearl millet becomes *numero uno* in consumption followed by whole pearl millet, whole wheat and cracked green gram. So, pearl millet in whole and cracked forms can be used as bait-carrier of poison for the control of this species.

As compared to other rodent species average daily intake (g/100 g body weight) of this species is considerably high because it has to spend much more amount of energy while climbing upon or descending down tough rocky terrain. Depending upon the ADI values, and body weight classes, rodents have been classified into two groups (field rodents and urban/ruderal rode and this rock- rat species has a unique position between the two classes indicating that this sylvan species has become peri-commensal due to human intervention in its natural ecosystem. The results of these experiments to understand the new food phobia indicate that *C c. medius* does not exhibit neophobic behaviour which is very prominent in several other rodent species inhabiting the desert.

Rodent Pests of Fruit Crops in Himachal Pradesh

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Survey of rodent pests in fruit orchards was conducted in Solan, Shimla, Sirmour and Kangra districts of Himachal Pradesh. Ten species were collected

in all. Population composition of rodents was worked out on the basi trap index by employing spring loaded wooden traps in a grid, maintai trap to trap distance of 10 m. *Mus musculus* appeared to be the most domi species in both the orchards and the vegetable crop fields. *M. platyt* however, appeared to be on decline, especially in orchards. *Golunda e* was present only in orchards and areas (waste land, forests etc.) suppo bushy and grassy ground cover. *Bandicota bengalensis*, though a field spe by and large, was also recorded from house premises where its burrow ope was also observed.

Fruit crops :

(i) Apple orchards : *M. musculus* and *B. bengalensis* were the m rodent species accounting for 30.23 and 27.91% respectively of total ro population. *R. meltada* and *M. platythrix* were not recorded. Apple orc supported 43 live burrows of rodents per hectare with *B. bengalensis*, and other rats accounting for 65.12, 27.91 and 6.98% of total burrows respecti The burrows of bandicoot rats were present throughout the orchards whe the burrows of mice and other rats were localised on periphery of the fi

Trap index was maximum in June and declined to become low October onwards till March.

(ii) Peach : *M. musculus* was the predominant species comprising 32. of total rodent population followed by *B. bengalensis* which accounte 21.15% of total population. *R. meltada* and *M. platythrix* were absen *rattus*, *G. ellioti* and *M. booduga* comprised 15.38% each of total ro population (Table 1). Population appeared to be high in peach orch from September to November. Number of live burrows was 41/ha. *B. bengal*

Table 1 *Percent Composition of Rodents*

Crop	Rodent Species						
	**B.b.*	*Rm*	*Rr*	*Ge*	*Mm*	*Mb*	*M*
Apple	27.91	0	13.95	13.95	30.23	13.95	(
Peach	21.15	0	15.38	15.38	32.69	15.30	(
Plum	27.03	0	13.51	13.51	35.14	10.81	(
Pecan	30.19	3.77	11.32	7.55	33.96	7.55	5.

**B.b = Bandicota bengalensis ; Rm = Rattus meltada Rr = R. rattus ; Mm = Mus mus M. Booduga ; M.p = M. platythrix.*
** Trapping inconsistant and sporadic

mice and other rodents accounted for 48.78, 36.59 and 14.63% of total live burrows.

(iii) Plum : *M. musculus* and *B. bengalensis* were the most predominant species constituting 35.14 and 27.03% respectively of total population (Table 1). Maximum trapping was observed in July. The number of live burrows was 32/ha, the share of bandicoot rat, mice and other rodents being 40.62, 43.75 and 15.62% respectively. All the burrows were distributed in the field.

(iv) Pecan nut : *M. musculus* and *B. bengalensis* were predominant species comprising 33.96 and 30.19% of total rodent population. *R. meltada* was also collected from this orchards, though in a few numbers only (Table 1). Even *M. platythrix* was encountered. However, the trapping of these two species was not consistent. Pecan field possessed a high concentration of live burrows, i.e. 47/ha of which *B. bengalensis*, mice and other rodents accounted for 55.32, 29.79 and 14.89% respectively.

[Adapted from the Annual Progress Report of AICRP on Rodent control, Nauni Centre 1994-95]

Rodent Pests of Horticultural Plantation Crops in Pathanamthitta District, Kerala

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A survey was conducted at Mallapathy in Pathanamthitta district, Kerala in small holdings of horticultural plantation crops to study the rodent pest fauna in such habitats. For the survey, those farms were selected which were under mixed cultivation of horticultural crops viz., cocoa, mango, pepper, jackfruit, plantain and coconut. Some farms also included small dairy and poultry units. Regular observations were made by visual sightings, active burrows counts and trapping.

