

## SYMPTOMS AND DAMAGES

The most common symptom reflecting an insect attack in a palm tree is the withering of the leaves in the centre of the crown, which can dry up and drop to the ground.

When the attacks on the palm tree are very severe, the crown dries up, causing its death. The affected leaves fall off easily when removing them from the palm tree. At the base of the palm trees, larval galleries and very often the pupae cocoons can be seen.

When opening the crown of a palm tree in a state of advanced infection, many larvae of different sizes can be found in a mass of fermenting tissue that gives off a peculiar unpleasant smell. The affected palm trees die in the short term when the meristem or plant heart is completely destroyed and its interior is in decomposition.

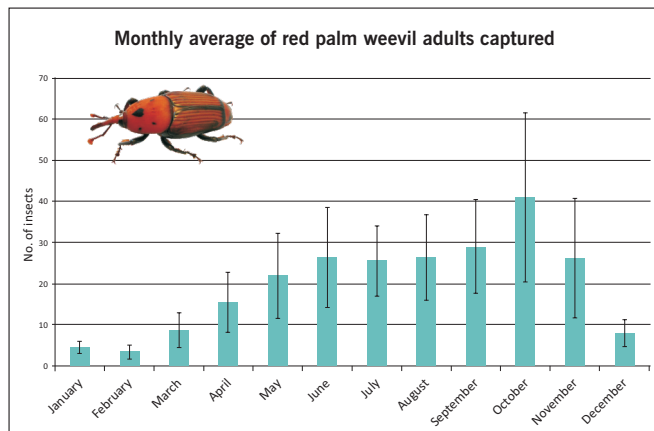


The females lay their eggs in holes that they have perforated with their rostrum (or snout) inside the wounds, which have been caused during the harvest, pruning and leaf stripping.

The *Rhynchophorus ferrugineus* larva feeds on the living tissues of the palm tree.

The infested palm trees by red palm weevils are outbreaks of infestation for other palm trees.

## FLIGHT PERIOD OF THE RED PALM WEEVIL



Average of *Rhynchophorus ferrugineus* adults captured per month in 2,876 traps, which were placed throughout Valencia and Alicante between 2005 and 2008, in accordance with the results of López-Calatayud (2008).

López-Calatayud, J.J. (2008) Detection and eradication campaign of *Rhynchophorus ferrugineus* in Valencia: control strategies for the red palm weevil. CONAMAD. 1 to 5 December 2008, Madrid



## SOLUTIONS OVERVIEW

CODE	TRADE NAME	IMAGE
VA263	<b>RHYNCHONEX® ATTRACTANT KIT 90 DAYS</b> 6 UNITS (pheromone+kairomone) Attractants diffuser with a duration of 90 days.	
TA146	<b>RHYNCHONEX® 7.5 Red</b>	
TA249	<b>RHYNCHONEX® 7.5 PACK</b> Pack consisting of 6 RHYNCHONEX® 7.5 Red traps	
TA204	<b>CROSSTRAP® MINI WITH DRY COLLECTION CUP</b>	
TA157	<b>CROSSTRAP® DRY COLLECTION CUP</b> Collection cup for dry use, or live catches.	
TA180	<b>RHYNCHONEX® DECOY</b>	



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## PRODUCTS MADE IN SPAIN

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[www.rhynchophorusferrugineus.eu](http://www.rhynchophorusferrugineus.eu)

## Red palm weevil *Rhynchophorus ferrugineus*

## BIOCONTROL





## DETECTION AND MONITORING

**1 to 3 RHYNCHONEX® traps per hectare** (at least 1 trap per plot) should be placed, preferably by burying them in the ground. If the trap cannot be buried or placed in a natural environment, it is recommended to use the **CROSSTRAP® MINI**.

The traps should be placed 50 to 100 metres from each other and throughout the year, especially in spring, summer and autumn. This is because the activity of the pest increases with temperature. The placement of a greater number of traps per surface area significantly reduces new infestations.

## EXHAUSTIVE MONITORING

For exhaustive monitoring, the amount of traps per surface area should be increased depending on location and homogeneity of the plots: approximately 1 RHYNCHONEX® or CROSSTRAP® MINI trap every 50 metres. This means a density of 4 to 6 RHYNCHONEX® or CROSSTRAP® MINI traps per hectare.

