

1. Description and biology

Adults of *D. frumenti* are 6-8 mm long, with elongated bodies that are bright yellow-brown when newly emerged, turning reddish- brown or black as they mature. They have four yellowish-brown spots on the elytra. There are four developmental stages: egg, larva, pupa and adult. The complete cycle lasts 10 to 12 weeks.



2. Species affected

Its main hosts are the coconut palm (*Cocos nucifera* L.), the Canary Island palm (*Phoenix canariensis* H. Wildpret) and its hybrids. Other minor hosts include date palm (*Phoenix dactylifera* L.), oil palm (*Elaeis guineensis* Jacq.), Washingtonia spp., nipa (*Nypa fruticans* Wurmb) and other ornamental palms.

3. Direct damage to the palm tree



4. Control measure

4.1 Preventive or cultural control

- Avoid, as far as possible, drastic pruning of green leaves. Only dry basal leaves should be removed to reduce the population of *D. frumenti* present on the palm.
- Do not shave the stipes of palm trees, as this opens a pathway for opportunistic pathogens and favours the attraction of *D. frumenti*.
- Cover cut surfaces with acrylic paint or healing paste to prevent attraction of *D. frumenti*.
- Cover adventitious roots at the base of the stipe with soil to prevent oviposition of *D. frumenti* females.
- Use the appropriate tools for climbing and pruning palms in order to minimise injury to the palms.
- Correct management of palm tree pruning waste infested by *D. frumenti*, by collecting the material and depositing it in landfill, thus avoiding possible sources of dispersal.
- Strict quarantine must be applied in nurseries.

4.2 Biological control

There are no commercially available natural enemies for the control of *D. frumenti*. The fungi *Beauveria bassiana* (Bals.) Vuill. and *Metharhizium anisopliae* (Metschnikoff) Sorokin, and the entomopathogenic nematode *Steinernema feltiae* Filipjev (Rhabditida: Steinernematidae) are most effective in controlling *D. frumenti*.

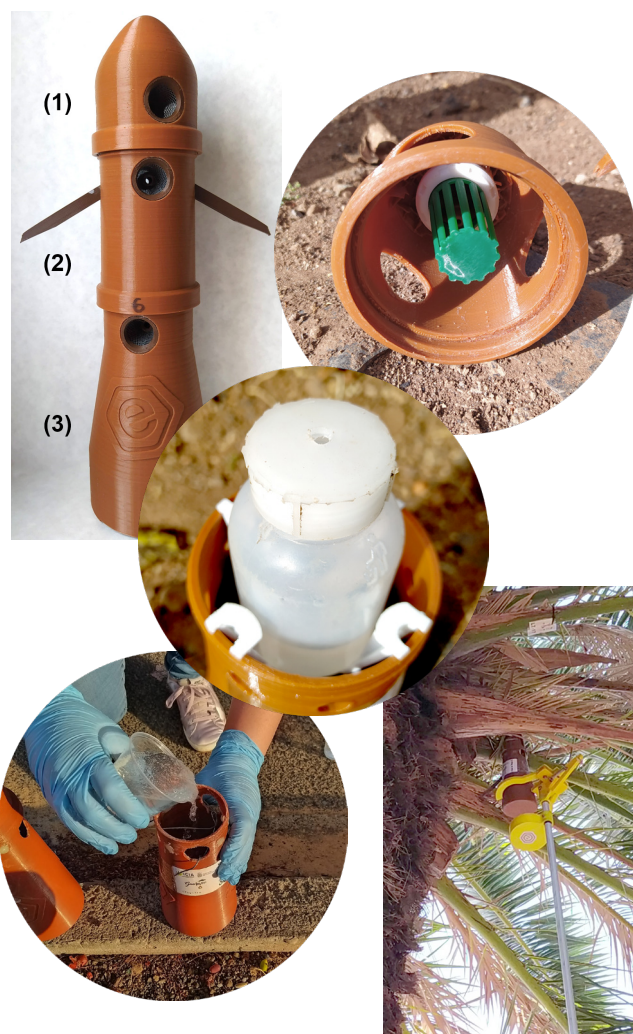
4.3 Biotechnological control

Monitoring can be carried out using the Palm Rocket Trap[®], primed with the pheromone Zentinel DF[®] (housed in zone 1) and a mixture of ethyl acetate and ethanol (3:1) as kairomone (dispensed from zone 2), with moisture supplied by hydrogel (in zone 3).

The trap is hung and unhung using a telescopic pole. The trap should be placed between the first and second ring of green leaves of the palm frond. The service life of the trap in the field is two months.

4.4 Chemical control

The following active substances are currently authorised for treatments against *D. frumenti* on palms by endotherapy:



Trade name	Holder	Formulated
Endotherapy		
Bermectine [®]	Probelte	Abamectin 1.8% [EC] W/V
Epik [®]	Sipcam Inagra	Acetamiprid 20% [SP] W/W
Revive II [®]	Syngenta España	Emamectin benzoate 9.5% [AL] W/V
Aerial spraying		
Epik [®]	Sipcam Inagra	Acetamiprid 20% [SP] W/W



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