Practice/Project/Initiative provided by the participants of the EU CAP Network's Seminar 'Robotics and Artificial Intelligence in farming and forestry'

Name	Surname	Country	Poster	Station
Tamme	van der Wal	Netherlands	**SQAT: Soil Quality Analysis Tool**	1
Emilio	Gil	Spain	**Renovate (knowledge platform with games and simulators, using AI)**	2
Tomas	Täuber	Sweden	**Ekobot-Weeding Robot x 2**	3
Ivan	Ambroš	Croatia	**DRW04.0 (Danube Region Wood Ind. towards Industry 4.0)**	5
Borja	Espejo-Garcia	Greece	**Smart Droplets**	6
Erik	Pekkeriet	Netherlands	**Vision + Robotics programme**	7
David	Caballero Flores	Spain	**Agromoby: Multipurpose agricultural robot**	8
Sofia	Profico	Belgium	**BCO Network**	9

ROUND 2

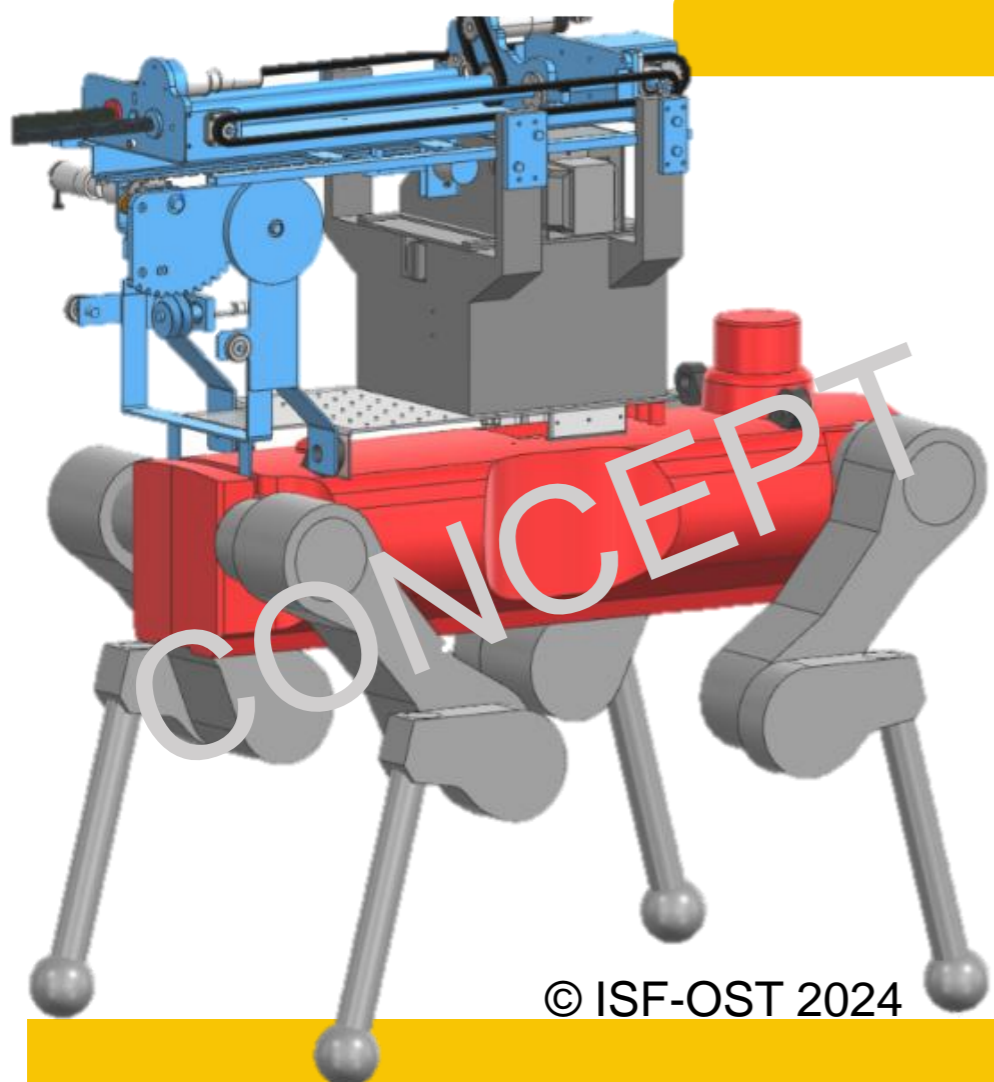| Name	Surname	Country	Poster	Station
Andrea	Lazzari	Italy	**ConSensi: Optimisation of fertilisation using sensors and precision farming**	1
Alessia	Nizzoli	Spain	**GO Greenbot (modular autonomous vehicle for woody crops)**	2
Sérgio	Pinto	Portugal	**Robotics and AI in vineyards**	3
Sven	Lake	Germany	**Nature Robots (AI & Robotics Design-in Software Platform for Farming)**	4
Johan	Booij	Netherlands	**TEF agrifood (European Testing and Experimentation Facility for Agrifood Innovation)**	5
Marcel	Vroom	Netherlands	Disease detection in tree nurseries with AI data from autonomous sensor systems and biostimulants	6
Denis	Mazerolle	France	**Tea harvesting robot**	7
Jürgen	Vangeyte	Belgium	**ILVO's Living lab/ Agrifood technology**	8
Maite	Ambrós	Spain	**DIH La Vega Innova: SmartPivot (irrigation recommendation system based on AI)**	9

ROUND 3

Name	Surname	Country	Poster	Station
Andrzej	Słomczewski	Poland	**Plant production system for optimization of machine operation, fertilization and protection of soil biodiversity**	1
Nicolas	Aranda Perez	Spain	**Driving Innovation in Agrifood: Digitalisation Strategy from ceiA3**	2
Ivana	Rendulic Jelusic	Croatia	**Vineyard angel**	3
María	Soto Gallardo	Spain	**OG SmartGoat**	4
Hardi	Tamm	Estonia	**Wisecow health (subcutaneous implant, gateway system and Wisecow AI-cloud for livestock health)**	5
Lisa	Parce	Ireland	**Digital Agric. Technology Solutions (DATSs): A Robotic Milking Example from Ireland**	6
Rana	Yurduseven	Belgium	**Artificial intelligence in witloof chicory**	7
Sebastian	Gruber	Austria	**TEF agrifood (European Testing and Experimentation Facility for Agrifood Innovation)**	8
Eleftherios	Meletis	Greece	**DigiCow	Nolame: Precision livestock farming for early disease detection in dairy cattle	Early detection of lameness in dairy cattle**	9

ROUND 1

SQAT
SOIL QUALITY ANALYSIS TOOL

Tamme van der Wal
tamme.vanderwal@aerovision.nl

www.sqat.farm

EU CAP NETWORK

CONCEPT
© ISF-OST 2024

DESCRIPTION OF THE PROJECT

SQAT is a 3.5-year project, funded under the Horizon Europe Programme, that focuses on Implementing Smart Farming Applications using EO Data, Soil Sensors & Robotics.

BENEFIT/VALUE FOR PRACTITIONERS

Soil variability maps for smart farming applications.

SUCCESS FACTORS FOR ADOPTION:

Affordable, accurate, applicable, actionable

PRECISE AND COST-EFFECTIVE SOIL MAPS.

NEAR REAL-TIME MAPPING RESULTS

REDUCE THE NEED FOR LAB SAMPLES

5 SMART FARMING APPLICATIONS

GEOGRAPHICAL LOCATION:

NL, BE, DE, IE, RS, CH, UA

TARGET SECTOR:

Farming, soil quality

PARTNERS INVOLVED:

ABE (RS), Terra (RS), AeroVision (NL), VDBORNE (NL), ILVO (BE), Exobotic (BE), ATB (DE) Hahn-Schikard (DE), Deloitte (IT), Senus (IE), Agrilab (UA), OST (CH)
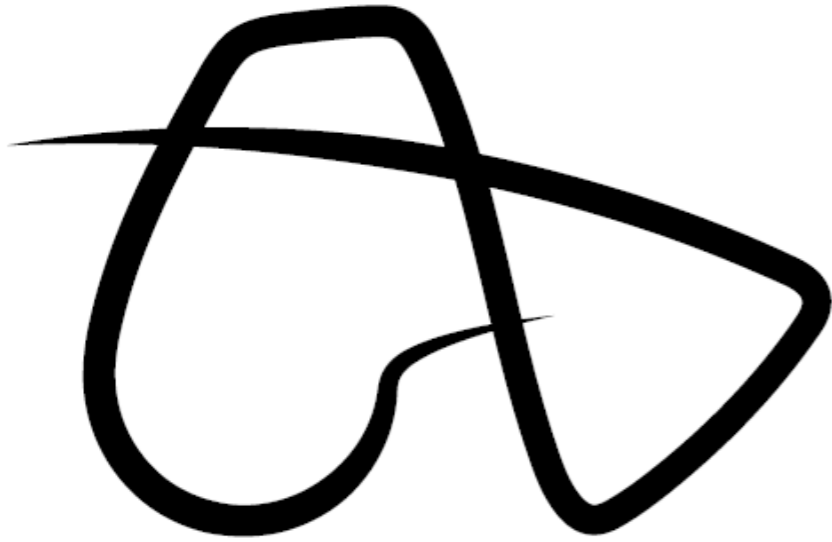
SKILLS AND TRAINING NEEDS:

- *SOIL QUALITY*
- *DIGITAL LITERACY*
- *REGENERATIVE FARMING*

EU CAP NETWORK

RENOVATE

Emilio Gil
emilio.gil@upc.edu

https://renovateproject.eu/

DESCRIPTION OF THE *Project*

RENOVATE App
Training in your pocket

Attractive **knowledge sharing platform** with **serious games** and **simulators,** using **Artificial Intelligence.**

BENEFIT/VALUE FOR PRACTITIONERS

Young farmers
Male & female
Adoption tech
Reduce **PPP**
Better **skills**
Use **digital** tools
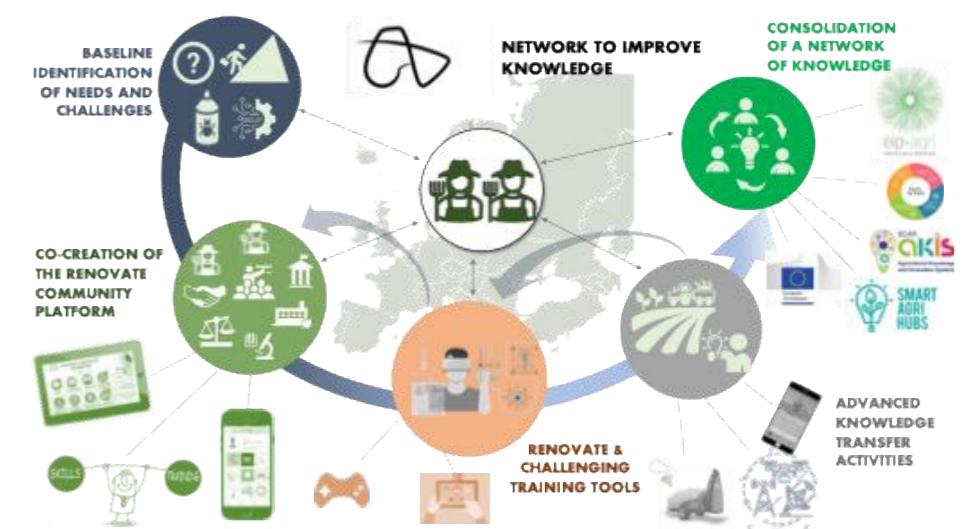
SUCCESS FACTORS FOR ADOPTION

AI, serious games and simulation, in combination with the **knowledge ready for practice** AKTA (**Advanced Knowledge Training Activities**).

