

BEWARE OF RED PALM WEEVIL, A DESTRUCTIVE PEST ON ARECANUT

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Introduction

More than 90 species of insects and non insect pests are reported from arecanut palm infesting leaves, stem, roots, inflorescence etc. Among these, the root grub (*Leucopholis* spp.) spindle bug (*Mircarvalhoia arecae*), pentatomid bug (*Halyomorpha picus*), foliar mites (*Raoiella indica*, *Oligonychus indicus*), scales, mealy bugs, inflorescence caterpillar (*Thirathaba mundella*) etc. cause considerable economic damage (Nair and Daniel, 1982; Prathibha and Shivaji, 2018).

Red palm weevil (RPW), *Rhynchophorus ferrugineus* Oliv. (Coleoptera: Curculionidae), a concealed tissue borer is the lethal pest of palms enjoying a wide distribution in all coconut growing tracts of India. This fatal enemy of palms is the most important devastating pest on date palm (*Phoenix dactylifera* Linn.) in Middle East countries and is ever expanding its geographic distribution (Faleiro, 2006). Currently the pest is reported in 15% of the coconut growing countries and in nearly 50% of the date palm growing countries (Joseph Rajkumar *et al.*, 2017). This weevil is reported from more than 20 palm species (Dembilio and Jacas, 2015). Although, its infestation in arecanut was reported way back in 1959 (Pillai and Kurian, 1959) its occurrence in arecanut is not frequent or widespread in India. There are

a few reports from Karantaka, Meghalaya (Manjunatha *et al.*, 2013 Dutta *et al.*, 2000) and Assam (personal communication) indicating the potentiality of red palm weevil damaging arecanut. Young palms, hybrids and dwarf varieties are more susceptible to the pest infestation. Rot diseases, shallow method of planting and mechanical injuries on the palms also pave way for the pest attack. Early diagnosis and timely management is of utmost importance in preventing the death of infested palms. If no control measures were adopted, its infestation can be deadly to the palm. If damage is severe and central bud is affected, the chances of survival are less. Recently the pest was recorded from dwarf arecanut palms in ICAR-Central Plantation Crops Research Institute, Vittal, Karnataka. The information of red palm weevil on some aspects on its biology, symptoms and management is mentioned here for creating awareness among arecanut farmers on this lethal pest.

Life cycle

The weevil takes about 3-6 months for completion of the life stages from egg to adult depending upon weather conditions and type of food source. The eggs are creamy white and oblong and are laid individually in the holes scooped out on palm tissue (Fig. 1 a). The grubs

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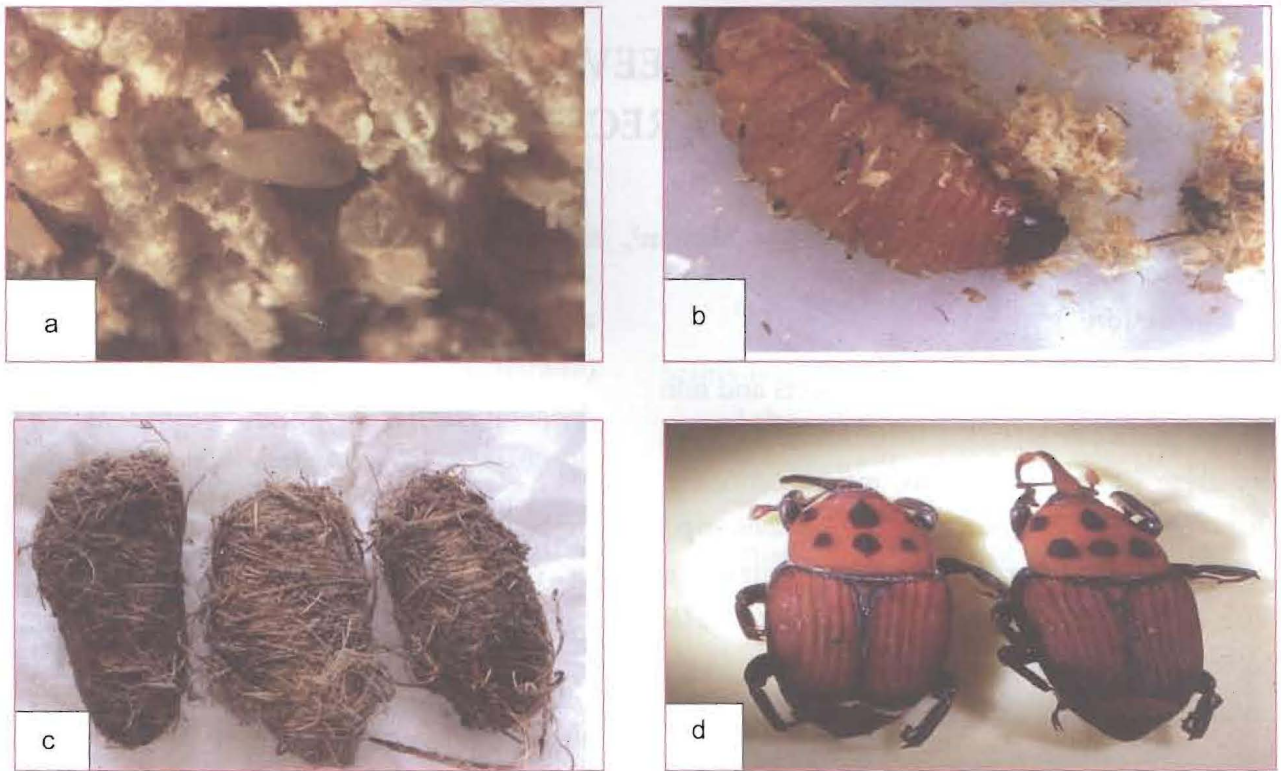


