

DAMPING OFF OF YOUNG PLANTS.

(An answer to a query from the Gardening Circle).

The term "damping off" covers the disease of young seedlings or young shoots which causes them to suddenly collapse and rapidly decay. Most people who have raised plants from seed have encountered it, and often the trouble is serious because it spreads fast. Two main types of the disease are recognized.

Firstly, pre-emergence damping-off. This is the condition when the seeds or young seedlings in the soil rot before the new plant emerges above ground.

Secondly, post-emergence damping-off. This is the state when young seedlings are attacked just about soil level, and the stem is rotted through.

The main damping-off fungi are Phytophthora spp. and Pythium spp. These are Phycomycetes which flourish under damp conditions. Other important damping-off fungi are Fusarium spp. and Rhizoctonia sp. All these fungi may be present in soil. They will attack seedlings when conditions are specially suitable, such as when the young plants are checked in growth. Particularly vigorous strains of fungi may be introduced, and these will attack seedlings very readily.

Preventive treatments.

Seed may be treated with fungicide before it is sown, but as some seed may suffer injury it is necessary to find out which fungicide if any can be used safely. Proprietary mercury dusts are suitable for robust seed such as peas, beans and grain. Red copper oxide is safe to use with many small seeds which are injured by mercury dusts. Seed may be soaked in disinfectant solutions such as dilute formalin. Such seed treatments are effective against pre-emergence damping-off, either when the seed itself may be contaminated with damping-off fungus or when the fungus is possibly present in the soil.

The soil may be disinfected to kill all fungi present including any damping-off fungi. One method is to heat the soil by baking or steaming for two or three hours. It must be well aerated afterwards. Another easier method is to soak the soil with a fungicidal solution such as formalin (1 part of commercial formalin to 100 parts of water applied at the rate of 1 gallon per sqfoot). In this case the soil must be aerated for one to two weeks afterwards. When the soil has been sterilized great care must be taken to prevent introducing damping-off fungi in any other way, such as on the seed or with water or in the boxes. If disease fungi do get into sterilized soil they grow rapidly right through it because there is no competition from the natural soil fungi.

Boxes of seedlings should be kept well-lighted and not too damp, for excessive moisture is very favourable to Phytophthora and Pythium spp.

Curative Treatments.

If any seedlings start to damp off they should at once be removed together with the immediately surrounding seedlings in an effort to isolate the disease. Condy's crystals, 1 oz. to 1 gallon, may be watered on. Copper carbonate dust may be sprinkled or blown over the seedlings and the surface of the soil. There are also a number of proprietary compounds sold for dusting or watering on to damping off seedlings.

G. B. C.

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