CONSORTIUM AND LOCATION

InHort
ČSPR
STEMS
INRAE
pcfruit
daTERRA
HORT@
ΜΕΚ
virmedex
Virtual Experiences
artica
UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH
Laore
Agenzia regionale per lo sviluppo in agricoltura
UNIVERSITÀ DI TORINO
Τμήμα Γεωργίας

TARGET SECTOR:

Advisors   Authorities   Industry   Policy

SKILLS AND TRAINING NEEDS

Good trained stakeholders able to manage specific DSS, satellite imagery, APPs, and mobile platforms

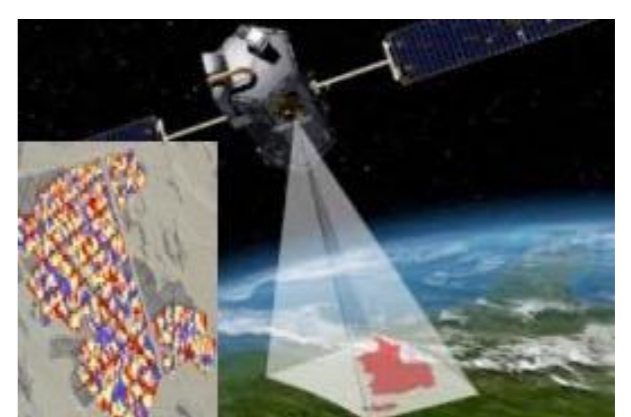*AKTAS provided by previous EU projects*
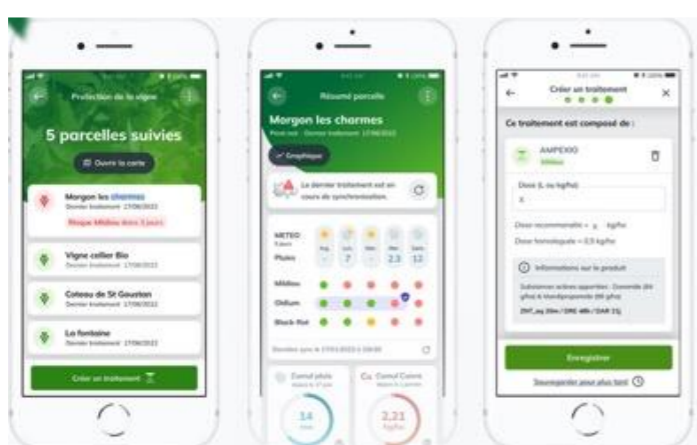
DECITRAIT
TOPPS

VRA vineyard – **OPTIMA H2020**

DSS – OG **GOPHYTOVID**

Satellites – **NOVATERRA** H2020

Ekobot- Weeding Robot

Tomas Täuber
tomas.tauber@ekobot.se

www.ekobot.se

DESCRIPTION OF THE *EKOBOT PROJECT*

A weeding robot with a mechanical tool and advanced AI vision to distinguish weeds from crops in commercial vegetable cultivations. This autonomous robot, fully electric, reduces chemical use and manual labor while maintaining precision and consistent performance under various conditions.

BENEFIT/VALUE FOR PRACTITIONERS

- Reduce chemical usage, labor, CO_2 emissions, and soil compaction.
- Yield increases of 6–10%, and healthier vegetables.
- Collects crop data, enabling AI-driven insights that help optimize resources, cut waste, and boost profitability.

SUCCESS FACTORS FOR ADOPTION:

- Verified technology that creates trust among farmers.
- Clear benefits: reduced labor costs, lower chemical usage, improved yields, and environmental advantages.
- Simple implementation process
- A reliable service network that minimizes downtime
- Financially viable solution with a short ROI.

GEOGRAPHICAL LOCATION:

The robot system is developed in Västerås, Sweden.

TARGET SECTOR:

The robot system targets commercial vegetable growers in Europe. The system handles 10ha and can be used by both small- and large-scale farmers.
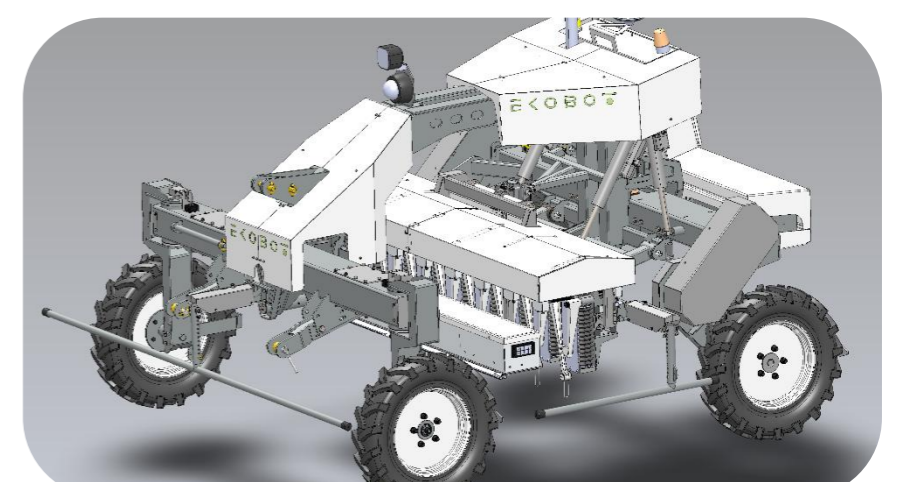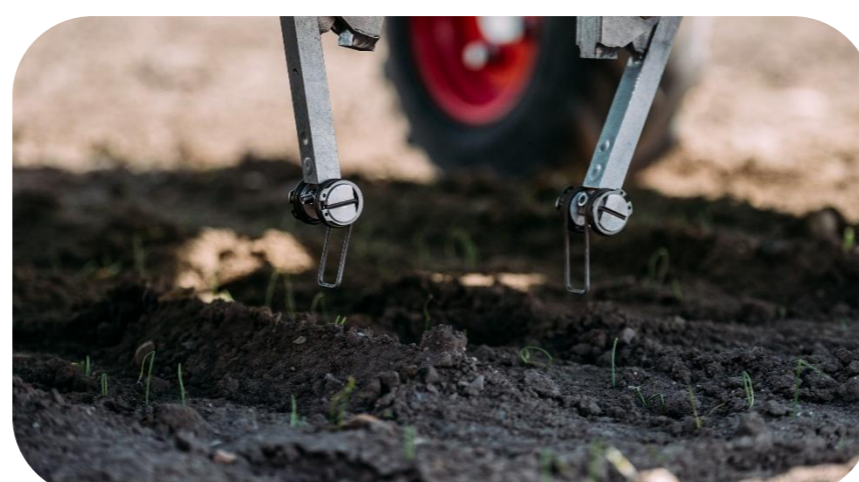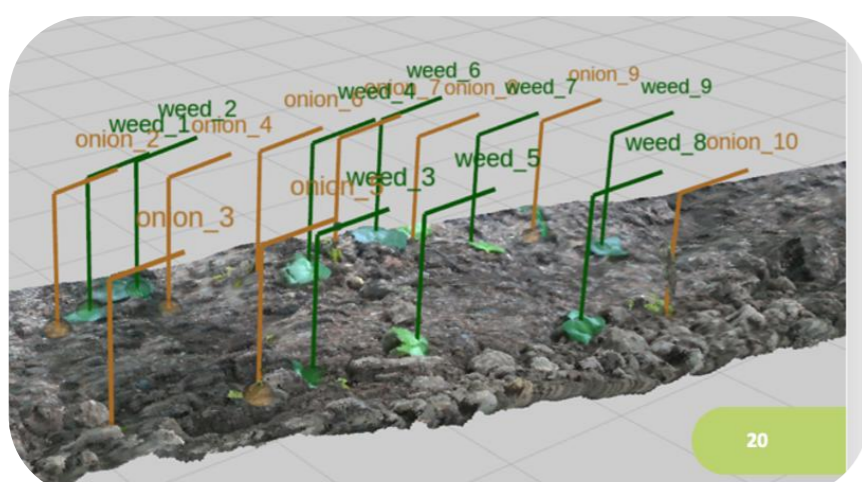
PARTNERS INVOLVED:

Ekobot AB Sweden

Homburg Holland, the Netherlands

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

www.ekobot.se

SKILLS AND TRAINING NEEDS:

Farmers must learn computer skills and basic high-level programming to manage data streams, enabling them to effectively use modern tools and stay competitive.

DRWO4.0

Ivan Ambroš
ambros@cekom.hr

https://interreg-danube.eu/projects/drwo40

Interreg Danube Region
Co-funded by the European Union
DRWO4.0

DESCRIPTION OF THE PROJECT

The DRWO4.0 project accelerates the digital transformation of the Danube Region's wood industry by bridging technological gaps and promoting I4.0 adoption. Through Pilot Environments, capacity-building, and cross-sector collaboration, it equips SMEs and policymakers with data-driven strategies. By integrating automation, AI, and smart manufacturing, the project enhances efficiency, reduces waste, and strengthens industry resilience and competitiveness.

BENEFIT/VALUE FOR PRACTITIONERS

DRWO4.0 helps forestry practitioners adopt I4.0 technologies, improving efficiency, competitiveness, and sustainability. It reduces costs, optimizes resources, and boosts product quality. SMEs, especially in less developed regions, gain digitalization benefits, enabling global competition and high-value wood products. The open-access model provides a roadmap for long-term growth.

SUCCESS FACTORS FOR ADOPTION:

DRWO4.0 adoption is driven by practical support, knowledge transfer, and cross-sector collaboration. Pilot environments allow real-world implementation, while capacity-building offers essential training for Industry 4.0.

GEOGRAPHICAL LOCATION:

Croatia, Austria, Romania, Slovenia, Hungary, Bulgaria, Czech Republic, Serbia, Bosnia and Herzegovina, Moldova and Ukraine.

