

# CURRENT KNOWLEDGE, MANAGEMENT TECHNIQUES AND AREAS OF FUTURE WORK FOR MAJOR COCONUT DISEASE - INDIA

By

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## 1. Root (wilt) Disease of Coconut

The disease is prevalent in South and Central Kerala affecting 4.1 lakhs ha. The disease causes a loss of 968 million nuts in addition to loss in number and quality of leaves, copra weight and oil content. The characteristic symptoms of the disease are abnormal flaccidity, yellowing of older leaves and drying of leaflet margin. In severe cases of root (wilt), the diseased palms are found to be affected by leaf rot caused by Bipolaris halodes. Inflorescence necrosis is also seen.

Research results accumulated so far have helped in identifying the causative organism as Mycoplasma-like Organisms (MLO). These studies have eliminated fungi, bacteria, virus, nutritional factors and nematodes as causative agents. EM studies of apical meristem, root apices and rachillae from diseased palms showed the presence of MLO s in the sieve tubes while the same was absent in healthy tissues. Lace bugs (Stephanitis typica) when allowed to feed on diseased leaves and given an acquisition + incubation period of 18 to 23 days, had MLO s in their salivary glands. Such infective lace bugs when used for transmission trials involving coconut seedlings under insect proof conditions developed symptoms. The above results strongly indicate the involvements of MLO s as causative agent of the disease.

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It has been possible to diagnose the disease in the early stage itself using serological and physiological test. It is possible now to identify the diseased palms much before the expression of visual symptoms using the above tests.

Since the disease is not lethal and is a slow declining one, the health and yield of affected palms can be improved by management practices. It has been found that diseased palms respond well to management practices including fertilizer application, irrigation, intercropping, organic recycling etc.

The yield of diseased palms can be increased from 18 to 47 nuts by such management practices. The hybrid CDO x WCT gave a cumulative yield of 621 nuts over a period of 12 years under good management as against 266 nuts by WCT under the same conditions in the diseased tract. A strategy for eradication of diseased palms in mildly disease affected regions of Kerala and Tamil Nadu followed by surveillance has been developed. In areas where such a strategy has been followed, there was no recurrence of the disease. Large scale eradication trials taken up on a village basis in Varandarapilly helped in keeping the area free from the disease and the yield from the palms could be doubled in a period of 5 years. Similarly total eradication programmes are in progress in the Northern districts of Kerala where the disease has been observed sporadically.

## 2. Thanjavur Wilt Disease

This disease was first noticed in Thanjavur district of Tamil Nadu. Disease incidence ranges from 2.6 to 13.5% in various districts of Tamil Nadu. The disease also known as Ganoderma wilt has now been found in Karnataka, Andhra Pradesh and Kerala. Ganoderma lucidum and G. applanatum have been isolated from roots of diseased palms from Tamil Nadu. The symptoms include yellowing drooping and shedding of leaves, root decay and development of patches on the stem at the basal portion. In severe cases tapering of the trunk

is also noticed. There is gradual decline in yield and the affected palms succumb to the disease within a short duration. The palms are predisposed to infection in gardens where there is water logging or ill drainage. Based on the results of trials conducted by Tamil Nadu Agricultural University and Central Plantation Crops Research Institute, disease management practices have been now suggested. This includes phytosanitation, digging isolation trenches around the diseased palms, avoiding ploughing of diseased gardens and also flood irrigation, application of recommended dose of organic and inorganic manures along with 5 Kg neem cake per palm, and application of systemic fungicidelike Calyxin @ 2 ml per 100 ml per palm given through root feeding. Transport of seedling from diseased areas to the healthy areas should be prevented.

### 3. Crown Choke Disease

The disease was first noticed in 1964 in Assam. A survey conducted in 1986-87 in Assam shows that 10.8% of palms are affected by the disease. The disease is characterised by emergence of shorter leaves with deformed and crinkled leaflets. There is fasciation of leaflets. The leaflets are associated with severe tip necrosis and their number decreases progressively. The attacked leaflet fails to unfurl and in many cases give a choked appearances to the frond. The disease is found to be due to boron deficiency. Application of Borax @ 50 g per palm at the basin was found to correct the deficiency.