



Management concept for Central European vineyard ecosystems:

# PromESSinG

## Promoting EcoSystem Services in Grapes

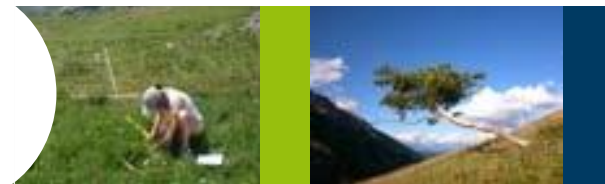
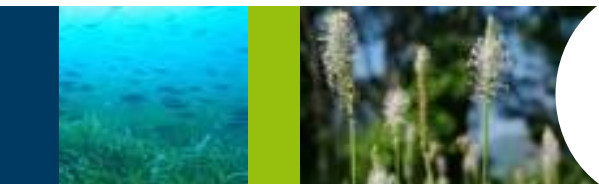


Presented by Ilona Leyer, Geisenheim University



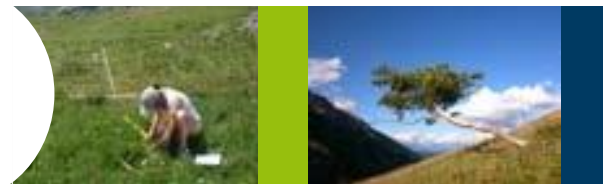
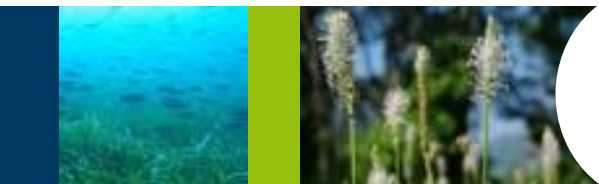






