

CONTRIBUTION OF SOIL RESEARCH TO THE EUROPE 2020 STRATEGY FOR SUSTAINABLE

GROWTH: ADAPTATION TO CLIMATE CHANGE AND EFFICIENT USE OF RESOURCES

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Soil is an integral part of agricultural and forest ecosystems and regulates their functioning. Any form of land degradation is a loss of some ecosystem functions, such as the ability to guarantee quantity and quality of agricultural and forestry production, regulate water flows and sediment production, accumulate carbon, regulate greenhouse gas emissions, and maintain biodiversity. Soil is increasingly under pressure due to climate change and above all human action, so much so that the FAO estimates that about 33% of the world's soils are degraded.

European policies have recognized land management as a key element in achieving primary goals, such as supporting the transition to a low-carbon economy, promoting adaptation to climate change and the prevention of hydraulic risk, preserving and protecting the environmental heritage, promoting the efficient use of resources. In this context, research provides knowledge on soil functions and their spatial and temporal variability, in order to achieve environmentally and economically sustainable agricultural and forestry management.

The review shows examples carried out in different European and national projects, namely Resolve (Core Organic, <http://www.resolve-organic.eu/>; Agrosenari, <http://www.agrosenari.it/>). The interactions between soil, climate and management, involving biological, chemical, and physical soil properties in different soil types and Mediterranean environments, govern important soil ecosystem functions, such as food quantity and quality, GHG emissions, organic carbon accumulation or decay, and flows of water and sediments.

Effects of soil degradation on ecosystem services in organically managed vineyards

Country	Farm	Years of organic management	Irrigation	Grape yield	Grape quality	Water supply	Nutrient supply	Carbon sequestration	Organic matter recycling	Biodiversity
ITALY	Fontodi	15 years	no	↓	↑ ↓	↓	↓	↓	==	==
	San Disdagio	2 years	no	↓	↑ ↓	↓	↓	↓	↓	↓
FRANCE	Château Maison Blanche	11 years	no	↓	↑ ↓	↓	↓	↓	==	↓
	Château Pech Redon	> 15 years	no	↓	N.D.	↓	↓	↓	==	N.D.
SPAIN	Bodegas Puelles	> 10 years	no	↓	↑ ↓	↓	↓	↓	==	N.D.
SLOVENIA	Bonini	10 years	no	↓	↑	↓	↓	↓	↓	↓
	Prade	10 years	no	↓	↑	↓	↓	↓	==	N.D.
TURKEY	Çelebi	1 year	yes	==	N.D.	↓	N.D.	↓	==	N.D.
	Evran	1 year	yes	==	N.D.	↓	N.D.	↑	==	N.D.