

Preventive and indirect measures to regulate woolly apple aphid in organic orchards

Problem

The Woolly apple aphid (*E. lanigerum*) can cause severe damage, especially in organic cultivation; sucking activity causes bark growth, the so-called blood louse canker.

Solution

Promoting natural antagonists in organic orchards is a key element in controlling *E. lanigerum*. Further, the tree growth should be balanced through proper (root) pruning.

Benefits

A combination of preventive measures and promoting beneficial insects also enhances biodiversity in orchards and has positive effects against other pests, such as other aphid species.

Practical recommendation

Preventive measures:

- Avoid strong shoot growth by applying root pruning and summer pruning.
- *E. lanigerum* settles preferentially on wounds: Preferably, prune only some big shoots instead of many small ones. This will decrease the amount of cutting wounds that can fit as nesting aid.
- Keep the crowns of the trees airy so they can dry off quickly.

Indirect measures:

- Check for sensibility varieties/robust rootstock
- Organic orchards offer numerous natural antagonists for the woolly apple aphid. The parasitoid wasp *Aphelinus mali* and Earwigs (*Forficula auricularia* L.) are the most important ones. Further antagonists are hoverflies (*Syrphidae*), lacewing larvae (*Chrysopidae carnea*) and ladybugs (*Coccinellidae septempunctata*, *A. bipunctata*) (Picture 2).
- Regulation with natural antagonists:
 - Implement edge structures that encourage beneficial insects: Flower strips, hedges, etc.
 - Implement alternating mulching.
 - Install clay pots as nesting aids for earwigs.
 - Distribute *Aphelinus mali* actively: Cut out well-parasitized woolly apple aphid colonies in fall, store them cool until spring, and then apply them selectively to affected orchards.

Direct control: Treating with a mixture of oil and sulphur at the bud break stage.

Applicability box

Theme

Crop production, Horticulture, Temperate Fruits

Keywords

Plant protection, apple, pest control, aphids, biodiversity, flower strips

Context

According to central Europe

Application time

Spring and Autumn

Period of impact

Spring - Autumn

Best in

Organic farms



Pictures 1: Ladybug larvae feeding on woolly apple aphids on an apple twig (Photos: ÖON, 2015).



Picture 2: Adult ladybugs and woolly apple aphids which settled on a cut wound (Photos: ÖON, 2015).

Further information

Weblinks

- Hetebrügge, K., Fieger-Metag, N., Kienzle, J., Bathon, H., Zebitz, C. P. W., Zimmer, J. 2006. Biological Control of Woolly Apple Aphid (*Eriosoma lanigerum* HAUSM.) with *Aphelinus mali* HALD (in German). Ecofruit. 11th International Conference on Organic Fruit Growing: Proceedings, 31 January - 2 February 2006, Hohenheim, Germany.
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- Kelderer, M., Lardschneider, E., Schütz, R. 2016. Efficacy evaluation of different methods for the control of woolly apple aphid (*Eriosoma lanigerum* [Hausmann]) in organic apple growing. Ecofruit. 17th International Conference on Organic Fruit Growing: Proceedings, 15-17 February 2016, Hohenheim, Germany.

About this practice abstract

Publisher: Fördergemeinschaft Ökologischer Obstbau e.V. (FÖKO)
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Permalink: organic-farmknowledge.org/tool/44247

Project name: BIOFRUITNET- Boosting Innovation in ORGANIC FRUIT production through stronger networks

Project website: <https://biofruitnet.eu>

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