**Viticulture can provide high levels of biodiversity inside the cropped area**

**→ cannot be found in annual cropping systems**





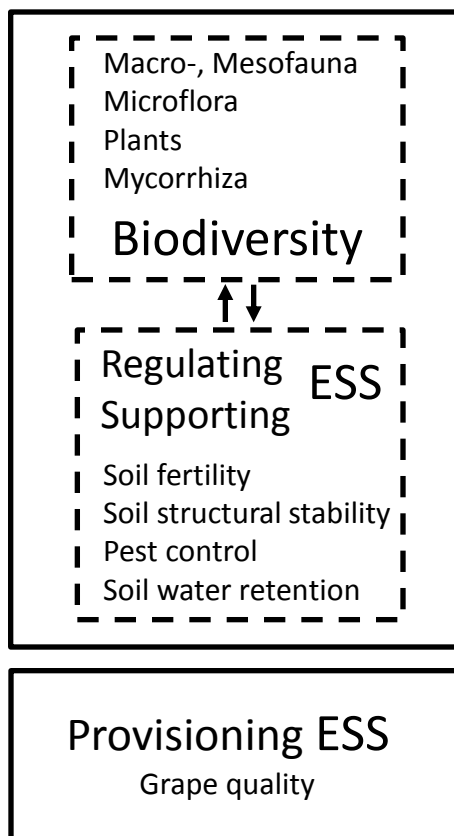


## Consortium: Universities of five countries



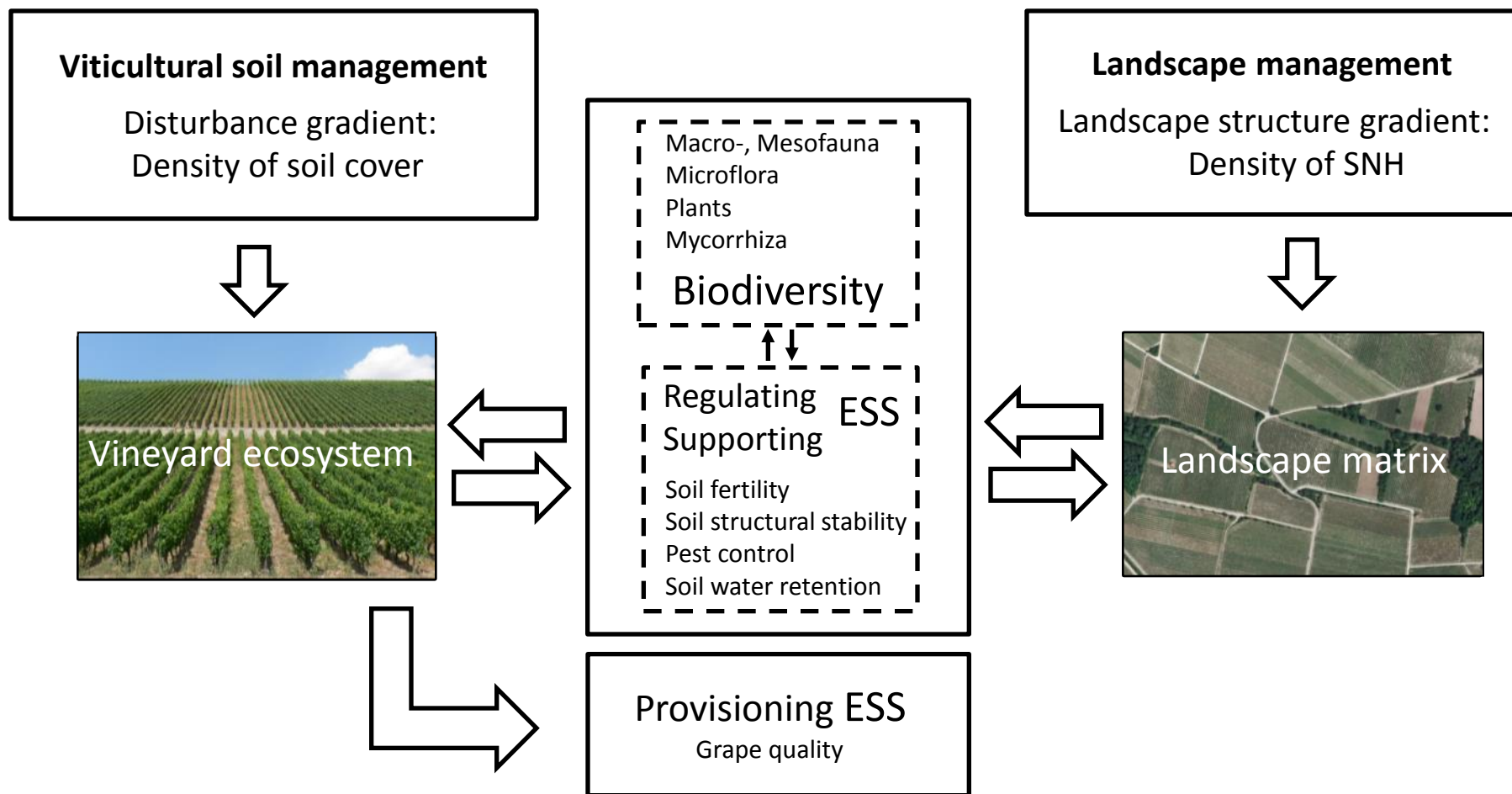
## Question:

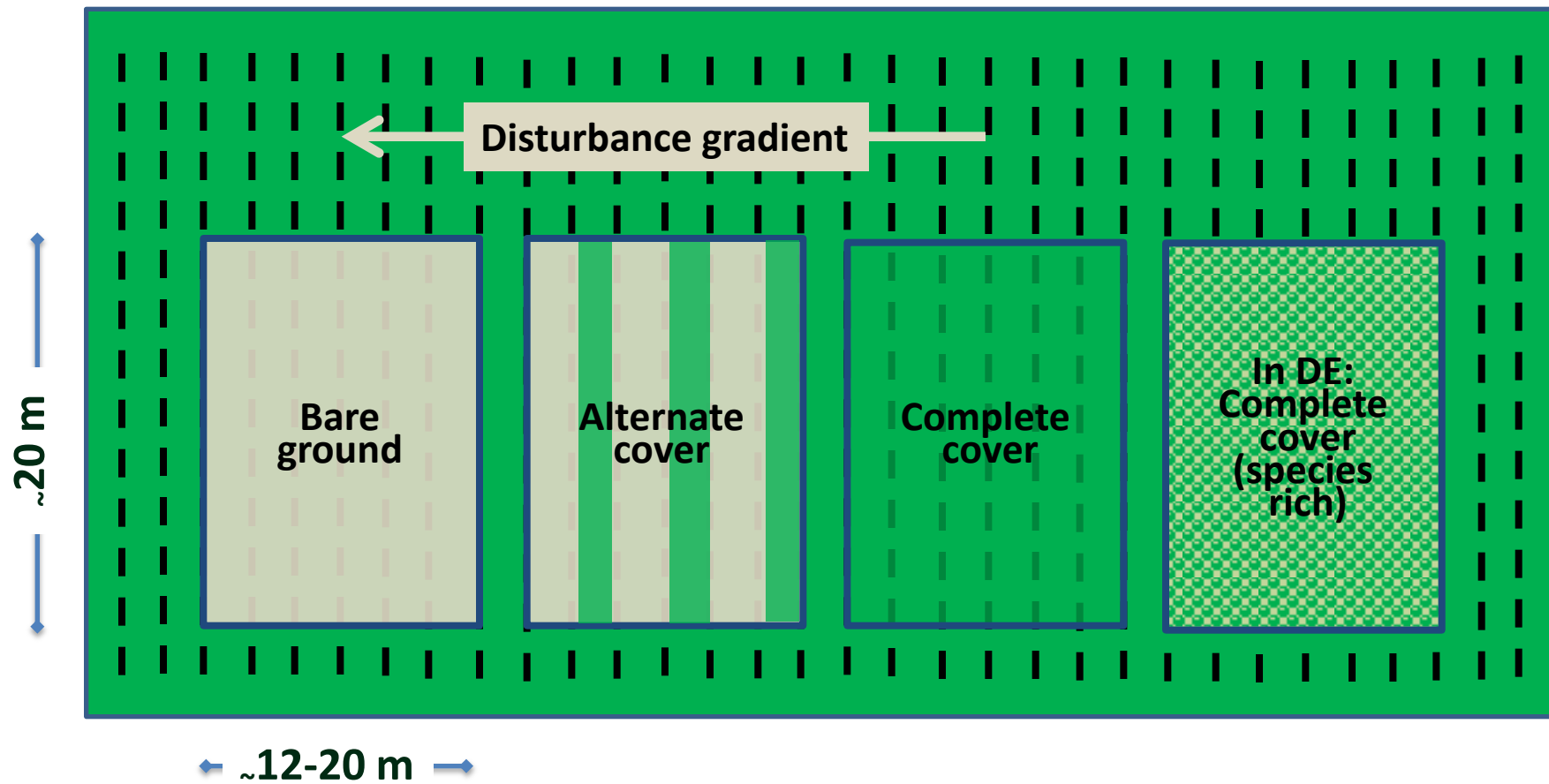
**How can biodiversity promote Ecosystem Services leading to a higher added value?**



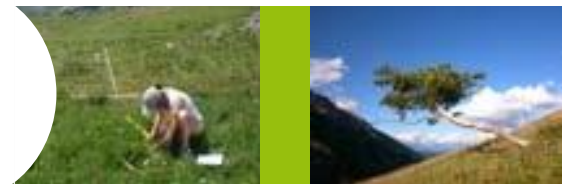
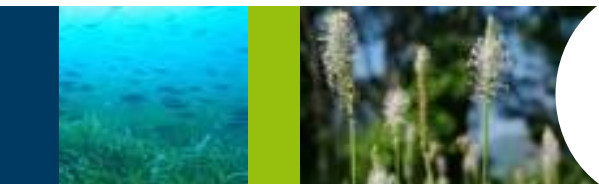
## Aim:

**Identification of management options for promoting biodiversity linked ESS in order to reduce external inputs in vineyard ecosystems**