Six species of rodents were found to infest these horticultural plantation holdings. The lesser bandicoot rat, *Bandicota bengalensis*, the squirrels *Funambulus palmarum* and *F. tristriatus* were observed to cause extensive damage to cocoa and coconut crop. The breeding of these rodents coincided with the harvesting period of these crops. The house rat *Rattus rattus*, soft-furred field rat *Millardia meltada* and the large bandicoot rat *B. indica* infested

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mainly the store houses and godowns of the poultry and dairy feeds. Rode population was more in the holdings with dairy and/or poultry units, probal due to easy availability of nutritious feeds throughout the year. Observatio over the last five years have revealed that with the diminishing populati of snakes, the population of rodents has gradually been increasing. The auth are trying hard to teach the local people about the benefits of conservati of snakes and the use of various species of owls such as barn owls, *Ty alba* and screech owls *Athene brama* for biological control of rodent pes

Reproduction biology and Population Fluctuation of *Millardia meltada* in Madhya Pradesh

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Monthly collection of rodents at Jabalpur revealed great variation in rode population from 0-10, from July to November 1994 (Maximum during Augus Males were always found more in numbers and heavier than the femal The mean monthly body weight of *Millardia meltada* male varied from 64 to 92.72 g. The maximum body weight was recorded in the month of Septembe Mean paired testicular weight of metad ranged from 1.166 to 2.116 g. Tl testes were scrotal in position in all the test males.

In females, mean monthly body weight varied from 35.0 to 76.52 g duri July to November and was found maximum in October. The mean pair ovarian weight ranged from 0.018 to 0.513 g. Female weighing 35.0 g we found with vaginal orifice closed. Pregnant females were observed main in September and October. The mean number of embryos implanted in t right and left uterine horns were 3,4 and 4,5, respectively during Septemb and October. The number of corpus lutea was 5 in each ovary.

The results on population study of *M. meltada* showed low activity kharif season (1994) due to occurrence of heavy rains during this year Jabalpur and adjoining areas. Maximum catches of metads were obtain in the month of October during which rice crop was at grain formatic stage. Increase in metad population coincided with the receding of rai in the month of October 1994. Zero catches in the month of Septembe may be due to low buildup of the population, poor trappability and foo availability.

Adapted from the Annual Progress Report of AICRP on Rodent Control, Jabalpur Cent 1994-95

Rodent Damage to Mushroom

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The low cost Oyster mushroom production technology developed by Dr. B.K. Rai has attracted many people in Jabalpur and adjoining districts in Madhya Pradesh to grow Oyster mushroom. But, these new entrepreneurs began to loose their enthusiasm because of severe rodent damage to the mushrooms they grew. A survey was conducted to study the rodent species involved, nature and cause of damage to mushroom cultivation.

In the improved practice of Oyster mushroom cultivation, spawn i.e. mushroom spores grown mostly on wheat or jowar grains are sown (spawning) in different layers of sterlized substrate (wheat/paddy straw) filled in polyethene bags. After spawning the polyethene bags are kept either on the floor, bricks or platform for platform for 18 days allowing the spawn to colonize. On colonization the substrate appears milky white. Then the polyethene bag is torn to suspend the substrate on horizontal bamboo poles with cords for further growth of mushroom.

During the survey house rat, *Rattus rattus* Gray was found damaging the spawn as well as the growing mushroom. *R. rattus* damaged the polythene bags kept after spawning, to eat the spawn. This results in total loss, as it disrupts the mushroom production cycle planned by the grower. *R. rattus* also reach upto the suspended substrate on the bamboo poles to eat the growing as well as full grown mushroom. In rodent infested mushroom houses, contamination of mushrooms with rodent hair, urine, faeces & pathogenic micro-organism cannot be ruled out. This may lead to food poisoning.

On further investigation it was found that most of the entrepreneurs had no specially built room or house to grow mushrooms. They either cultivated it in sheds or rooms adjoining their residences. Such mushroom houses had sufficient provisions for the entry *R. rattus*. The rats may be attracted by the rotten smell of wheat or jowar grains used as spawning material. Secondly, diffuse light or partial darkness maintained in the mushroom houses keeps the otherwise nocturnal *R. rattus* active even in day time. Rodent damage to mushrooms is being reported for the first time in India.

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Bandicoot Burrow Under Cactus

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Rodents damaging cultivated crops and plantations have been reported several times in varied form. Recently, rodent burrows were noticed among the cluster of wild cactus grown in the outskirts of Shahdol city.

Bandicota bengalensis (Gray) was the rodent species inhabiting under the cactus clusters. The burrows had scoops of loose soil at its opening. The mouth of the burrows remained open. At an instance, 5 branches were found cut and separated from the mother plant. Those damaged earlier dried away (Plate 1). It was surprising to notice the versatile adaptability of *B. bengalensis* that it could burrow even under cactus which have thorns measuring 2.0 to 2.5 inches. There was no cultivated land nearby, *B. bengalensis* might be thriving on these succulents for food and shelter.

