

# PLANT PATHOLOGY NOTES: NO.6

## BLACK POD DISEASE OF COCOA

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### INTRODUCTION

Black pod is the most serious disease of cocoa in Papua New Guinea. It results in heavy crop losses in many parts of the country during the wetter times of the year. It is caused by the fungus *Phytophthora palmivora*. The fungus attacks cherelles (a stage in between flowers and pods) and pods of all ages and also causes bark canker (see HARVEST 5(2): 71-76) and seedling blight.

### SYMPTOMS

The first thing that is seen, is one or more dark brown spots about the size of a 10 toea piece. The spots have a clearly defined edge and can appear anywhere on the surface of the pod or cherelle. The pods rapidly spread to cover the whole pod. Cherelles are killed in only 2-3 days, whereas older pods take 7-10 days to become completely infected.

Several other fungi can cause symptoms similar to black pod but they are usually associated with wounds, such as those caused by careless hooking (harvesting) or insect damage. You can tell the difference between black pod and these other fungus infections by pressing the brown spot. If it is hard then the infection is black pod, if it is soft then it is another fungus.

### DISEASE SPREAD

The fungus is spread by tiny spores (seeds) which are produced on infected pods, leaves or cankers in enormous numbers during periods of high humidity. These spores are splashed or washed onto a healthy pod when it rains. The conditions which favour rapid disease spread are therefore high rainfall and overcast weather. This why the disease is always worse in the wet season.

### DISEASE CONTROL

#### 1. Good Management

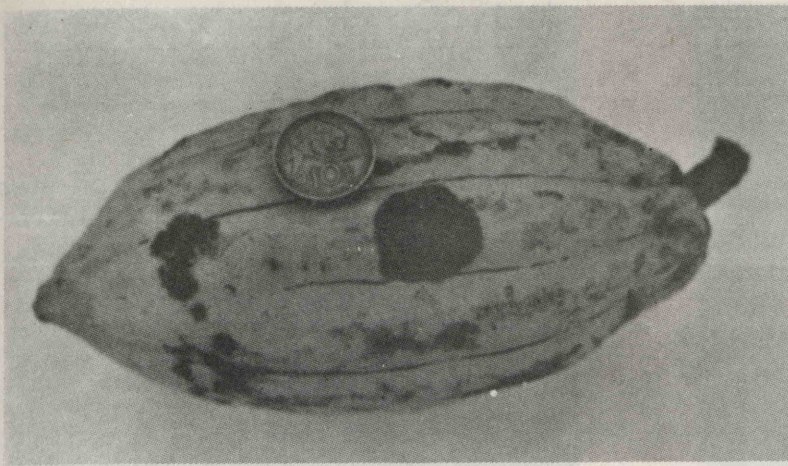
Any practice which reduces the humidity within the cocoa canopy will reduce the rate of disease spread. The first step in disease control is therefore to make sure that the cocoa does not have too much shade and that chupons (water shoots) are pruned regularly. Grass and other weeds must also be controlled. Harvesting at least every two weeks will reduce the number of ripe pods lost to black pod.

Good management practices will reduce damage due to black pod and will increase the effectiveness of direct control measures.

#### 2. Direct Control Measures

There are two direct methods of





The first symptom - one or more dark brown spots about the size of a 10 toea piece



Infections can start anywhere on the pod

Sometimes a pod can have hundreds of infections starting at the same time





controlling black pod disease:-  
black pod removal and chemical  
sprays.

a) Black pod removal

This is the cheapest and easiest method for smallholders but requires constant effort. All infected pods should be hooked from the tree every week and removed from the block. If removal is not done every week then the disease will not be controlled.

b) Chemical sprays

Chemical sprays are expensive but require less effort. Effective chemical control of black pod should make weekly removal rounds unnecessary.

Several fungicides have been tried out against black pod at L.A.E.S. The best are Nordox and Ridomil. They can be obtained from most agricultural chemical suppliers.

The rate of fungicide currently recommended to smallholders is 40 g of Ridomil or 400 g of

Nordox mixed in 10 L of water. This should be sprayed using a hand slide pump or knapsack sprayer.

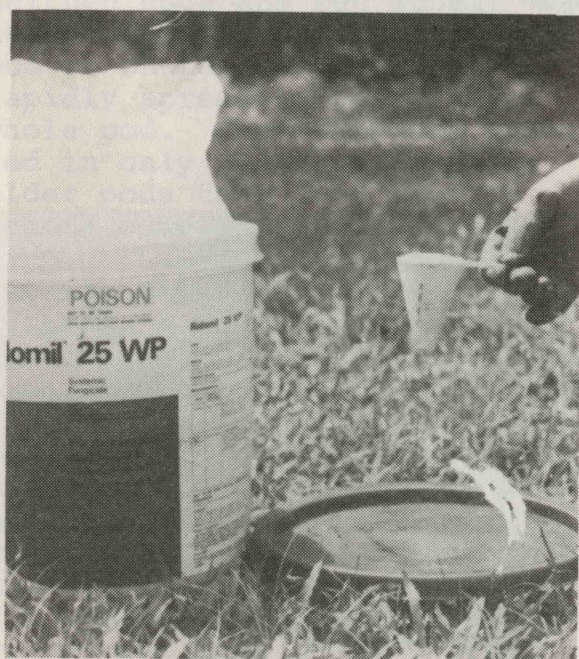
Do not use a sprayer which has previously been used for herbicide spraying.



*A hand slide pump - cheap to buy and easy to maintain*

A fine spray should be given to flowers, cherelles and pods every 2 months. Ten litres of the fungicide mixture is enough to spray about 40 average-sized, mature trees. Big trees will need more spray than smaller ones. Spraying should stop two hours before rainfall to give time for the fungicide to dry on the tree.

Suitable precautions must be taken when applying insecticides or other pesticides. Gloves, respirator, goggles, hat and overalls or old clothes should be worn by sprayer operators who should not eat or smoke during spraying. All splashes must be washed off the skin, and clothing should be washed after spraying. All people in contact with the



*A 20 g plastic measure is provided with each bucket of Ridomil.*





40 g (2 measures) of Ridomil are put in a 10 L bucket full of water ..... and mixed well.



Pods, cherelles and flowers are treated with a fine spray every two months.

chemical should wash with soap before eating.

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#### FURTHER INFORMATION

If you would like further information on spraying against black pod, contact the Chief Plant Pathologist, D.P.I. P.O. Box 2417, Konedobu or the

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