
Diseases of Coconut

Diseases in coconut are an important factor among others, that cause heavy economic losses in coconut growing countries. Although fatal diseases have been recorded in other countries, coconut in Sri Lanka is free from such diseases. The most common diseases in Sri Lanka are Bud rot, Leaf blight, Stem bleeding and Collar rot. In addition, a physiological disorder commonly referred to as Leaf Scorch Decline (LSD) or tapering is also prevalent in some parts of the island.

Bud rot

This is the most serious disease of the coconut palm. The fungus *Phytophthora palmivora* is the causative agent, and palms of any age are susceptible.



Crown-less palm due to Bud rot

The disease is generally seen in humid areas and often in under plantations. The soil type does not influence this disease.

The first symptom is the slight yellowish discolouration of the flag leaf which later dries. Gradually, discolouration will spread to fronds surrounding the flag leaf leading to drying. Subsequently the bud rots, emanating an obnoxious smell and the fronds in the first few whorls wither, dry, and fall off over a period of few months. The tree will finally be crown-less.

By the time the disease is detected, the infection has already set in causing a rot around the entire bud region thus making recovery almost impossible. In such instances the method of control to be adopted is to cut and burn such palms so as to eliminate the pathogen and prevent spread. However, if the infection is detected at the very early stages, the palm may be saved by treating the entire affected region with a copper based fungicide such as *Bordeaux mixture. This mixture should be sprayed or applied once a fortnight for a few weeks in all affected palms as a treatment, and also in adjacent healthy palms as a preventive measure.

Leaf blight

Leaf blight disease is prevalent in all coconut growing areas.

In the early stages of the disease yellowish brown tiny spots appear on leaflets. Later these spots turn grey, while the peripheral area of the spots dark brown. The lesions enlarge and coalesce and the whole leaf gives the appearance of drying. These symptoms predominantly appear on the lower fronds.

*Bordeaux mixture is prepared as follows
Dissolve 454 gm (1 lb) of copper sulphate in 22.5 litres (5g) of water. In a separate bowl mix 454 gm (1 lb) of quick lime in 22.5 litres (5g) of water. Then pour the copper sulphate solution into the lime mixture stirring briskly. Use earthenware containers.

Seedlings and young palms are very susceptible to this condition while the older palms are less susceptible. Conditions such as dry weather, imbalanced soil nutrients, excess of nitrogen in soil, neglect and adverse planting conditions could increase the susceptibility of palms to this disease.

For palms to build up resistance to such attacks, the generally recommended doses of fertilizer should be applied. In addition affected palms should be given an additional dose of Muriate of Potash, as indicated below, every six months until the symptoms disappear.

	Young Palms	Grown up Palms
Muriate of Potash	0.25 kg (0.55lb)	1 kg (2.2lb)
	or	or
Ash	5 kg (11lb)	20 kg (44 lb)



A leaf affected by Leaf Blight disease

If the blight still persists after the application of fertilizer then a fungicidal treatment will have to be carried out. But this is a rare necessity. It is important to improve the management of plantations as weak palms are more susceptible to leaf blight. The occurrence of this disease can be averted with the application of the recommended doses of fertilizer and by opening drainage drains to flush out excess water etc.

Stem Bleeding of Coconut

Stem bleeding disease is caused by a number of factors. Lightning, fire damage to palms, sharp rise in water table, excess doses of fertilizer are among such factors. However, bleeding due to the fungal infection by *Ceratocystis paradoxa* has to be considered seriously.



Stem Bleeding disease

The oozing out of a reddish brown thick fluid from longitudinal cracks in the stem is indicative of this bleeding disease. At times the liquid could even be seen hardened and blackened. Afterwards these wounds coalesce to form an extensive area. The tissues below the wounds turn yellow and later rot and decay.

Normally, grown up palms are subjected to bleeding disease. Young palms with well grown trunks are more susceptible than palms with slender trunks. The disease is common in areas where water table fluctuates. High humidity is conducive to disease development.

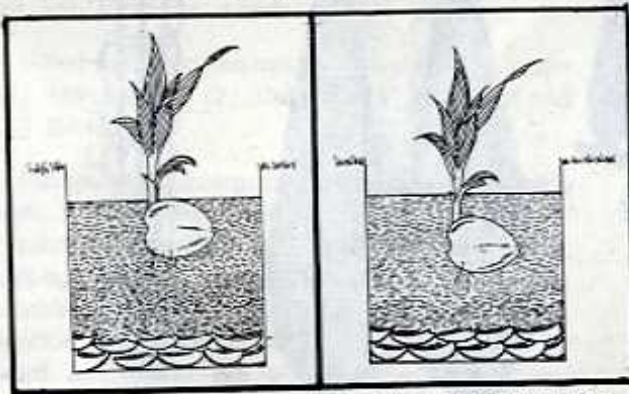
Failure or delay in treatment would cause the bark and the tissues underneath to rot and decay. It is important to arrest this decay as considerable amount of plant tissue is lost with every bleeding wound.

