

# Oil Palm Seed and Nursery Diseases

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Oil Palm (*Elaeis guineensis* Jacq.) has recently gained importance as a major oil seed crop in our country. Though many of the diseases affecting this crop are comparatively minor problems in other Oil Palm growing countries, some of the diseases may pose serious threat to the development of Oil Palm. Being a new crop to India, the symptoms of many of the diseases are not familiar to the farmers and developmental workers associated with Oil Palm cultivation.

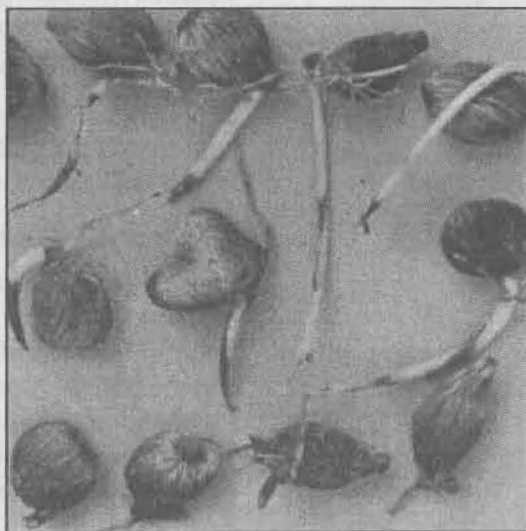
Diseases generally noticed at different stages of the crop, viz., seed nursery and field palms are described below. This will aid in diagnosing the diseases so far documented in India and help to take up appropriate control and preventive measures.

## I. DISEASES OF SEEDS

### I.1. Brown Germ:

During storage and preheating of seeds, the fungi harbouring the seed coat penetrate through the germ pore and cause pre emergence infection in embryo and kernel. This culminates in the arrest of growth of embryos, thus rotting and making them nonviable. In the just emerged sprouts, light brown spots occur initially, which later on become dark brown as rotting intensifies (Photo 1). Mycelial ramification and sporulation of fungi are seen on the seed coats and emerged sprouts.

Association of fungi like *Aspergillus*,



(Photo 1) Brown Germ Disease of Seeds

*Penicillium*, *botryodiplodia*, *Trichoderma* and *Rhizopus* has been observed.

To control this disease, remove mesocarp remnants to the maximum extent during processing of seeds. Dip the seeds in Emisan 0.1% (Methoxy Ethyl Mercury Chloride) or Foltaf 80 WP - 0.2% (Captan) or Thiride 75 WP (Thiram) - 0.2% solution for 20 min, followed by air drying before pre-heating of seeds and during germination process. Maintenance of seed moisture levels at 17% during preheating is necessary.

### 1.2 *Schizophyllum* Seed Infection:

Infection by *Schizophyllum commune* occurs during preheating or storage of seeds. White patches of Mycelium appear on the shell. Fructifications of the fungus can also be seen when the moisture level in poly bags becomes high.

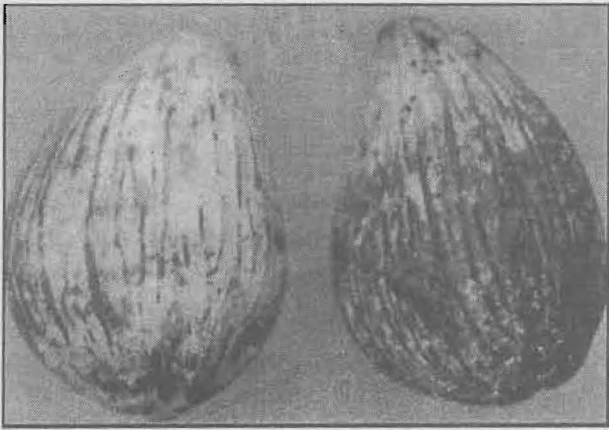
Removal of mesocarp remnants to the maximum extent during seed processing and maintenance of seed moisture levels at 17% during preheating are recommended. Wet seed dressing as suggested under brown germ disease is to be practised.

