

# Non Insect Pests- Rodents and Birds



Rodents are of two type namely Commensal rodents and Field rodents

## **COMMENSAL RODENTS**

- Contaminate 20 times the material actually they eat
- They regularly shed hairs @ 100-200 hair fragments per day/rat
- They bite some times human beings and spread disease
- Social animal, live closely to one another and shares same food source and common run way
- Most active at dusk and during calm period
- **Rats** become conditioned to eating a particular food and are suspicious in nature
- Taste the food cautiously and develop **bait shyness**
- **House mouse** is not suspicious of new food but eagerly tastes all
- In single night mice tastes and feed on many different foods
- Difficult to get them to take a lethal dose of poisoned bait
- Mice readily accept **water baits**

## 1. House mouse (*Mus musculus*)

- Tends to **nibble and run** rather than stay longer at food source
- Can pass through a hole slightly **less than 1.25 cm**
- Produce **6-10 litter per year** with **6-10 young ones per litter**
- They can climb easily and also can swim when necessary
- Distributed all over India and are **omnivorous**
- Total length including tail is **8-22 cm** with pointed snout
- Brownish grey above and whitish to light grey on belly



## 2. House rat (*Rattus rattus*)

- Lives in **close association with human beings**
- Excellent climber and good swimmer
- **4-6 litters / year**
- Length **31-43 cm** with pointed snout
- Dark brownish above (dorsal) and dirty white on belly



### 3. Common Indian field mouse (*Mus musculus booduga*)

- 5 to 8 cm long with 5 cm long tail
- Brown in color with a white belly
- It burrows in **field bunds** causing extensive damage and wastage of water
- It produces 3 to 9 young ones per litter



### 4. Brown rat or Norway rat (*Rattus norvegicus*)

- Closely associated with the activity of man
- Good climber and swimmer
- Prefers wet or damp locations
- Do not close the burrow openings
- Length from nose to tail 35- 41 cm with blunt snout
- Brownish above, white on belly



## Management of commensal rodents

- Killing rats by sticks
- Trapping the rats using traps
- **Snap neck trap** kills the rat instantly
- Live catch traps trap the rats alive Eg. **Single rat trap, wonder trap**

## Chemicals are of two types

### 1. Acute poison- That are used in **single dose**

**Zinc phosphide:** Used only in fields not in houses

- **Commonly used acute rodenticide in India**
- Recommended at 2.5% technical grade in bait material
- **Broken cereal** could be used as bait material with **vegetable oil** as binding medium
- **Pre-baiting** is compulsory for effective results
- **95% flour + 1 to 2% Zinc phosphide + 2% groundnut oil + 1% sugar**
- **Prebaiting 2-3 days without Zinc phosphide** and then bait is mixed with zinc Phosphide



## 2. Anticoagulants- Multiple doses

### 1st generation anticoagulants- Warfarin, Fumarin, Toumarin, Recumin

- Lethal when consumed for several days
- They **prevent blood clotting and break cell wall of blood capillaries leading to haemorrhage**
- Rats normally **die in aerated areas**
- House rat and house mouse die after **2-5 days of continuous feeding**
- Solid base – **Rodafarin C**- Rodafarin C + granulated sugar + vegetable oil + of crushed grain or corn meal (**1:1:1:17**)
- Antidote- **Vitamin k-1**

### 2nd generation anticoagulants

**Bromadiolone** is only registered- **Roban or Hit Rat kill**

Recommended **@ 0.005% ai in cereal baits** to be used in pulsed baiting technique (Exposing the bait at weekly interval)

### Fumigants :

Aluminium phosphide (CP) solid

Ethelen dibromide (EDB)

Ethelene dichloride carbontetrachloride (EDCT)

### Natural enemies

Cats, dogs, owl, hawks and snakes

## Field rodents

### 1. Soft furred field rat or grass rat (*Millardia meltada*)

- Occurs in irrigated fields but observed in pastures also
- Nocturnal and lives in simple burrows
- Breeds through out the year with litter size of 2-10 young ones
- Small and slender, Adult weight is 100 gm
- Total length including tail is 19-29 cm
- Moderately to poorly haired and tail is dark above and pale below



