



How to implement agroecological practices in organic greenhouse production in Europe

Greenresilient



Aim of the project:

To demonstrate that an agroecological approach to organic greenhouse production is feasible in different European areas.

Introduction

The main objective of the Greenresilient project (Organic and bio-dynamic vegetable production in low-energy GREENhouses – sustainable, RESILIENT and innovative food production systems) is to demonstrate that an agroecological approach to organic greenhouse production is feasible in different European areas.

All over Europe, organic greenhouse production systems are usually very intensive, which threatens their sustainability and the public trust in organic greenhouse production.

The implementation of less intensive production systems based on low energy consumption, appropriate crop rotations, use of agroecological service crops such as mixtures of legumes and brassicas, and local organic inputs is possible at almost any latitude in Europe.

With the Greenresilient project, we want to demonstrate that it is feasible to implement such systems by conducting experiments in Denmark, Belgium, France, Switzerland and Italy.

Background

Very intensive production systems lead to an increase of pH, high levels of soil salinity and an unbalanced nutrient supply. Moreover, the use of a broad spectrum of crop protection agents, which are allowed in organic farming, limits the instances and effectiveness of natural enemies and reduces the quality of organic products, consumer trust and the environmental sustainability of organic vegetable production under protected conditions.



Main activities:

- ▶ On five experimental sites, from Northern to Southern Europe, intensive organic production systems will be compared with completely redesigned, less intensive cropping systems, using a 2-year crop rotation.
- ▶ The effects of agroecological service crops in greenhouse crop rotation will be evaluated.
- ▶ New (or underutilized) winter leafy vegetables, which grow under unheated (or frost-free) conditions, will be introduced into the crop rotation.
- ▶ The effects of the redesigned cropping systems on below and above ground micro and macro fauna as well as flora will be evaluated.
- ▶ The sustainability of the compared production systems will be evaluated using Life Cycle Assessment tools.
- ▶ All innovative techniques will be disseminated through different communication tools to farmers and other stakeholders.



Expected societal and long term benefits

The project will contribute to the assessment of innovative organic production systems in protected conditions in different regions of Europe. The completely redesigned innovative systems will maintain/increase soil organic carbon and will prevent problems, such as pest and disease attack, spread of weeds, rather than controlling them. Redesigned cropping systems will be less dependent on fossil fuels and broad spectrum crop protection agents. Low-energy production systems will help increase consumer demand for local and healthy food produced in greenhouses.

In Southern European countries, where reducing the use of plant protection products such as copper is one of the main issues in organic agriculture, a redesign of cropping systems is needed to establish robust agroecosystems without additional inputs.

The Greenresilient project aims to help change the food system through direct involvement of consumers and farmers at the local level. Consumer awareness of food quality and vegetable production systems can be improved by organizing visits to the farm and proposing alternative food consumption models.

How to reach target groups

The different target groups will be addressed according to their needs and preferences. Vegetable growers and consumers will be invited to experimental site visits, and techniques will be explained using video clips and short and concise factsheets. Consumers will be addressed using articles in magazines about food and through social media.



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Coordinator

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Photo legend

1. Training day with farmers in a greenhouse with diverse crops in Switzerland. Picture: Kathrin Huber, FiBL
2. Measuring the height of organic tomatoes in a Danish greenhouse. Picture: Connie Krogh Damgaard, Aarhus University
3. Researchers from CREA-CI and a collaborator from La Colombaia taking soil samples from a fallow between two crops in southern Italy. Picture: Fabio Tittarelli, CREA-AA
4. Researchers from CREA-AA evaluating biodiversity in a fallow between two crops in southern Italy. Picture: Fabio Tittarelli, CREA-AA
5. Variety trial with winter leafy vegetables in Austria. Picture: Wolfgang Palme, HBFLA
6. Use of Phacelia as cover crop compared to plastic mulch in Belgium. Picture: PCG zwv
7. Flower plant to support natural enemies in sweet pepper in southern France. Picture: Martin Koller, FiBL
8. Flower strip with Calendula as a natural habitat for predatory bugs in organic tomato production in France. Picture: Jérôme Lambion, GRAB

Further information

This transnational project is funded via the ERA-net CORE Organic Cofund based on funds from participating countries and funding from the European Union.

CORE Organic Cofund is a collaboration between 26 partners in 19 countries/regions on initiating transnational research projects in the area of organic food and farming. CORE Organic Cofund has initiated 12 research projects. Read more at the CORE Organic Cofund website: <http://projects.au.dk/coreorganiccofund/>

Find more information from the Greenresilient project at <http://www.greenresilient.net> and publications at: <http://orgprints.org/view/projects/GreenResilient.html> Twitter: https://twitter.com/green_resilient