soonapse

ploovium®

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The problem

70% of the available water is used by agriculture *

65% of it is wasted *

*FAO data

Waste occurs because traditional (reactive) irrigation schemes are no longer valid

Impact on Freshwater Ecosystems

Freshwater ecosystems are often **embedded** in productive agricultural settings, with:

excessive withdrawal of water for irrigation and **lowering of water tables**,

excessive **concentration of mineral salts** in the little available water**,**

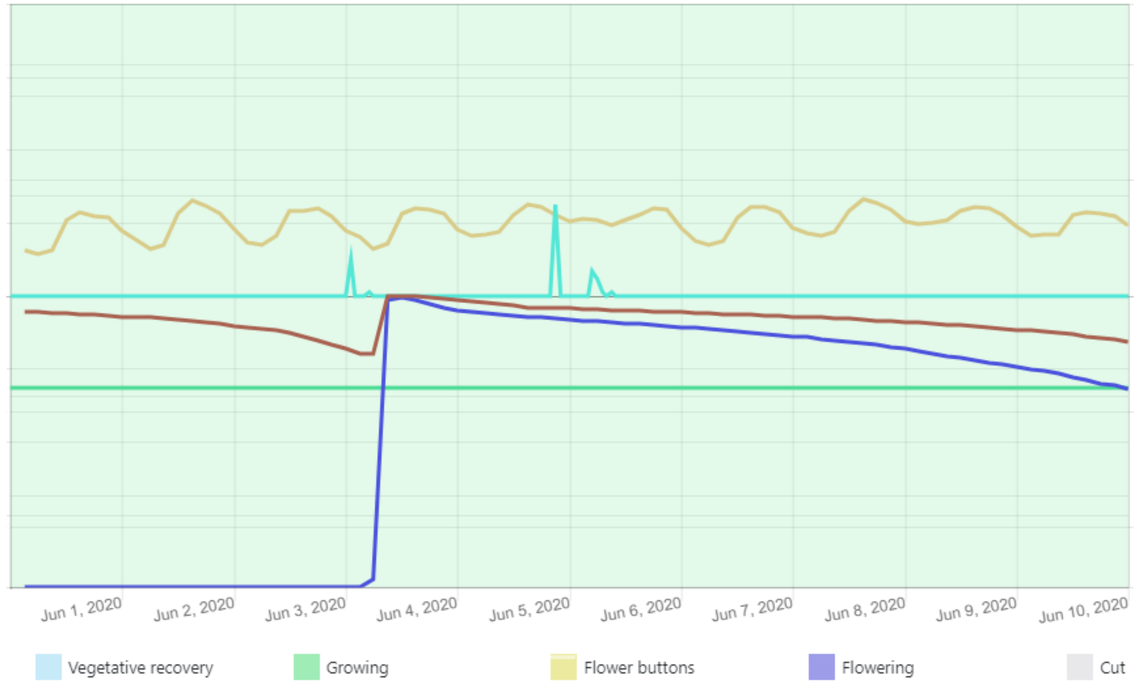
increased **concentration of pollutants**,