### 2. Indian Mole Rat or Lesser Bandicoot Rat (*Bandicota bengalensis*)

- excellent swimmer, often living in flooded rice fields and bunds
- Also occurs in the wheat crop fields and godowns
- It is nocturnal and fossorial
- Breeds **commonly twice a year** with 8-10 young ones in each litter
- weight is 325 gm and Length from nose to tip of tail is 36-48 cm
- **160-170 rings clearly seen on scaly tail**
- Snout – short, stumpy, **pig like**
- Fur and colour – thick, short and harsh, spines present, dark brown, pale brown or reddish above



## Nature and Symptoms of damage

- Attack rice at all stages of growth from **planting to harvest**
- Even they will continue to **attack the grain in store**
- Freshly sown seed may be **dug up and the seed eaten**
- On young rice plants, rodents attack the **heart of the stem** discarding the leaves
- Rice stems fall by gnawing **5-15 cm** above ground level
- Some rodent species may store grain in their burrows
- Besides feeding on the crop may cause **serious damage to the bunds**



## Management of Rodents:

- Should be taken up on **community basis** well before sowing of the crop
- burrows should be marked and the burrow opening is **closed with moist soil**
- **burrows opened out** on the next day are **active burrows**
- Then **pre baiting** has to be done on the **1st and 3rd day**
- On **5th day 2% zinc phosphide** is added and baits distributed in the field
- **70-80% kill** of rodent population can be secured by the operation
- On **6<sup>th</sup> day** in those reopened burrows, **aluminium phosphide @ 1.5 gm/burrow** should be placed in the active burrow and this will take care of residue rodent population

## **Birds:**

A number of birds feed upon grains from ear heads of field crops; fruits and vegetables **consume very little quantity but damages more** than what they actually eat

### **Major bird species**

1. **Crow** *Corvus spp.* – Damage wheat, cobs of maize, ripe fruits of fig, mulberry
2. **Parrot** *Psittacula cyanocephalus* cuts and feeds on maize, jowar, bajra, what, barley grains and fruits such as guava, fig, mango, pomegranate etc., (both semi ripened and ripened fruits are cut and eat leading to fruit drop)
3. **House sparrow** – *Passer domesticus* damages the earheads of jowar, maize, bajra and soft and fleshy fruits such as mulberry and fig
4. **Blue rock pigeon** *Columba livia* eats maize, pulses and groundnut
5. **Yellow throated sparrow** causes heavy damage to wheat and barley

(i) **Crow:** (Corvus Splendens Vieillot):

- Cause considerable damage to ripe fruits in orchards and also ripening grains of maize and fruits
- Attracted to the grains when **they are exposed on a cob**
- Menace **to field crops as well as harvest of fruits**
- Often seen in flocks in maize and other fields

(ii) **Sparrow :** (Passer domesticus):

- Attacks mainly in the **seed setting stage**
- also threaten **mulberry** and many **other small sized juicy fruits** and fruit buds
- visit the **ripening fruit fields**, particularly those of wheat in the **spring season**
- Cause much damage both by feeding and causing the grains to shed

## Damage by House sparrows

- consume grains **in fields and in storage**
- **Localized damage** can be considerable since sparrows often feed in large numbers over a small area
- damage crops by **pecking seeds, seedlings, buds, flowers, vegetables, and maturing fruits**
- They interfere with the production of livestock, particularly poultry **by consuming and contaminating feed**
- In grain storage facilities, **fecal contamination** probably results in as much monetary loss

### (iii) Parrot (Psittacula spp.):

About eight species recorded in India and **Large Indian parakeet (P. eupatria)** is very common

Causes heavy damage to orchards by eating fruits and also spoiling the fruits

They gnaw at and cut into bits all sorts of **near-ripe fruits** such as guava, ber, mango, plums, peaches, etc

In sunflower when the **seeds are soft**, cause extensive damage by feeding on the seed

## Management of Birds

Various methods are employed which include covering by nets, using scaring devices, reducing their population by shooting, trapping and use of chemicals.

- (a) Trapping the birds in nets or catching with the sticky substance '**Lassa**'
- (b) A piece of Chapatti dipped in **0.04% parathion** and placed on the top of roof is a **good bait for crows**
- (c) Parrots and sparrows are repelled by spraying **0.6% thiurun'** on wheat crops at milk stage
- (d) Scaring devices using **mechanical, acoustic and visual means** i.e. **Beating of drums to produce sounds** is still in vogue in many parts of the country particularly during harvesting
- (e) Fire crackers **placed at regular intervals** along a cotton rope
- (f) Loud sounds due to the **burning of acetylene gas** produced at intervals
- (g) Birds may be scared by **display of scare crows, dead birds** and **visually attractive flags** etc.