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RESEARCH PROJECT

EcoGreation

In progress 01/01/2026 → 31/01/2029

Ecological greenhouse diversification with multifunctional plants



Contact our coordinator

**Gerben Messelink**

Wageningen University & Research (WUR), THE NETHERLANDS

✉ gerben.messelink@wur.nl**INFO**

CONTACT

PARTNERS

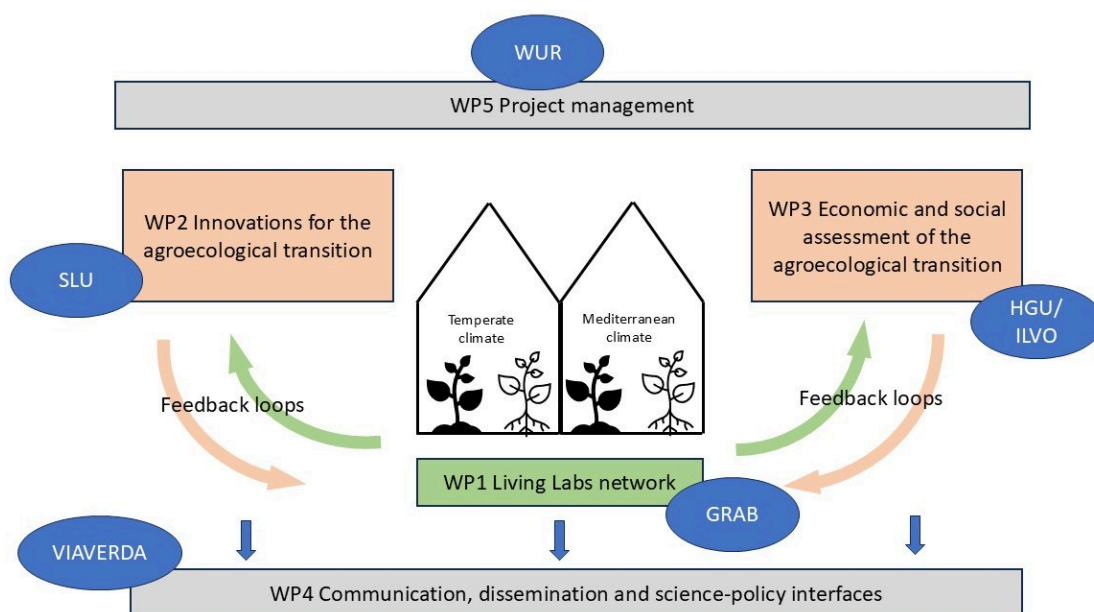
Summary

Conventional greenhouse vegetable production, such as tomato, pepper, eggplant and cucumber production, is generally characterised by monoculture and the use of synthetic chemical inputs such as inorganic fertilisers and pesticides to maximise yields. In contrast, organic greenhouse horticulture is a production system based on ecosystem management and does not allow the use of synthetic chemical inputs. It can be an environmentally friendly alternative to conventional greenhouse production systems and a way of implementing agroecological practices that contribute to sustainable food production. However, the transition to organic greenhouse horticulture and the implementation of agroecological practices such as crop diversification, biological nitrogen fixation or biodiversity conservation remains limited. From an economic point of view, key questions revolve around profitability and productivity.

The main objective of this project is to support the agroecological transition of the European greenhouse food production sector towards more sustainable cropping systems by designing, testing and implementing new diversified organic greenhouse cropping systems with multifunctional plants that have economic value, positive impacts on soil health and fertility, as well as benefits for biodiversity and biological pest control. The project will be implemented by a highly transdisciplinary international consortium of research partners and stakeholders.

The main activity is the establishment of a network of Living Labs across a gradient of climatic zones, from an unheated greenhouse tunnel system in the Mediterranean climate zone in the South of France to unheated polytunnels and heated glasshouse systems in the temperate climate zones in Belgium, the Netherlands and Sweden. The Living Labs will develop new diversified and resilient organic cropping systems in co-creation with growers and other stakeholders such

as crop advisors, biocontrol companies, seed companies, policy makers and provide new fundamental insights into the underlying mechanisms of multifunctional cropping systems. The studies will include critical evaluations of ecological, agronomic, social and economic outcomes derived from experiments, as well as distinct indicators to measure impact. All results will be disseminated and communicated in close collaboration with all stakeholders, including policymakers, to maximise impact.



Top image: Manure crops Belgium. Source: Gerben Messelink

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agroecology.ps@ilvo.vlaanderen.be

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