PLANT PATHOLOGY NOTE: NO.3

COLLAR ROT

INTRODUCTION

The fungus *Sclerotium rolfsii* is present in nearly all countries between the latitudes of 38° north or south of the equator. This fungus infects many species of plants, some of which are important crops in Papua New Guinea. These include tomato, capsicum, beans, peanut, sweet potato, eggplant, cucumber, potato and many others. All vegetables are probably susceptible to attack if they are grown when the temperature is most suitable for the development of the fungus.

SYMPTOMS

This fungus causes collar rot or basal stem rot which is rotting of the plant stem just where it joins the roots. It also causes spots to appear on the leaves and damping off of seedlings either before or after they emerge from the soil. Infected seedlings or older plants are often killed by the fungus.

On seedlings and older plants, the fungus produces a white, cottony growth over the base of the stem. This is the mycelium.

The fungus also produces a lot of round, tan to reddish-brown or dark brown sclerotia about the size of mustard seeds. These are also formed on the surface of the stem and are closely associated with the mycelium (see photograph).

The disease is most severe on sandy soils where soil and air temperatures are high. The fungus can survive in the soil between crops in the form of sclerotia. It can also grow on dead organic matter if there are no host plants available.

CONTROL

This fungus causes major problems in the production of vegetables in many parts of Papua New Guinea. At present, the only control recommendation is to pull out the infected plants and carefully destroy them by burning.

Because *Sclerotium rolfsii* is such an important pathogen (disease

This photograph shows the bases of two potato plants with collar rot. One of the spreading patches of mycelium and some of the small, round sclerotia are arrowed.

causing organism), the Department of Primary Industry has carried out experiments on the use of fungicides (fungus poisons) against it. From this work, it was found that some chemicals such as fentin hydroxide, quintozene and captafol were very effective. This has still to be proved in the field before use of these chemicals can be reccommended.

In the village, chemicals may be too expensive to use for controlling this fungus. In this case, the use of resistant varieties and of crop rotation practices may keep the level of disease to a minimum. It must be remembered that, in crop rotation, a susceptible crop must be followed by resistant varieties of another crop.

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