



Horizon 2020
European Union Funding
for Research & Innovation

dem

IoT-Based Digital Farm Management for Apple Orchards

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Content

- Digital transformation
- DEMETER project
- Naše Voće orchard
- Technologies in orchard



Digital transformation

- The process of using advanced information technologies to improve or create a new way in which a business process is implemented:
 - Present in all spheres of our lives
 - It offers many benefits, but there are also many challenges

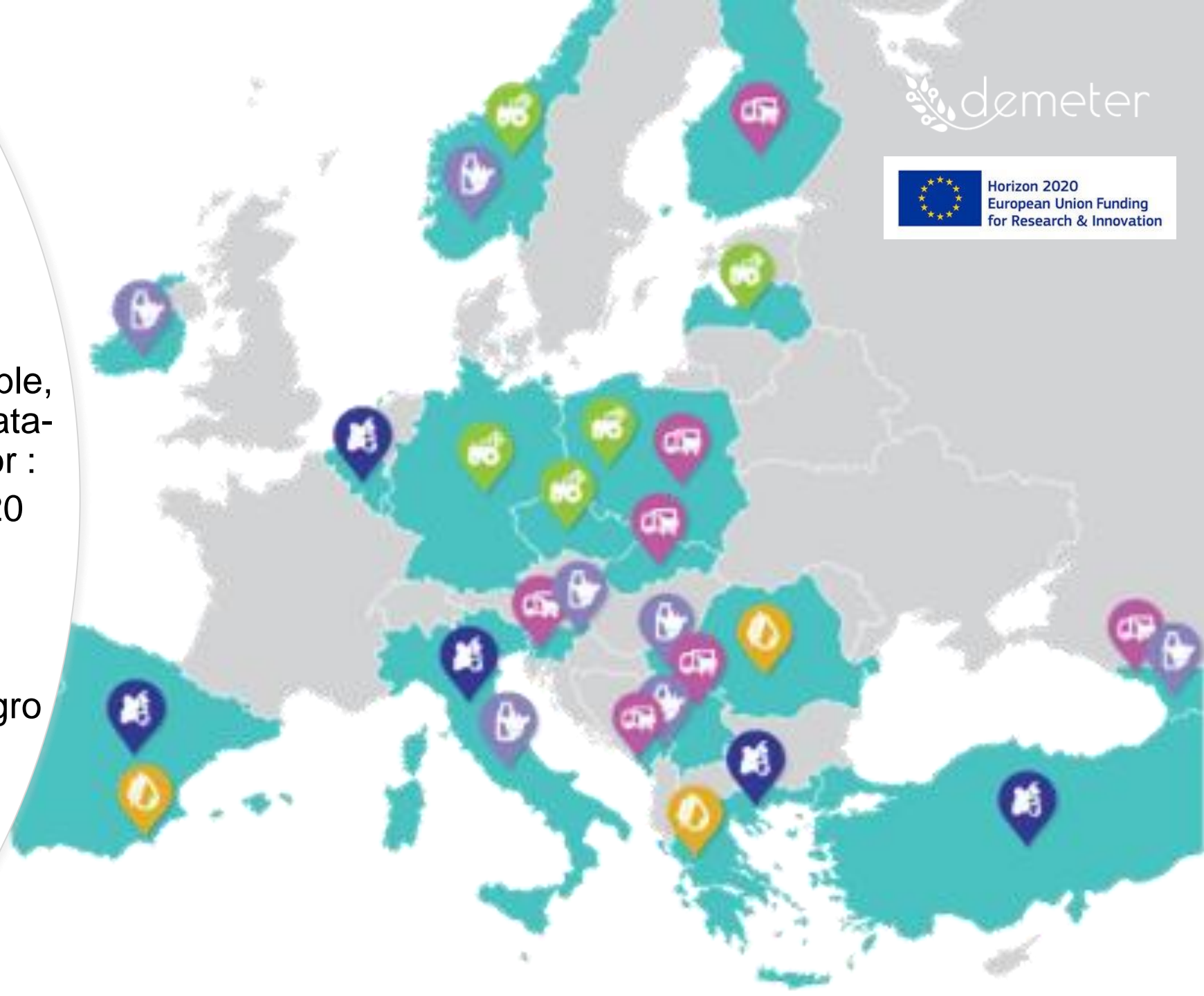


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H2020 DEMETER

- Building an interoperable, innovative and sustainable data-driven European agri-food sector :
 - Horizon 2020, grant 8572020
 - Budget 17704191 EUR
 - Period 09/2019 - 09/2023
 - 60 partners
 - 2 institutions from Montenegro



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 **15** member states



18 Countries



60
Partners

318k hectares
of land

Working with

5.7k
Farmers

29k Sensors
used across

80 sites



9.2k Devices
& **131** Large
Machinery



20 Pilots



5 Agri Sectors

Global
Outreach:

69
farming
associations

47 Countries

1.5 Billion People



Multi-Actor
Approach



Using Practical skills

& knowledge to
target real life
needs, problems
& opportunities.



