New harmful organism (red palm weevil) - *Rhynchophorus ferrugineus*

DEPARTMENT OF AGRICULTURE,
MINISTRY OF AGRICULTURE, NATURAL RESOURCES AND ENVIRONMENT

PLANT HEALTH AND QUALITY CONTROL SERVICE

---

1. Introduction – Spread:

Rhynchophorus ferrugineus (red palm weevil) belongs to the family of Curculionidae (Coleoptera). The red palm weevil has become the most important pest of the date palm in the world (Gomez & Ferry, 1998).

Its hosts are most of the palm trees for example, coconut palm, date palm, Nigbong palm, oil palm, ornamental palm, palmyra palm, royal palm, sago palm, sedang palm, sugar palm, talipot palm, wild date palm and other species which include: *Areca catechu, Arenga pinnata, Borassus flabellifer, Caryota urensi, C. maxima*, *C. cumingii, Cocos nucifera, Corypha elata, Corypha gebanga, Elaeis guineensis, Livistona decipiens, Metroxylon sagu, Oreodoxa regia, Phoenix canariensis*, *P. dactylifera, P. sylvestris, P. theophrasti, Sabal umbraculifera, Trachycarpus fortunei, Washingtonia* sp. etc. The species of *Chamaerops humilis* and *Washingtonia robusta* are reported to be resistant to the insect. It also attacks *Agave americana* και *Saccharum officinarum*.

It has been found in Australia, Asia (Baglandesh. Bahrain, China, India, Indonesia, Irak, Iran, Japan, Kuwait, Malaysia, Oman, Pakistan, Philippines, Saudi Arabia, Jordan, Sri Lanka, Taiwan, Thailand, Vietnam, U.A.E., etc) and in Mediterranean countries such as Spain, France, Greece, Syria, Israel, Palestine, Greece, Egypt, Turkey and Cyprus.

The cause of the high rate of spread of this pest is human intervention, by transporting infested palm trees of various sizes and offshoots from contaminated to unifected areas.

2. Measures to prevent its introduction and spread within the Community

EU Member States decided to take emergency measures to prevent the introduction and the spread of this pest within the Community and published the Decision 2007/365/EU on the 31st May, 2007 (L.139, pages 24 -27).

With the adoption of these emergency measures susceptible palm trees imported from Third countries into the Community must be accompanied by a phytosanitary certificate with specific import requirements. Similarly, palm trees that are moved throughout the Community must be accompanied by a plant passport which are issued only when certain requirements are met.

Furthermore, countries where occurrence of this pest has been reported must take additional emergency measures to limit its spread and eradicate the specified organism with the establishment of demarcated areas which include marking infested zones and buffer zones and with the adoption of chemical and other measures.

3. Biology – morphology:

Overlapping generations with all life stages can be present within the same palm tree. The life cycle of the insect is about 4 months.

Females lay about 300 eggs in separate holes. These eggs are creamy white, oval in shape about 2.6mm long to 1.1 mm wide. The eggs hatch in 2 to 5 days into legless grubs which bore into the interior of the palm and feed on the soft tissues of the palm. The length of the full grown larva is 50 mm and the width is 20 mm. The larval period varies between 1-3 months. Then a pupa is formed (cocoon) and at the end of the pupation period the adult emerges.

In the same palm tree various stages of the insect may co exist, until the total destruction of the tree, where the adults move to another host plant. Generally, the adult will only move to another palm tree when the one infested is completely destroyed and moves out in search of another host, for food.

The damage is caused by the larvae, starting from the top of the palm tree and moving inside the palm making tunnels and large cavities. The larvae, can be found in any place within the palm, even at the base of the palm tree just before the rooting system begins.

The damage caused by the larvae becomes obvious and symptoms appear well after the infestations. At which stage the damage is so severe that the tree is destroyed. Some symptoms that may be visible at the early stages of infestation are the destruction of the new vegetation and the bending of old leaves (umbrella).

4. Measures to eliminate the pest

Once infected the palm trees must be cut in small pieces, burned (if possible) or bury deeply. However, burning may prove to be a little difficult and some prefer to bury the infested palms.

Pheromone traps have been used to attract the adult stage of the insect, for both monitoring and mass trapping purposes with promising results under an integrated pest management system. Curative treatments of infested trees are applied. These include contact (chorpyrifos, etc) or systemic (dimethoate, etc) insecticides, stem infusion with diclorvos, use of systemic insecticides by soil application closed to the roots with imidacloprid (Confidor, etc.) 5 – 10 ml / tree 3 times / month, dimethoate (Perfekthion) 20 – 40 ml / tree, carbofuran (Furadan etc.) 50 cc/tree/month.

5. Measures to prevent its further spread

Preventive measures can also be taken to avoid the introduction of the pest onto new trees.

Pruning of palm leaves when they are still green should be avoided. Such pruning constitutes a strong attraction for the weevils and probably facilitates the laying of the females. This operation should be avoided during the seasons of adult movements so it should be carried out during winter period (mid December until mid February) and

followed by immediate spraying on the pruned / cut part of the tree with insecticides such as chloropyrifos, diazinon, dichlorvos, azinphos – methyl etc.

Systemic insecticides that can be incorporated by localized irrigation systems or by injection offer important advantages such as persistence of various months, less environment aggression, safer use for the applicants, less inconvenience for public in cities.

The peeling of the trunk (elimination of the remaining bases of the palm leaves) should be avoided as well.

In addition, the wetting of the base of the palms by the aspersion irrigation system should not be practiced as it is the cause of the development of a rot area that will also attract the female for laying the eggs.

1. Adult *Rhynchophorus ferrugineus*

2. Eggs of *R. ferrugineus* 3. Larvae *R. ferrugineus* . 4. Pupa of *R. ferrugineus*

5. Infested tree with *R. ferrugineus*

6. Pheromone trap for *R. ferrugineus*

The market for adult palm trees is very lucrative. These palm trees are mainly used for environmental and ornamental purposes in Cyprus.

The Department of Agriculture is at the moment assessing the spread of the pest in all districts. However, as palm trees are grown in house gardens, public gardens, parks, this task has proven difficult. A close cooperation is needed between public, municipalities, communities, etc, and places where officials have no access (i.e private properties). It is important to contact the Department of Agriculture in your district when you have suspicions of an infestation so that the necessary measures can be taken to prevent its further spread and eliminate it.