

# HOW TO CONTROL THE Red Palm Weevil





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*His Royal Highness  
Prince Nayef Bin Abdul Aziz Al Saud*





*His Excellency the Minister of Agriculture  
Dr. Fahd Bin Abdulrahman Balghunaim*





## Preface

It gives me a great pleasure to introduce this booklet highlighting the Red Palm Weevil Insect. Al Hassa has been afflicted with this weevil for the last fifteen years. It threatens more than 2.5 million of the palm trees in the oasis of Al Hassa.



The Ministry of Agriculture has made every effort in preparing a huge support and establishing a program to control this pest under the supervision of specialized teams performing their jobs diligently.

Moreover, this booklet will educate the farmers about the Red Palm Weevil, its life cycle, and how it can affect the palm trees. It will also instruct the farmers in how to treat the infected palm trees. It explains how to detect the infected areas through functioning scientific methods. This program helps find out detailed information better than depending on oral information that farmers tell.

Finally, I would like to show my gratitude for all who have worked on controlling the Red Palm Weevil. I hope that we can achieve the desired aim to stop the damage caused by this weevil, as Allah wills it.

Good luck in these matters comes from Allah.

General Director of the Agriculture- Al Hassa  
En. Saleh Naser Al Homady





## Introduction

The 'Red Palm Weevil' is an insect that reached the Kingdom of Saudi Arabia in 1407 to Al Qatif. In 1412 it spread to Al Hassa by transporting offshoots young and adult of the palm tree. In 1413, for this reason, a Unified Committee, representative in the Directorate of Agriculture in Al Hassa, was instituted to eradicate this pest.

This destructive pest has found a suitable environment for reproduction in Al Hassa. A high humidity and great number of palm trees are available for adaptation. It has an effective capacity for reproduction. An adult female lays about 350 eggs at its life cycle of complete metamorphosis. It takes three months to lay 80% of eggs during the first three weeks when emerging from the cocoon. These factors help the weevils to fly long distances. Availability of a suitable environment for the weevils to adapt is another effective factor for the pest to spread. The Red Palm Weevils, which threaten the palm trees to destruction in Al Hassa, could be eradicated by huge efforts carried out under supervision of the Ministry of Agriculture.

## Caution

Not paying attention to the preventative procedures could expose your farm to the Red Palm Weevil.



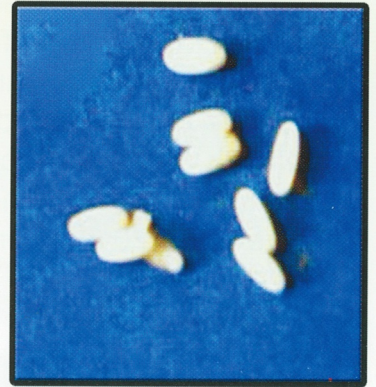


## Weevil Life Cycle

### Rhynchophorus ferrugineus

#### Egg Stage

The eggs are whitish-yellow, smooth, shiny, cylindrical with rounded ends, slightly narrower at the anterior end, and about 3 mm long and 1 mm wide. These hatch in two to five days, and larvae bore into the interior of the palms, feeding on the soft succulent tissues, discarding all fibrous material.



#### Larval Stage

The larva is a destructive stage to the palm tree when it feeds on the moist tissues. It bores inside the palm tree making abnormal holes. Subsequently, the palm tree falls down during 6-12 months. This stage takes 3.5-4 months. The larva has a creamy colour and reddish head as it also has 13 segments. When feeding by boring inside the trunk, it eliminates stinking excrements or residues that get mixed with a thick slimy liquid.







## Pupal Stage(cocoon)

At the end of the larval stage, the larva stops feeding and then starts to construct the cocoon from fibers of the palm tree. It prefers the cocoon to be surrounded by high humidity to prevent drying out and death. The cocoons can be found inside the trunks of the palm tree or inside the leafstalk. Building cocoon takes 1-3 days and then the larva remains inactive inside it for three days before reaching the pupal stage. Pupal stage takes 20 days on the average.



## Caution

Get rid of the wrecked palm trees from your farm to stop reproduction of the Red Palm Weevil







## Adult Weevil

The adult is large, being up to 42 mm and 16 mm wide, with a long rostrum, characteristic for the weevil. It is reddish-brown in colour with variable dark markings on the pronotum. This cycle takes approximately 2-3 months for the adult female to lay about 350 eggs in its lifetime. During the first three weeks, when it emerges from the cocoon, 80% of eggs are laid inside the wounds of the leaves and trunks, cavities, or the roots of offshoots.



Female



Male

## Caution

Spending water for irrigation excessively can attract the weevil to your farm as it likes the humidity very much.







## Infected Palm Tree Symptoms caused by the weevil

- Pieces of chewed fibers, with stinking odor, emerges from the point of invasion in the palm tree.
- Viscous liquid, with a sugary and creamy colour that eventually becomes brownish, oozes out from small holes of the palm tree.
- Upper dead offshoots whose bottoms mostly are worn and histolytic due to being fed upon by larvae.
- Sudden death of the palm tree because the larvae feed on its pith.
- Leafstalks are worn.
- Fronds are yellowish and dry.
- When the palm tree is intensively infected it falls down during a period not more than 12 months.







## How to treat the infected palm tree?

- Remove the dried leafstalk, fibers, fronds, and the upper offshoots.
- Remove the worn parts which are corroded by larva until you reach the undamaged fibers by using the scythe. " In case of a deep damage in the palm tree, use a sharp cutter to remove the infected parts".
- Use insecticides to spray the palm tree.