TARGET SECTOR:

Large-scale wood industry operations and small and medium-sized enterprises (SMEs)

PARTNERS INVOLVED:

CEKOM, FH Salzburg, KO-FA, Wood Industry Cluster, CICC, Bulgarian Furniture Cluster, KČN, University of Belgrade - Faculty of Forestry, PREDA, Cahul Business Centre, Culmena Ltd., Faculty of Engineering and Information Technology and Agency for sustainable development of the Carpathian region, Faculty of Design

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

Interreg Danube Website: DRWO4.0

SKILLS AND TRAINING NEEDS:

- *Proficiency in IoT, AI, Automation, and Data Analytics*
- *Industry-Specific Knowledge*
- *Cross-Disciplinary Collaboration*

More information:

Funded by the European Union

Smart Droplets

Name: Borja Espejo-Garcia
Contact info: borjaeg@aua.gr

https://www.linkedin.com/company/sftgaua

DESCRIPTION OF THE *Practice/Project/Initiative*

Smart Droplets will provide a comprehensive solution that converts large datasets into actionable insights and effective spraying instructions in the field. A retrofit tractor and sprayer are seamlessly combined with advanced components—such as a Digital Platform and Digital Twins—to gather field data and enable real-time spraying operations.

BENEFIT/VALUE FOR PRACTITIONERS

Smart Droplets will demonstrate environmental, economic, regulatory, business, scientific, and societal benefits by assisting in the achievement of Green Deal goals by using autonomous robotic platforms, innovative spraying, digital twin, and AI models.

Projected savings of 40% in Plant Protection Products (PPPs), 15% in nutrients, and 50% in water use.

GEOGRAPHICAL LOCATION:

Demonstrator in a wheat farm taking place on a commercial farm in Lithuania and demonstrator in an apple orchard taking place on a commercial orchard in Spain.

TARGET SECTOR:

Smart Droplets will focus on large-scale farms for the transition of production methods by embracing innovative technology to replace traditional approaches and serve as the key driver enabling the adoption of robotic, AI, and data-centric agricultural technologies for sustainability.

PARTNERS INVOLVED:

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

- https://smartdroplets.eu/

SUCCESS FACTORS FOR ADOPTION:

- Success rate of robotic planning tasks > 90%
- Success rate of robotic navigation task > 90%
- Chemical injection and dosage deviations from target application < 5%.
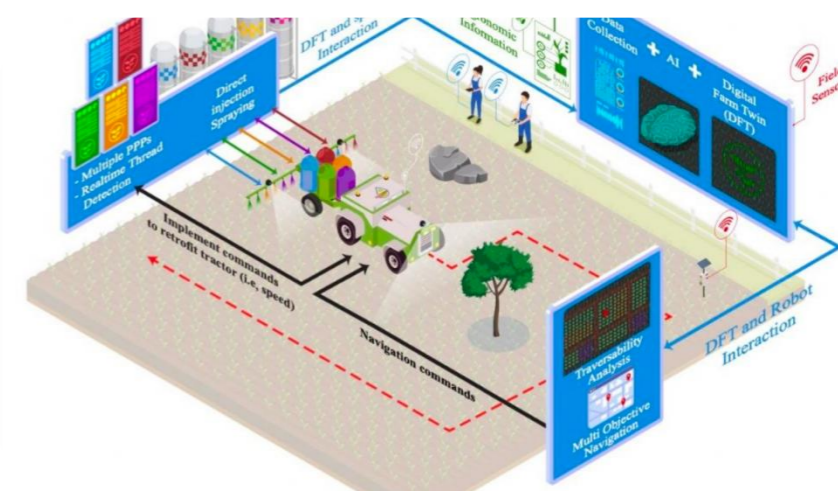
SKILLS AND TRAINING NEEDS:

Autonomous Tractor Management
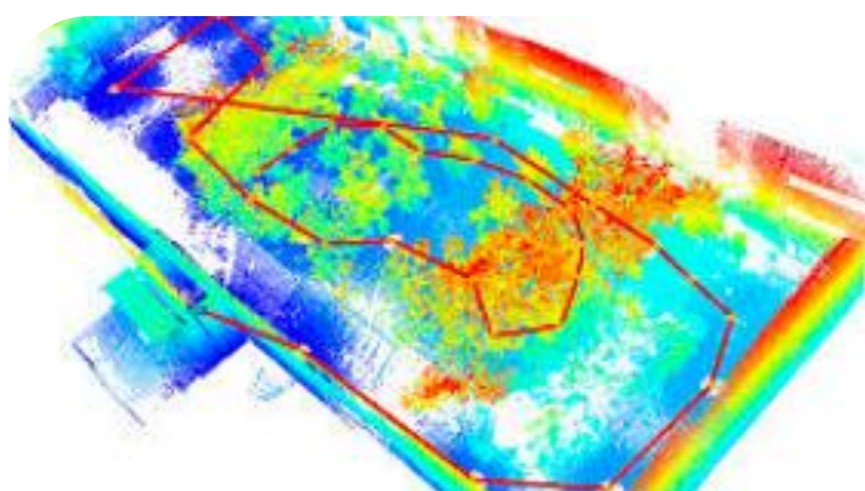
Digital Twins Implementation

Artificial Intelligence Model Integration

More information:

Funded by the European Union

Vision + Robotics

Erik Pekkeriet
erik.pekkeriet@wur.nl

https://visionrobotics.nl/

GEOGRAPHICAL LOCATION:
Netherlands

TARGET SECTOR:
Agri-food

PARTNERS INVOLVED:

WAGENINGEN
UNIVERSITY & RESEARCH

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
https://visionrobotics.eu/
https://wur.nl/vision-robotics

The Program

Our DNA is deeply rooted in agriculture, food, horticulture, marine, and livestock research. Vision + Robotics is powered by Wageningen University & Research (WUR), with its century-long legacy of pioneering research in these domains. The Vision+Robotics programme combines this rich domain knowledge with technology: we bring together a diverse team of more than 60 experts in computer vision, robotics, AI, and spectral imaging from all corners of WUR. This unique synergy creates a powerhouse of tech-savvy researchers, united by a shared commitment to developing high-tech solutions that benefit both the planet and its inhabitants.

Our values

- World leading agri-food robotics research Team secures wide knowledge+skills base
- We know farming practice and food issues
- We apply scientifics into impactful solutions

Succes factors

- Focus on scalable, affordable, robust, easy to handle , interoperable building blocks

SKILLS AND TRAINING NEEDS:

Learning from hightech automotive and mining domains

More information:

David Caballero Flores
david.caballero.flores@upc.edu

https://cdei.upc.edu/

Centre de Disseny d'Equips Industrials

GEOGRAPHICAL LOCATION:

Barcelona – Catalonia - Spain

TARGET SECTOR:

Farms in horticulture, viticulture, and fruit growing. Focus on autonomous monitoring, water management, and soil health for precision agriculture.

PARTNERS INVOLVED:

X_AgriTech   agroTech UPC   UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

CDEI-UPC projects   LinkedIn
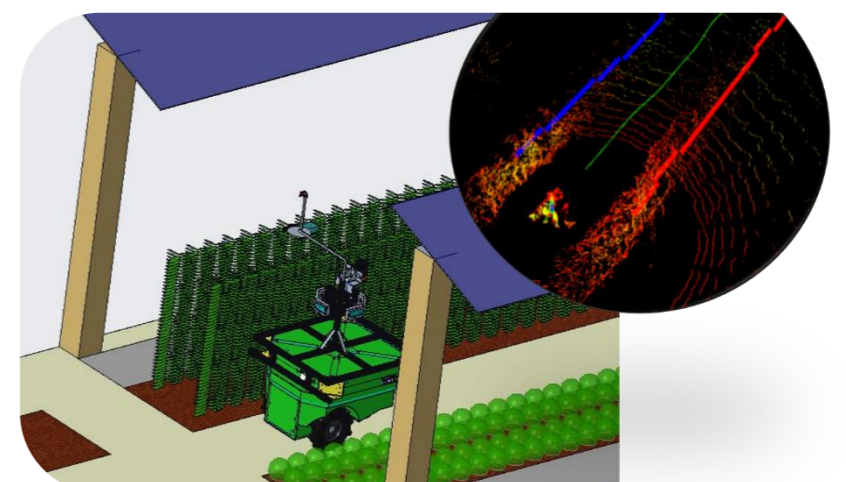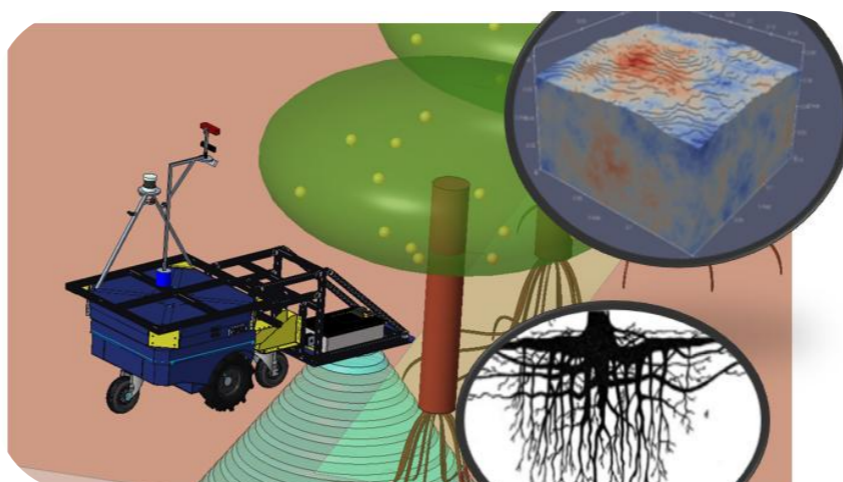
https://www.symbiosyst.eu/

AgroMOBY - Video

GroPeRBot project - Video

DESCRIPTION OF THE PROJECT

Autonomous all-terrain robot for data collection and digital twin creation. Modular, 300 kg load, 8 h autonomy.

Data collection

- **Plant health:** Leaf temperature, hydric stress (thermal, RGB-D camera).

- **Subsoil (GPR):** Soil moisture, rot mapping.

- **Vegetation index:** NDVI

- **biomass estimation**

Sensors: GNSS, IMU, LiDAR, thermal & RGB-D camera, NDVI, GPR, atmospheric sensors.

Target crops: Fruit trees, brassicas, tomatoes, lettuce, beans, others.

BENEFIT/VALUE FOR PRACTITIONERS

Increases efficiency, resource optimization, and resilience. Enables real-time monitoring, precise water use, and soil health assessment. Scalable for any farm, aiding precision agriculture

SUCCESS FACTORS FOR ADOPTION

Compact, lightweight, minimal soil impact. Combines aerial/subterranean data for full crop insights. Easy workflow integration for practical use.

SKILLS AND TRAINING NEEDS:

Training in robot operation, data-driven decisions, and software integration, plus education on digitization and automation benefits in agriculture

BCO Network

WORKING FOR EUROPEAN CONNECTIVITY

GEOGRAPHICAL LOCATION:

All EU Member States, at national and regional level + Norway and the Western Balkans

TARGET SECTORS:

All sectors requiring reliable high-speed broadband connectivity

PARTNERS INVOLVED:

- National and regional BCOs
- European Commission: DGs CNECT, AGRI, REGIO, COMP

SOURCES OF INFORMATION, REFERENCES, WEBSITES: www.bconetwork.eu

Videos: videos.bconetwork.eu

Publications: docs.bconetwork.eu

DESCRIPTION OF THE *Practice/Project/Initiative*

The BCO Network operates across the EU, Norway, and the Western Balkans, aiming to provide reliable high-speed broadband, especially in rural and remote areas. By closing the digital divide, it ensures equal access to digital services for all citizens, municipalities, public services, and businesses, fostering innovation.

