PLANT PATHOLOGY NOTE: NO. 22
SEEDLING BLIGHT OF COCOA

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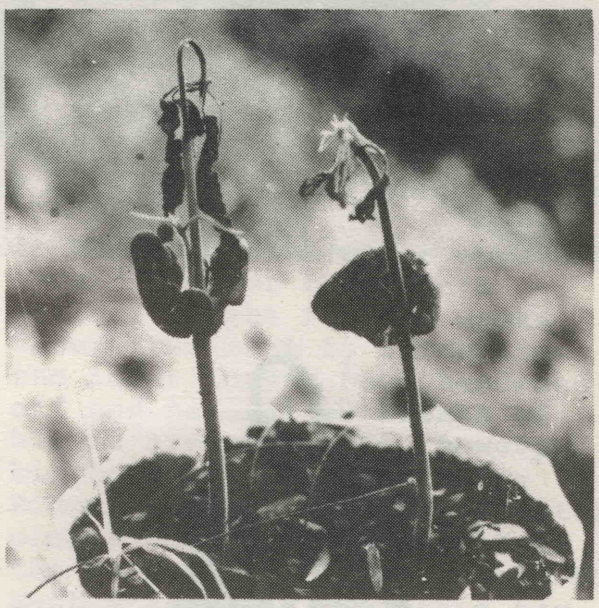
INTRODUCTION

Seedling blight of cocoa is caused by the fungus *Phytophthora palmivora*, the same fungus that causes black pod, canker and chupon wilt. (See other Plant Pathology Notes in this issue of HARVEST). It causes occasional serious losses of seedlings and buddings in the nursery, particularly in the wet season.

The fungus spores are usually splashed up from the soil. The risk of seedling blight infection therefore depends on the source of soil used for filling the planting bags and the amount of rainfall. Well composted plant material, including chopped cocoa husks, mixed with subsoil contains virtually no *Phytophthora* fungus so the disease risk is lower. Soil from virgin or secondary bush contains a little of the fungus so the disease risk is moderate. Soil from old cocoa blocks contains a lot of the fungus so the risk of seedling blight is high. Nurseries situated close to mature cocoa also have a high risk of getting seedling blight no matter where the bag-fill comes from.

SYMPTOMS

The fungus spores attack young, 'flush' leaves and green stems causing dark brown spots which spread very quickly and kill the growing point of the plant.

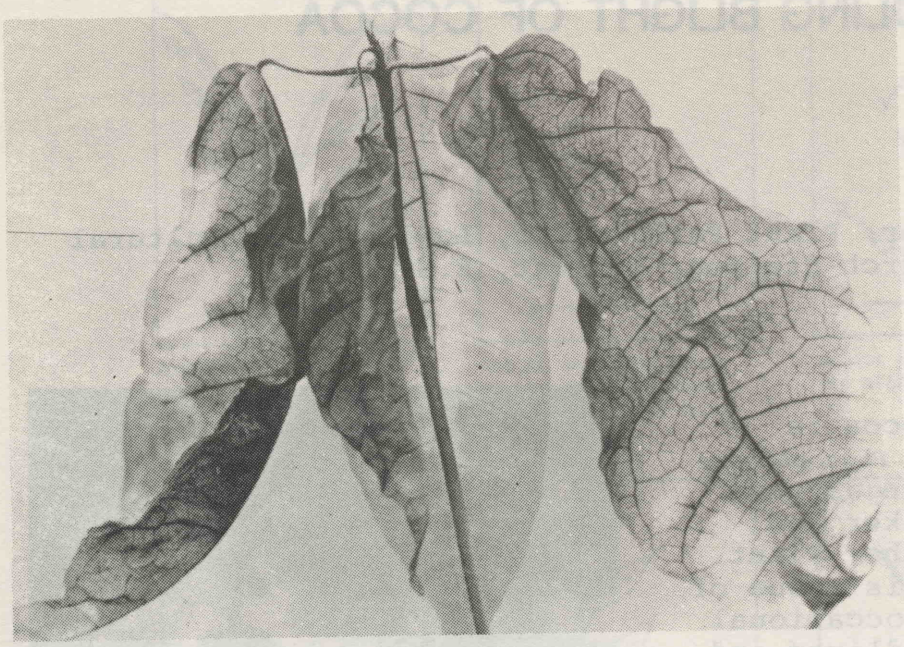


Seedlings affected by seedling blight

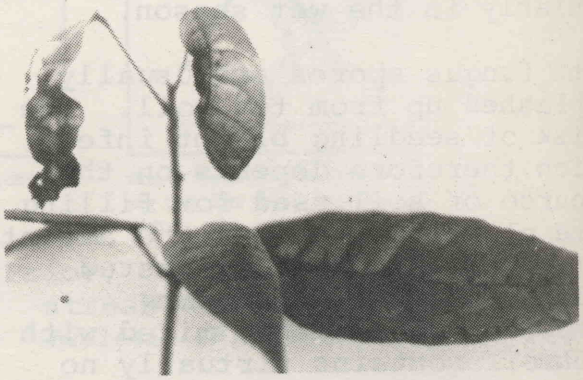
Under extremely wet conditions the fungus can also attack older leaves which have 'hardened-off'.