Traditional Rodent Control Methods in Cauvery Delta

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Survey was conducted in the Cauvery Delta to gather information regarding traditional rodent control methods prevalent in the region.

82 (aged farmers) from different parts of Nagapattinam Quaid-e- Milleth district, Tamilnadu, were interviewed for the purpose. The following traditional methods were found to be adopted by the farmers :

1 *Tanjore bow trap* : This tool is assembled locally and is made from bamboo. The traps are placed in the evening hours of the day in a grid pattern in the rice fields at 3-5 m interval, and left for the night. The parched paddy mixed with coconut oil is often used as a bait material to attract the field rodents towards the trap. Next day morning the traps are inspected and the trapped rodents are removed. Water level in the paddy field must be maintained upto 4 inches, because over and below the height of the water prescribed above may reduce the trapping efficiency in the rice fields.

2. *Pit fall trap* : Pots of 20 litre capacity are placed in the crop fields, 4-6 pots per acre are used and are kept, 5-10 m away from the bunds. About two thirds of the pot is buried into the earth and the exposed portion of the pot is daubed with mud to camouflage it. Semi-solid cow dung is prepared and poured into the implanted pots upto one-third of the pot. The prepared cow dung mixture is maintained in a semi-solid condition if regularly stirred with a stick. This is changed every fortnight.

In order to attract the rodents into the trap any of the bait materials viz., parched paddy, dryfish, coconut etc. is used. The parched paddy mixed with coconut oil is predominantly used in many places. The prepared bait materials is spilt around the implanted pot and is also smeared over a layer of husk which is spread on the semisolid cow dung. Pots are regularly checked for trapped rodents.

This method is being adopted in cotton and soybean fields in addition to paddy fields in this area. It brings down the population of rodents in fields to some extent.

3 *Burrow fumigator* : A mud pot of two-litre capacity with a hole is used as a fumigator. A handful of straw is burnt which is then inserted into the pot. Active burrows of rodents are identified and the mouth of the pot is fixed on the burrow entrance. The active burrows of lesser bandicoot rat, *Bandicota bengalensis* and Indian field mouse, *Mus booduga*, are unplugged before fixing the pot on the mouth. The smoke entering the burrows makes the animals suffocate and die inside the burrows.

4. *Placing Palmyrah leaves* : It is believed by the farmers of Nagapam Quaid-e-Milleth district that the sound produced by palmyrah leaves he wind during night hours, scares the incoming rodents. Now-a-days, fers substitute polythene bags for this purpose. In this method, either palh leaves or polythene bags are tied in a 3'-4' height stick and plan in the paddy fields.

5. *Rat hunting by men* : A few people group together at night anelk on the bunds and inside the paddy fields with bright petromax lampid a stick. The light dazzles the moving rats making them inactive and imnle. Then they are killed with the help of sticks.

6. *Burrow digging* : It is done by *Vedars* (tribal community of Nagapam Quaid-e-Milleth district area) and local men. In this method, the active bws are identified and excavated.

7. *Planting perching poles for avian predators* : "T" shaped perchinges (9' in height with a 2' cross bar) are planted in the fields in ordo encourage predators such as barn owls to capture rodents.

8. *Crocodile trap* : It is an ancient trap used to capture rats like er bandicoot, *Bandicota indica*. It has a large lever to which two hingeovs are attached. These jaws look like crocodile jaws and hence the nam'o capture the rats the jaws are separated and the bait is placed at the re of the lever. When a rat tries to feed on the bait, its body weight pes the lever and the jaws are closed at once killing the rat instantancy.

Of all the methods mentioned above, the Tanjore bow traps, bw digging, planting palymrah leaves or polythene bags tied- sticks are comly used. The pit fall traps, burrow fumigation, rat hunting by men and crole traps are very much in use. Implanting of perching poles for avian preas is rarely done.

Effectiveness of Bromadiolone Broadcasting in Manai ment of Rodent Pests in Sugarcane Crop

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Management of rodent pests in standing sugarcane crops is very dilit task. Since this problem arises in this crop after November when enis

difficult in field and location of rodent burrows for poison baiting is also a problem in standing crop. Therefore, manual broadcast of bromadiolone (0.005%) was tried at Indian Institute of Sugarcane Research farm. The study was conducted in the COLK 8102 variety of sugarcane.