BENEFIT/VALUE FOR PRACTITIONERS

For farmers and foresters, digital connectivity in the field or territory allows the use of digital management tools and modern technology, such as sensors, connected machinery, robotics and drones, which allow more efficient and precise management, saving time and resources, becoming more competitive, sustainable and resilient.

SUCCESS FACTORS FOR ADOPTION:

Broadband Competence Offices are there to help bring the necessary connectivity where it is needed by informing local stakeholders on the status of their area, and advising them on how to improve it, including how to successfully plan, deploy and operate a broadband network in areas where telecommunication companies are not planning to invest.
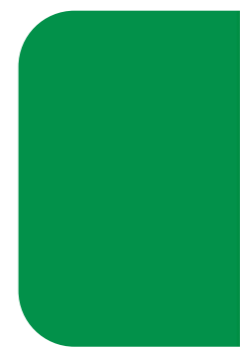
SKILLS AND TRAINING NEEDS:

Knowledge exchange and capacity building are at the core of the BCO Network's training programme, to help overcome challenges to deployment.

ROUND 2

EU CAP NETWORK

Optimisation of fertilisation using sensors and precision farming methods - ConSensi

Lazzari A., Pricca N., Gambale C., Gasparini A., Cabassi G.

andrea.lazzari@crea.gov.it

https://infotecn.mailchimpsites.com/

GEOGRAPHICAL LOCATION:

Several field in upper Po Valley.

TARGET SECTOR:

The results obtained in the project are applicable to both small- and large-scale farms.

PARTNERS INVOLVED:

1. Council for Agricultural Research and Economics – Research Centre Animal Production and Aquaculture – Lodi
2. University of Milan – DiSAA departement
3. Condifesa Lombardia Nord-Est
4. Consorzio Italbiotec
5. Fondazione MORANDO BOLOGNINI
6. Azienda Agricola BONETTI
7. Azienda Agricola PENATI LUIGI
8. Azienda Agricola MOTTI
9. EVERGREEN Italia Gruppo Fratelli Visconti

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

https://infotecn.mailchimpsites.com/consensi

DESCRIPTION OF THE PROJECT:

ConSensi project has developed an autonomous prototype rover based on OpenSource technology for soil mapping and automatic sampling. This robot is equipped with geoelectric scanning, automatic auger and laser obstacle detection. The use of an automatic auger enables consistent resampling at the same location over time, thanks to the GPS-RTK installed on board. the deployment of the vehicle is managed by PC where ad-hoc scanning and sampling missions can be created.

BENEFIT/VALUE FOR PRACTICIONERS:

Rationalised and spatialised management of livestock manure to reduce environmental impact and increase crop yields. Increasing carbon stock in soil (over 30%) with the precision distribution of manure and the application of minimum tillage.

SUCCESS FACTORS FOR ADOPTION:

- Geoelectrical soil mapping;
- Automatic sampling;
- Obstacle recognition;
- Low weight on soil;
- Reduction in sampling time.

SKILLS AND TRAINING NEEDS:

The rover is very simple to use. It's required only basic informatics knowledge to manage the open-source software ArduPilot to designe missions.

This poster was presented at the EU CAP Network SEM 'Robotics and AI in farming and forestry' | 19-20 February 2025

More information:

Funded by the European Union

GO GREENBOT

Alessia Nizzoli, anizzoli@us.es; F.Gómez, fernando.gomez@agroalimentarias-sevilla.coop ;J. Martínez-Guanter, jorge.martinezguanter@corteva.com; C. Mira, cmira@tepro.es ; P. Gil, pedro.gil.gamboa@gmv.com; M. Pérez-Ruiz, manuelperez@us.es

www.grupooperativogreenbot.com

☐ Spain
🟨 Andalucia

- **Location:** Seville, Andalusia – a key woody crop region.
- **Sector:** Olive, citrus, and almond farming, scalable for all farm sizes.
- **Partners:** Univ. of Seville, Cooperativas Agroalimentarias, GMV, Pioner Hi-Bred, TEPRO.
- **Collaborators:** Agropecuaria de Herrera S.C.A., GDR La Campiña y Los Alcores.
- **Info:** www.grupooperativogreenbot.com

DESCRIPTION OF THE PROJECT

GreenBot develops a modular autonomous vehicle for woody crops like olive, almond, and citrus, using AI, 5G, cloud computing, and precision systems to optimize resources and support sustainable farming.

KEY BENEFITS

- **Efficiency:** Reduces costs by optimizing agrochemicals and labor.
- **Sustainability:** Minimizes contamination, improving soil health.
- **Quality:** Ensures safer, market-ready crops with advanced monitoring.
- **Scalability:** Adapts to farms of all sizes.

SUCCESS FACTORS

- **Collaboration:** Tech firms, cooperatives, and researchers.
- **Training:** Digital skills and tech adoption for farmers.
- **Flexibility:** Modular design for various crops.
- **Impact:** Proven efficiency and reduced agrochemical use in pilots.

SKILLS AND TRAINING NEEDS

For GreenBot adoption, stakeholders need training in autonomous vehicles, precision application, and AI-driven decision-making.

More information:

Funded by the European Union

EU CAP NETWORK

Robotics and AI in vineyards

Sergio Pinto
Sergio.pinto@avipe,pt

DESCRIPTION OF THE *Practice/Project/Initiative*

AVIPE is involved in EU project AGRARIAN to help extension services on vineyards in irrigation and yield estimation. These 2 topics are crucial for the quality of the wine because they are important to have a good ripening and they help managing the wineries with grape reception.

Besides this project, AVIPE has several projects regarding the development of low cost sensors and pest traps, water level measurement and biodiversity assessment.

In the future, we will work with a drone and assembled cameras on the tractor to collect more precise information.
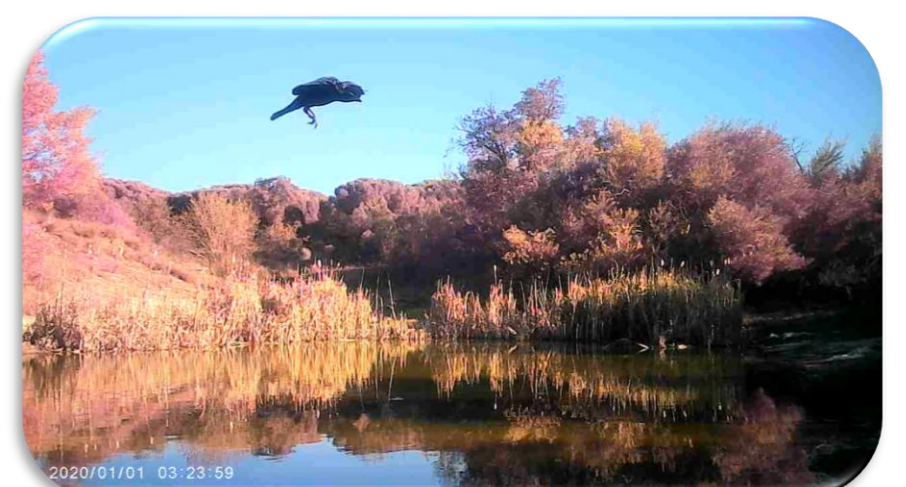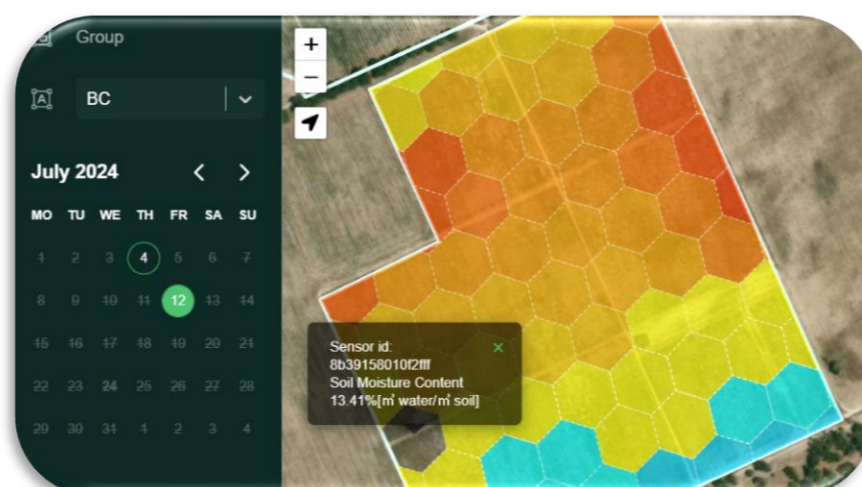
BENEFIT/VALUE FOR PRACTITIONERS

AVIPE works vineyards from less than 1Ha to more than 200Ha from a single farmers. The ability to perform a good consultancy comes by collecting, analysing and use that data. Using these technologies, time spent by agronomists will be much more effective. It will also reduce consumption of plant protection products, fertilizers and water. At the end, more profitability to farmers and territorial development.
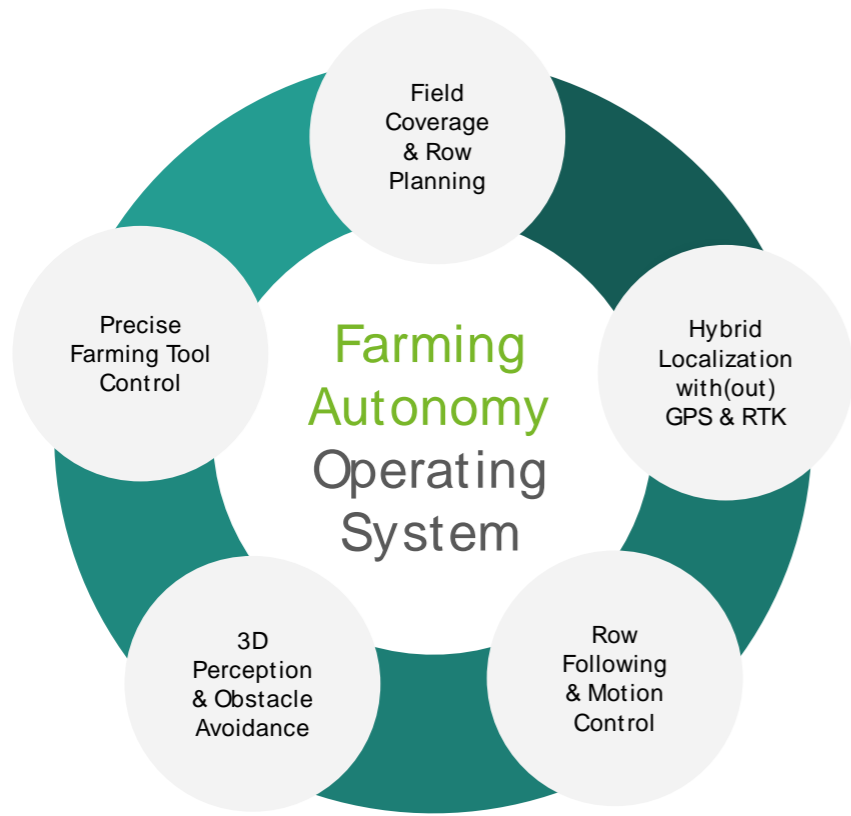
SUCCESS FACTORS FOR ADOPTION:

Demonstration activities, explanations to the farmers, easiness to implement and understand and reasonable prices.