Density of SNH



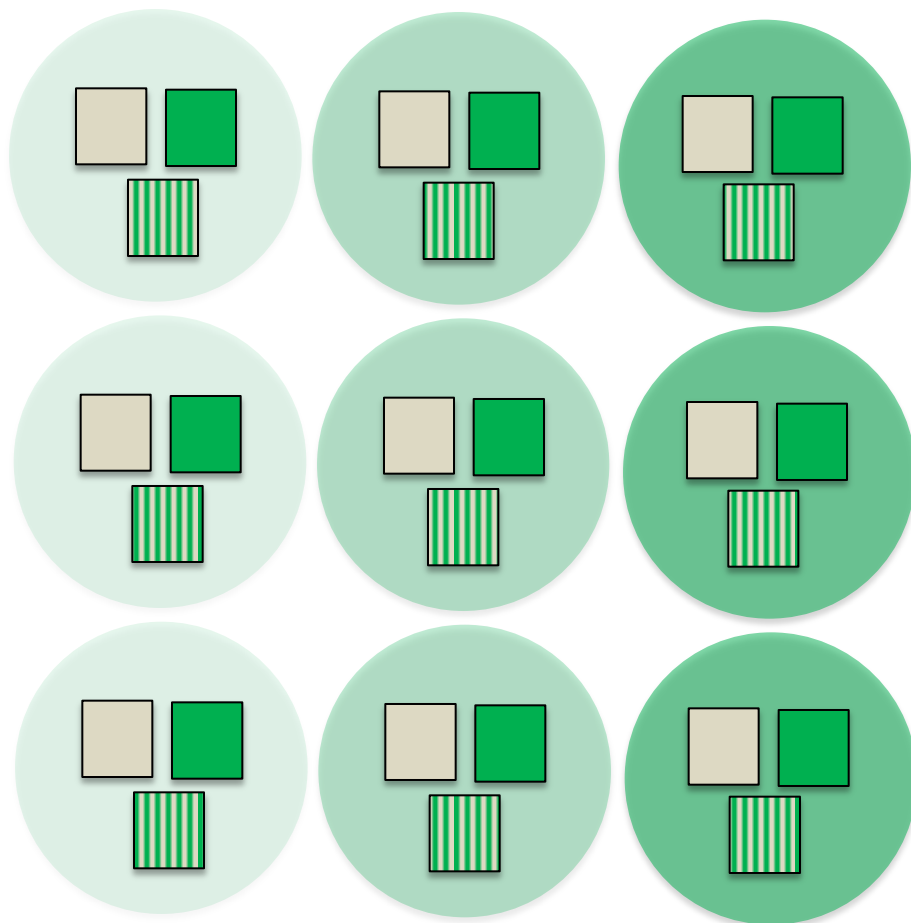
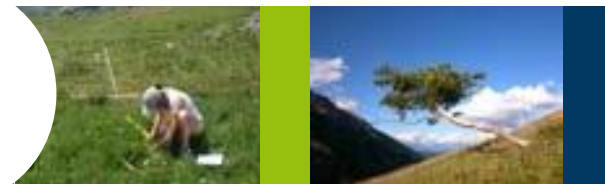
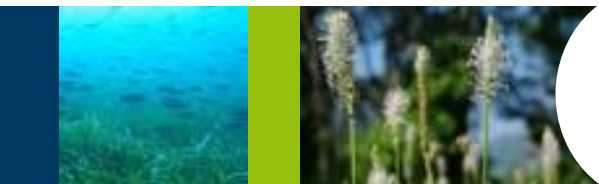
4 %