For control, the affected tissues should be removed with a chisel, until the fresh tissue beneath is exposed. The exposed area should be dressed with Bordeaux paste followed by application or painting with coal tar few days afterwards.

Care must be taken not to injure the trunk as wounds on the palm attract injurious organisms and insects such as the Red Weevil.

Collar Rot

Collar rot is frequently observed in seedlings where the entire collar region has been covered with soil at the time of transplantation. Seedlings attacked by Black beetle also suffer from Collar rot. Covering of the collar region with soil increases the humidity in the area and this enables pathogens to invade and cause rotting. In order to avoid such losses, the collar region should be well exposed after transplanting.



regular and irregular transplantation

Tapering of Palms

Tapering of coconut is prevalent in all coconut growing areas under almost all conditions of environment. It is found both in good and bad soils. However, the condition can be broadly classified into the following three categories.

1. Tapering due to the fungus *Ganoderma*.
2. Gradual tapering.
3. Tapering in a fairly short period of time. (Sudden or rapid tapering).

Some explanatory notes on these conditions are given below.

1. **Tapering due to the fungus *Ganoderma***—In this, the fungus attacks the roots and the bole region. Occasionally the presence of the fungus in the form of a bracket-like structure can be seen near the bole. Associated with the fungal infection is the gradual decline of the palm which is indicated by the tapering of the trunk.

In Sri Lanka this condition is seen very rarely.



Soil building for new root formation

2. **Gradual tapering**—Gradual tapering is due to prolonged neglect or due to an unsuitable environment. This condition is often seen in neglected lands.

3. **Sudden or rapid tapering**—This condition also known as Leaf Scorch Decline is often seen under all conditions of environment including where there is regular cultivation and manuring. Often, heavy bearing palms succumb to this condition.

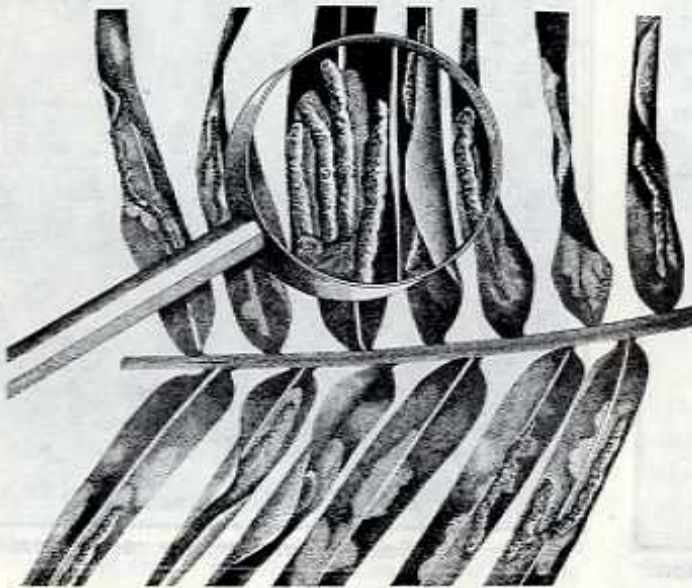
Leaf Scorch Decline could easily be identified in the early stages by the characteristic scorching and curling of leaf tips in older fronds. After a period of time, which varies from place to place, tapering of the trunk and diminution of the crown are visible. After a period of time, ranging from 1 to 6 years, the palm dies. This condition is often seen with magnesium deficiency. During the early stages of Mg deficiency, yellowing of older leaves is seen. This yellowing is followed by scorching. Another important feature of this condition is the extensive root destruction which could be attributed to one or several of the following reasons.

- (a) Cracking of heavy clay soils due to drought.
- (b) Cement like hard pan particularly seen in gravelly soils and in certain areas in sandy loams.
- (c) Damage due to insects like white ants and 'kadiyas'.
- (d) Sudden rise in water table and or prolonged water logging.

The palms thus affected in this manner could be corrected by inducing new root formation. New root formation could be easily induced by bench terracing round the base of the palm. This is done by constructing a circular bench to a height of about 1 1/2' with coconut husks about 3 feet away from the base of the palms and filling the space with soil preferably rich in organic matter. This should be followed by regular manuring.

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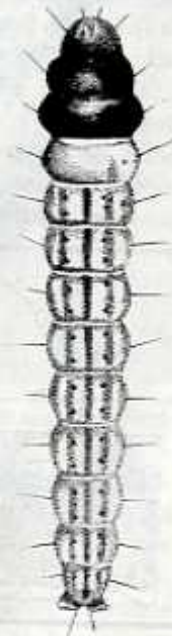
Coconut Caterpillar



Galleries



Adult Moth



Caterpillar