Strategy for the Effective Management of Rats Infesting Coconuts in Lakshadweep Islands

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Introduction

The black rat, *Rattus rattus* Linn. is an important rodent pest of coconut in most of the Lakshadweep islands. It damages 35-50% of the standing crop in certain areas (Kidavukoya, 1955; Shah and Subiah, 1978). Unlike in the main land where the rats prefer tender coconuts to mature ones, in the islands, it was observed that rats gnaw off mostly the mature nuts. It makes a neat hole of about 5 cm. in diameter on one side of the nut with the help of its sharp chisel like incisors and eats the kernel. Such damaged nuts are seen scattered in most of the places in the islands. The voice of nibbling the shells of mature coconuts is very often heard even during day time and pieces of shredded coconut husk are also seen along with the damaged nuts around the bases of most of the palms. When the rat problem is very severe, even the female flowers and unopened spathe are damaged and eaten. Hitherto no effective control method is being practised against this pest in these islands.

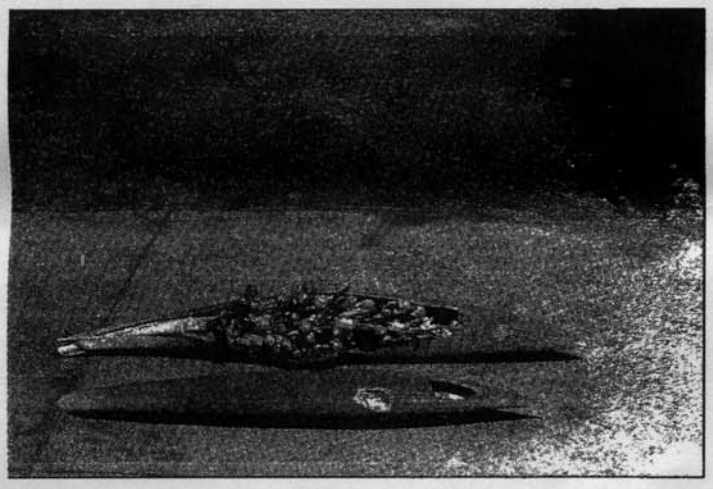
An integrated programme consisting of habitat alteration and mechanical and chemical methods is an ideal approach to manage this rodent problem in the island ecosystem.

Habitat Alteration

The black rat is an active climber and lives mainly above the ground (Bhat and Sujatha, 1986). In coconut plantations it constructs nests on the palm crown either in the interspaces of nuts in the bunch or in the leaf axils by using dried leaflets and matrix and lives there. In most of the islands in Lakshadweep, coconut palms are so closely planted that the rats easily move from one palm to another through the overlapping fronds. The absence of predators such as rat snakes and owls made the island a safe place for rats to live and breed. The population build up of rats on the palm crown can however be minimised by keeping the crown clean of dried leaflets, spathes and matrix regularly.

Mechanical Methods

Rat hunt : It is a traditional way of eradication of rats in Lakshadweep islands. Four to eight groups of men are employed for this work. In each group there will be five to six climbers and another six to seven men remain vigil with sticks on the ground. The climbers will climb each and every palm, make noise and shake the crown and leaves vigorously so that the rats will run 'helter skelter' and in that process some will fall to the ground. The men waiting in the ground will strike easily on such rats and kill them. Generally all the groups will start rat hunt from central location in the island and move in groups on different directions and cover the entire island in a few days. The main drawback with this programme is that in island conditions the palms are so close that it is easy for the rats to move back to their original nesting places when the climbers get down and climb other palms.



Spathe damaged by rats

A whole bunch damaged by rats

Banding : Banding the coconut stem with G.I. sheet is being practised in several islands to reduce rat menace. This type of banding, though acts as a barrier for the movement of rats, is not practical in the island conditions where the palms are very dense and a lot of other trees are grown in between. In such conditions the rats easily move through the fronds of coconut and branches of other trees.

Trapping : Catching the rats by the use of traps is probably the safe, but labour intensive method of rat control in the island conditions. Among the several types of traps available, the wooden or metallic 'live' traps were found better than the others in capturing rats. As the coconut kernel is the main food of rats in the islands (Advani, 1984), it is more practical to use such baits in traps. Care must be taken to check the traps daily, remove the trapped ones and reset the traps properly on the crown. Further, trapping should be done as and when fresh damages are noticed.

Rat damaged nuts collected from a garden at Minicoy

Chemical Control

The chemical method of rat control is by the use of rodenticides. Two types of rodenticides are available in the market. The first one is the acute poison such as zinc phosphide powder and phosphorous containing paste. These poisons should be handled carefully as they are equally poisonous to non target animals such as birds, goats and even man. The poison baits can be prepared by using the poison at 2% level in pieces of fresh coconut kernel and kept on the crown of the infested palms for two to three days. The poison baiting with acute poisons is more successful if carried out after prebaiting (keeping baits without poison) for two days, so that the poison baits are accepted readily by the rats.

The second type of rodenticide is the slow acting poison such as bromadiolone. This is much safer to non target animals and available in the market as ready to use cakes. Unlike acute poisons, there is no need to keep prebaits in the case of slow poisons and one can go for poison baiting on the first day itself. However, as the action of slow poison is very slow, one has to repeat the poison baiting after a gap of 10-12 days of first baiting to knock down the residual population. Further, as the rats move in an area of about 600 sq. m (Bhat, 1988), it is sufficie to bait one palm for every five palms the damage is uniformly spread out the garden. In case the damage restricted to some palms, only su palms need baiting. One bait block about 10g may be kept on the crov and repeated after 10-12 days (Bh and Sujatha, 1989).

By incorporating all the abo mentioned management practices is easier to minimise rat dama in coconut and thereby increase t yield.

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(Source: An email letter to APCC Secretariat by the President of Rawsome.org, from USA