11 %



32 %



**3 soil management treatments**  
**3 landscape density levels**  
**3 replications (subregions)**

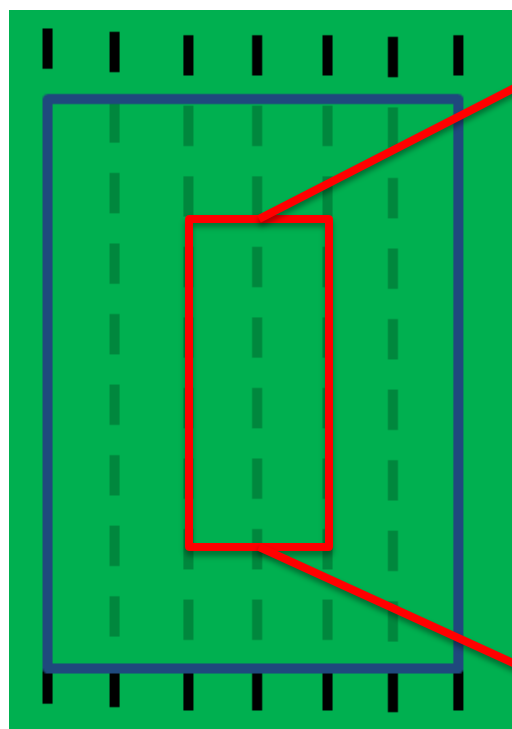
→ **in each country**

**Study regions across Central Europe**  
**from maritime to continental climate** →





## Study plot



Macro-, Mesofauna  
Microflora  
Plants  
Mycorrhiza

Biodiversity



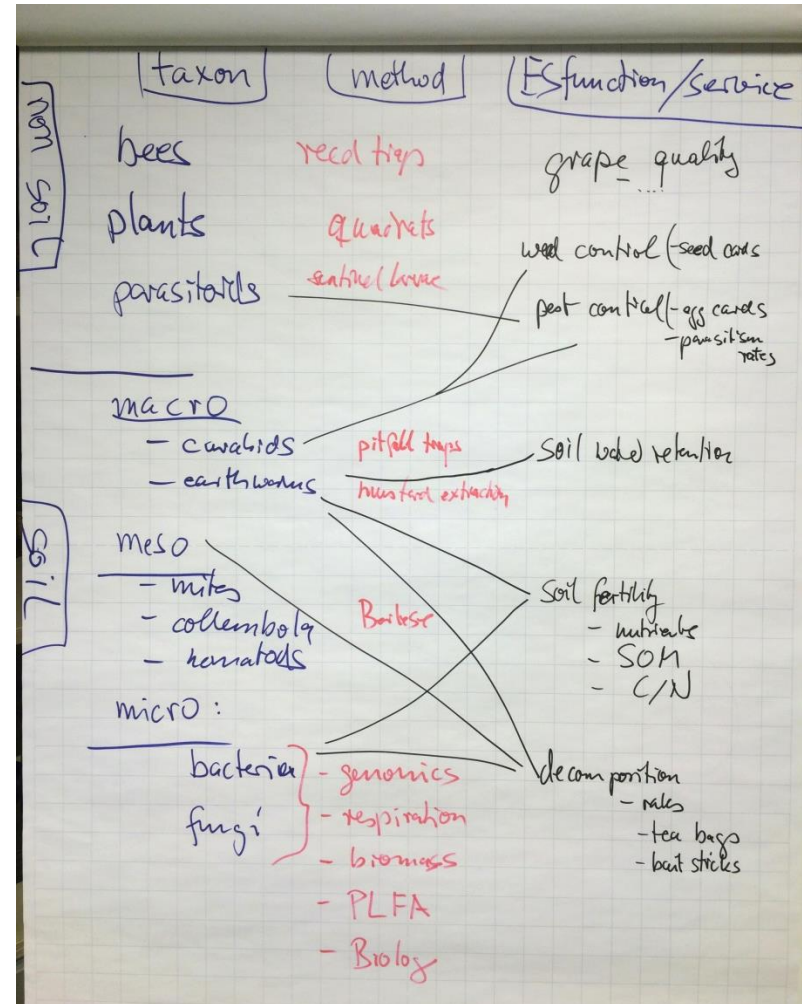
Regulating ESS  
Supporting

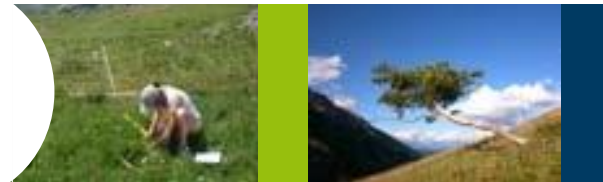
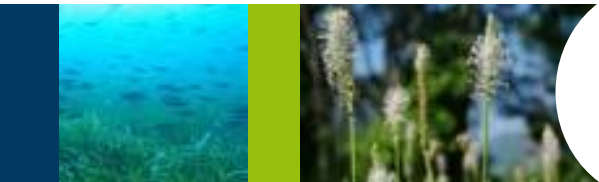
Soil fertility  
Soil structural stability  
Pest control  
Soil water retention

Provisioning ESS

Grape quality

## Kick-off meeting 9.-11.2.2015 Geisenheim

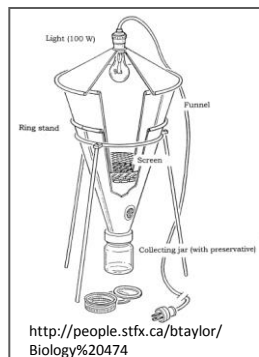




## Biodiversity



**Arthropods**



<http://people.stfx.ca/btaylor/Biology%20474>

**Mesofauna**



**Earthworms**

AR	2011						2012					
	BBCH 60	BBCH 73	BBCH 93	BBCH 60	BBCH 73	BBCH 93	BBCH 60	BBCH 73	BBCH 93	BBCH 60	BBCH 73	BBCH 93
Genus	W	AP	AP/BB	W	AP	AP/BB	W	AP	AP/BB	W	AP	AP/BB
Cryptosporidium												
Aureobasidium												
Cryptosporidium												
Chlorococcium												
Cladophora												
Epilobium												
Verticillium												
Epilobium												

