

PRECISION VITICULTURE

Riferimenti

Tipo di progetto

Gruppo Operativo

Acronimo

VI.P.

Tematica

Agricoltura di precisione

Information

Time frame

2020 - 2023

Durata

36 months

Partners (no.)

9

Regione

Piemonte

Comparto

Viticultura

Localizzazione

ITC16 - Cuneo

ITC17 - Asti

Costo totale

€812.191,94

Fonte di finanziamento principale

Programma di sviluppo rurale

Programma di sviluppo rurale

2014IT06RDRP009: Italy - Rural Development

Programme (Regional) - Piemonte

Parole chiave

Pest /disease control

Fertilisation and nutrients management

Landscape /land management

Water management

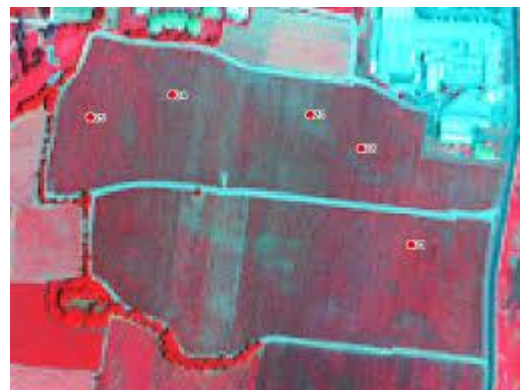
Energy management

Farming equipment and machinery

Farming practice

Project status

completed



Objectives

The VI.P. aims to study, develop and experimentally verify the use of a system of diagnosis, prescription and then implementation of the interventions to be carried out on viticulture according to the real need, by applying the concept of Precision Agriculture, with the declared goal of improving productivity and allowing, at the same time, a reduction in the resources used. The focus will be on water stress, nutritional deficiencies and diseases. Multispectral analysis will be used to obtain thematic maps, then translated into prescription maps of the targeted interventions to be applied; these interventions will be carried out using low environmental impact machinery.

Activities

The project VI.P. provides for the creation of a model that will allow precise diagnosis of the vineyard through remote sensing and multispectral analysis systems to identify the different causes of stress and diseases present in the farming. The project will allow to obtain geo-referenced descriptive maps of the vineyard and geo-referenced prescription maps of the specific interventions to be carried out. Then, through an innovative variable rate electrical machine, the planned interventions will be carried out automatically. The machine will be recharged through a special photovoltaic system equipped with an accumulation system.

Context

One of the main challenges facing agriculture in the future is to cope with the effects of climate change, guaranteeing ever better quality of agricultural production while safeguarding environmental and economic sustainability.

One of the most important agricultural sectors on the regional territory is certainly the wine sector. There is therefore the need to provide the winemaker all the support possible in the management of the vineyard, including through the use of technology, allowing precise knowledge of the farming.

Partenariato

Role	Azienda	Address	Telephone	E-mail
Leader	Arione Mirko	Strada San Martino, 7 BIS 12053 Castiglione Tinella CN Italy	0141 855262	amg.mirko@gmail.com
Partner	EGEA NEW ENERGY S.p.A.	Corso Nino Bixio 8 12051 Alba CN Italy	0173 441155	info@egea.it
Partner	Merlo S.p.a. Industria Metalmecanica	Via Nazionale 9 12010 Cervasca - Frazione San Defendente CN Italy	0171 614111	info@merlo.com
Partner	Università degli studi di Torino - Centro di Competenza per l'innovazione in campo Agro- ambientale - AGROINNOVA	Via Verdi 8 10124 Torino TO Italy	011 6708884	marialodovica.gullino@unito.it
Partner	Aerospace Logistics Technology Engineering Company S.p.A.	Corso Marche, 79 10146 Torino TO Italy	011 7430 301	info@altecspace.it
Partner	IDS INGEGNERIA DEI SISTEMI S.P.A.	Via Enrica Calabresi 24 56121 Pisa PI Italy		
Partner	ANT-NET S.r.l.	Via Livorno, 60 10144 Torino TO Italy	011 2257283	segreteria@antnetsrl.it
Partner	Confagricoltura Cuneo - Unione Provinciale Agricoltori	Via Bruno Caccia 4/6/8 12100 Cuneo CN Italy	0171 692143	bottallo@confagricuneo.it

Role	Azienda	Address	Telephone	E-mail
Partner	MERLO PROJECT S.r.l.	Via Nazionale 9/A 12010 Cervasca - Frazione San Defendente CN Italy		

Pratiche abstract

Description

Introduction, in the management of defense strategies, of decision support tools (DSS) that provide an assessment of the risk of diseases appearance, allow to rationalize the intervention times and to choose, in case of low risk, non-chemical alternatives to plant protection products , reduce the quantity of copper distributed and reduce the number of passages of the macchine, improving the quality of the soils.

Description

To integrate the information provided by the DSS, we will analyse the possibility of introducing new methodologies for assessing the risk of disease occurrence, and their real presence in the vineyard and the location of plants with primary infections, by mapping with detection tools applied on drones, increasing the precision and timeliness of the treatments, treating only the areas at risk by reducing the amount of pesticides distributed and the number of machines passing.

Description

The need of reduce the quantities of copper used in the vineyard to remain within the limits required by Regulation (EU) 2018/1981 and to improve the overall sustainability of the defense of the vine requires the introduction of innovative strategies that make use of products of natural origin and / or antagonistic microorganisms or microorganisms that have a reduced environmental impact compared to those currently used in organic and integrated viticulture.

Description

Introduction of a photovoltaic system equipped with a storage system to optimize and make efficient the recharge of innovative agricultural vehicles used throughout the project, in particular to power an electric machine.

Description

Development of an innovative remote piloting aerial platform in terms of autonomy, payload, robustness and stability suitable for monitoring and diagnosis of the causes of stress in viticulture.

Description

Aerial monitoring system based on simultaneous acquisition of images in the visible, near infrared and thermal electromagnetic spectral domains.

Description

Development of a decision support system based on the generation of georeferenced maps of the vineyard with high resolution (centimeter) and accuracy of location (thanks to the use of GPS / RTK stations) able to represent at the level of the single plant the presence of phytosanitary (diseases), nutritional and water stress.

Description

Introduction of new systems for storing and disseminating data connected to the farm.

Description

The innovation involves the construction of a tracked vehicle capable of operating in particular soil conditions, like vineyards, in complete safety and with zero emissions. The zero-emissions system will be equipped with an energy storage system suitable for the mission to and its development will be based on both electrical technology and optimization of consumption. Then, in addition to the vehicle, the electrification and optimization of a field-targeted treatment equipment will be carried out. The whole machine and equipment will be then integrated with the targeted treatments analysis system in order to be able to carry out its mission.
