

# *Farming the Future: Smart Agriculture in the Western Balkans*

## IoT in agriculture in Herzegovina

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Belgrade,

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# ***Association for economic development REDAH***



**23 Municipalities**



**Surface 12.276 km<sup>2</sup> (24 %)**



**Over 450.000 inhabitants**



**36,8 persons per 1 km<sup>2</sup>**



**24,5 km of coastline**

**REDAH mission** is to be the catalyst that will structure and provide comprehensive support to the regional economic development of Herzegovina region as well as BiH.



**Founded in December 2003**



**Seat in Mostar**



**9 employees + external associates**



**Financing: through projects (more than 25 M euro)**

**VISION**-Herzegovina will become a developed and competitive economic region within the EU

● ● ● IoT in agriculture in Hercegovina



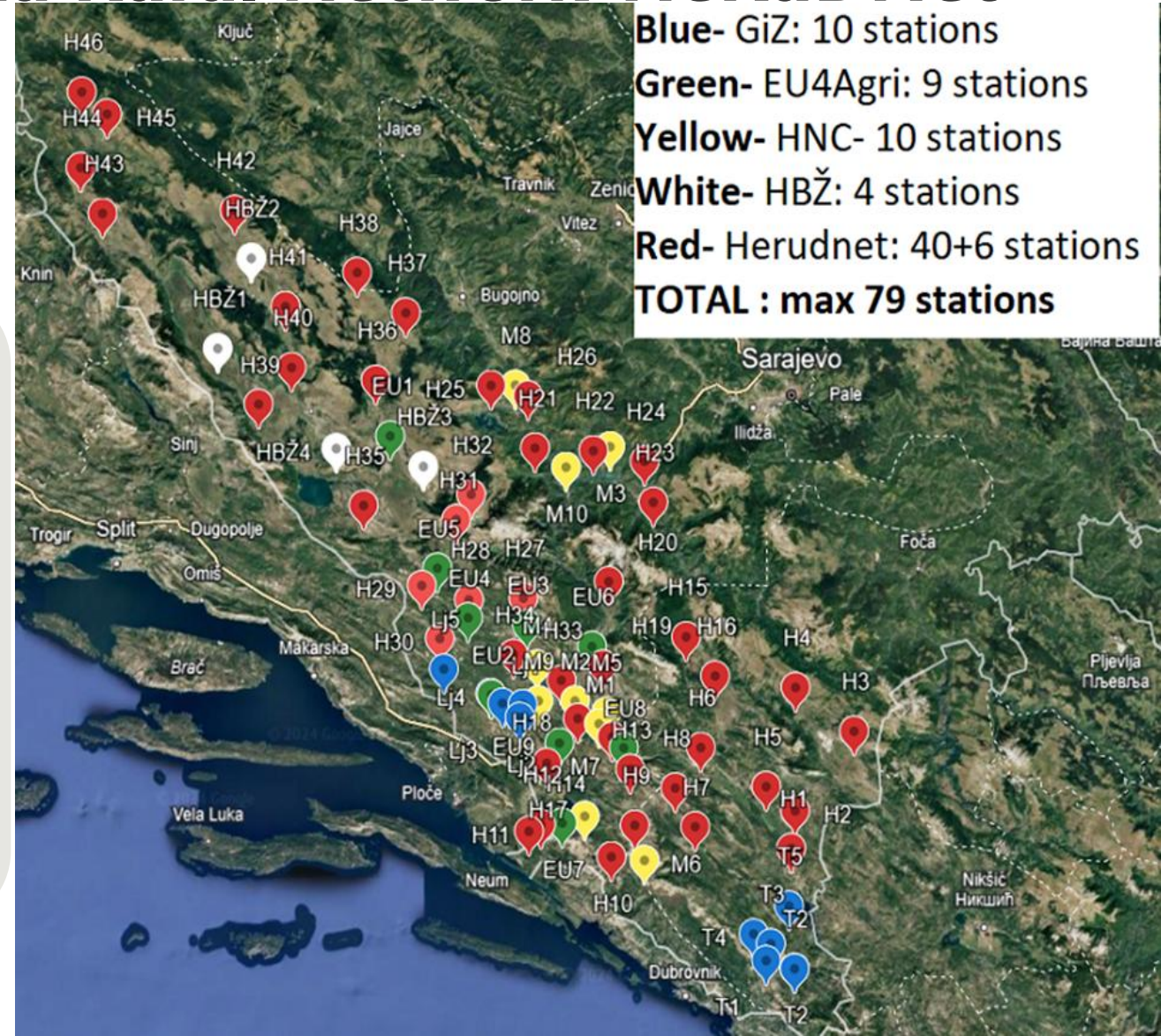


● ● ● IoT in agriculture in Hercegovina

# Establishment of Herzegovina Rural Network-HeRuDNet

## Project result

- 40 meteo stations + connection up to 39
- Digital platform (AgroLife)
- Web page of Network with Online green market platform
- Education and trainings
- Rural Parliament