Of the six plots measuring approx. 0.33 ha marked out for the study, three plots were selected for rodenticidal application and three for comparison purpose as control. The treated and control plots were separated by 50 m barrier in between. The rodent population was estimated by census baiting both in treated and control plots before and after the infestation build up in last week of November. Ready to use bromadiolone cakes (0.005%) were manually broadcast @ 1.5 kg/ha after the pre control census in a grid pattern so that at least one cake fell in every quadrat of 10 m x 10 m. This operation was repeated after a fortnight. The damage was assessed at the time of harvesting by estimation of 500 canes/plot comprised by 20 canes at each of 25 plots at random. The data on the mortality based on bait consumption ranged from 57.7 to 96.6% with an average of 82.91% control success. The damage was observed to be 1.00 to 2.60% in the treated plots and 0.4 to 2.4% in the control plots, respectively. This clearly revealed that rodent population can be satisfactorily brought down in the standing sugarcane fields by broadcasting ready to use bromadiolone cakes. [Adapted from the Annual Progress Report, AICRP on Rodent Control, Lacknow Centre 1994-95]

Filed EValuation of Newer and Conventional Rodenticides Against Rodents and Their Effects on Non-Target Organisms.

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Bioefficacy of some new rodenticides viz, brodifacoum, flocoumafen and bromadiolone, and a vitamin D3 based compound, cholecalciferol was compared with the widely used acute rodenticides Zincphosphate in a paddy field study during *Kharif* 1990 and 1991 against field rodents infesting crop in village Gangpur, Development Block Kalyanpur, Kanpur. The predominent rodent species inhabiting the study area were *Bandicota bengalensis* and *Tatera indica*. Only live burrows were treated with the test rodenticides @ one block/cake of ready to use poison bait or 15g loose poison bait per burrow. After

Table 1 *Comparative bio-efficacy of some rodenticides against field rodents infesting paddy crop in two Kharif seasons (1990 and 1991)*

	Rodenticides	Mean No. of burrows treated	Mean per cent control success on			
			3rd day	5th day	6th day	9th day
1.	Brodifacoum	78.5	58.0	70.7	82.8	91.1
2.	Flocoumafen	82.0	35.3	67.0	78.0	87.1
3.	Bromadiolone	64.5	36.6	58.0	69.7	81.4
4.	Cholecalciferol	71.5	33.6	53.7	60.0	70.6
5.	Zinc phosphide	46.5	43.8	52.4	52.4	52.4

treatments, the operational area was kept under strict observation to note the active burrows for 9 days, at one day interval commencing from third day after treatment for evaluating the effect of poison baits against rodents. The per cent control success was worked out on the basis of live burrow count. Impact of rodenticides on non target organisms in the operational area was also recorded daily from dawn to dusk to record the accidental and secondary poisoning hazards during post operational period. The data presented in the Table 1 amply documented that the overall performance shown by brodifacoum in terms of mean control success was highest (91.1%) followed by flocoumafen (87.1%), bromodiolone (81.4%). cholecalciferol (70.6%) and Zinc phosphide (52.4%) after 9th day of the treatment. Further, not a single case of either secondary poisoning or accidental death was recorded with these rodenticides except with zinc phosphide where one kite and two crows were found dead as the victim of secondary poisoning.

Efficacy of Difethialone Against Indian Gerbil test Noinchoice

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In the series of testing new generation rodenticides, difethialone, an anticoagulant rodenticide was evaluated in the laboratory under no-choice test against Indian gerbil, *Tatera indica indica* Hardwicke. The poison bait of 0.0025% was prepared in wheat grains and provided to starved test gerbils

lodged in small cages. Water was provided *ad libitum*. Each test gerbil was provided with 10 g of poison bait for 24 hours.

The poison bait showed high acceptability as the bait was completely consumed in 24 hrs of exposure After the intake of poison bait the animals became sluggish and dull. The poisoned animals were found to be bleeding from their mouth. The feacal matter was also slightly reddish indicating internal heamorrhage. Cent per cent mortality was achieved and the rodents died within 4-9 days of exposure to poison bait. Difethialone seems to be a promising rodenticide. Further studies are in progress.

NOTES AND NEWS

Dr. Ishwar Prakash, former Professor of Eminence at Central Arid Zone Research Institute, Jodhpur and INSA Senior Scientist, Zoological Survey of India, Jodhpur; has been elected as President of the Section of Zoology, Entomology & Fisheries of the Indian Science Congress for the year 1997. The Science Congress Sessions will be held at Delhi University. AICRP on Rodent Control family congratulates him on his election as President, ISC (Zoology Section).

Contributions for inclusion in the Newsletter may please be forwarded along with 1-2 good black and white photographs to :

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Published by the Director, CAZRI, Jodhpur and Printed by Cheenu Enterprises
Jawari Bhawan, High Court Colony, Jodhpur 342 011 Tel. 23023