

Service of advanced monitoring for sustainable irrigation and integrated crop protection for horticultural crop

Riferimenti

Tipo di progetto

Gruppo Operativo

Acronimo

MONITORA

Tematica

Agricoltura di precisione

Information

Time frame

2020 - 2023

Durata

34 months

Partners (no.)

11

Regione

Piemonte

Comparto

Orticultura

Localizzazione

ITC16 - Cuneo

ITC18 - Alessandria

Costo totale

€362.995,61

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

Water management

Farming practice

Sito web

<https://www.progettomonitora.it/>

Project status

ongoing



Objectives

the aim of the project is to create an integrated service of advanced crop monitoring, accessible and usable by farmers and technicians through an online platform called "Monitora" that will be based on a local network of sensors communicating through an innovative communication technology enabling long distance communication with lower costs. in this way, farmers and technicians can use real time data through a web app, available through different devices.

Activities

The activities of the project include tasks of development and adaptation of the innovation and of introduction of the innovation through the farm of the OG. IN a nutshell, alert models will be implemented through the use of sentinel crop. Information about insect monitoring, water and nutrient balance will be collected. After validation, all models will be introduces in a web server to be available by alla users (OG farms) and to be connected to the monitoring network made of the weather station set up during the project. Trials and assays of application of the innovation, together with triaining, will be performed.

Servizio di monitoraggio avanzato per la irrigazione e fertilizzazione sostenibile e difesa integrata per le orticole di campo

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<https://www.innovarurale.it/pei-agri/gruppi-operativi/bancadati-go-pei/servizio-di-monitoraggio-avanzato-la-irrigazione-e>

Partenariato

Role	Azienda	Address	Telephone	E-mail
Leader	CADIR LAB s.r.l.	Strada Alessandria,13 15044 Quargnento AL Italy	0131 219696	info@cadirlab.it
Partner	Agriion - Fondazione per la ricerca l'innovazione e lo sviluppo tecnologico dell'agricoltura piemontese	Via falicetta, 24 12030 Manta CN Italy	0175 1953030	info@agriion.it
Partner	Università degli Studi di Torino	Via Giuseppe Verdi, 8 10124 Torino TO Italy		urp@unito.it
Partner	AURORAS	Via Paolo Gorini, 18 26845 CODOGNO LO Italy	0377 220666	info@auroras.eu
Partner	Produttori Del Pomodoro Societa' Cooperativa Agricola	Via Trotti, 118 15121 Alessandria AL Italy		beppealferano@tiscali.it
Partner	Azienda Agricola Benito Andrini	Via Cavour, 26 15055 Pontecurone AL Italy	0131 886285	andrinibenito@libero.it
Partner	Le Terre Di Demetra	Via Corso Roma 51 15050 Castellar Guidobono AL Italy	393 479853883	info@terrademetra.it
Partner	Cascina Ortoni Di Gaggio Riccardo	Via Mensi, 4 15047 Alessandria AL Italy		cascinaortoni@gmail.com
Partner	Vernero Gian Matteo	Vicolo Montebello 5 15029 Solero AL Italy		vernero@alice.it

Role	Azienda	Address	Telephone	E-mail
Partner	Rossi Alberto	Via San Giuliano 42 15045 Sale AL Italy		alberto93rossi@gmail.com
Partner	Organizzazione Interprofessionale interregionale "OI Pomodoro da Industria Nord Italia	Strada dei Mercati, 9/C 43126 Parma PR Italy	0521 942470	info@oipomodoronorditalia.it

Pratiche abstract

Description

Alert model based on field monitoring of pathogens for potatoes, tomatoes and onions through the use of SENTINEL CROP, or those early cycle crops with high sensitivity to diseases. Thanks to the use of this system, it is possible to predict in advance the development of the pathogen on the crop concerned and to plan the treatments appropriately. Through the MONITORA project these data will be shared and available in real time also by other users (farmers and technicians) who will be able to view the appearance of the outbreak in the territories both on sentinel crops and on existing crops. This approach takes up a technique from the past and places it in a high-tech context. The GO will take care of the correct choice of sentinel crops, of the correlation with the weather data detected, through continuous surveys at GO companies, to provide validated innovation for the three crops (potato, tomato and onion) by the end of the project. The data will be validated in the field at the pilot companies that in the first year of the project will carry out simple tests of use of sentinel crops in their business plots in a representative manner according to the setting of the activity by the project partners.

Description

LoRaWAN is a powerful and increasingly widespread innovation. is a wireless technology developed to create the low power and wide range network (LPWAN - Low Power Wide Area Network) necessary for the application of the Internet of Things (IoT). LoRa® technology offers a very interesting mix of long range, low power consumption and secure data transmission and is gaining considerable popularity in the Internet of Things networks. It can provide greater coverage than existing cellular networks (GPRS systems for example), and allows Internet of Things applications to connect via specific transceivers built into sensors and gateways to capture and transmit data over long distances using minimal power. This involves minimizing the size of the sensors and maximizing their duration over time. Maintenance costs by the operators are also lower: in fact, the use of batteries and / or the connection to the electricity grid is a weak point of the sensors currently in use. This technology allows to overcome the physical obstacles that a simple "Wireless" technology can present, causing the interruption of data transmission and the loss of precious information or moments of data transmission.

Description

"MONITORA" monitoring platform. The service will rely on a territorial network of sensors (soil moisture probes, weather and leaf wetness sensors) based on technology innovative communication ""LoRaWan"". In this way, the farmer and technicians can use the advanced monitoring data in real time through a Web App, usable by different devices IT, bypassing the maintenance and installation of sensors. Specifically, Monitora will allow its users to have:

- Weather data in real time, detected by weather stations, located on the territory based on the presence of participating farms and distribution of areas cultivated with extensive and industrial horticultural crops.
- Data of the water balance at the plot level, perfected and calibrated through soil sensors (fixed or mobile), set according to the agronomic data (species, transplant / sowing date and type of soil), for future automation of the irrigation and its remote

management.

- Monitoring of the concentration of the soil solution, through sensors, to manage fertigation and avoid waste due to percolation;
- Data of the forecast models on a scale of the plot validated on the farm territory, for the management of critical pathogens in the crop systems taken into consideration (downy mildew and alternaria of industrial tomatoes, downy mildew of potatoes, etc.) based on the agronomic data of the crop and meteorological data;
- Information on the development of pests with traps distributed on the territory concerned, using the official protocols."

Description

Creation of local benchmark tests (comparison) of sustainable agriculture for potato tomato and onion compared to the conventional company protocol.

The project will therefore include 6 tests at the "pilot" farms in which the crops of the project will be managed according to the indications of the platform MONITOR for an extension such as to allow observation in the open field (1 ha) for two agricultural campaigns.

The test field will be managed according to the data obtained from the platform (and the working group) for the development of pathogens, irrigation, fertigation and insect development. Many surveys will be carried out regarding agronomic, productive and qualitative aspects. The data will be compared with a company reference situation (with similar agronomic characteristics) where the normal cultivation operations that the partner company usually carries out for the crop concerned will be carried out. These tests will be fundamental to create a benchmark or a reference situation for the companies of the Operating Group to show the effects of using the indications of the DSS, in order to be able to compare the results of the test with the rest of the company production in qualitative, quantitative terms, economic and environmental.

These comparative tests (Benchmarks) will also have an educational, informative and in-depth function on the technical aspects of the project theme. Opendays in the field and specific visits will be organized in the main important moments of crop development.

Link utili

Titolo/Descrizione	Url	Tipologia
Sito web del progetto	https://www.progettomonitora.it/	Sito web