

## THE CASSAVA HORNWORM

### INTRODUCTION

The cassava hornworm, *Erinnyis ello* is a pest of cassava and is native to tropical America. It has been recorded in Central America, the Caribbean, Florida (USA), Brazil, Columbia and Ecuador.

The cassava hornworm is not usually a serious pest of cassava, since it feeds on several other plant species containing latex in the family *Euphorbiaceae*. However, outbreaks of the pest can occur from time-to-time which may result in a rapid complete defoliation of cassava fields. This may not be serious if the cassava crop has matured. Nevertheless, serious losses in yield can occur from attack if the crop is immature.

### LIFE CYCLE OF CASSAVA HORNWORM

The cassava hornworm is really a moth, the destructive 'worm' stage being the larval stage of the moth life cycle. As with all moths and butterflies (lepidopteran insects) the hornworm undergoes complete metamorphosis i.e. egg → larva → prepupa → pupa → adult. The complete life cycle varies between 32 - 49 days (Figure 1) depending on temperature. Under warm conditions the cycle is completed at a faster rate.

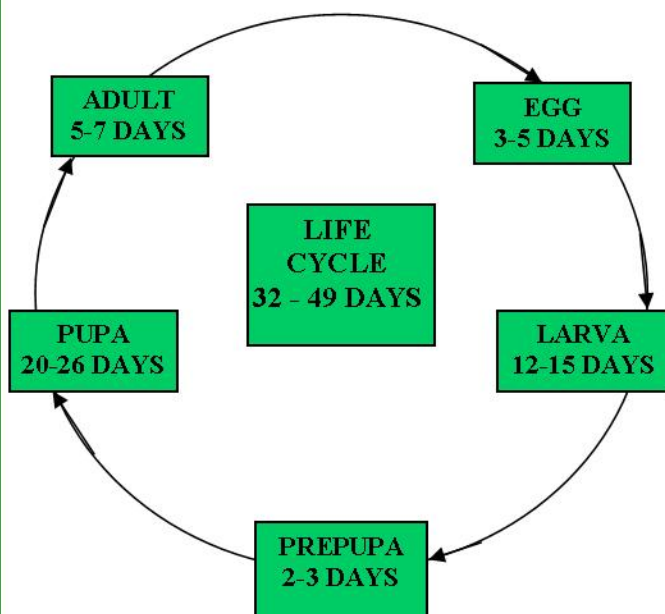


Figure 1: Life Cycle of Cassava Hornworm

### DESCRIPTION OF CASSAVA HORNWORM

The eggs are small (about 1.0 mm), smooth and appear dark-green to yellow in colour (Photo 1). They are found in crevices of buds, stems and barks of the cassava plant and most eggs are laid on the upper surface of the leaf. The adult cassava hornworm moth lays its eggs which hatch in about 3-5 days.



Photo 1: Cassava hornworm egg

The larva, which is a voracious feeder of plant leaves, feeds for 12-15 days. The newly hatched or first instar has a length of about 6 mm and appear pale green with a black horn on the last segment. There are 5 larval instars. The larva feeds and grows to 80-100 mm long. The mature larva (5th instar) which does the most damage vary in colour but generally it is whitish green with yellowish spots and pronounced red and black spots on its abdomen (Photo 2 a+b).



Photo 2: Cassava hornworm mature (a) and immature (b) larva

Mature larvae crawl down to the soil and enters the pupal stage (Photo 3). The pupae can be found 4-8 cm in the soil or under leaf litter and are about 55 mm long, very glossy and black with pale orange streaks.



Photo 3: Cassava hornworm pupae



Adult moths emerge from pupae after 20-26 days. Adults have pale grey forewings and rear red hind wings with dark marginal bands. The wingspan is 70-90 mm. Adults only fly at night and migrate in swarms. A single female can lay 850 eggs in its lifetime.



Photo 4: Cassava hornworm Adult

### SYMPTOMS OF ATTACK BY CASSAVA HORNWORM

Young leaves are first attacked followed by more mature leaves. In severe situations, complete fields are defoliated (Photos: 5-7) and even stems are attacked.

The first signs of an infestation usually are many holes on younger leaves. Young larvae are found on the underside of leaves.



Photo 5: Cassava hornworm attacking younger leaves



Photo 6: Defoliated cassava field



Photo 7: Cassava hornworm attacking cassava stem

### MANAGEMENT OF CASSAVA HORNWORM

An integrated approach i.e. a combination of cultural practices, biological control and application of chemicals is recommended. This depends on the age of the plants, stage of the larvae and the severity of infestation.

#### **1. CULTURAL PRACTICES**

Monitoring cassava fields for symptoms of damage should be done in order to determine appropriate control strategies.

Mature cassava over nine (9) months old should be harvested and the field ploughed.

Fields should be replanted with an unrelated crop or fallow.

#### **2. CHEMICAL CONTROL MEASURES**

In high infestations, a quick knock-down is required to manage the pest. Pesticides containing pyrethroids may be used at the manufacturer's recommended rates.

#### **3. BIOLOGICAL CONTROL MEASURES**

If the cassava hornworm is detected early, a bio-rational pesticide such as one containing *Bacillus thuringiensis*, which is environmentally friendly and effective against early instars of the pest should be used.

There are several known natural enemies of the cassava hornworm including *Trichogramma sp.*, *Cotesia sp.*, *Sarcodesia sp.*, *Crysopa sp.* and the common wasp *Polistes sp.*

A virus (*Baculovirus erinnyis*) has been successfully used to control the cassava hornworm in Brazil.

The use of natural enemies in a biological control programme for the management of cassava hornworm is the preferred method of a long-term pest management strategy.

*For further information, contact the nearest Extension Office or the Research Division, Ministry of Food Production, Land and Marine Affairs, Centeno. Phone: 646-6284*