PRACTICE ABSTRACT

# Control methods in organic citrus against the new invasive Mealybug *Delottococcus aberiae*

## Problem

*Delottococcus aberiae* is a widespread invasive mealybug native to South Africa. It reaches high population levels and causes severe distortion and size reduction in developing fruits (Picture 1).

## Solution

Combining different methodologies, such as precautionary measures, application of plant protection products, an attract-and-kill system with sexual pheromone, physical barriers against ants and the release of predators, may help control mealybug.

## Benefits

The effective combination of several control measures can help reduce the population year after year.

## Applicability box

**Theme**

Crop production, Citrus fruits, Disease and pest control

**Keywords**

Citrus, Plant protection, pest control, Biological control, Natural enemies

**Context**

Mediterranean basin

**Application time**

From March to September

**Required time**

From one to eight months

**Period of impact**

From six months to one year

## Practical recommendation

- Precautionary measures: Winter pruning to aerate the tree helps to reduce pest levels.
- Attract-and-kill system with sexual pheromone is a new method, and we recommend combining it with other measures until the *D. aberiare* population decreases. The dose is 450 devices/ha. Commercial pheromones have a shelf life of 13 months (Picture 3). Pheromones are also recommended to monitor the presence of the pest with traps set up in the orchard.
- Release of the predator Cryptolaemus montrouzieri[1]: (Picture 2)
- There are no effective plant protection products to control this pest. Azadirachtin and paraffinic oils are used, mainly from April to June, but their efficacy is medium to low and insufficient to control this pest.
- Ants protect this mealybug from its natural enemies and help its dispersal. The use of physical barriers on the trunk, such as tree gum, is recommended to interfere with their access to the canopy (Picture 4).

**Picture 1: The two types of damage caused by D. aberiae: deformed fruit (bottom) and reduced fruit size (top). Photo: Vercher, R., UPV.**

**Picture 2: Adults of Cryptolaemus montrouzieri: feeding on mealybugs Photo: CIHEAM Bari.**

**Picture 3: Attract-and-kill system with sexual pheromone used to control *D. aberiae* Photo: García, A., UPV.**

**Picture 4: Pheromone used for sexual confusion of *D. aberiae*. Photo: Vercher, R., UPV.**

## Further information

### Video

- Advocacy and control of South African Cotonet in citrus production (ES)
- Classical Biological control against *D. aberiae* (ES)

### Further reading


- García, A., González, S., Sánchez, A., Vercher, R., Deval, I., Cantos, H., Guillem, F., Pardo, A. 2021. Approach for the management of the South African Mealybug in organic citriculture. Phytoma, 325, pp 45-52.
- Martínez-Blay, V., Benito, M., Soto, A. 2018. Characterization and damage period to fruits caused by the invasive pest Delottococcus aberiae De Lotto (Hemiptera: Pseudococcidae). Integrated Control in Citrus Fruit Crops. IOBC-WPRS Bulletin Vol.132, pp. 7-15.
- Vacas, S., Navarro, I., Marzo, J., Navarro-Llopis, V., Primo, J. 2019. Sex Pheromone of the Invasive Mealybug Citrus Pest, Delottococcus aberiae (Hemiptera: Pseudococcidae). A New Monoterpenoid with a Necrodane Skeleton. Journal of Agricultural and Food Chemistry 2019 67 (34), 9441-9449. DOI: 10.1021/acs.jafc.9b01443


### Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.


1. Vercher, R. 2022. Practice abstract Breeding natural enemies. Successful farmers´ experiences. ECOVALIA. BIOFRUITNET.
2. Gestión Integrada de Plagas y Enfermedades en Cítricos; Delottococcus aberiae, Generalitat Valenciana (ES)


## About this practice abstract


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