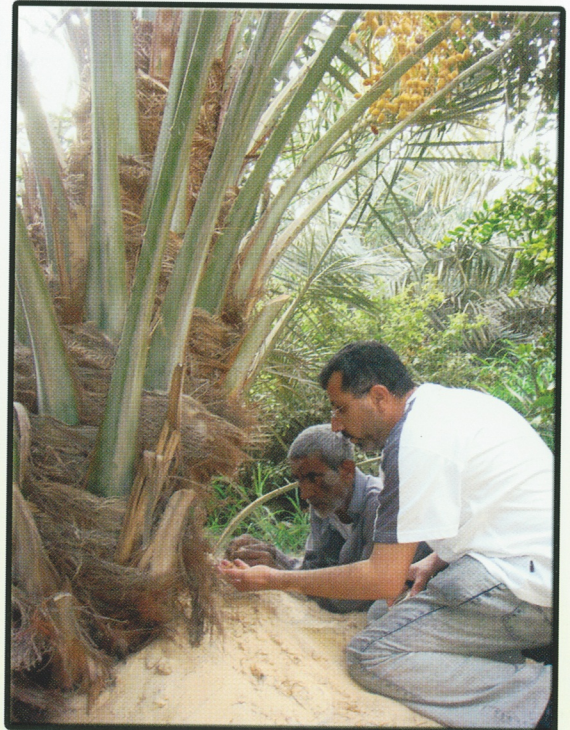




- \* The palm tree should be kept 2-3 weeks to make sure that the treatment has passed successfully.
- \* The peeled area should be covered with clay and kept to dry.
- \* Residual parts of the palm tree should be eliminated by either burning or burying them 2-1.5 meters in depth.

If the larva has fed on big parts of the palm tree or its pith, it is advised to do the following:

- You should remove the palm tree from the root and then cut it in pieces to be burnt as well to get rid of all the larvae that exist inside it.







- After you have finished treating the infected palm trees, you should use insecticide to spray the farm completely.
- The spraying operation should be done 2-3 times yearly taking into consideration to overflow the insecticide around the leaves and inject inside the leafstalks entirely.



## Caution

Be sure to make an appointment with the inspection team periodically to visit your farm in order to carry out the spraying operation to prevent the weevils from spreading in your farm







## Infected areas in the palm tree caused by the Red Palm Weevil

- The upper and lower roots of the offshoot that connect with the palm tree.
- The fissures and wounds caused by another kind of insects and rodents to the palm tree or caused by the process of removing the leafstalks and the upper and lower offshoots .
- The gaps resulting from the process of removing the upper and lower offshoots .







## Pheromone Traps

A pheromone is a chemical attractant which is regarded as a language discoursing with insects. It helps convey specific signals that can be detected by jointed sensors located on the head of the insects. A hormone-like substance that is secreted from an organism into the environment as a specific signal to another organism, usually of the same species. Pheromone has many important functions to carry out including sexual states, regulating the social behavior, and many other functions as following:

- 1-Pheromone for tracing.
  - 2-Pheromone for alarm.
  - 3-Pheromone for sex.
  - 4-Pheromone for spreading.
  - 5-Pheromone for aggregation,
- and it has three main functions:
- Pheromone for reproduction.
  - Pheromone for feeding.
  - Pheromone for laying eggs.



The pheromone is applied to control the destructive insects by a way called 'an integral control'. It helps determine the locations of the insects and give information about the population or their density.

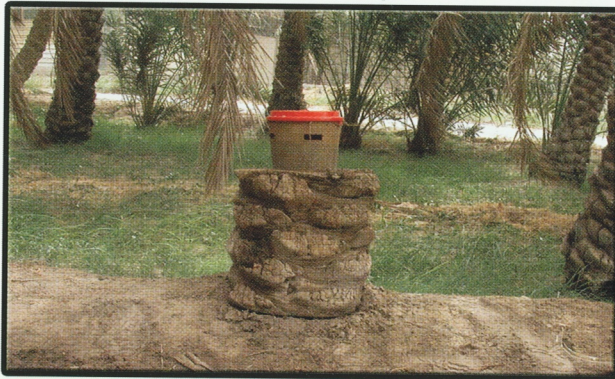
The Ministry of Agriculture has advised to apply a specific pheromone against the Red Palm Weevil. It is called 'aggregation pheromone' that is secreted usually by males when they find a suitable place to lay their eggs and then attract the females for the eggs. Pheromone is prepared inside a plastic bucket with four gaps by hanging a piece of pheromone to the internal surface of the bucket's cover. In addition, Foodstuff should be put inside the bucket to attract the insects into the trap and insecticide to kill them.





## In Al Hassa's areas, pheromone traps have been located by two ways:

- \* Scouting traps are placed at a distance of 500 meters from each other to identify the areas which are infested by insects. The traps are generally placed in areas with no recent infestation.
- \* Traps are evenly distributed in a 100\*100 square hectare, and the traps are designed to:
  - 1- Measure the density of insect population.
  - 2- Set mechanical ways to control insects by trapping them to avoid their hazards.
  - 3- Identify the factors which help the insects to reproduce and spread.
  - 4- Attract the insects to fly toward a dead palm tree where a trap has been placed.



### Caution

Pheromone traps are made to help you. It is your responsibility to keep them up in a good condition. In case of damage to the trap in your farm, notify the Directorate of Agriculture immediately.







## Caution

The regulations set by the ministry of Agriculture strictly prohibit transporting the seedlings from the infested regions with Red Palm Weevil. Whoever breaks the regulations will be penalized as stated in the regulations.



**If you suspect that you have found weevils in your farm,  
please call 5821166-5879242 Immediately.**





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