

Pheromone trap: Red palm weevil



M2i technology

- Bottle with ceramic wick: homogeneous diffusion of active substances
- Constant and extended rate of pheromone release for greater efficiency
- Easy storage, at room temperature
- Extended shelf life: 2,5 years

User guide

M2i recommends: Rhyncho Pro Classic® bottle + Pitfall trap

Trap setup: bury the lower part of the trap (yellow) and fill it with water until it is half-way to the top. Remove the cap of the bottle and screw it onto the wheel. Place the wheel horizontally in the lower part of the trap, with the ceramic wick facing up. Twist into place the upper part of the trap (black) on the previously buried lower part. Weevils are attracted by the aggregation pheromone, enter the trap and drown in the water.

Characteristics of Rhyncho Pro Classic®

Type of product	Pheromone dispenser
Use	Monitoring
Active substance	Ferrugineol, Ethyl acetate, Ethanol
Volume of formulation	28 mL
Indicative diffusion*	3 to 4 months
Targeted insect life-stage	Adult (weevil)
Estimated radius of diffusion	Weevils attracted on a radius of 10 m

*for an average temperature of 30°C and in the absence of strong winds.

Monitoring setup

Detection period: from March to October (adapt and renew the pheromone dispenser according to the recommended diffusion time).

Trap location: 10 m away from palm trees, if possible in a shaded area.

Recommended density: 2 traps/ha ; 1 trap/tree for isolated palm trees.



Pest monitoring and recommendations

Trap follow-up frequency	Weekly. Empty the trap and renew the water – without replacing the bottle – when the number of catches becomes too high.
Recommended intervention threshold	Palm grove: from 0,5% to 1% infested palm trees. 1-2 palm trees in a garden: as soon as the pest is detected
Pest control methods	During the critical season and depending on trapping levels: it is possible to perform an additional biocontrol treatment according to the insect life stage. Refer to recommendations of registered products for plant protection (ephy.anses.fr) and/or to your technical advisor.
Possible preventive measures	Avoid pruning palm trees during flights periods. Use a healing sealant to cover lesions caused by pruning. Verify the sanitary state of plants. Destroy infested palm trees.

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The Red palm weevil (*Rhynchophorus ferrugineus*)

Pest life-stage: larva **Order:** Coleoptera

Native from South Asia, the red palm weevil is now present in East Asia, Africa and the Mediterranean area. Adults are red-brown with black spots and measures 19 to 42 mm. They live around 2 to 4 months. Females can lay separately 100 to 300 eggs during their lifetime, in internal tissues of the feather-grass. Eggs hatch 2 to 5 days later.

Larvae are yellow-beige. They measure 36 to 47 mm and can develop in 1 to 4 months depending on climatic conditions. Larvae feed on plant tissues, digging galleries in palms or feather-grass. This feeding pattern leads to direct damages like misalignment of palms (which appear yellow, dry or chewed), an abnormal tilt and weakening of the feather-grass which lead to the palm tree death. The pest also causes indirect damages with the development of microorganisms (Bayoud, pink rot) which develop in injuries of the palm tree.

At the end of their development, larvae migrate from the center of the feather-grass to the basis of sleeves or palms to spin a cocoon. Adults emerge 2 to 4 weeks later. Flights extend from March to October. The pest can complete 2 to 4 generations per year.

Recommendations / Security

Keep out of reach of children. Keep away from domestic animals.
Store away from food and drink. Do not freeze.
Do not eat, drink or smoke during use.
Wash hands after use.
Store in original packaging. Comply with doses, conditions, instructions and precautions for use mentioned in the user's guide.
Dispose of the empty and clean packaging in the household trash.

First aid

If eye contact occurs, rinse with water for several minutes.
In case of skin contact, wash with plenty of water.
If swallowed, do not induce vomiting, rinse mouth and see a doctor.
In case of faintness, see a doctor and show him the product label.

Product approved for organic agriculture.

Host plants

This weevil is found on different species of palm trees. In Europe, most affected species are the palm tree of the Canaries (*Phoenix canariensis*) and the date palm (*Phoenix dactylifera*). Other affected species are, for instance, dwarf palm (*Chamaerops humilis*) or coconut palm (*Cocos nucifera*).

Detection strategy: pheromone monitoring

Pheromones are substances produced by insects which operate as a signal between individuals of a same species. There are different types of pheromones: alarm, aggregation, sexual... Monitoring with aggregation pheromones is based on a lure placed inside a trap which mimics the substance produced by the male or the female. Lures attract equally males and females that try to gather and are captured. This enables the detection of the pest's onset and the follow-up of its infestation level. Monitoring also helps decision-making (to launch a curative intervention) and/or measuring the efficiency of a treatment.

Benefits

This method is efficient, selective and harmless for fauna, flora, operators and local residents. It does not generate residues, inputs or resistance mechanisms.

Detection period for *R. ferrugineus*



Indicative period for European countries.

For hotter climates (Middle-East for example), the period can be longer.