CONTROL

The disease can be controlled very easily and cheaply with the systemic fungicide Ridomil. Either the seeds can be soaked before planting, or the young plants can be sprayed after emergence. The cost of the seed soaking and spraying are about the same. There is no need to do both seed soaking and spraying. One application of Ridomil to a plant should be enough.



Early symptoms on flush leaves. Note the damage spreading down the stem which is starting to bend.



Early symptoms on flush leaves and V-shaped lesions (damage) at the edges of a mature seedling leaf.

Note the bent tip of this seedling which has been killed by the infection spreading from the leaves to the stem.

V-shaped lesions along the veins of a mature seedling leaf.

Where the disease risk is low, nurseries should be checked daily for seedling blight during very wet weather and a spray of Ridomil applied to affected areas as required. Where the disease risk is moderate, seeds can be soaked in 1% Ridomil solution before planting during the wet season and checked daily during wet weather and sprayed as necessary for the rest of the year. In high disease risk situations seeds must be soaked in 2% Ridomil solution before planting, all year round. This high rate of Ridomil can damage cocoa roots and it would be better to avoid high disease risk situations if at all possible.

Seed soaking

To protect seedlings from blight, the seeds can be soaked in 1% or 2% Ridomil solution depending on disease risk. The amount of solution required depends on the number of seeds to be treated; 2 litres of solution is enough for 1000 seeds. (20 g of Ridomil 25 wp in 2 litres of water is a 1% solution.)

Stir fresh seeds in the Ridomil solution for 5 minutes and sow them horizontally under about 1 cm depth of soil in the polybag nursery.

If mucilage has been rubbed off the seeds then they should be soaked overnight in Ridomil solution before planting. Do not pregerminate hybrid seeds, as this can lead to distorted roots.

Anyone handling Ridomil fungicide or treated seeds should wear rubber gloves for their own safety.

Foliar spray

To protect buddings or seedlings from blight you should apply a fine spray of 0.5% Ridomil at the 2-4 leaf stage. (0.5% Ridomil is 50 g Ridomil 25 wp mixed in 10 litres of water.) It is not necessary to spray to run off - a fine mist is enough. Ten litres of fungicide mixture is enough for about 1500 buddings.

Spray operators should wear rubber gloves and a face mask for their own protection. Sprays should not be applied when rain is likely to fall within 2 hours of spraying.

FOLLOW UP OBSERVATIONS

Either seed soaking or spraying should protect the plants against blight for 3-4 weeks after treatment by which time the lower leaves have hardened off and natural outbreaks of blight are rare. If, however, blight does occur following Ridomil treatment, the affected plants should be removed from the nursery. Samples should be sent wrapped in a plastic bag within a paper envelope or cardboard box to L.A.E.S., Keravat, for identification. Burn the remaining seedlings.

Remember, when you send cocoa disease specimens for identification, telephone the Agronomist-in-Charge at L.A.E.S. on 926251. Let him know which flight they will be on, and the consignment note number so that he can arrange their examination promptly.

These recommendations replace those for seedling blight in the Cocoa Industry Board's handbook: *Black Pod, Canker and Seedling Blight Diseases of Cocoa* by Prior, O'Donohue, Rotscheid and Sitapai (1981).

FURTHER READING

McGregor, A. (1981). Ridomil tolerance. *Harvest* 7(3): 139-141.

FURTHER INFORMATION

For further information and advice about seedling blight of cocoa, you should contact:

The Chief Plant Protection Officer, D.P.I.
P.O. Box 417, Konedobu
(Tel: 214699)

or The Officer-in-Charge
L.A.E.S., P.O. Keravat
E.N.B.P.
(Tel: 926251)

Copies of this Plant Pathology Note, and of others in the Series, are available from The Publications Officer, Publications Section, D.P.I., P.O. Box 417, Konedobu.

STOP PRESS

A new type of Ridomil will soon replace Ridomil 25 wp. Please contact L.A.E.S., Keravat for the latest information