BIOFRUITNET
Boosting Innovation in ORGANIC FRUIT production through stronger networks

ecovalia

PRACTICE ABSTRACT

Functional biodiversity: Mediterranean plants to improve natural enemies in organic citrus

Problem

Resurgent pests or invasive exotic pests (e.g., two new species of mealybugs, or the Trioza erytreae, transmitter of the Huanglongbing disease (HLB)) are major challenges of the Mediterranean citriculture).

Solution

Increasing the presence and prevalence of natural enemies of pests through the introduction of plant biodiversity such as perimeter hedges, ground covers and flower strips.

Benefits

Plant biodiversity favors natural enemies (such as syrphids, cocci-nellids, bugs, lacewings and parasitoids) and improves the management of pests including aphids, thrips, spider mites, mealybugs, etc...

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

Spring and autumn

Required time

One year

Period of impact

From 1 to 3 years

Equipment

Mower or shredder

Best in

Organic farming/ conventional farming

Practical recommendation

- Hedgerows (Picture 1): Introduce perimeter hedges with a combination of at least 5 different species of Mediterranean trees and shrubs such as: laurel, cornicabra, strawberry tree, mastic tree, hawthorn and aladierno. Structure the hedge in layers (herbaceous, shrub, tree), with species such as durillo, rosemary and thyme as herbaceous. Water the first two years, but from the third year on, it is no longer necessary. The productivity of the first row of citrus trees adjacent to the hedge may decrease.
- Cover crops (Picture 2) can be sown or spontaneous. The Mediterranean area has a great diversity of spontaneous species that ensure flowering practically all year round. If sown, we recommend a combination of grasses (drought resistant) and legumes, which also provide nitrogen to the soil (see PA 94). Ground covers increase the diversity and abundance of natural enemies and improve the management of pests such as aphids and mites[1 and 2].
- Flower strips (Picture 3): sow a combination of species that bloom for several months with attractive flowers that provide shelter and food to natural enemies. Lobularia, marigold, chamomile, and Mediterranean species such as rosemary, thyme and sage attract syrphids, predatory bugs and parasitoids.

BIOFRUITNET
Boosting Innovation in ORGANIC FRUIT production through stronger networks

ecovalia

PRACTICE ABSTRACT

Picture 1: Perimeter hedges and ground covers planted in a citrus field (Vercher, R).

Picture 2: Spontaneous vegetation cover in a citrus field (Vercher, R).

Picture 3: Flower band of calendula and lobularia in citrus planted at the beginning of each citrus row (Vercher, R.)

Further information

Video

- Agroecología en acción: plantas para curar plagas (Vercher, R.). (Spanish)

Further reading

1. Vercher, R.; Domínguez-Gento, A., González, S.; Mañó, P.; Ballester, R. & Borrás. V. 2008. Comunicación: Entomofauna auxiliar asociada a setos naturales en cítricos ecológicos valencianos. Congreso Sociedad Española de Agricultura Ecológica (SEAE). Murcia, 17-19 septiembre de 2008.
2. Vercher, R.; Calabuig, A.; Domínguez-Gento, A.; Ballester, R. & González, S. 2012. Influencia de la siega de la cubierta vegetal en las poblaciones de fauna auxiliar y en cítricos ecológicos. En: Actas del X Congreso SEAE. Albacete 2012. Edita SEAE.

Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.
- Web that helps in the design of hedges and floral strips. (Spanish)
- Guide to native flora and fauna useful in agriculture. (Spanish)
- Guide to plants that can be used to introduce plant biodiversity in citrus plots. (Spanish)

About this practice abstract

Publisher: Ecovalia, Edificio Insur, Avda Diego Martínez Barrio, nº10, 1ª Planta, Módulo 12, ES-41013 Sevilla
www.ecovalia.org

Author: Rosa Vercher Aznar

Contact: rvercher@eaf.upv.es

Review: Ambra de Simone (IFOAM Organics Europe), Lauren Dietemann (FiBL)

Permalink: Organic-farmknowledge.org/tool/44809

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

Project website: https://biofruitnet.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862850. This communication only reflects the author's view. The Research Executive Agency is not responsible for any use that may be made of the information provided. The authors and editors do not assume responsibility or liability for any possible factual inaccuracies or damage resulting from the application of the recommendations in this practice abstract.

BIOFRUITNET
Boosting Innovation in ORGANIC FRUIT production through stronger networks

ecovalia

PRACTICE ABSTRACT