

# 'LEAF SCORCH' OF COCONUT—A PRELIMINARY NOTE

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A disease of coconut of unknown origin referred to as 'Leaf Scorch' occurs in the Gonapinuwela—Baddegama—Elpitiya area in the Southern Province of Ceylon.

## VISUAL SYMPTOMS

The most characteristic visual symptom of the disease is the scorching or withering of the tips of leaflets of the lower leaves. The withering extends along the leaflets towards the mid ribs of leaves and progresses from the lower to the upper leaves. The youngest leaves are the last to show the symptoms and even in palms in the advanced condition of the disease remain green and apparently healthy. The scorched leaves tend to remain on the palm for a longer time than is usual and when they fall, the abscission is such that prominent leaf scars are left on the trunks. The withering is accompanied by tapering of the trunk and a reduction in yield. The nuts of affected palms are fewer, narrower and longer than those of unaffected palms. The leaves of affected palms are reduced in number as the disease progresses. The time taken for death to occur due to the disease is variable—extending from about two to as much as six years.

There are other disorders of palms such as yellowing due to deficiency of magnesium, yellowing due to neglect and water logging, Leaf Blight caused by *Helminthosporium incurvatum* and *Pestalotiopsis palmarum*, and a type of scorching due to the sea-spray. All these disorders are found in the particular area in which palms affected with 'Leaf Scorch' are found, and should not be confused with 'Leaf Scorch'.

## ROOT DECAY

There is also considerable root decay. Secondary roots in affected palms appear to be less than in unaffected palms. It is possible that the disease begins with the roots; and that the visual symptoms on the leaves appear sometime after the disease has set in.

The mode of spread of the disease in the field is being studied, particularly to find out whether there is 'neighbour-infection' or whether the diseased palms occur at random.

## ASSOCIATED FUNGI

*Pestalotiopsis palmarum* (Cke) Stey, was isolated from leaflets from the edge of the lesions adjoining healthy tissues. This is generally considered to be a saprophytic fungus. *Botryodiplodia palmarum* (Cke) Petrak and Sydow, and another species *Echidnodes cocos* Sydow, were isolated from the scorched area. These are weak parasites and are unlikely to be the cause of 'Leaf Scorch'.<sup>1</sup> They appear to be organisms which invade the leaves once the leaves are weakened by the disease.

However, the preliminary analysis of fungicidal trials in progress indicates that certain copper fungicides improve the condition of the leaves of affected palms. It is possible that although there is an improvement in the visual symptoms, that the disease still persists and no definite conclusions can be drawn from these trials as yet.

Two fungi, *Fusarium sambacinum* f. 6—Wr and another probably of the genus *Cylindrocarpon* have been isolated from the roots.<sup>2</sup>

## NEMATODES

A parasite nematode, *Hemicycliophora longicaudata* Loos, has been found to be constantly associated with the roots of affected palms<sup>3</sup> and may be one of the causal factors of the disease. It was first isolated in the patna soils of Ceylon by Loos<sup>4</sup> and has also been recorded from tea soils. The nematode is lodged in the cortex and in the vascular tissue of the roots. A number of soil and root samples have been examined and counts of nematodes have been taken and the results of these experiments will be published elsewhere. *Hemicycliophora longicaudata* Loos is found extensively in the area where the disease is prevalent. We have not been able to recover it from other areas, from which three other parasitic species, *Tylenchorhynchus nudus* Allen, 1955, *Rotylenchulus reniformis* Linford and Oliverira and a species of *Helicotylenchus* have been recovered.

Attempts to induce the symptoms of 'Leaf Scorch' by inoculating the soil with the nematode has so far not been successful. Nematocide trials are in progress but it is too early to comment on this at the moment.

Histological studies carried out on the roots indicated that there is a blockage of the xylem vessels and a blackening of the cortical tissues. The blocking of the xylem vessels probably results in a reduction of the volume of water taken up by the affected palms.

Other unknown diseases of coconut occur in Trinidad, India, Philippines, Malaya etc. and the symptoms of 'Leaf Scorch' indicates that this disease is peculiar to Ceylon.<sup>5</sup>

1. I am much indebted to Dr. H.C. Hopkins, Director of the Commonwealth Mycological Institute for isolating the fungi from the leaflets which Mr. D. Rhind, Department of Technical Co-operation, England, so kindly took with him after a visit to the island.
2. I am thankful to Dr. Hopkins and Miss Stockdale of the Commonwealth Mycological Institute for the identification.
3. I am thankful to Dr. J.B. Goodey, Rothamstead Experimental Station for the identification.
4. Loos, C.A. (1948) Notes on free-living and plant parasitic nematodes of Ceylon 3. Ceylon Jour. Sci. (B) 23: 119-124.
5. Rhind, D., Department of Technical Co-operation London, Personal communication.