When using traps with pheromones and kairomones, the males and females of *Rhynchophorus ferrugineus* are captured, especially 2/3 of females and 1/3 of males. The traps capture both males and females to reduce mating.

The females that have been captured tend to be already pregnant. Therefore, capturing these females is very effective because the egg laying is reduced on palm trees. Each insect captured in a trap means one less insect on the palm tree.

## NECESSARY MATERIAL

### RHYNCHONEX® 7.5 Red TRAPS

The **RHYNCHONEX® 7.5 Red** trap is a wet trap that is used, together with pheromones and kairomones, for the detection and monitoring of the red date palm weevil: *Rhynchophorus ferrugineus*.

It consists of three easily adjustable parts, a base, a lid and a special hanger for the **RHYNCHONEX® ATTRACTANTS KIT** diffuser.

The frusto conical shape of the base of the trap is red and has 4 perpendicular holes with measurements of 3 x 7 cm, so the insects can enter easily. The lid is also red and has 2 entrance holes with 3 x 7 cm measurements.

The **RHYNCHONEX®** traps should be filled with water up to 2/3 of their volume and placed half-buried up to the entrance holes, and preferably in the shade.



RHYNCHONEX® 7.5 Red



RHYNCHONEX® ATTRACTANTS KIT diffuser placed in a RHYNCHONEX® 7.5 Red trap

When using the **RHYNCHONEX®** wet traps, the red date palm weevil dies by drowning in the water.



### RHYNCHONEX® 7.5 PACK

Pack consisting of 6 RHYNCHONEX® 7.5 Red traps

**CROSSTRAP® MINI TRAPS:** For trapping in forests or if it is not possible to bury the RHYNCHONEX® traps, it is recommended to use the **CROSSTRAP® MINI WITH DRY COLLECTION CUP** trap.

The CROSSTRAP® MINI WITH DRY COLLECTION CUP is a suspended trap that captures insects in flight and is very effective from spring to autumn. The design and the slippery product of the trap prevent the captured insects from escaping.

The trap does not require any type of liquid or and does not need a food attractant. The captured insects die inside the collection cup from dehydration, which makes handling it easier. The trap can be hung from natural or artificial supports, but always far enough from the palm trees.



RHYNCHONEX® ATTRACTANTS KIT diffuser placed in a CROSSTRAP® MINI WITH DRY COLLECTION CUP trap

**RHYNCHONEX® ATTRACTANTS KIT:** Kit consisting of a blister pack with a **RHYNCHONEX® PHEROMONE 90 DAYS** diffuser and a **RHYNCHONEX® KAIROMONE 90 DAYS** diffuser for *Rhynchophorus ferrugineus*, that lasts for 90 days in field conditions. It includes an identifying label to place on the traps with the date of placement and replacement of the kit. It is sold in boxes of 6 units.

**RHYNCHONEX® PHEROMONE 90 DAYS:** *Rhynchophorus ferrugineus* pheromone diffuser with a mixture of 4-methyl-5-nonanol and 4-methyl-5-nonanone. It lasts for 90 days in field conditions.

**RHYNCHONEX® KAIROMONE 90 DAYS:** *Rhynchophorus ferrugineus* kairomone diffuser made of ethyl acetate. It lasts for 90 days in field conditions.

Scientific research has shown that the synergistic action of the pheromone and the kairomone acting together significantly increases the number of captured insects from 2.5 to 5.



Pack containing 6 units of **RHYNCHONEX® ATTRACTANTS KIT**. Each pack contains an information leaflet about the biocontrol of the pest.



**RHYNCHONEX® ATTRACTANTS KIT.** Packaging, kit and identification label

The kit must be stored in its original packaging and it is recommended to keep it in the refrigerator at 4 °C, in which case it will last for 2 years

**RHYNCHONEX® DECOY:** Red palm weevil, 5 cm size and made of plastic. It is used as a decoy with the RHYNCHONEX® traps, which complements the signals emitted by the attractants that are placed inside the trap.



**FOOD ATTRACTANT:** The combination of food and pheromones increases the effectiveness of the RHYNCHONEX® SYSTEM: dates, sugar cane, apples and bananas are foods that can be added to the RHYNCHONEX® traps.