GEOGRAPHICAL LOCATION:
Palmela, Portugal

TARGET SECTOR:
From small to big vineyards

PARTNERS INVOLVED:
AGRARIAN consortium
ATEC school

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
agrarian-project.eu

SKILLS AND TRAINING NEEDS:

Involvement of the farmers on understanding data, training courses to agronomists

More information:

Funded by the European Union

EU CAP NETWORK

NATURE ROBOTS

Sven Lake
info@naturerobots.com
+49 541 9632 8941

www.naturerobots.com

Farming Autonomy Operating System

- Field Coverage & Row Planning
- Hybrid Localization with(out) GPS & RTK
- Row Following & Motion Control
- 3D Perception & Obstacle Avoidance
- Precise Farming Tool Control

DESCRIPTION OF THE PROJECT:

The Operating System that powers the next generation of AI-based Autonomous Farming

Autonomous driving for farming robot

BENEFIT/VALUE FOR PRACTICIONERS

A reliable, modular and robust operating system for autonomous agricultural machines and robots for agricultural machinery manufacturers.

SUCCESS FACTORS FOR ADOPTION:

Positioning in the market, reliance on stable legal and statutory regulations such as the Green Deal, SDGs, Safety Regulation, AI act, measurement reporting and verification (MRV) of CO_2 sequestration for ESG.

Stable prices from our customers' hardware suppliers for e.g. 3D Lidar.

EU and government funding sources for innovation and ESG-supporting technologies.

GEOGRAPHICAL LOCATION:
Based in / from Osnabrück
used in Europe
and soon in the world

TARGET SECTOR:
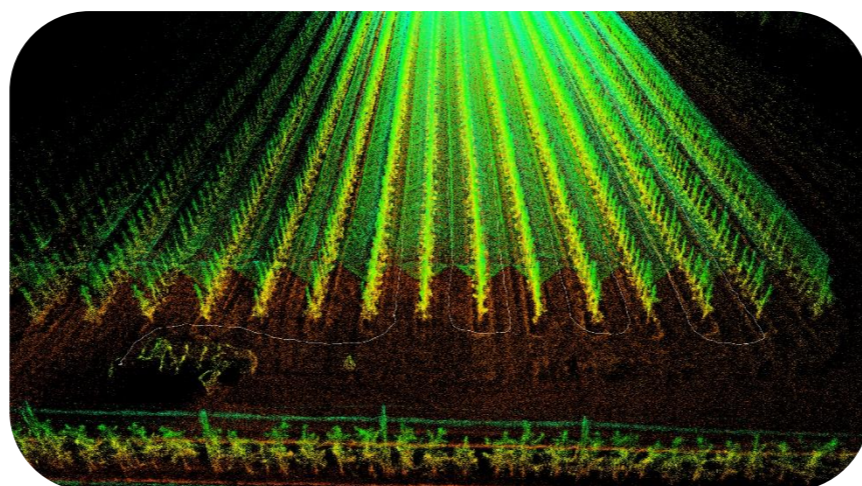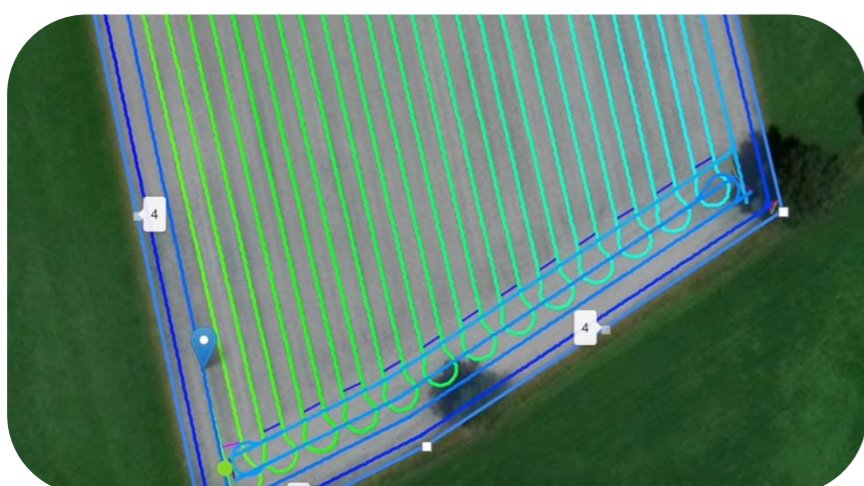Agricultural Robots

PARTNERS INVOLVED:

DFKI – German Research Center of Artificial Intelligence
LZH – Laserzentrum Hannover
Agrotech Valley e.V.

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

naturerobots.com
youtube.com/@nature-robots

LOOKING FOR:

Large OEM & agricultural machinery manufacturers; investors; partners

Funded by the European Union

The European Testing and Experimentation Facilities for Agrifood Innovation

EU CAP NETWORK

WAGENINGEN UNIVERSITY & RESEARCH

TEF agrifood

Johan Booij
johan.booij@wur.nl

https://www.agrifoodtef.eu/

GEOGRAPHICAL LOCATION:

-WUR ELSA lab
(Wageningen)

-WUR Field Crops
(Lelystad, Randwijk, Valthermond, Vredepeel, Westmaas)

-WUR Livestock Research De Marke
(Hengelo, Gld)

-WUR Vision and Robotics lab
(Wageningen)

TARGET SECTOR:

European SME's and Companies working on AI and Robotics in the agrifood sector

PARTNERS INVOLVED:

AgrifoodTEF network (see website)

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

https://www.agrifoodtef.eu/

→ Click on Catalogue of Services and select Netherlands to see what we offer
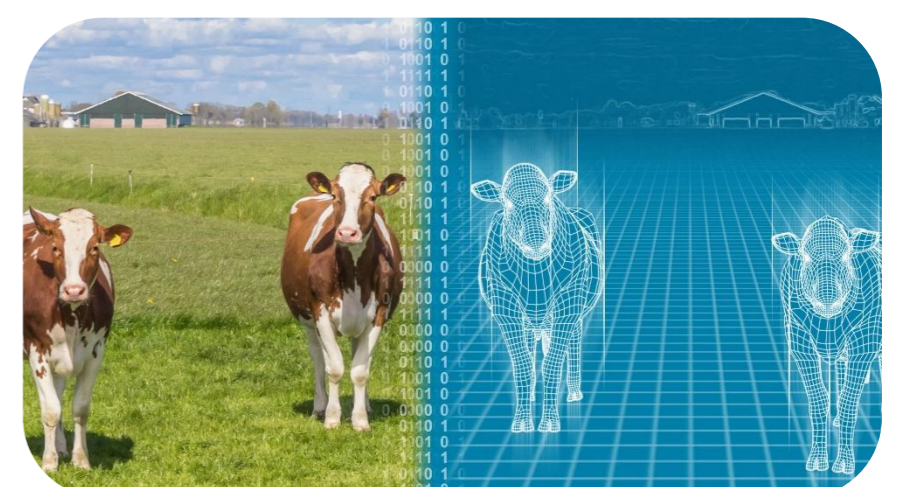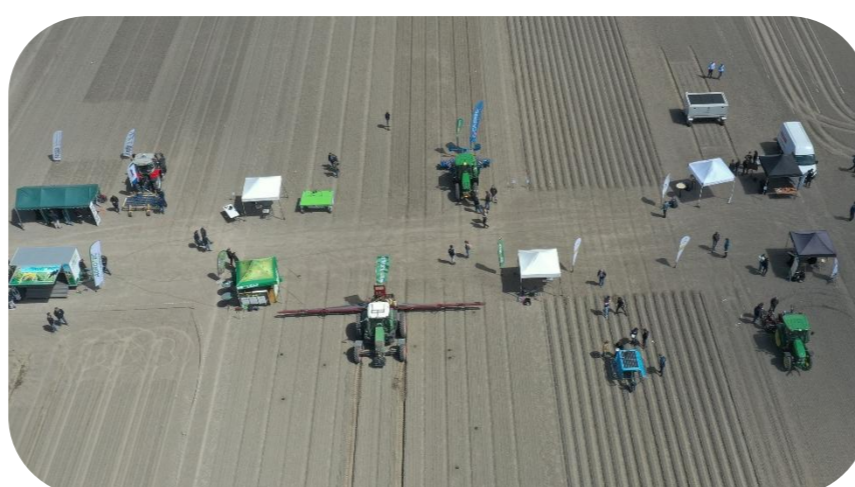
DESCRIPTION OF THE PROJECT

- AgrifoodTEF offers experiments and tests for physical, digital, and conformity & ELSA testing of AI and robotics solutions, in both virtual and physical environments for co-innovation and validation of your solutions.
- The ELSA Lab assists in dealing with Ethical, Legal and Social Aspects of AI and Robotics.

BENEFIT/VALUE FOR PRACTICIONERS

- Expertise and infrastructure for testing/experimentation
- Independent and science-based
- Quality of Wageningen University & Research (WUR)
- Part of the European AgrifoodTEF Network

SUCCESS FACTORS FOR ADOPTION:

- Interdisciplinary research and innovation
- Data-driven decision making
- Collaboration with industry partners
- Pilot projects, demonstrations and trainings

More information:

EU CAP NETWORK

Disease detection in tree nurseries using AI data from autonomous sensor systems and the application of biostimulants.

Marcel Vroom M.Sc   mvroom@npk.nl

https://npk.nl/en/

DESCRIPTION OF THE *Practice/Project/Initiative*

In 2024, *npk design* initiated an EIP project to develop an AI-powered autonomous sensor system for early detection of powdery and downy mildew in Laxa seedlings. This aims to reduce labor-intensive manual detection and excessive fungicide use, with tests scheduled for a Dutch rose nursery in 2025 and 2026.

BENEFIT/VALUE FOR PRACTITIONERS

The project aims to utilize biostimulants and fertilizers for effective disease control, replacing chemical crop protection.
This will enhance understanding of AI's role in sustainability, enabling growers to operate efficiently while reducing reliance on traditional crop protection products.

GEOGRAPHICAL LOCATION:
Frank Coenders Rose Nursery, Grubbenvorst (NL)

TARGET SECTOR:
Tree nursery – open field; Arable farming

PARTNERS INVOLVED:
Compas Agro, npk design, Mythronics, Frank Coenders Rose Nursery.

