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INTEGRATED STEM BLEEDING MANAGEMENT IN COCONUT



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INTRODUCTION

Coconut is one of the major plantation crop in the tropics of the world. India is the largest producer of coconut in the world with an estimated production of 12,251.6 million nuts from 17.77 lakh hectares. Coconut is known as 'Kalpavruksha', In view of its enormous contribution to the mankind, every part of plant is having one or the other uses. It is also one of the most important sources of vegetable oil, contributing about 7 per cent in the edible oil sector.



Bleeding patches on the trunk

Coconut palm in spite of its hardiness is affected by large number of diseases, of which bud rot, stem bleeding and basal stem rot are of economic importance under Goan

conditions. Stem bleeding is known to occur in all coconut growing regions in the tropics. The disease was first reported in India during 1922. In the early stages, there is not much yield loss, however, in the later stages, there is a steady decline in the yield causing considerable amount of loss and in the advanced stages even leads to death of the palm. The disease has been found to occur in all soil types but more in laterite soils and sandy soils on the seashore and backwater areas.

SYMPTOMS

The characteristic symptoms of the disease are the exudation of rusty brown liquid from the cracks and cuts found on the outer tissue of the trunk. The exuded material turns black in colour as it dries up on the bark. In the beginning, the cracks appear in the lower portions of the stem, but subsequently more bleeding patches develop which coalesce resulting in the general decay of the affected portion. In advance stages of infection, the bark peels off and the general decay leads to the formation of cavities that contain a yellow fluid, which will gush out when it is opened. The progress of decay takes place fast in young palms. Maximum symptoms of bleeding was observed during rainy days under red lateritic loam conditions and the least in summer

months in irrigated trees growing on sandy loam soils.

In the crown, the outer whorl of leaves becomes yellow rather prematurely, droops down and finally dries up. Though fall of nut is noticed in later stages of disease, it is more so in palms exposed to drought conditions. The trunk gradually tapers towards the apex and the crown size is reduced. Crown symptoms are more pronounced during the summer season. However, the crown symptoms are not conspicuous till very late in well managed and irrigated gardens in rainy season.



Tapering of the trunk in the advanced stage

MANAGEMENT

The earliest recommendation included the removal of affected bark tissues and applying hot coal tar on the chiseled surface. Hot coal tar doesn't kill the pathogen completely since it cannot penetrate the affected inner tissues. This treatment is not advisable to the palms below the age of ten years, as it is phytotoxic. However, in the present recommendations the affected tissues are removed by chiseling and smeared with calixin 5 per cent followed by coal tar application.

Calixin can also be supplied through root feeding @ 100 ml of 2-5 per cent solution at quarterly intervals. Depending on the severity of symptoms. In dry season, soil drenching with 0.1 per cent calixin (25 ml calixin in 25 lit of water) can be done. The treated palms will have lower disease index and higher nut yield.

Management of the disease can also be done through biological and cultural practices. Some of isolates of *Trichoderma* and several bacterial isolates are found to be antagonistic. Integration of biological and chemical means is the new strategy. In this neem cake 5 kg per palm along with the second dose of fertilizers during August-September is recommended. This enriches the soil

microflora and helps in suppressing the soil borne pathogens. Therefore judicious application of synthetic fungicides along with the neem cake and other organic amendments like green manure and cowdung is recommended. Besides, a better management of the soil moisture is useful in managing the disease to an economic threshold level.

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