Fig. 1. Various stages of red palm weevil a) egg b) grub c) cocoon and d) adult

are creamy white, apodous and pyriform up to a length of 5 cm with a brown head capsule and well developed-chitinised mouth parts which facilitate chewing of hard fibrous tissues (Fig 1b). The larval developmental days may vary from 70-85 days and number of instars may also vary depending on the temperature and diet (Salama *et al.*, 2009). The pupation occurs in a cocoon made of fibrous tissues and usually it is found within the trunk near to crown (Fig 1 c). The adult red palm weevil is medium sized measuring 35 mm long and 20 mm wide with ferruginous brown colour with black spots on the dorsum of thorax (Fig 1 d). The males have thick erect setae on rostrum and females lack this. The adults have a prolonged life span extending up to 76 to 95 days.

Symptoms

The grubs bore through the soft tissues of the stem and crown (Pillai and Kurian, 1959, Rajan *et al.*, 2009). Wilting, yellowing and drying of spindle and innermost leaves are the initial symptom of attack in dwarf arecanut palms (Fig 2 a). If the infested palms are closely observed, bore holes with or without extruded fibrous tissues can be found in green regions of stem near to crown (Fig 2 b). Oozing occurs from freshly made holes. When the dried central leaves are removed, the crown shows rotting with a foul smell. Splitting and opening the infested stem showed wavy tunnels made by grubs and various stages of red palm weevil inside the stem (Fig 2c). The palms which are weak, crown rot affected or sun scorched are more prone to red palm weevil infestation.



Fig 2: Symptoms of damage of red palm weevil in dwarf arecanut a) drying of central leaves b) bore holes and c) tunneling of stem

Management

As occurrence of RPW in arecanut is meager in isolated tracts, management measures have not been evaluated widely. Hence, the following measures practicing in coconut and other palms can be adopted on *ad hoc* basis to manage red palm weevil infestation in arecanut.

- * Strict and regular surveillance to monitor the incidence of red palm weevil in the field so that timely management can be adopted.
- * Avoid causing any mechanical injury to the palm as it attracts adult weevil for oviposition.
- * Periodical crown cleaning to remove dried and disease affected leaves.
- * Timely treatment of rot/ fungal diseases on palm crown.

- * Spray Imidacloprid 17.8 SL @1 ml/liter of water to the crown after phytosanitation.
- * Prophylactic crown filling with a mixture of Fipronil 6g + sand 250g / palm.
- * Removal and proper disposal of dead palms is of utmost importance as the pest breeds more life cycles inside such palms and will lead to spread of infestation to nearby susceptible palms.

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