



Figure 4: Reduced internodes (left) and bunchy top formation of leaves (right) on cassava

### Spread of Cassava mealybug

- The pest is mainly dispersed by movement of infested cuttings from one area to another.
- However, first instar crawlers are passively dispersed by wind or by animals and people as they brush passed the host plant

### Control of Cassava mealybug

It can be controlled by any of the following methods:

- Dipping cuttings in warm water (52°C) for 10 minutes or 0.1% Dimethoate solution which kill all insects
- Restricting movement of infested cuttings from pest infested areas to pest free areas
- Use of natural enemies *Apoanagyrus lopezi* has proved quite effective in the control of cassava mealybug.
- Early planting to allow good growth before the dry season. Strong plants are more likely to withstand CM attacks.

### CASSAVA GREEN MITE

The host plants include tomato, cassava and common beans. The pest (Figure 5) damages the leaves by sucking sap.



Figure 5: Cassava green mite

### Detection of cassava green mite

The pest can be detected by the presence of yellow spots on the leaves which can be mistaken for cassava mosaic virus disease. With severe infestation the plants shed off leaves leading to the typical “candle sticks” appearance. Infestation is more severe during the dry season.

### Dispersal of cassava green mite

CGM is mainly spread through moving infested cuttings from one area to the other.

### Control of cassava green mite

- Regulatory control which entails the use of clean certified cuttings is an effective control strategy
- The use of resistant varieties has also proved useful in controlling the pest
- In some parts of Zambia the pest has been successfully controlled by the natural enemy, *Typhlodromalus aripo*

## INSECT PESTS AND DISEASES OF CASSAVA



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## INTRODUCTION

Insect pests and diseases are the major biotic constraints and cause significant yield losses in cassava in Zambia. The major diseases include cassava bacterial blight (CBB) (*Xanthomonas axonopodis* pv. *manihotis*) and cassava mosaic disease (CMD). The major insect pests include Cassava Green Mite (*Mononychellus tanajoa*, Bondar), Cassava Mealybug (*Phenacoccus manihoti*) (Matile-Ferrero) and Whitefly (*Bemisia tabaci*). The pests are found wherever cassava is grown and reduce yield by as much as 100%.

### CASSAVA MOSAIC DISEASE

Is caused by several viruses including African cassava mosaic virus and East African cassava mosaic virus. Symptoms of CMD (Figure 1) include leaf distortion, stunting of infected plants and reduction of root size.



Figure 1: cassava plant with symptoms of CMD

### Spread of CMD

CMD is spread by whitefly, however, planting infected cassava cuttings also facilitates movement of diseased material from one area to another.

### Control of CMD

CMD can be controlled by planting disease free planting materials or by removing infected plants from the field.

### CASSAVA BACTERIAL BLIGHT

CBB is caused by *Xanthomonas axonopodis* pv. *manihotis*. It is found in the major cassava-growing areas worldwide with losses due to the disease ranging from 20 to 100% depending on the variety, bacterial strain and environmental conditions. Infected plants can easily be identified by localised, angular, water-soaked areas of discoloured, diseased leaf tissue (Figure 2; left), leaf blighting, wilting, defoliation, vascular discoloration, exudation and die-back (Figure 2; right).



Fig 2: Infected leaf with CBB (left) and leaf wilting and die-back (right) on cassava

### Spread of CBB

CBB is primarily spread by infected cuttings. Secondary spread is apparently favoured during the wet season via rain splashing and by insects which engender the bacterial ooze. A high correlation between the amount of rainfall and disease incidence/severity has been reported.

### Control of CBB

CBB can be controlled by planting improved and resistant varieties; Field Hygiene by roguing or uprooting plants with symptoms of CBB; and removal of plant residues and debris.

## CASSAVA MEALYBUG

Cassava mealybug (Figure 3) attacks a wide range of crops including cassava, tomato (*Lycopersicon esculentum*), soyabeans, sweet potato (*Solanum tuberosum*) and citrus. Cassava mealybug is native to tropical America and is prevalent in many African countries such as Angola, Malawi, Benin, Cameroun, Democratic Republic of Congo and Zambia. It attacks different plant parts including leaves, stems and branches.



Figure 3: Adult cassava mealybug

### Detection of Cassava mealybug

Infested Cassava fields exhibit the following characteristics:

- Stunted plants
- Close visual inspection of the tips reveal presence of the pest covered in a typical white waxy layer (Figure 3)
- Bunched terminal shoots as a result of feeding
- Emerging leaves form bunchy-tops (Figure 4; right)
- Prolonged infestation result in abnormal short internodes (Figure 4; left)