NUT FALL OF ARECANUT

(Koleroga).

CAUSATIVE ORGANISM : *Phytophthora arecae*

(FUNGUS)

NUT FALL OF

Areca catechu

The plant called Areca catechu called arecanut .This plant is a monocot & belongs to the family Palmae. It is very common in Kerala. Areca catechu is affected by a very serious fungal disease called nut fall or Koleroga. This disease is very severe in moist climates & hence its affection is intense during the rainy season, especially in monsoon starting from June & ending in September. This disease is less frequent in areas where the rain fall is less.

Symptoms of the Disease

- During the monsoon season, if proper care is not taken, almost all areca palms are affected by this disease .
- The young nuts are always affected by the fungus.
- At first water soaked regions are formed towards the base of young & immature nuts.
- Later these regions are rotted & destroyed .

symptoms

- *As rotting progresses, the area of water soaked region increases & thus the nut is considerably affected. These symptoms become notable only after 15-20 days after the onset of monsoon .*
- *The nuts are now devoid of their normal green color due to the disintegration of chloroplast.*
- *The nuts loose from the inflorescence axis & fall at this immature stage. Thus the premature nut fall is the most important symptom of this disease.*
- *The serious damage of Koleroga is that diseased plants do not yield mature nuts.*
- *In severe cases the young leaves & buds are also affected & later they too are rotted. Thus the growth of the plant is arrested & later the plant dies out*

Description of the Causal Agent(Etiology)

Phytophthora arecae

The nut fall of arecanut is caused by a fungus called *Phytophthora arecae* which belongs to the group *Phycomycetes.*

The mycelium is branched& aseptate that is , having no cross walls (coenocytic).

It spreads through the intercellular spaces of the cells of the host plants This mycelium food from the host plants .

On the surface of the fallen premature nuts this mycelium is often present.

The fungus shows both asexual & sexual type of reproduction.

During asexual reproduction certain branched stalks called

Sporangiophores appear from the affected parts of the plants. These sporangiophores bear sporangia which are usually pyreform in shape with a papilla at the apex .

Each sporangium contains abundant cytoplasm with a no. of nuclei. The cytoplasm gathers around each nucleus & thus the sporangium contains many uninucleate bits of protoplasm. These bits develop into zoospores.

These zoospores are kidney- shaped with two flagellae at the anterior end (biflagellate).During humid time these sporangia break & liberate the zoospores .The zoospores on germination produce mycelium.

Sexual reproduction is by the formation of oogonium & antheridium hence it is oogamous type . These sex organs take their origin from hyphal tip. These organs engage in fertilization & the oospore with diploid constitution is formed .The oospore undergoes a period of rest & then germinates to form a sporangium.

Spread of the Disease

- The disease is disseminated by the zoospores or sporangia .
- The sporangia are carried by wind & they liberate the zoospores to the healthy palms
- .In the same plant the young healthy nuts are attacked by the zoospores.
- Sometimes infected trees preserve the pathogen in a viable condition during the months of hot dry seasons & at the beginning of the monsoon inactive pathogen becomes active & causes the infection by the formation of zoospores.

Measures of Control

- *Spaying of fungicides like Bordeaux mixture is found to be highly effective in the treatment of this disease. Usually this spraying is done just before or immediately after the beginning of severe monsoon, so that the pathogen is killed at the earliest stage possible in order to restrict the damage to the minimum*
- *The diseased trees & affected plant parts should be destroyed & if possible burnt in the field so that spread of the disease checked.*
- *The use of resistant verities .*
- *Sometimes the young braches of fruits are masked by moisture proof bags so that the young nuts are not exposed to excessive moisture which favor the infection .*

Thank you