low availability of freshwater for **non-agricultural** applications

The solution

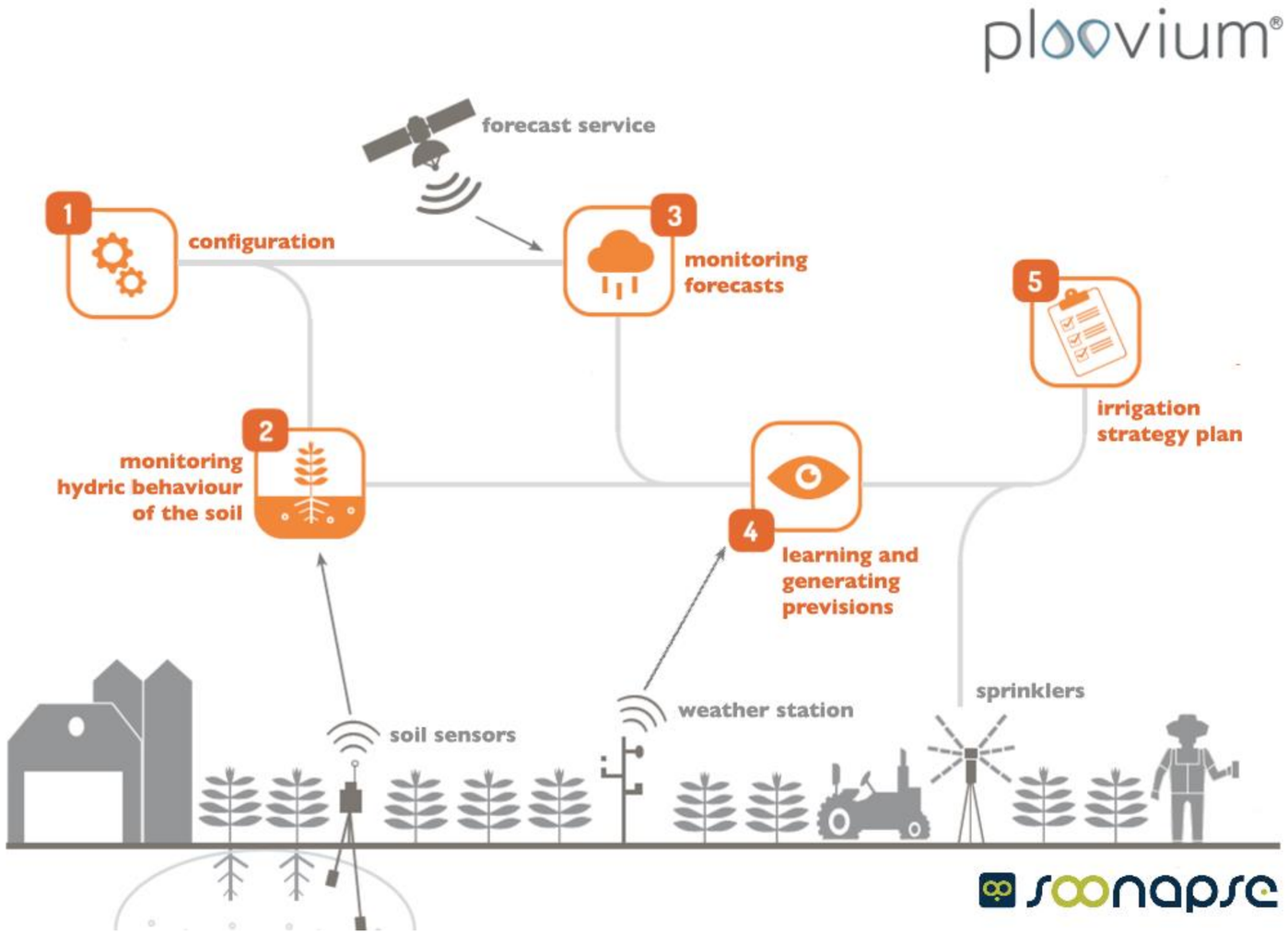
Know in real time the water behavior of the "soil / crop" system and predict exactly when it is about to enter into water stress, in order to plan the irrigation intervention safely and in advance.

Ploovium® is a software service able to predict the real need for irrigation 5 days in advance with over 99% reliability and water and cost savings of up to 50%.



How Ploovium works

starting from context data and the analysis of typical events of the functional domain, optimization and the use of (limited) resources are managed in a predictive manner.

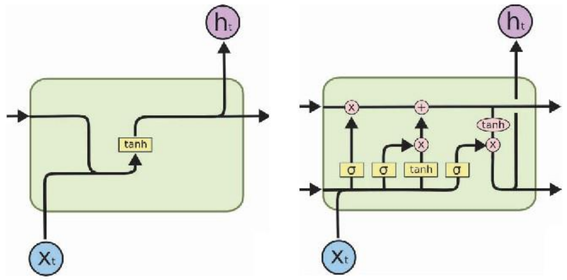


AI tools

The core of the AI module of PLOOVIUM® is characterized by a separation approach in 2 sub-problems: soil water balance modelling and data analysis for the production of irrigation advice. The tools used are:

Random Forest and Recurrent Neural Network

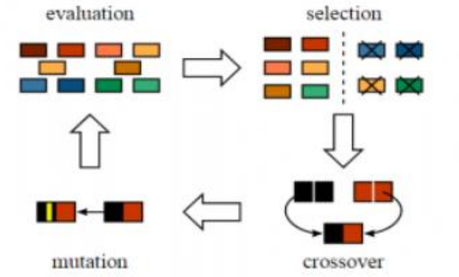
- Soil water balancing models



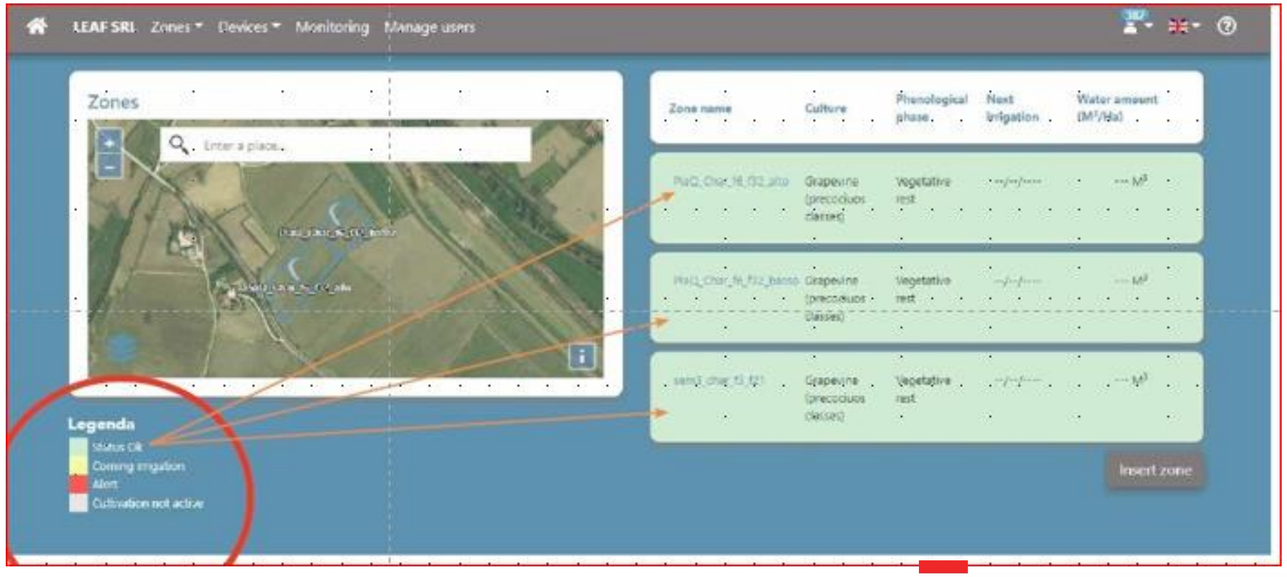
RNN LSTM

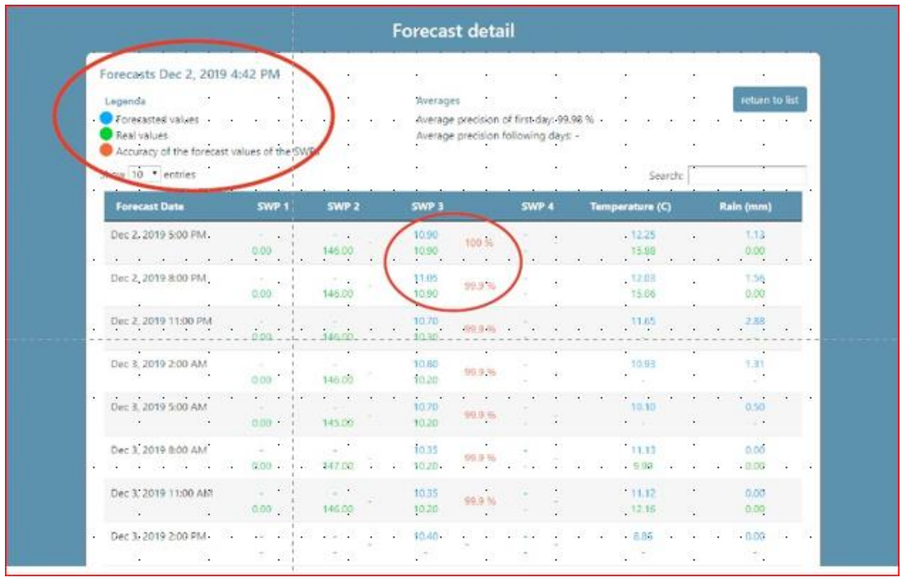
Genetic Algorithm

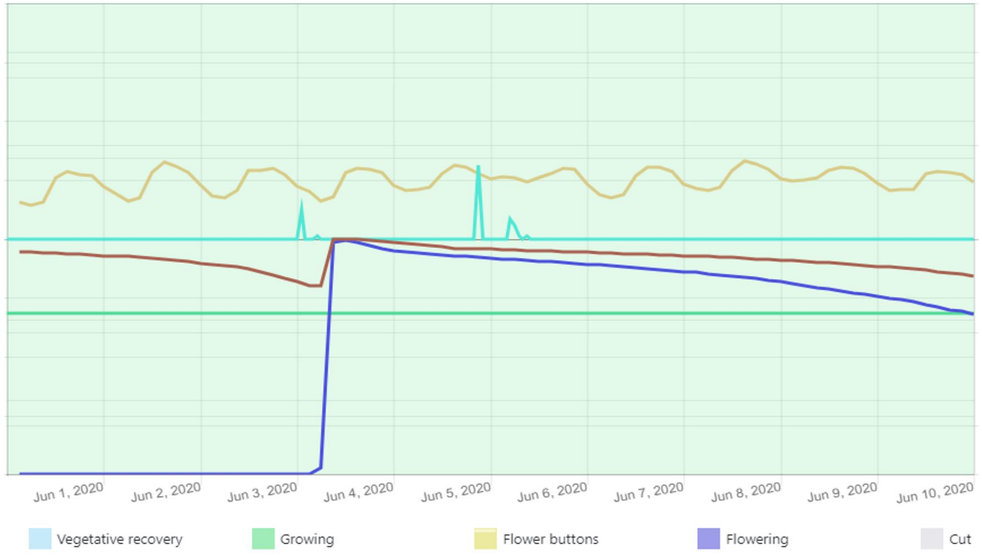
- Irrigation advices



Irrigation domain digital twin







The Patent

The Ploovium® AI methods and algorithms are patented in Italy (N. 102019000009735) and filed in the U.S., Europe, India and Israel

The Patent, titled "*System for optimizing the use of water in irrigation based on the predictive calculation of the soil's water potential*", was awarded **triple recognition** of **novelty, inventiveness and industrial applicability** by EPO **for all of its 11 claims**.

The Patent is the first European one (previous ones came from the US, Israel and China), and it is simultaneously a patent on Smart Irrigation and on Artificial Intelligence application methods.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2020/055684

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

Main awards and acknowledgments

ploovium®

MERLIN INNOVATION AWARDS
SEAL OF EXCELLENCE 2023

THE FOODTECH 500 2020
powered by FORWARD FOODING

THRIVE by SVG VENTURES

FPA DIGITAL 360

European Commission

UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNBOUND

AGRISCAPE

WORLD AGRI-TECH INNOVATION SUMMIT
London, October 15-16, 2019

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

REGIONE LAZIO

Regione Lombardia

The (third parties) IoT device used

One of the dataloggers
installed in
a Chardonnay wineyard
at Arnaldo Caprai in Umbria, Italy.

The typical Meteo Station we use in the farms.

The standard sensors we use to measure
soil water potential at the average range.

Additional sensors used for
expanded hydric stress control
(high levels of kpa)
for quality wine makers.

Impact on SUSTAINABLE DEVELOPMENT GOALS ploovium®

Target 2.4*: *By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

***Target 6.4:** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity*

***Target 6.6:** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes*

***Target 12.2:** By 2030, achieve the sustainable management and efficient use of natural resources*

Target 13.1: *Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries*