# Structure of the AgroLife Platform

## GIS PLATFORM

Management of digital land maps

1

## DIGITAL FIELD BOOK

Management of agricultural production

2

## FIELD RECORDS

Photo and written record of any type of event that occurred on a plot

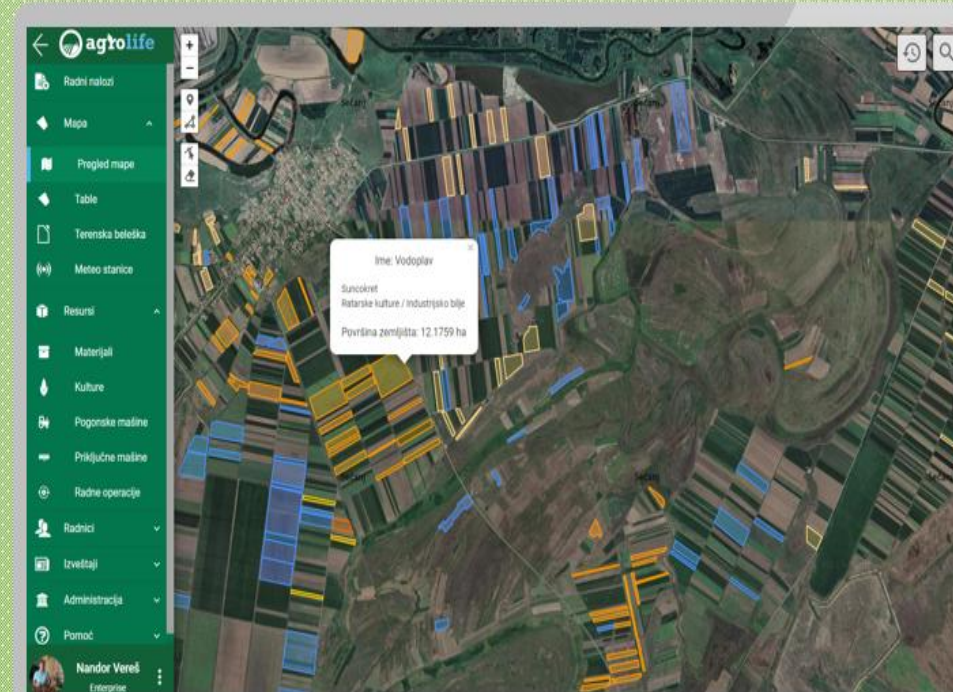
3

## REPORTS

Analysis and control of used resources

4

1. *Producer* 2. *Municipality* 3. *Ministry*



5

## LAND QUALITY MANAGEMENT

Database with all agricultural inputs.

6

## RECORDS OF AGRICULTURAL CROPS

Identification of planted crops on each individual plot

7

## METEOROLOGICAL STATIONS

Monitoring of climatic conditions in real time, algorithms for work planning

8

## SATELLITE IMAGES AND AGRICULTURAL INDEX

Insight into the condition of the crops, NDVI, soil quality...



IoT in agriculture in Hercegovina

← agrolife

Radni nalozi

Pregled karte

Katastarske parcele

Proizvodne table

Arhivirane proizvodne table

Bilješka polja

Meteorološke stanice

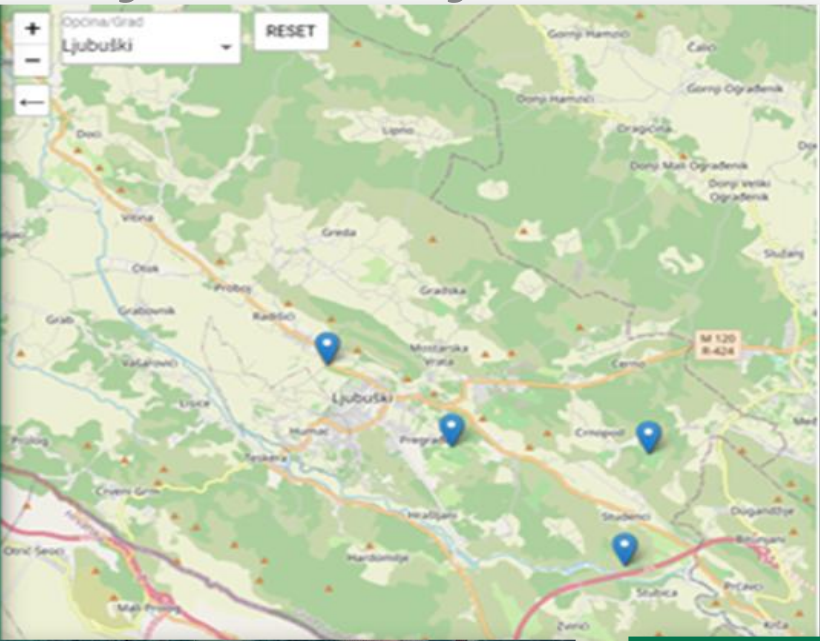
Izvešća

Uputstva

Potpoma

Općina/Grad Ljubuški

RESET



Meteo stanica: Ljubuški - Pregrade

METEOROLOŠKI PODACI

VREMENSKA PROGNOZA

BOLESTI I ŠTETNICI

PLANIRANJE RADOVA

Temperatura

Temperatura zraka

Temperatura sjetvenog sloja tla (0-10 cm)

