



## SUMFLOWER Project

SUustainable Management of FLOriculture in WEstern Riviera



Compost

waste management

Waste sorting

recovery of waste

organic waste

### PROJECT DESCRIPTION

The **SUMFLOWER** project was born from the need to find concrete solutions and applications to reduce the impact on the territory of the flower production in the Western riviera of the Liguria region which represents 20% of the national production. The environmental impact of this chain is mainly due to the use of natural resources, production of waste (large quantities of organic fraction and non-reusable plastic waste) and release of polluting substances into the air, water and soil.

The analyzes and actions carried out considered both company and territorial levels, keeping in mind the social, economic and environmental aspects and proposing solutions to reduce impacts without neglecting profitability, and assisting SMEs in adopting the best available technologies.

Overall, the SUMFLOWER project used 243.500 m<sup>2</sup> of agricultural land, of which 32.000 m<sup>2</sup> in greenhouse, 10.500 m<sup>2</sup> in open field, and 21.000 m<sup>2</sup> in pot.

The attentions put in the care of these three kinds of production included remote controlled irrigation, use of renewable energy, composting of organic waste and mowed parts, integrated biological control, controlled use of agrochemicals and fertilizers and monitoring of the sustainability of the production cycle. The 45 nursery gardening companies which were involved in the project are located in the areas of Albenga, Camporosso, Isolabona, Sanremo, Taggia, Vallecrosia, Ventimiglia.



### OBJECTIVES

The main project objectives were the:

- creation of a sustainable management system for floriculture and ornamental horticulture, taking into account the social, economic and environmental dimensions of the territory, with particular attention to the use of land and resources, and generation of waste;
- analysis, evaluation and reduction of the main environmental impacts of floriculture improving the efficiency of the supply chain, without neglecting the aspect of economic return;
- assessment of the current certification methods for floriculture products, in terms of quality and sustainability, considered as an added value.

### PROJECT PHASES

The project was composed of **8 main actions** divided into several sub-actions; the main ones are listed below:



- **Analysis of the sustainability of the floriculture chain aimed at territorial integration.** Through this sub-action, analysis of the sustainability of the floriculture sector with respect to territorial integration was carried out, primarily the assessment of the sustainability level of floriculture and ornamental horticulture at local level, based on the aspects of **energy use, ecological footprint and life cycle assessment** of the main activities in the territorial context of Liguria's Western riviera.
- **Sustainability of the supply chain:** the action concerned the analysis of the production chain and the characterization of the subsystems.
- **Biosecurity:** assessment of the impact of plant/ flower defense in the Ligurian floriculture production with the aim of identifying indicators for biosecurity.
- **Sustainability-oriented technical improvements** concerning five aspects:
  - **Water.** This sub-action contributed to the definition of criteria for the automation of irrigation and fertigation, aimed to save water. New technologies were also introduced concerning the use of resources in the production processes.
  - **Power.** This sub-action supported farmers to identify the most suitable techniques and strategies for adopting two types of renewable energy (photovoltaic and wind) on a company scale in order to obtain more sustainable production and increase their competitiveness.
  - **Nitrates.** Within this sub-action characterization of areas vulnerable to nitrate contamination has been defined and remediation techniques have been developed.
  - **Company-wide waste management.** Identification, characterization and quantification of the waste production in the floriculture and ornamental horticulture activities has been done with the aim to reduce waste generation, optimize management cycle and maximize recycling and reuse. The waste resulting from the floriculture business was identified and quantified through a waste sorting system developed in 8 companies (7 of which continued waste sorting).
  - **From waste to resource.** The main objective of this sub-action was the development of systems for the reuse / recycling of waste through demonstration activities in pilot companies.

The above actions represent the core of the project which involved various flower farms from the agricultural and flower nursery district of Liguria's Western Riviera, considered the largest production pole of the sector in Italy.

## PROJECT RESULTS

Thanks to the project, the critical phases of the flower supply chain were characterized and an advanced system was created to reduce impacts on the environment by integrating traditional and advanced technologies. This was done by demonstrating the possibility of saving 30% of irrigation water and confirming the possibility of ensuring quality production, while reducing crop protection products by 25-50%, in line with the National Action Plan for sustainable use of plant protection products. Protocols have been defined with the Municipalities of Albenga, Ceriale, Cisano sul Neva to reduce the use of fertilizers, helping to reduce nitrate pollution in the groundwater. A further result achieved, thanks to the analysis conducted on nitrates, was the approval by the Liguria Region of the Council Resolution no. 907 of 26 July 2013, which launched an operational project for the "implementation of territorial monitoring aimed at the provision of support services in the agri-environment for the years 2013-14". This operational project was aimed at contributing to the protection of the environment and territory in order to offer suitable tools for the introduction and diffusion of low environmental impact techniques and to affirm the role of environmentally friendly, sustainable agriculture, to safeguard the territory and the rural landscape.

The data collection relating to the **biosecurity** of the floriculture sector (crop protection) and elaboration of the related indicators allowed to evaluate the various flower productions classifying them as: virtuous, and low or high impact productions, based on the production practices used. The **crop protection impact assessment** confirmed that this varies significantly depending on the species, type of crops and the surrounding environment. The study showed that in over 80% of the analyzed situations, the agricultural practices used reach the standards envisaged by the main environmental certifications (Ecolabel).

