



Coconut Research Institute of Sri Lanka



Advisory Circular No B 7

MAMMALIAN PESTS OF COCONUT

Rats, bandicoots, porcupines and bats are the common mammals that attack coconut palms

A. Rats

The rats damage nuts and coconut seedlings. In bearing palms, they gnaw into nuts, feed on the kernel and nut water. Although tender nuts in all stages of development are prone to attack, 3-8 month old nuts are the most vulnerable. Unopened inflorescences are also known to be attacked when their visits to palms are frequent. Certain varieties like 'Nawasi' and king coconut appear to have a greater attraction to rats. In seedlings, the rats gnaw at the base and feed on the soft tissues in the bud region resulting withering, drying up of the bud and death. Seedling mortality due to rat damage can occur in nurseries and transplanted seedlings in the field.

Control

1. Estate sanitation

A weedy land with debris such as palm logs, tree stumps, husk heaps or plant debris, are ideal habitats for breeding of rats. Hence, the practice of estate sanitation by removal or burning such material and keeping weeds under check, is an important cultural control method.

2. Traps

Baits are used in traps to attract rats. These are commonly, pieces of roasted bread, copra and partly burnt coconut kernel.

i. Crown traps

The trap is set up in the crown of a palm. The trap can be hoisted or lowered, as required, using a pulley fixed to the fronds.

ii. Ground traps

In nurseries and transplanted fields, traps are set up in close proximity to opening of rat burrows which can be located more readily in nursery premises. Precautions must be taken to indicate such positioning of rat traps to prevent hazards to workmen, and keep away from domestic animals.

3. Barriers

Tree banding : A Sheet of aluminium or galvanized iron, having a smooth surface, 0.3 metre (1 ft) broad and sufficiently long to wrap around the trunk of the palm, is fixed around the trunk of the palm, about one metre from the ground. The band acts as a slippery barrier, preventing rats scaling over it. The wire for fixing, should not therefore, be wound spirally, because rats could then get a foot-hold to cross the barrier.

The fronds of banded palms should not come in contact with fronds of neighbouring trees or buildings as rats could then find an alternative way into the crown. This isolation is made possible by cutting off the ends of fronds. Such care should be exercised even to groups of banded palms. Prior to banding, crowns of palms should be cleared of rats and their nests.

To prevent the rat damage in young seedlings the basal part of the seedling could be covered with a chicken mesh or a roofing tile. The base of the seedlings should be covered with a chicken mesh securely tightened at both ends leaving no room for entry. The alternative method is to arrange 3-4 roof tiles ("Sinhala ulu") vertically leaning against the stem with the top end tied together while the base is covered with soil to prevent entry at the base.

4. Chemical control

Rodenticides are generally used in baits. Firstly the unpoisoned bait is laid for rats to get accustomed to that feed and after 3 or 4 pre-baitings, the poisoned bait is offered. Still rats may feed slowly and if they experience unpleasant taste, they may cease to feed without taking a lethal dose. When baits are strongly poisoned, they may remain untouched. A more convenient method of exterminating rats is with the introduction of wax blocks impregnated with a rodenticide.

As in the case with all pesticides, precautions must be taken in storage and use.

i. Crown baiting

Plastic bags containing the poisoned bait is placed on the crown of the palm, at the axil of a frond, in the region where the fruit bunches are vulnerable. A small slit is made on the bag so that the rats will scent out the contents. With tall palms, placement would be possible with a picking pole. Monthly placements may be necessary until no rat damage is observed. Inspection should be done periodically, under the palms to look for spillage which if found should be buried in the soil. Frequent spillage is a serious limitation in this method of application. An alternative method of crown baiting is the placement of a wax block on the axil of a frond in the area where young nuts are damaged. A climber has to reach the crown of the palm to set it firmly.

ii. Ground baiting

The poisoned bait is contained in receptacles like coconut shells which are placed in the field where rats are likely to reach them. A suitable cover such as a piece of metal sheet or wooden box is placed over the bait container allowing access only to rats, so that the bait material is protected from rain and also kept out of reach of domestic animals. Suitable additional precautions may however be made, where necessary to ensure safety.

B. Bandicoots

Bandicoot is a pest on coconut seedlings in nurseries and transplanted seedlings as they feed on the basal part of the seedling. The earliest symptom of attack is the withered or dried up bud. On inspection, the feeding site could be on the base of seedling near ground level or under soil when the seedling is deep-seated. In almost every instance, the pest attack is fatal to the seedling.

Control

For control, three of the control measures recommended for rat control are applicable, namely, (1) estate sanitation (2) ground traps and (3) ground baiting.

C. Porcupines

In young plantations particularly near jungles, porcupines can become a pest as they could destroy seedlings and young palms by feeding on the base of the plant, causing damage similar to bandicoot attack described above. In certain localities, seedling mortality can be so heavy that replanting of certain areas become necessary.

Control

A very practical method of control is to erect fences to individual seedlings or protect fields with a fence along the forest border. The base of the seedlings could be covered with 'chicken mesh' as a protective measure.

D. Bats

Bats are a seasonal pest on coconut palms as they feed on tender coconuts at times when soft fruits are not available. Bats are a localized problem and they often visit coconut trees near their roosting place. The tender nuts damaged by bats fall premature, whilst occasionally when they damage leaflets, mostly in the upper whorl of fronds, they appear tattered and bleached, a foliar condition very characteristic of damage caused by bats.

The only practical remedy is the destruction by shooting them whilst roosting during the day, as they fly out at night to feed. Lighting of crackers may scare them and prevent revisits for short periods.



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Advisory Circular No B 9

BUD ROT DISEASE AND ITS CONTROL

Bud rot is a fatal disease of coconut. It is caused by a fungus known as *Phytophthora palmivora*, which attacks the growing point of the coconut palm. Once the growing point is attacked, the palm is beyond recovery.

Palms of age 3-45 years are particularly susceptible to this disease. As in the case of other fungal diseases bud rot prevails when the humidity is high as such this condition favours the growth and dispersal of the causative fungus. Thus young palms, which have clustered leaves, and under plantations in which the young palms are shaded by the older palms are susceptible to the disease. The disease is often seen in river banks subject to flooding. Normally, the disease is observed sporadically in widely scattered palms.



Picture 1 : A palm affected by bud rot

In Sri Lanka, this disease is not widespread, but occasionally, in the wet and intermediate zones minor epidemics have been recorded.

Symptoms

In affected palms, initially the spear leaf loses its luster and withers. Wilted symptom gradually spreads to the adjacent leaves. Close examination of the bud region would reveal discoloured patches at the base of the spear leaf. Withered fronds turn brown and dry while the lower fronds remain healthy and green. Drying of inflorescence and immature nut fall occurs at this stage.

In the advanced stage, the spear leaf can be easily pulled out and will give a foul odour. Later bud and few adjacent fronds fall followed by other fronds leaving only the trunk. The disease is often detected when the bud breaks away due to the rot. Such palms are beyond recovery.

Control

Infected young palms, in an advanced stage, the crown should be cut and burnt to destroy the fungus. If bud rot is detected early, the bud region should be thoroughly wetted with Bordeaux mixture or 1% copper fungicide solution.