



## Occurrence of slug, *Darna sp* in coconut nursery

V.G. Mathirajan, A. Karthikeyan and N. Chitra\*.

Coconut Research Station, Veppankulam- 614906

\*Department of Entomology, Tamil Nadu Agricultural University, Coimbatore 641003

The Coconut (*Cocosnucifera L.*) palm known as "Kalpavriksha", is a major plantation as well as an oilseed crop in the tropics of the world. India accounts for 33.02% of the world's coconut production and is one of the major players in the world's coconut trade. In India, it is grown in 2.10 million ha with an annual production of nearly 23.79 million nuts as per 2017-18 statistics. The coconut palm is susceptible to the attack of large number of pests of major and minor importance. The annual loss due to pest complex in coconut in Kerala has been estimated to be 618.50 million nuts (Abraham, 1994). The pests of coconut nursery are broadly classified as internal borers, subterranean pests, sap feeders, defoliators and nematode pests. Pest management is an integral component of nursery operations for the successful production of quality coconut seedlings. Some of the nursery pests such as ash weevil, whiteflies, scale insects and mealy bugs affect the appearance of coconut seedlings. Though such seedlings may be vigorous, preference by farmers is lost due to damage symptoms on coconut seedlings (Josephraj Kumar

et al., 2012). The slug caterpillar is a sporadic outbreak pest on coconut and the larvae feeding on leaf lamina results in development of necrotic spots in early stage. In severe cases caterpillars feed on the coconut leaves sparing only the midrib, leaf stalks as well as nuts and in severe outbreak gumming on the nuts was also observed. The incidence of coconut slug caterpillar *Contheyla rotunda* on a severe scale in 2011-12 and on moderate scale in 2012-13 was observed in Aiyampalayam village in Tamil Nadu. Outbreak of coconut slug caterpillar *Macroleptena nararia* was observed in 2007, 2012 and in 2013 in coconut gardens of East and West Godavari districts of Andhra Pradesh. Light trap studies were initiated and results revealed that this sporadic pest can be successfully managed by installation of 200 W light traps installed at 1 1/2 feet above ground with water pan @ 3 light traps /ha. In the roving surveys carried out in 2012 in East Godavari district of Andhra Pradesh, two new larval parasitoids *Euplectrus sp* and *Euplectromorpha sp* belonging to family Eulophidae (Hymenoptera) and a pupal parasitoid *Eurytoma*

*monemae* and an entomopathogen *Paecilomyces lilacinus* (Thom) Samson were identified on coconut slug caterpillar *Macroleptetra nararia* and these parasitoids were found parasitizing slug caterpillar under field conditions effectively.

Occurrence of slugs in coconut nursery of Coconut Research Station, Veppankulam and symptoms of damage, damage potential and management options are discussed in this paper.

Scientific classification	
Kingdom:	Animalia
Phylum	Arthropods
Class	Insects
Order	Lepidoptera
Suborder:	Glossata
Infraorder	Heteroneura Division:
Division	Ditrysia
Superfamily	Zygaenoidea
Family	Limacodidae
Subfamily	Limacodinae
Genus	Darna

### Symptoms of damage

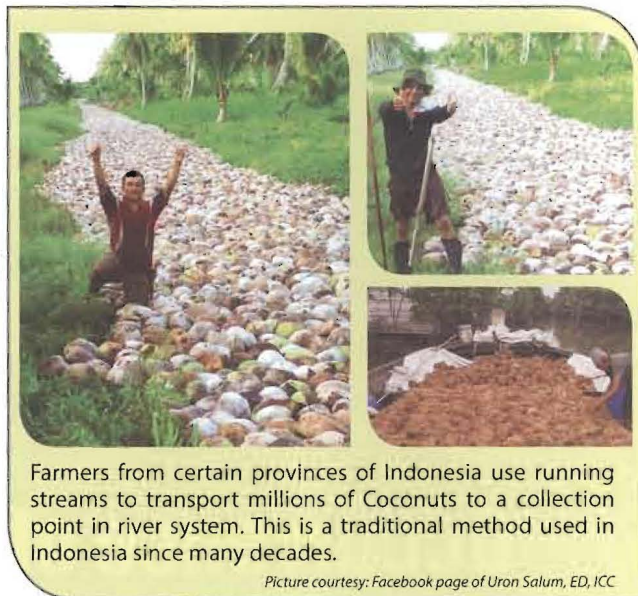
Early-instar caterpillar feeds from under surface of coconut leaflets by scrapping the surface tissues giving a glistening appearance on the feeding area. Leaf spot-like black halo marking develops on the feeding areas which later coalesce and form bigger lesions. During heavy infestation caterpillars feed on the entire leaflet sparing only the midrib. These caterpillars are covered with tiny spines that cause severe irritation on contact.

### Biology

Eggs are flattened and thin. They are highly transparent and the larva can be seen developing inside. They may be laid on under surface of leaves.

The larvae have greenish body with white lines and four rows of spiny scoli tipped red or black, which cause irritation and pain. The larvae are typically very flattened, and instead of prolegs, they have suckers. The thoracic legs are reduced, but always present, and they move by rolling waves rather than walking with individual prolegs. They even use a lubricant, a kind of liquefied silk, to move.

Larvae might be confused with the similarly flattened larvae of lycaenid butterflies, but those caterpillars have prolegs, are always longer than they



Farmers from certain provinces of Indonesia use running streams to transport millions of Coconuts to a collection point in river system. This is a traditional method used in Indonesia since many decades.

Picture courtesy: Facebook page of Uron Salum, ED, ICC

are wide, and are always densely covered in short or long setae (hair-like bristles). The head is extended during feeding in the lycaenids, but remains covered in the Limacodidae. The final instar constructs a silk cocoon and hardens it with calcium oxalate excreted from its malpighian tubules. It pupates in a compact elliptical chocolate brown shell like cocoon, which is convex above and flat ventrally as stems. Cocoons are covered with irritating spines and hairs. Cocoons have a circular escape hatch, formed from a line of weakness in the silk matrix. It is forced open just prior to emergence of the adult.

The moths are small, hairy, with reduced or absent mouthparts and fringed wings. They often perch with their abdomens sticking out at 90° from their thoraces and wings.

### Management

- Collection and destruction of the immature stages of the slug viz., larvae and pupae.
- Cutting and burning infested leaflets to prevent the further spread of the pest.
- Set up light traps to trap and collect adult moths @ 5 light traps /ha.
- Spraying of *Bacillus thuringiensis* @ 2 g/lit
- Spraying of dichlorvos 76 WSC @ 2 ml or triazophos 40 EC @ 5 ml/ lit of water. ■

### Reference

Josephraj Kumar, A., Chandrika Mohan, Rajan Regi, P., Thomas, J., Chandramohan, R. and Jacob, P.M. 2012. Pest management in coconut nursery, CPCRI Technical Bulletin No. 73.16p.