



Apple orchards in Altes Land, northern Germany

Partners:

**Albert-Ludwigs University of Freiburg,
GERMANY (Coordinator)**

Technische Universität Darmstadt,
GERMANY

CREAF - Research Center for Ecology
and Forestry Applications, University of
Barcelona, SPAIN

University of Oviedo, Department
biology of organisms and systems, SPAIN
Stockholm University, Department of
Ecology, Environment and Plant sciences,
SWEDEN

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Further information:

Alexandra-Maria Klein

alexandra.klein@nature.uni-freiburg.de



EcoFruit - Managing ecosystem services for fruit production in different European climates

Context

Animal communities provide important ecosystem services (ES). Nowhere is their service more important than in fruit production, where certain species are required for pollination, and others function as biocontrol agents against various pest species attacking flowers, leaves or fruits. Different species provide benefits but others negative impacts on net fruit production. Therefore it is crucial to understand how biodiversity can be promoted to maximize fruit production while minimizing external agricultural inputs such as renting honeybees and the use of pesticides.

Main objectives

The overall goal of ECOFRUIT is to understand how European agri-environmental schemes (AES, organic farming, flowering strips and hedgerows) affect biodiversity and related ES and how this relates to net fruit production in different climates across Europe.

ECOFUIT has set the following specific objectives:

- Evaluate the effectiveness of AES implemented at two spatial scales (farm and adjacent farm scale) to increase biodiversity and ES in a landscape context;
- Measure the functional importance of biodiversity in leaf- and fruit-attacking animals (pests), their natural enemies (insects and birds) as well as flower-visiting and pollinating insects to better understand the complementary role of different species for multiple ES;
- Establish a trait database for pests, natural enemies and pollinators;
- Identify the trade-offs between benefits and negative effects of different functional groups of animals.

Main activities

To reach its goals, ECOFRUIT will implement the following activities:

- Study orchard selection and contact growers to identify the most effective AES in given landscape conditions with the goal to reduce external inputs without minimizing net fruit production. The study sites will comprise a climatic gradient from southern to northern Europe in Spain, Germany and Sweden. Apple will be used as a target crop as it is the most frequently grown fruit in Europe and both organic and conventional orchards, managed with and without adjacent hedgerows and flower-providing habitats will be studied.
- Organize stakeholder meetings to deliver results of direct importance for growers and policy to improve the implementation of AES.
- Set up experiments to provide important information of key species (functional and response traits) affecting fruit production across Europe.

Local fruit growers and marketers of the three European countries contributing to the project will be involved; the project aims and approach will be discussed with them and objectives and methods refined if needed. Besides, interviews will be conducted with apple growers to select sites and to get information on their management practices. The project results, as well as basic information of interest to growers such as showing the main pollinators and natural enemies, and how to promote them, will be transferred in an understandable way. These activities to inform stakeholders will likely result in a higher adaptation of biodiversity-friendly management practices at the farm- or adjacent-farm scale.

End-users (fruit consumers) will also be informed with specific brochures that retailers will hand them at local markets. Additionally ECOFRUIT will contact wholesale companies to propose them to add information about the project research results in the flyers they use to inform consumers about sustainable agriculture and products.