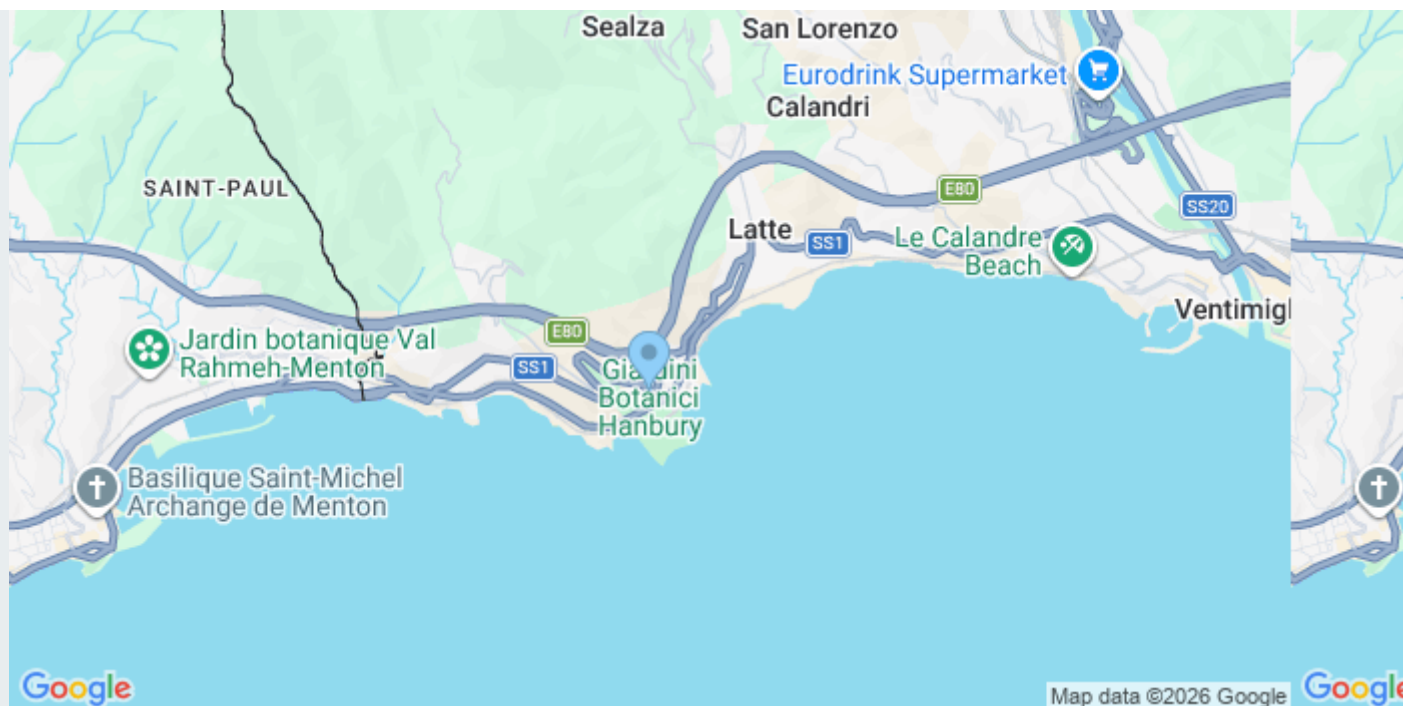
With regard to the action aimed at **sustainable water use** for fertigation, automatic irrigation systems - remotely controlled directly by farmers - were configured and installed; these systems have made it possible to optimize the water supply time by 30%, both in single-user and multi-user configurations. Another result achieved was the rationalization of the work, obtained thanks to the possibility of monitoring irrigation and the microclimate in the greenhouse, reducing the waste of water and fertilizers. An assessment of the wind and solar energy and related economic savings was carried out, and **photovoltaic and micro-wind plants** were installed to encourage the self-production of energy used for heating and automatic handling of greenhouses. A study of the **photovoltaic systems** demonstrated the feasibility of using greenhouses with new generation photovoltaic materials (amorphous photovoltaic materials, like CIS and CIGS), with marginal or zero effects on production: with a photovoltaic paneling of less than 50% of the greenhouse covering and by distancing the traditional panels, it was possible to



produce 16174 kWh of renewable energy which prevented the emission of 8.5 t of CO2 into the atmosphere.

The analysis of the 8 target companies aimed at the quantification of the type and volume of waste produced has shown that green waste represents between 82 and 99% of the waste and it is possible to reduce it and turn it into a resource if mixed with peat in proportions between 20 and 60%.

Thanks to the analyzes and experiments carried out within the pilot companies and on the territory, the [Sustainable Floriculture Manual](#) and [Guidelines for sustainable management of floriculture](#) have been developed.



**Acronym**

SUMFLOWER

**Number of reference**

LIFE09 ENV/IT/000067

**Reference Programme**

[LIFE](#)

**Beneficiary Coordinator**

Università degli Studi di Genova - Centro universitario di servizi Giardini Botanici Hanbury

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**EU contribution**

870.923,00

**Call Year**

2009

**Start Year**

2010

**End Year**

2013

**Beneficiary headquarters**

Corso Montecarlo 43  
 18039 Ventimiglia IM  
 Italy

**Region**

Liguria

**Description**

Riviera di Ponente, Regione Liguria