Target 15.1: *By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements*

Target 15.3: *By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world*

The Ploovium® service

General. Ploovium® manages over 40 different crops, and it only takes 2 weeks to add new ones.

Flexible. Ploovium® works on any terrain, anywhere in the world. Ploovium® supports agrophotovoltaic projects by providing specific irrigation recommendations for areas around the panels, for crops in the rows between the panels, and for crops grown under the solar panels.

Innovative. Ploovium® supports farms and research institutions in innovative crops such as:
- dry-land rice (irrigated not flooded);
- remediation of marginal land with crops such as thistle (useful for bioplastics);
- restoration of traditional and endangered crops (e.g., pomelo).

Widespread. Ploovium® is already being used in Italy, Greece, Malta and Israel

Some Customers

ploovium®

ARNALDO·CAPRAI
Viticoltore in Montefalco

3 agricolture zones
Grapewine (for wine production)

Fattoria Poggetti Vecchi

2 agricolture zones
Dry Rice

NOVAMONT

17 agricolture zones in 4 plants
Cardoon, Melon, Zucchini, Cabbage, Cynodon dactylon L., Safflower

crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

12 agricolture zones
Field bean, Tomato, Potato, Corn

TIM

4 agricolture zones in 2 plants
Rosemary, Lavender, Lettuce, Valerianella

A **scientific paper** by CREA and UNIFI claims that the Ploovium adoption brings better production and costs savings.

The founding team

Marco, CEO, founder of Soonapse and creator of Ploovium, with over 30 years of experience in the ICT sector.

Gianfranco, President, founder with over 40 years of experience in the ICT sector and over 20 years as an entrepreneur.

Stefano, Technical Director, founder with over 30 years of experience in the ICT sector

Cosmo, CMO, founder with over 30 years of experience in the ICT sector and over 15 years as an entrepreneur.

ploovium®

Thank you for your interest

and

JOIN OUR PROJECT

soonapse

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