

STRATEGIES FOR THE CONTROL OF INDIAN CRESTED PORCUPINE, *HYSTRIX INDICA*

Muhammad Irshad Arshad, Rashid Ahmad Khan and Abdul Khaliq*

Department of Forestry, Range Management and Wild Life, University of Agriculture, Faisalabad

(Received May 7, 1988; revised November 30, 1988)

The four different poisons namely compound 1080, temik, warfarin and endrin were used to prepare the bait mixtures. The highest killing percentage was obtained with baits prepared from compound 1080 as poison and chopped mango stones as substrate. Temik was the second most effective poison followed by warfarin and endrin. Trapping and netting was ineffective whereas fumigation gave the promising results.

Key words: Crested porcupin, *Hystrix indica*, Controlling strategies bait mixtures.

INTRODUCTION

The vertebrate pests including rodents cause a serious limitation on the agricultural production by causing colossal losses to the crops from sowing time until harvest, and even during the post-harvest stages [1]. The porcupine, *Hystrix indica* is a large rodent and considered to be a serious economic pest. This animal is nocturnal in habit and causes damage to the vegetables, grains, fruits and crop roots at night [5]

It was reported that the phostoxin tablets at the rate of 2-4 tablets per burrow in the hills and 5 tablets per burrow in the plains gave 100 % mortality [2]. The animal may be killed by fumigating the burrows with phosphine during early day time by closing the entrances [1]. The porcupine was controlled in Malaysia by shooting, trapping and zinc phosphide painted on the palm tree basis [3].

The burrow fumigation was found to be the best control method and poison baiting was also rather promising but the trapping was relatively less successful [4]. The present studies were made to derive an effective strategy for the control of this serious pest of agriculture.

MATERIALS AND METHODS

The present research project was started from September, 1985 and carried on through August, 1986 in cultivated areas around Faisalabad. Since porcupine is strictly a nocturnal rodent, therefore, it is very difficult to control its population by ordinary methods. The methods tried for controlling its population are as under :-

(a) *Trapping and netting.* The ordinary nylon-nets (15m. x 7.5m.) were tried to capture the animals.

(b) *Fumigation.* For trying this control method, alive burrows (burrow with fresh foot prints) were located

and fumigation was done with phosphine gas (Detia. or phostoxin tablets) in the early day hours. Entrances of the burrows were closed by putting in thorn bushes first and then closing all the openings air tight with mud. It took about 15 minutes to close a burrow.

(c) *Baiting.* Baits were tried by using the following poisons, substrates and attractants.

Poison	Substrates	Attractants
Temik 10G	Over ripened bitter-gourd	Dried milk
Warfarin 100%	Chopped mango-stones	-do-
Compound 1080 100 %	Boild maize	-do--
Endrin 19.5 %	Boiled maize	-do--

Baits (0.5 kgs in weight) were placed in the form of heaps near the dens or in the fields where the animals were found visiting and damaging the crops. The foraging routes and distances in many cases were traced and marked.

RESULTS AND DISCUSSION

(a) *Trapping and netting.* The ordinary nylon-nets were used at Chak No. 33/G.B. and Gujar Khan Wala but were not found successful because the animal has smaller sized-legs and neck. Netting was found successful if the animal is killed soon after netting; otherwise it will escapes by cutting through net threads. One animal escaped away by cutting the nylon-net in this way at Resalewala after capture.

(b) *Fumigation.* Fumigation was carried out just as a part of experiment in a graveyard in Chak No. 64/G.B. Some five burrows were selected with fresh foot prints outside the openings. Phostoxin tablets were used at the rate 3-4 per burrow. The openings were closed and exam-

*Deptt. of Entomology, University College of Agriculture Rawalakot Azad Kashmir.

Table 1. Baiting study.

S. No.	Date	Baiting area	No. of animals seen	Poison	No. of baits placed	Substrates	Attractant used	Animals killed	No. of animals knocked down	Killing % age
1.	1. 9.85	2/G.B.	1	Compound 1080	10	Boiled maize	Milk powder + sugar	1	0	100%
2.	1.10.85	Millat Town	2	Endrin	10	Overripened Bitter gourd	"	0	0	0%
3.	1.11.85	Gujar Khan Wala	9	Warfarin	10	"	"	3	1	33.33%
4.	1.12.85	110/J.B.	2	Temik	10	"	"	2	0	100%
5.	1. 1.86	90/J.B, 32/J.B	—	C.1080	10	"	"	—	—	—
6.	1. 2.86	Kala Pathana	3	Endrin	10	Chopped mango stones	"	1	1	33.33%
7.	1. 3.86	234/R.B.	4	Warfarin	10	"	"	2	1	50%
8.	1. 4.86	Rasalewala	5	Temik	10	"	"	5	0	100%
9.	1. 5.86	64/G.B.	3	C.1080	10	"	"	3	—	100%
10.	1. 6.86	33/G.B.	6	Endrin	10	Boiled maize	"	3	0	50%
11.	1. 7.86	26/G.B.	5	Warfarin	10	"	"	2	1	40%
12.	1. 8.86	27/G.B	7	Temik	10	"	"	5	1	71.42%

ined the next day for result. 100 % dens were found closed predicting that the animals had died within the burrows.

(c) *Baiting study.* Porcupine is the second most pestiferous animal after wild-pig and shares almost similar biomes. It feeds on grains, vegetables, fruits and meat [4]. There are general statements in literature that porcupines can be controlled with poison baiting [2].

For baiting trials, 4 different poisons (with a high mammalian toxicity) namely, endrin, warfarin, temik, and compound 1080 were used. The boiled maize, over-ripened bitter-gourd, and chopped mango stones were selected as substrates, while milk powder and sugar were added as bait attractants. The substrates were changed periodically throughout the year. Only such a substrate was used which was not available in the field as crop in a particular season. Ten bait heaps were placed at appropriate places in the field area and around the burrow domains.

The highest percentage of kill i.e. 100 % was observed with baits prepared from compound 1080 as poison and chopped mango stones as substrate with milk powder and

sugar as attractants. It was found that compound 1080 was overall to be the most effective poison against the porcupine (Table 1) where temik (Kill 85.7 %) was the second most effective poison with the same substrate and attractant, Warfarin (Kill 38.88 %) was the effective third poison, with knockdown effect and endrin (Kill 36.36 %) was placed the fourth.

REFERENCES

1. A.S. Atwal, *Agricultural Pests of India and South-East Asia* (Kalyani Publishers, New Delhi, India, (1976), pp. 471.
2. M.I. Chaudhry and A. Ahmad, *Pakistan J. For.*, **25**, 46 (1975).
3. H.C. Chua, *Hort. Abst.*, **41**, 7827 (1971).
4. J.H. Greaves and A.A. Khan, *Commonwealth For. Rev.*, **57**, 25 (1978).
5. T.J. Roberts, *The Mammals of Pakistan* (Ernstbenn London, 1977), pp. 233.