**Microflora: Bacteria, Fungi**



**Plants**

## Parameters related to Ecosystem Functions and ESS



**Soil parameters related to fertility**



**Decomposition**



**Seed predation**



**Pest control by parasitoids**



**Activity of entomopathogenic fungi**

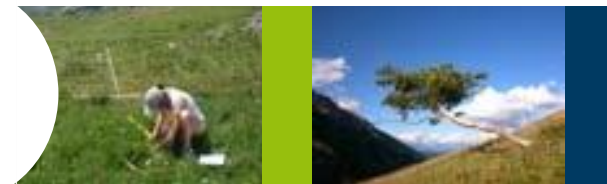
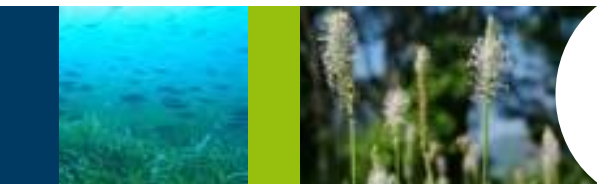


**Grape quality**



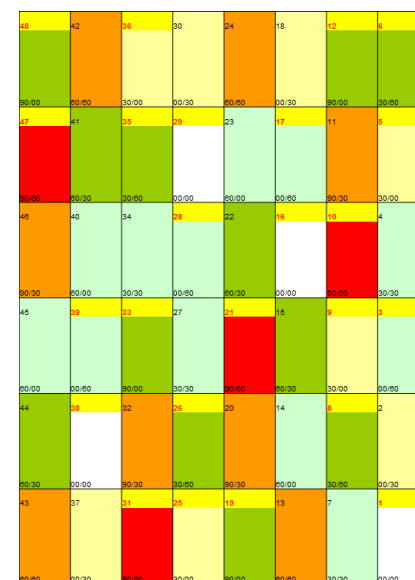
## Thematic WP

Integrative WP		RO <b>WP 2 Biodiversity</b> Sampling: • Macrofauna • Microflora • Mycorrhiza • Plants	DE <b>WP 3 ESS</b> • Soil fertility • Soil structural stability • Pest control • Water retention	AT <b>WP 4 Provisioning Services</b> • Grape quality • Yield • Socio-economic values
	FR <b>WP 1: Experimental Setup</b>	• Development of techniques and methods, • Site selection, GIS mapping • Standardised sampling design		
	CH <b>WP 5: Analysis and Synthesis</b>	• Statistical procedures • Synthesis by structural equation modelling		
	FR <b>WP 6: Spread of results</b>	• Spread of knowledge: stakeholder groups • Scientific community: scientific papers, presentations • Policy recommendations (policy brief)		



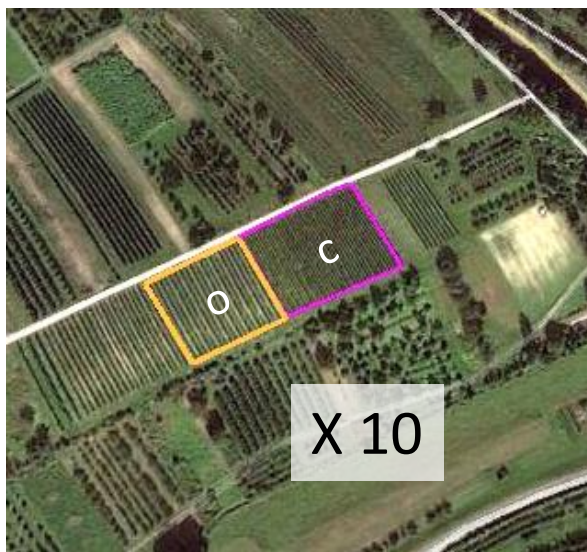
## Intended further studies in addition to our transnational experiment

- **Biodiversity and soil function responses to fertilization and disturbance in a vineyard ecosystem: results of a 30-year experiment (DE)**

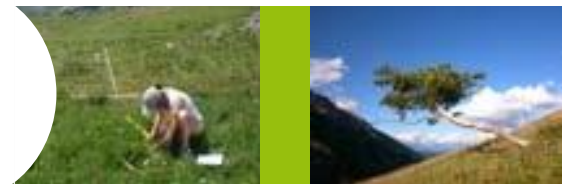
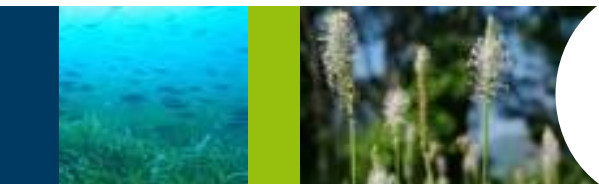


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- **Effects of fungicides on biodiversity and soil functions (CH)**



## Recent activities

- Selecting vineyards/finding wine growers for collaboration
- Set-up of soil management plans
- Intensive exchange with growers concerning the development of SOPs for various practices
- Creation of Website  and first leaflet



## ***Acknowledgement***

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