## II. NURSERY DISEASES

### II.1. Early leaf disease:

Leaf diseases caused by fungi *Botryodiplodia*, *Glomerella* and *Melanconium* which occur during the primary nursery stage are grouped under this. This disease is observed in all nurseries in India.

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(Photo 2) Mycelial Ramifications on Seeds

#### **Botryodiplodia:**

Light brown spots appearing on the leaf tips which later on turn dark brown surrounded by yellow halo cause tip blight (Photo 2). Black dots, the pycnidia of the fungus could be seen on the necrotic area.

#### **Glomerella:**

Yellow to light brown lesions develop on the interveinal area and elongate. Unlike the infection by *Botryodiplodia*, the lateral expansion of lesions is restricted by the veins. The lesions subsequently turn black surrounded by an yellow halo. The acervuli of the fungus could also be seen as black dots in the necrotic area.

Prophylactic spray of Carbendazim 0.1% or Dithiocarbamates 0.2% at monthly intervals prevents disease occurrence.

#### **II.2. Leaf rot:**

Leaf rot caused by *Corticium solani* appears in the primary and secondary nursery stage. Irregular pale olive green patches bounded by brown zone appear at the base of the spear, which later become dark brown and dry up.

Avoid over-crowding of seedlings and excessive shade. Prophylactic spray of Carbendazim 0.1% or Dithiocarbamates 0.2% is recommended.

#### **II.3. Curvularia leaf spot:**

Symptoms appear as small circular

translucent yellow spots on the spear and young leaves. These spots ranging from 3 to 7 mm in diameter, later become brown with a sunken centre and yellow orange halo. A narrow rim of raised tissues with oily appearance develops at the merging point of yellow halo with the brown lesion. Persistence of primary lesions within the necrotic area is characteristic. Coalescing of lesions causes die back of leaf tissues.

#### **II.4. Pestalotiopsis leaf spot:**

Large, irregular orange red lesions appear on the older leaves. These lesions become necrotic with dark grey margin and brown centre. Incidence is higher on seedlings having magnesium deficiency.

Prophylactic sprays of Carbendazim-0.1% or Dithiocarbamates-0.2%, prevent infection by these leaf spot pathogens.

#### **II.5. Spear rot disease (SRD):**

Spear rot is a lethal and infectious disease affecting Oil Palm from nursery stage to adult palms in Kerala state only. Symptom manifestation in nurseries appear usually from the eighth month onwards. Chlorosis (yellowing) of the young leaves (photo 3) followed by rotting of spear, shortening of the leaves and leaflets and root decay are the symptoms. The etiological agent is Phytoplasmas (*Mycoplasma* - like organisms), which are transmitted by



(Photo 3) Chlorosis of Young Leaves



(Photo 4) Mosaic (Virus Disease)

As the disease is confined to Kerala state, transfer of seedlings maintained in the diseased tract to other states is not advisable. In the diseased tract, nurseries should be established in locations away from the sources of infection viz., Root (wilt) diseased coconut, Yellow leaf diseased arecanut and Spear rot diseased Oil Palm.

11.6. **Virus disease:**

Virus disease was reported in some nurseries of Karnataka to the extent of 0.001 to 0.01%. The symptoms are mosaic, mottling and ring spots (Photo 4). Presence of flexuous rod shaped virus particles in leaf dip preparations and pin wheel inclusions in mesophyll tissues in electron microscopic investigations indicated that the virus belongs to Poty virus group. This virus is suspected to be spread by aphids.

The symptomatic seedlings are to be culled out and burnt. As the disease is suspected to be exotic, the imported sprouts are to be raised in the nursery as follows- In the case of single stage nursery, sprouts are raised in polybags in blocks not exceeding one hectare, surrounded by fast growing plant species like Casuarina, Subabul, Sunnhemp, Sesbania etc. They serve as barrier to insect vectors and also act as wind breakers.

The primary nursery should be maintained in net houses (40 mesh) for four to six months. After culling out symptomatic seedlings, the rest are transferred to a site having barrier trees as mentioned above. The nurseries are to be sprayed with insecticides atleast every month to control vectors.

(Part II will continue in May-June issue)

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