Točka rosišta

Sunčevo zračenje

Količina oborina

Vlažnost

Vjetar

Temperatura sjetvenog sloja tla (0-10 cm)

Raspon datuma

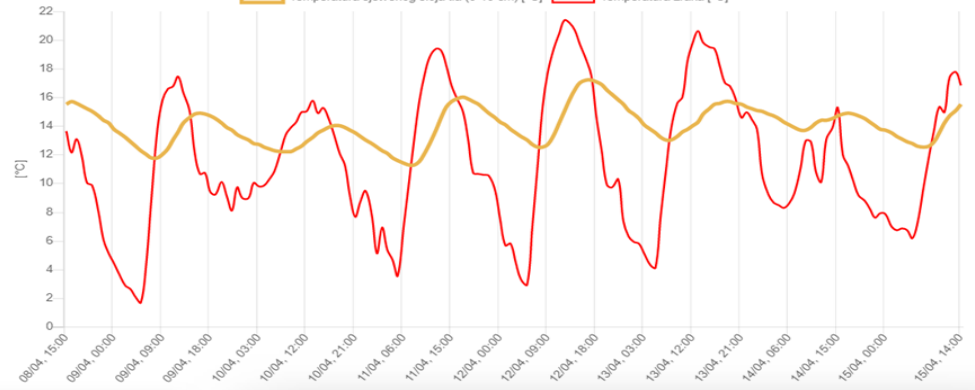
08.04.2023

15.04.2023

Jučer / 7 dana / 30 dana

Temperatura sjetvenog sloja tla (0-10 cm) [°C]

Temperatura zraka [°C]



+

-

Finish

Remove Last Vertex

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Dodaj proizvodnu tablu

Nova

Postojeća

Naziv \*

Masline

Katastarska parcela \*

3

12.0000

Raspoloživa površina: 12.0000(ha)

Broj sadnica/čokota

Skupina kultura

Voće i Vinova loza

Kultura

Maslina

Proizvodnja sjemena

Boja parcele:

Koristi površinu cijele parcele

Vrsta proizvodnje

Konvencionalna proizvodnja

Podskupina kultura

Suptropsko voće

Sorta/Hibrid

DODAJ

PLODOSMJENA

Dodaj materijal

Skupina materijala

Gnojiva

Materijal

Agroblen Total 24:0:12 + 2 MgO

Jedinica mjere

kg

Potrošeno

34

DODAJ

# Other REDAH projects for the development and use of IoT technologies in the agriculture of Herzegovina.

<b>CROSSMART</b> <b>IPA CBC BiH-HR-CG</b>	<i>The overall objective of the project is to develop and improve the innovation capacity of farmers and improve their access to advanced technologies.</i>	<ul style="list-style-type: none"> <li>• Agro Dron</li> <li>• Soil analysis Scanner</li> <li>• Guidelines for the development of innovative agriculture in Herzegovina</li> <li>• Crosssmart platform</li> </ul>
<b>THEMATIC2Green</b> <b>IPA ADRION</b>	<i>The overall objective is to promote innovation capacity for green development based on cultural and natural resources, addressing environmental and social emerging challenges.</i>	<ul style="list-style-type: none"> <li>• Territorial analysis of climate change impact in rural areas.</li> <li>• Pilot actions to create tools for adaptation of vulnerable economic systems to climate change.</li> <li>• Education and training</li> </ul>
<b>SMARTFARM</b> <b>IPA CBC BiH-HR-CG</b>	<i>Developing and enhancing research and innovation capacities and the uptake of advanced technologies</i>	<ul style="list-style-type: none"> <li>• Baseline Study of IoT use in Agriculture</li> <li>• Solar panel with a solar-powered irrigation pump</li> <li>• Irrigation system with valves, soil moisture sensors, and app to optimize water use</li> </ul>
<b>EDIH BiH</b> <b>Digital Europa</b>	<i>Establish a fully operational EDIH as a national reference point for supporting the digital transformation of SMEs and public sector organizations through tailored services in AI, HPC, cybersecurity and digital skills development, thereby strengthening the country's innovation ecosystem and alignment with EU standards</i>	<ul style="list-style-type: none"> <li>• Ensuring access for SMEs and public sector to experimentation facilities and technical expert, introduction of test before invest mechanism</li> <li>• Development and piloting of training programmes</li> <li>• EDIH advisory support and investor landscape for accessing digital transformation funding</li> <li>• Fostering innovation ecosystem and explore networking opportunities</li> </ul>



# Future activities/tasks



→ 2025

## Hardware and software integration

Connecting as many meteo stations, drones, and soil scanners as possible with IoT solutions for data collection.

→ 2026

## Technology expansion

Introducing additional IoT solutions through renewable energy provision and smart irrigation as well as robotics.

→ 2027

## Smart Systems

Developing a Mobile Agro Hub for demonstration, AI systems for agricultural data analysis and training modules (ToT).