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
www.npk.nl/en/portfolio/eip-project/
www.compas-agro.nl/project/eip/

SUCCESS FACTORS FOR ADOPTION:

The pilot in the tree nursery sector addresses a significant and urgent problem, whereby the impact of the innovation is high and makes a strong contribution to the sustainability of the agricultural sector by reducing chemical crop protection through a holistic approach.

SKILLS AND TRAINING NEEDS:
Combining autonomous sensors, AI, and eco-sustainable treatments, we promote a more efficient and environmentally friendly future for agriculture.

More information:

Funded by the European Union

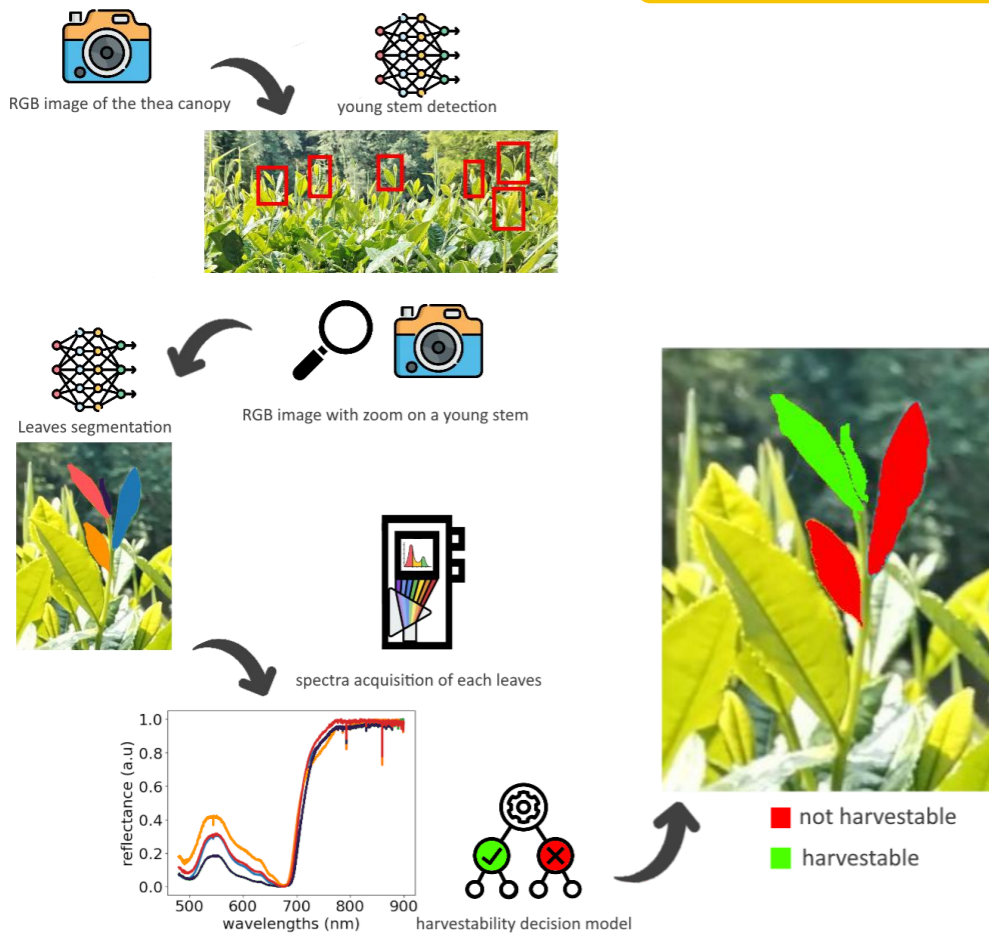# Tea harvesting robot

Denis Mazerolle
denis.mazerolle@filleule-des-fees.fr

https://tea-grown-in-europe.eu/

RGB image of the thea canopy → young stem detection
Leaves segmentation → RGB image with zoom on a young stem
spectra acquisition of each leaves
harvestability decision model

red: not harvestable
green: harvestable

GEOGRAPHICAL LOCATION:

European regions with acidic soil and moderate to high humidity and rainfall. Examples include Brittany, Galicia, Lake Maggiore, and similar areas.

TARGET SECTOR:

Small to medium-scale tea farms.

PARTNERS INVOLVED:

- European tea farmers, under the "Tea Grown in Europe" association
- Photonics Bretagne
- Photonics Open Projects
- Filleule des Fées

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

https://jeos.edpsciences.org/images/IWP/2024/EOS_IWP_2024_001.pdf

DESCRIPTION OF THEPROJECT

Several tea farms in Europe are producing high-grade tea but face scaling challenges due to costly manual harvesting. To address this, we are developing robotics for tea harvesting using RGB imaging to segment young leaves suitable for harvesting. The system achieves 91% accuracy, with potential for improvement through advanced algorithms.

BENEFIT/VALUE FOR PRACTITIONERS

In Europe, manual harvesting accounts for over 75% of tea production labor. Robotic tea harvesting will enhance productivity and scalability of traceable, high-quality tea.

Opportunities for shared advancements with robotics used in other agricultural sectors, such as harvesting small fruits and aromatic plants, creating mutual benefits across these sectors.

SUCCESS FACTORS FOR ADOPTION:

- Reduced production costs.
- Streamlined farm management.
- Improved working conditions.

SKILLS AND TRAINING NEEDS:

Involve at the earliest possible stage European tea farmers, as well as a few carefully targeted farmers in traditional tea countries.

EU CAP NETWORK

ILVO's Living Lab Agrifood Technology

Axel Willekens

Axel.Willekens@ilvo.vlaanderen.be

www.agrifoodtechnology.be

DESCRIPTION OF THE INITIATIVE

Focus: direct collaborations with technology companies in user-centered approach

Challenge Identified by End Users: Reducing robot set-up and supervision time for precision crop farming applications

Key Objective: increased robot adaptability and smoothing of the information exchange while providing full liability to the farmer when key decisions need to be made.

BENEFIT FOR PRACTITIONERS

Cost Efficiency: Deploying agricultural robots reduces variable costs

New Possibilities: Robots enable (new) agricultural practices that were previously not economically feasible

New Challenges: Operating time exchanged for new tasks: supervision, task preparation, transport **…**

SUCCESS FACTORS FOR ADOPTION:

Successful Prototyping: our prototypes serve as a proven examples for companies to develop their own fast to market prototypes

Co-Creation with User-Centric Enhancements: developed with input from all companies active in the ecosystem, Improved and refined based on farmers' needs and insights, ensuring sector relevance, innovation

Accelerated Adoption: Helps farmers adopt technology faster and Supports companies in rapidly developing market-ready prototypes

GEOGRAPHICAL LOCATION:
ILVO agrifood Testing and Experimentation facility in Merelbeke-Melle

TARGET SECTOR:
Robotic research, testing and development for commercial farming solutions, optimizing large-scale arable farming and high-value crop farming.

ROBOTIC PROJECTS:
AgrifoodTEF (Digital Europe), CIMAT (Interreg Vlaanderen-Nederland), SQAT (Horizon Europe), Smart Farming and Food Processing (Interreg Vlaanderen-Nederland), Smart Carbon Farming (Interreg North-West-Europe), Flanders AI Research (FAIR)

INFORMATION: ilvo.vlaanderen. be

SKILLS AND TRAINING NEEDS:

- *Reduced and remote supervision*
- *Creating new information streams*
- *Providing liability to the operator*

LA VEGA INNOVA: SmartPivot

Diego Braojos
Bzn-sgid@mapa.es

https://lavegainnova.es/

DESCRIPTION OF THE *Practice/Project/Initiative*

La Vega Innova (LVI) is the Digital innovation HuB of the Spanish Ministry of Agriculture. It is a space for development of technologies adapted to the agri-food value chain. Implemented activities: pilot projects, agrolabs and challenges, technology showroom and an entrepreneurship program that mentors of agrifoodtech start-ups mainly. It is also a place for meetings, such as the presentation of the Spanish satellite node of the Digital European Program Project Agrifood TEF. One of the pilot project that has raised the highest interest is "SMART PIVOT". This pilot aims to implement and validate an irrigation recommendation system based on AI algorithms, so that it indicates when, how much and how to irrigate. All data obtained, is kept in an Open Fiware Platform.

BENEFIT/VALUE FOR PRACTITIONERS

Smart Pivot Project: monitors the irrigation with a water deficit of circa 20%, to observe the effects that this entailed in terms of yield (kg/ha), see the efficiency in irrigation, and the precision of the digital solutions in place.

SUCCESS FACTORS FOR ADOPTION:
Practicity due to water scarcity climate change scenario.

GEOGRAPHICAL LOCATION:
COMPLEJO CENCA-CENTER-LVI Camino de la Vega s/n. San Fernando de Henares, Madrid Region, Spain.

TARGET SECTOR:
Farmers, coopératives, professional agricultural organizations, agrifood enterprises, universities and technological centers.

PARTNERS INVOLVED:
Telefónica Spain.

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
https://lavegainnova.es/

SKILLS AND TRAINING NEEDS:
Digital Innovation Hubs can combine demonstrations, pilot projects in real conditions, in a setting where also classical training courses take place, stimulating synergies.

ROUND 3

EU CAP NETWORK

An innovative plant production management system with emphasis on optimization of machine operation, fertilization and protection of soil biodiversity

Andrzej Słomczewski
aslomczewski@cgfp.pl

https://projektsfcftf.cgfp.pl/

SFC-FTF

GEOGRAPHICAL LOCATION:

Wojnowo, Kuyavian-Pomeranian province, Poland.

TARGET SECTOR:

Large, medium and small farms

PARTNERS INVOLVED:

CGFP Ltd.

The John Paul II Catholic University of Lublin - Department of Biology and Biotechnology of Microorganisms

GSOC – Global Security Operation Center

SOURCES OF INFORMATION:

https://projektsfcftf.cgfp.pl/

https://www.cgfp.pl/

DESCRIPTION OF THE PROJECT

Farm **M**anagement **I**nformation **S**ystem created on the farm in response to real needs.

The **AI module** analyses weather data, yield maps, physical, chemical and **microbiological** properties of the soil.

As a result, it **generates VRA tasks** for optimal fertilizers dosage.

The system takes into account not only the needs of the plants but also the **protection of the beneficial soil microbiota**.

BENEFIT/VALUE FOR PRACTICIONERS

A dedicated solution for wheat, rapeseed and maize cultivation with a perspective of expansion to other crops.

Yield increase up to 14%.

