

Innovative products for orange spiny whitefly control in organic citrus orchards

Problem

Orange spiny whitefly, *Aleurocanthus spiniferus*, produces large amounts of honeydew, leading to reduced yield and fruit downgrading (Picture 1).

Solution

Biopesticides are biological products (i.e., derived from plants or other organisms) that can reduce pest populations if used together with other strategies.

Benefits

Biopesticides are not persistent in the crop and show low toxicity on non-target organisms (allowing conservative and augmentative biocontrol).

Practical recommendation

- Monitor the orchard by means of visual inspections (look for juveniles) and yellow sticky traps (look for adults); see Picture 2. Early detection is crucial!
- Use biopesticides such as Prev-Am[®], which is based on orange essential oil, especially against juvenile stages.
- Prune to allow biopesticides to enter the tree canopies and reach the pest. Destroy pruned branches and clean tools to reduce the movements of juveniles.
- Release biocontrol agents (i.e., parasitoid wasps belonging to the genus *Encarsia*, Picture 3) before using biopesticides to lower pest populations and reduce the emergence of pesticide-tolerant or resistant pests.
- Promote functional biodiversity to foster populations of predators and parasitoids by managing the ground cover and plant combinations.
- Control ants by placing sticky bands around the trunk, as well as baits, and till around nests.
- Reduce irrigation and fertilisation to avoid excessive vegetation.

Applicability box

Theme

Crop production, Environment and society

Keywords

Crop production, Pest control, Biological Control, Citrus

Context

Global, Mediterranean basin

Application time

During the cropping season, as soon as whiteflies are detected within the orchard

Required time

Immediate effects

Period of impact

Less than one year

Equipment

Sprayer

Best in

Any cropping system, although early detection of pests is fundamental



Picture 1: Sooty moulds on citrus leaves (A) and fruits (B) due to orange spiny whitefly infestation. Photos: Sabina Avosani and Daniele Cornara, CIHEAM Bari.



Picture 2: Orange spiny whitefly adults (black arrows) and juveniles (red arrows).
Photo: www.fuoridiverde.it.



Picture 3: A parasitoid wasp (*Encarsia spp.*) emerged from a dead whitefly prey.
Photo: Arbico Organics.

Further information

Further reading

- [Behavioral effects induced by organic insecticides can be exploited for a sustainable control of the Orange Spiny Whitefly *Aleurocanthus spiniferus*](#). Mokrane et al. 2020, Scientific reports
- [Biopesticides: A review of their action, applications and efficacy](#). Copping and Menn 2000, Pest Management Science

Weblinks

- [PREV-AM® technical data sheet](#)
- [Selection & use of biological control agents in production of ornamental crops - aphid & whitefly](#); by AHDB Horticulture

About this practice abstract

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