EcoOrchard

Innovative design and management to boost functional biodiversity of organic orchards

Silvia Mátray[(1)], Annette Herz[(1)], Lukas Pfiffner[(2)], Lene Sigsgaard[(3)]

[(1)] Julius Kühn-Institut, Institute for Biological Control, Darmstadt
[(2)] Research Institute of Organic Agriculture, Switzerland, [(3)] University of Copenhagen, Denmark

Julius Kühn-Institut
Bundesforschungsinstitut für Kulturpflanzen
Federal Research Centre for Cultivated Plants

Project introduction

The **main aims** of EcoOrchard are:

- To assess and increase knowledge on functional biodiversity of organic orchards.
- To prove methods for promotion of natural enemies of key apple pests in common field trials.
- To develop easy tools for farmers to assess functional agro-biodiversity in their orchards.
- To create a web-based platform to share information on functional biodiversity in pome fruit production (EBIO-Network).

The **project partners** are:
Universities, research institutes, advisory services and collaborating farmers of nine European countries (Figure 1). This project is funded by the COREorganic Plus Program of the EU and national funding bodies for three years (2015 - 2017).

Fig. 1: Contributing countries, Map: ArcGIS

The **key apple pests** are:

- **Rosy apple aphid**
  (Dysaphis plantaginea)

Fig. 4: *Dysaphis plantaginea*

Fig. 5: *D. plantaginea* damage on leaves and apples.

- **Codling moth**
  (Cydia pomonella)

Fig. 6: *Cydia pomonella*

Fig. 7: *Cydia pomonella*, larva in apple.

Control

Fig. 3: **Flower strips**

Support

The **key beneficials** are:

Fig. 8: *Episyrphus balteatus* on *Medicago lupulina.*

- **Aphid antagonists**:
  - Syrphidae
  - Coccinelidae
  - Anthocoridae
  - Chrysopidae
- **parasitoids of *C. pomonella***
- general predators

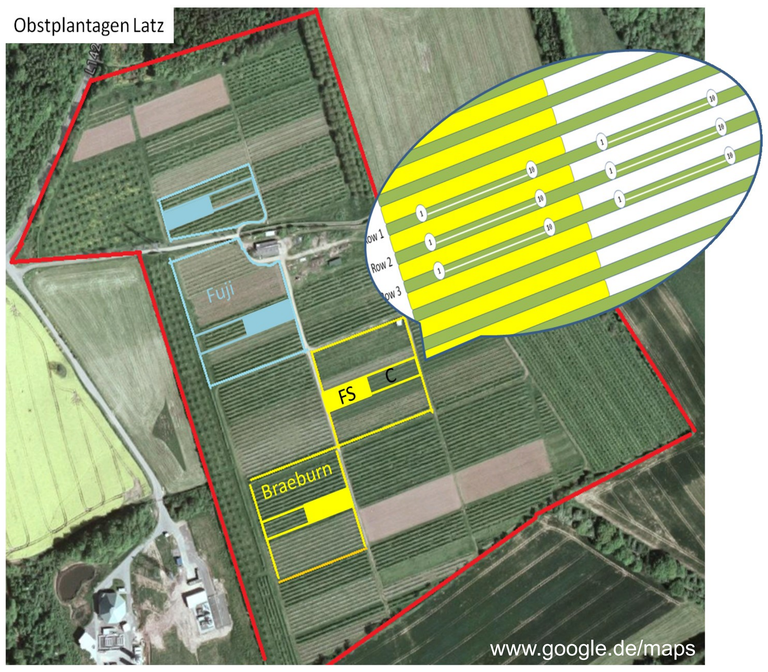

Fig. 2: Experimental design of the flower strip trials at the german experimental site.

Fig. 9: Larva of Coccinellidae at work.

Fig. 10: Larva of *Chrysoperla carnea*

Field trials

Standardised field trials have been conducted in organic orchards in six participating countries by establishment of flower strips in inter-rows in 2015 (Figure 2).
The suitability of a particular flower mixture for promotion of beneficials is investigated.

The **flower strips:**

- The designed EcoOrchard seed mixture contains more than 30 perennial herbs (20%) and grass (80%) species. The seeds were obtained from regional provenance (Figure 3).
- The selected plants offer shelter and food resources for beneficials.

Additional research activities

Studies on effects of the flowering plants from the seed mixture on main pests and beneficials as well as their requirements for food resources, particularly nectar and pollen. → **Optimization of seed mixture**

Fig. 11*: Ascogaster quadridentata* on *Daucus carota.*

CORE organic Plus
http://coreorganicplus.org/research-projects/ecoorchard

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www.julius-kuehn.de
Silvia.Matray@julius-kuehn.de