Savings in nitrogen fertilizer consumption up to 25%.
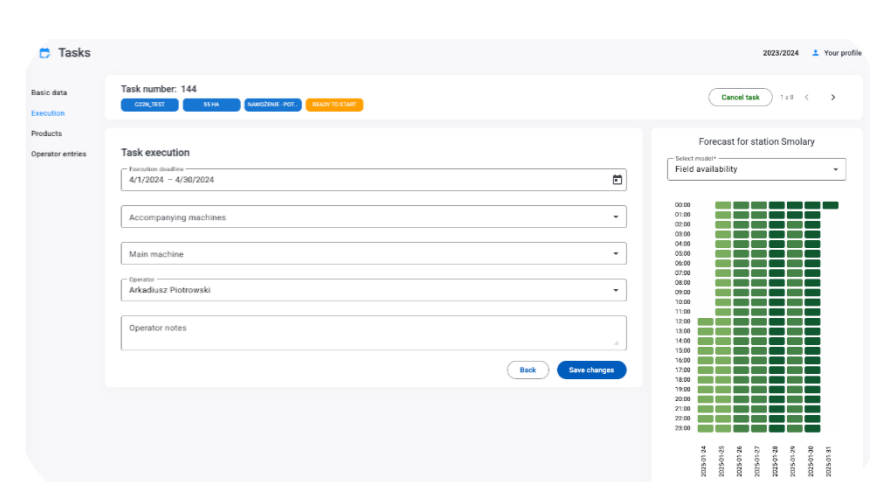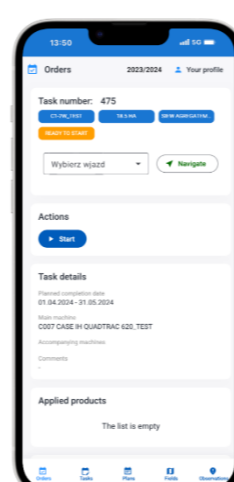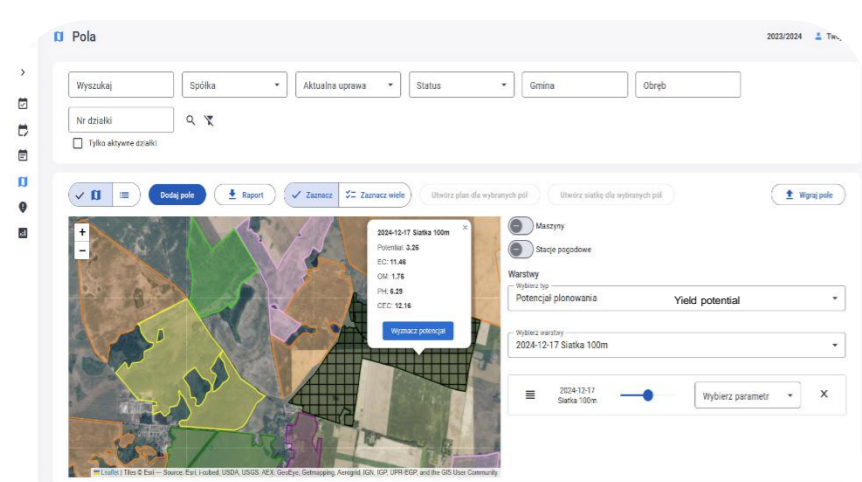
Managing machine work using **IoT**.

SUCCESS FACTORS FOR ADOPTION:

Ergonomic and **user-friendly**. Functionalities that minimize the time consumption of working with the system.

SKILLS AND TRAINING NEEDS:

Training in the use of FMIS.

This poster was presented at the EU CAP Network SEM 'Robotics and AI in farming and forestry' | 19-20 February 2025

More information:

Funded by the European Union

Driving Innovation in Agrifood: Digitalisation Strategy from ceiA3

Lola de Toro and Nicolás Aranda
Opi01.op@ceia3.es

http://www.ceia3.es/

digitalizaci
estrategia ceiA3

GEOGRAPHICAL LOCATION:
Andalusia (Spain)

TARGET SECTOR:
Farmers, Agrifood SMEs, Innovation Support Services

PARTNERS INVOLVED:
Cooperatives, Innovation Support Services, farmers, Geographical Protected Indications, Universities, Associations

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
https://akisconnect.eu/

DESCRIPTION OF Driving Innovation in Agrifood: Digitalisation Strategies from ceiA3

The **agrifood campus of excellence in Andalusia (ceiA3)** has actively contributed to digitalisation in agriculture through its participation in innovative **Operational Group projects**, the **DIH Andalusia Agrotech,** and the **ATTRACTISS Horizon Europe project**.

Key developments include:

- **Operational Groups:** technological surveillance, decision support systems for precision farming, spraying robots for field operations, and IoT-enabled smart farming solutions.

- **DIH Andalusia Agrotech**, ceiA3 boost digital acceleration programmes, and supports digital transformation in SMEs.

- In **ATTRACTISS**, ceiA3 drives capacity building and interactive innovation tools such a digital network.

BENEFIT/VALUE FOR PRACTITIONERS

Digital innovations adoption enhance the competitiveness and resilience of farmers and foresters by **improving efficiency, reducing costs, and mitigating climate-related risks.**

SUCCESS FACTORS FOR ADOPTION:

Technological developments should be accompanied by Capacity building and Digital Skills adoption

SKILLS AND TRAINING NEEDS:

Interactive Innovation, Knowledge Connection, Digital Network, Innovation Ecosystems

ANDALUCÍA AGROTECH DIGITAL INNOVATION HUB

EDIH European Digital Innovation Hubs Network

ATTRACTISS Empowering Innovation Support Services

VINEYARD ANGEL

Ivana Rendulic Jelusic, PhD
ivana@alti-agro.hr

www.vineyardangel.com

VINEYARD ANGEL
AI powered monitoring

GEOGRAPHICAL LOCATION:

CROATIA (ca 1.000 ha)

TARGET SECTOR:

The results obtained are suited for **both large-scale vineyard operations and small farms**, offering scalability and flexibility to meet the needs of various viticulture practices.

PARTNERS INVOLVED:

TIS group (IT company), wineries Kutjevo, Iločki podrumi, Saints Hills, Matošević..

SOURCES OF INFORMATION:
www.vineyardangel.com; www.alti-agro.hr; https://www.youtube.com/watch?v=L9cx_dJ011U

DESCRIPTION OF THE VINEYARD ANGEL

The Vineyard Angel is a cutting-edge solution utilizing drone technology and artificial intelligence (AI) to transform vineyard management. Combining high-resolution drone imaging with AI-driven data analytics, it delivers precise insights into vine vigour and vineyard management. Successfully implemented in Croatian vineyards, including partnerships with Iločki Podrumi, it provides automatic AI row extraction, missing vines counting and vineyard quality zoning. Its AI-powered row isolation enables highly accurate vineyard analysis, setting a new standard in precision viticulture.

BENEFIT/VALUE FOR PRACTITIONERS

With accurate missing vine detection and qualitative zoning, VA significantly enhances competitiveness by reducing labor costs through automation. Early detection of stress supports timely interventions, improving grape yield and quality. Its adaptable AI features can provide a scalable solution for any row crop.

SUCCESS FACTORS FOR ADOPTION: Adoption is driven by the need for accurate and timely vineyard data analysis. Proven success in large-scale vineyards builds trust and credibility. Its scalability and adaptability make it suitable for vineyards of all sizes, ensuring widespread use.

SKILLS AND TRAINING NEEDS: Broader adoption requires a clear understanding of the potential multispectral data holds for analyzing vineyard vigor and productivity, as well as the successful integration of precision viticulture tools and AI into existing vineyard management practices.

OG SMARTGOAT

María Soto Gallardo
direccion@fundacion.cooprado.com

www.gosmartgoat.es

GO SMARTGOAT

DESCRIPTION OF THE PROJECT

SmartGoat is an **innovative project** focused on optimising dairy farm management through data interpretation. The aim of this project is to improve the **management of farms** through the use of digital tools and to guarantee the **traceability** of the cheese. A **digital platform** is being developed for this purpose. This platform integrates the data collected from farms, dairies and cheese dairies using **Machine Learning techniques** for prescriptive purposes.

**GEOGRAPHICAL LOCATION:**
Extremadura (Western Spain)

TARGET SECTOR:
Both large and small dairy goat farms

PARTNERS INVOLVED:
Sector companies: COOPRADO, COOPRADO Foundation, VENTUM, Innovación y Desarrollo and Torta del Casar Cheese PDO

Research Centres: CICYTEX

External technological service:IMASDE

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

www.gosmartgoat.es

BENEFIT/VALUE FOR PRACTITIONERS

The use of **BigDATA** provides a competitive advantage by improving **decision making**. It will also improve the quality, classification and traceability of milk, which will have a strong impact on the **profitability** of the dairy farm. In Extremadura, the PDOs for goat's cheese are linked to extensive and semi-intensive farms, making data collection more difficult. The project has had a positive effect on the farms and dairies associated with the Acehúche Cheese PDO, but the knowledge acquired can be applied to other PDOs in other rural areas.

SUCCESS FACTORS FOR ADOPTION:

The participation of all the actors in the value chain has been key. So was the implementation on a **pilot farm**. There, farmers have been able to see that the adoption of digital solutions is easier, cheaper and simpler than they thought.

SKILLS AND TRAINING NEEDS:

Initially it may take some time to enter data into the system, but then it becomes routine and automatic thanks to **RFD technology**.

More information:

Funded by the European Union
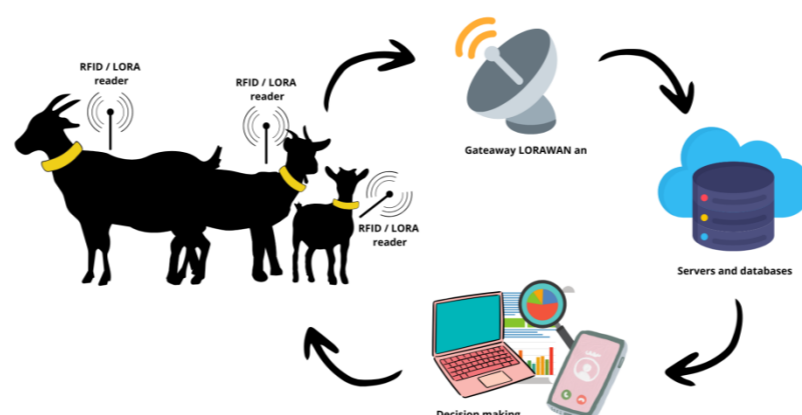
Wisecow Health

Hardi Tamm
hardi.tamm@piimaklaster.ee

www.wisecow.ee

DESCRIPTION

Wisecow Health includes novel subcutaneous implant, gateway system and Wisecow AI-cloud that forms and analyses health profiles. Different from others, it enables:

- 24/7 monitoring of health conditions; animals' **full lifecycle** monitoring capability incl. on/off-farm (cross industry transport and stress)

- prewarning up to 2 days before clinical symptoms appearance and decision support

- animal e-health passport for profiling and future statements about animal wellbeing

Artificial intelligence and machine learning models are used for big data analysis, profiling and decision support.

