

Efficacy of Two Rodenticides Against Field Rodents

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Abstract Efficacy of zinc phosphide and bromadiolone against field rodents *Meriones burrianae* Jerbon, *Tatera indica* (Hardwicke) and *Mus* spp. were studied at Regional Research Station, Bawal (Haryana). Irrespective of the rat species 2.5% zinc phosphide grain bait and 0.005% bromadiolone each in ready-to-use wax cake, grains and flour gave 96.1 and 71.8, 67.3 and 63.3% mortality, respectively.

Key words Efficacy, Zinc phosphide, Bromadiolone, Baits, Field rodents.

Field rodents cause serious damage to all the field crops in Haryana. These are commonly killed through use of acute poison baits such as zinc phosphide and multidose anticoagulants such as warfarin and Fumarine (Mathur & Bhaduria 1986). Recently a new single does anticoagulant, namely bromadiolone has been found effective against rats (Bose & Saxena 1984). Thus, in the present studies, efficacy of this rodenticide, used in three different bait forms, was compared with that of zinc phosphide.

Materials and Methods

The present studies were conducted during January, 1986, at the Regional Research Station, Bawal. The experimental area spread over 4.05 ha contained 427 live burrows, out of which 252, 164 and 11 were classified to belong to the rodent species *Meriones burrianae*, *Tatera indica* and *Mus* spp., respectively. The live burrows for different species were classified by taking observations described by Barnett and Parkash (1975). Each live burrow was considered to harbour one rodent and thus the total number of live burrows was taken as the number of rodents. Rodenticides were tested using bajra (*Pennisetum typhoides*) as bait carrier. These were; 2.5% zinc phosphide in grains and 0.005% bromadiolone each in ready-to-use wax cake, mixed in grains, and in flour. The baits were prepared on weight basis as per procedure given below.

Zinc phosphide bait : Bajra grains were first meared with about 3% (by weight) mustard oil. To 975 g oil smeared grains, 25 g zinc phosphide was added and the contents were vigorously mixed to ensure uniform coating of the rodenticide over the grains. Paper packets, each containing about 10 g bait material were then prepared.

Bromadiolone bait : Bromadiolone concentrate powder (0.25 %) was added and thoroughly mixed to oil smeared (3% by weight grains in the ratio of 1 : 49 and this yielded 0.005 %) loose grains bait. Similarly 0.005% bromadiolone floor bait was prepared replacing grains with flour. Paper packets containing 20g bait material in each case, were prepared.

On the first day of the operation, all the available rodent burrows in the experimental area were flagged and closed with soil. On the next day the respond burrows were treated with different rodenticides. Prebaiting for one day was practised only in case of a zinc phosphide, as the same has not been recommended for bromadiolone (pest control (India) Pvt. Ltd.). The efficacy of different rodenticide treatments are evaluated six days after treatment by using live burrow count method.

Results and Discussion

Data revealed that per cent success achieved with zinc phosphide was higher than with any of the three baits of bromadiolone (Table 1). The success with ready to use wax cake, grain and flour baits of bromadiolone was 71.8, 67.3 and 63.6%, respec-

Table 1 Efficacy of two rodenticides against field rodents

Treatments	No. of live burrows		Per cent success
	Before treatment	After treatment	
Zinc phosphide with bajra grains.	103	4	96.1
Bromadiolone with bajra grains.	101	33	67.3
Bromadiolone with bajra flour	99	36	63.3
Bromadiolone with ready-to-use wax cake.	124	35	71.8
Total for bromadiolone treatment.	324	104	67.5

tively. Irrespective of different bait forms, bromadiolone achieved an average control success of 67.5%. The results are in conformity with those of Mathur and Bhaduria (1985) and Bose and Saxena (1984). However, Bhatnagar et al. (1985) achieved better control (88.9%) of *Nesokia India* with 0.015% bromadiolone wheat flour bait after 8 days of the treatment.

Similarly, Mathur and Bhaduria (1986) achieved 70.0, 67.6, 60.4, 92.4, 95.6, 83.2 and 96.4, 98.4 and 93.2% mortality of *B. bengalensis* after 6, 9 and 12 days of the treatment with 0.005% bromadiolone ready to use wax cake, whole wheat grains and wheat flour bait, respectively. Thus the present results are in conformity with these workers but perusal of these reports clearly indicates that mortality count of rodents in case of bromadiolone baits should be taken upto 10-12 days of the treatment.

The results show that

- In quite a number of cases, the bromadiolone poisoned rodents were found dead outside their burrows and these were being picked-up by kites and crows. But no other non tar-

get animal was found dead in the operational area.

- Bromadiolone poisoning made the rodents dull and passive and they could be observed in sleeping posture at the mouth of the burrow opening. Couple of such rodents were caught with relatively lesser efforts.
- Cases of rejection of bromadiolone cakes by *M burrianae* and those of bromadiolone flour bait by *T indica* were observed. The cakes were found thrown outside the burrows even 2-3 after baiting.

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