DEMETER



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Naše voće

- The largest orchard in Montenegro
- Area 44 ha
- 60 t/ha
- Placement on the domestic market



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Technologies in orchard

- Weather stations
- Stations for measuring soil conditions
- Smart insect traps



Weather stations

- Pessl Imetos 3.3 (AgroNet)
- GSM signal, LoRa
- Temperature, air humidity, amount of precipitation
- Leaf humidity, freezing sensor, light and wind speed sensor



Stations for measuring soil conditions

- SenseCap and iMetos Soil (AgroNet)
- GSM signal
- Soil moisture, soil temperature, salinity, pH, nitrogen, phosphorus...
- 20cm, 40cm, 60cm



Smart insect traps

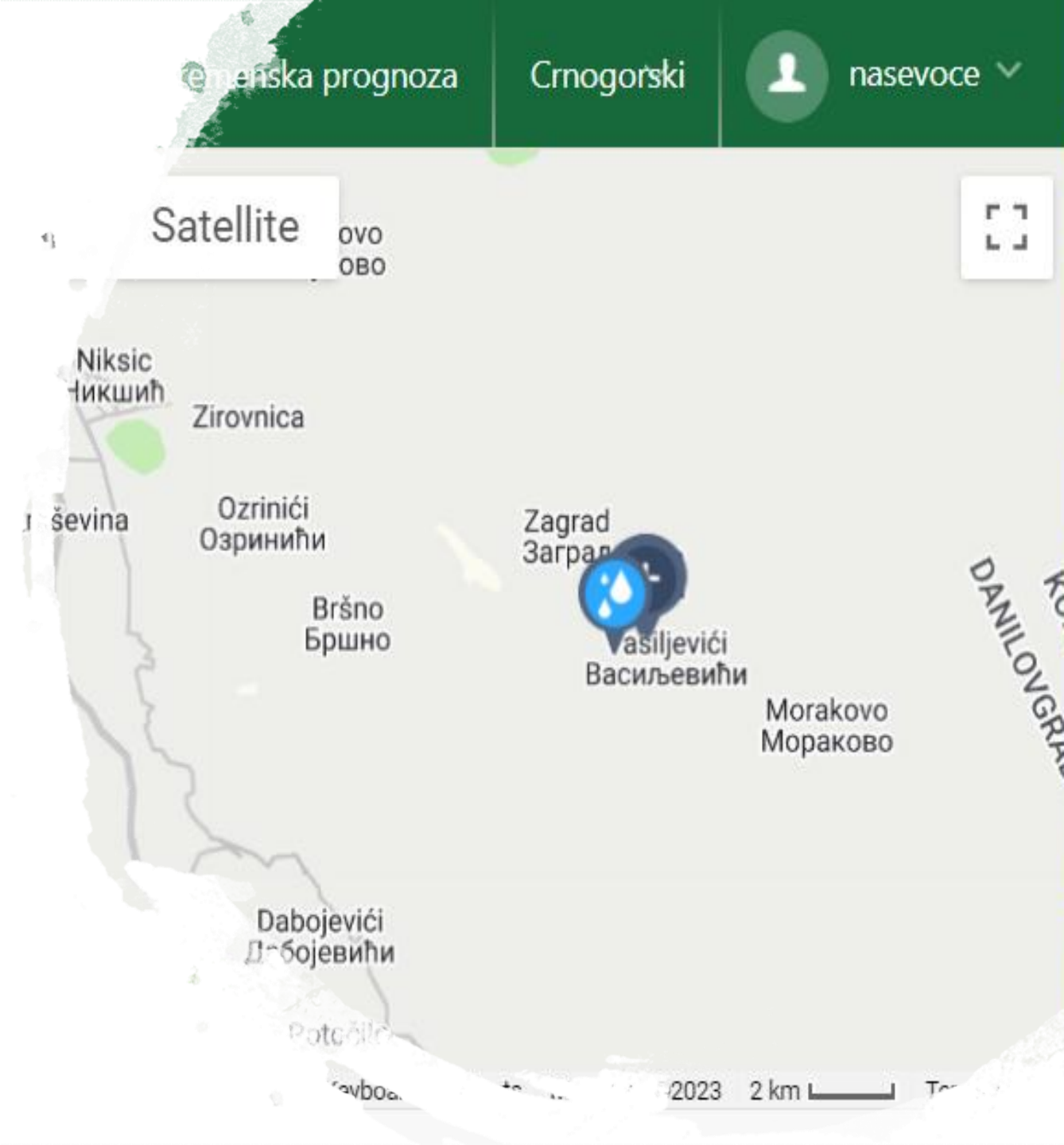
- TrapView traps and iScouts Trap (AgroNet)
- GSM signal
- AI model for insect recognition
- *Cydia pomonella*



Web platform

- AgroNet

<http://portal.v2.agronet.solutions/>



Benefits

- Saving energy and resources
- Potentially higher returns
- Healthier product
- Improved user interaction



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Challenges

- Signal
- Acceptance and implementation of new technologies
- Communication



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Thank you for your attention!

- **H2020 DEMETER:**
<https://h2020-demeter.eu/>
- **H2020 DEMETER (CORDIS):**
<https://cordis.europa.eu/project/id/857202>
- **Univerzitet Donja Gorica:**
<https://www.udg.edu.me/>
- **DunavNet:**
<https://dunavnet.eu/>



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