BENEFIT/VALUE FOR PRACTITIONERS

Enhances competitiveness and resilience by improved monitoring even for unexperienced stuff, introduces modern animal wellbeing. Potential: 1 billion bovines globally

SUCCESS FACTORS FOR ADOPTION:

Farm workflow-based implementation (every second matters), clinical trial was arranged in normal farms
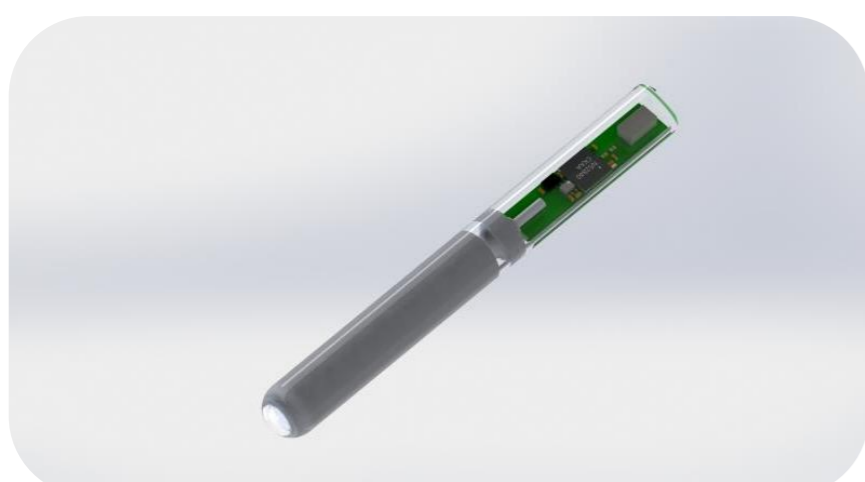
GEOGRAPHICAL LOCATION:
Estonia

TARGET SECTOR:
Livestock, dairy and beef
Results obtained suited both
for large-scale operations and small farms

PARTNERS INVOLVED:

Estonian Dairy Cluster' EIP Group
Estonian University of Life Sciences

Celvia CC AS

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
https://piimaklaster.ee/wisecow/

SKILLS AND TRAINING NEEDS:

more IT skills. For broader adoption of technologies, EU level legislative pressure needed towards solution providers, to guarantee data exchange

PiimaKLASTER

WISECOW

Digital Agricultural Technology Solutions (DATSs): A Robotic Milking Example from Ireland

Lisa Parce

https://quantifarm.eu/

IRISH MILKING ROBOTS TEST CASE:
✓ Context: Robotic milking, a DATS, optimising sustainable dairy production.
✓ Technology: Fully automated, sensors, real-time data analytics, precision feeding mechanisms.
✓ Innovative Aspects: Enhances labour efficiency, milk yield consistency, & animal welfare, while integrating with broader FMSs.

BENEFITS FOR STAKEHOLDERS:
✓ Increased Efficiency: Improves milk yields, reduces labour costs, increases flexibility.
✓ Animal Welfare: Enhances cow health & welfare.
✓ Farm Profitability: Decreases manual labour dependence, optimises herd management.
✓ Scalability: Adaptable to larger & smaller farms.

SUCCESS FACTORS FOR ADOPTION:
✓ Transparent communication: Accurate, trustworthy dialogue about pros/cons of DATSs.
✓ Varied education & training: Diverse learning modes, facilitating soft & technical skills training.
✓ Reliable advice: Reliable, practical advice sensitive to farmers' views on autonomy and technology.
✓ Farmer-centric technology design: Transparent contracts, data ownership/sharing clarity; involve farmers in design – implementation.
✓ Behaviourally driven policies: 'Helpful actions' with behavioural incentives & investment funding mechanisms to reduce DATS adoption barriers.

GEOGRAPHICAL LOCATION:
Teagasc TC = Ireland
Project = 30 TCs, 20+ countries

TARGET SECTOR:
Teagasc TC = Dairy
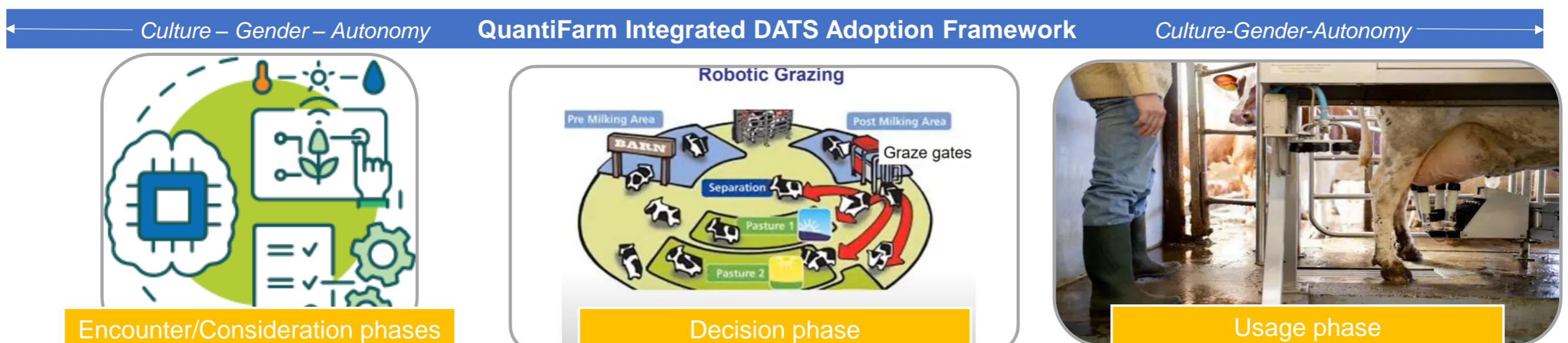Project = 7 agri-food sectors, in 10 biogeographical regions

PARTNERS INVOLVED:
Project = 32 partners representing farmers, advisors, DATSs providers, policymakers

REFERENCES: https://quantifarm.eu/

Parce, L. and Donnellan, T. (2025). D1.3 Behaviour Intervention Recommendations – first version (pending), QuantiFarm, EU Horizon Europe, no. 101059700.

van de Weerdt, C. et al. (2024). D1.2: Assessing the impact of digital technology solutions in agriculture in real-life conditions. QuantiFarm, EU Horizon Europe, no. 101059700.

SKILLS & TRAINING NEEDS: Holistic approach = Soft skills (listening to individuals, asking good questions, involving all, peer-to-peer) + Technical skills (hands-on, ongoing throughout DATS lifecycle; financial, contract, interoperability, scaling).

Culture – Gender – Autonomy **QuantiFarm Integrated DATS Adoption Framework** *Culture-Gender-Autonomy*

Encounter/Consideration phases

Robotic Grazing
Pre Milking Area | Post Milking Area
Graze gates
BARN
Separation
Pasture 1
Pasture 2

Decision phase

Usage phase

This poster was presented at the EU CAP Network SEM 'Robotics and AI in farming and forestry' | 19-20 February 2025
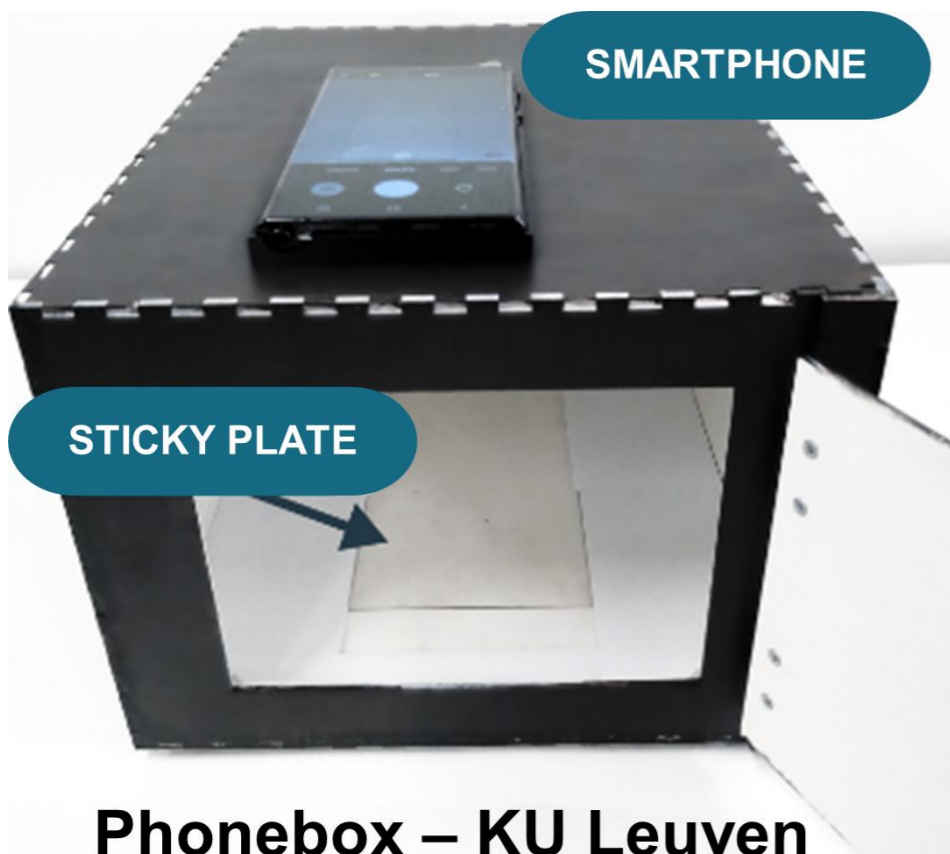
More information:

Artificial intelligence in witloof chicory

Rana Yurduseven
rana.yurduseven@vlaamsbrabant.be

https://www.praktijkpuntlandbouw.be/

SMARTPHONE

STICKY PLATE

Phonebox – KU Leuven

GEOGRAPHICAL LOCATION:

Flanders, Belgium

TARGET SECTOR:

Small and large agricultural businesses. At the moment focus on witloof chicory growers.

PARTNERS INVOLVED:

Praktijkpunt Landbouw Vlaams-Brabant, Inagro, KU Leuven, Viaverda, PSKW, ILVO

SOURCES OF INFORMATION, REFERENCES, WEBSITES:

Praktijkpunt, Inagro, KU Leuven

www.vlaio.be/sterkondernemen

DESCRIPTION OF THE PROJECT

Artificial intelligence and image recognition improves pest monitoring in chicory.

A semi-automated system based on sticky traps and AI-driven analysis (YOLOv5x) enables accurate detection and provides faster, plot-specific data for early intervention.

This VLAIO project addresses challenges of existing systems, such as difficulties recognizing small insects and the lack of attractants.

BENEFIT FOR PRACTICIONERS

- Automatic monitoring of insects (pests + beneficials) reduces manual workload.
- Faster detection and intervention, minimizing crop damage and optimal use of PPPs.
- Farmers actively monitor traps using the user-friendly 'Phonebox' system.

SUCCESS FACTORS FOR ADOPTION

User-friendly technology: The 'Phonebox' and app are easy to use for farmers.

Tailored to local needs: Focused on pests like the chicory leaf miner and other relevant insects (e.g. parasitoid wasps).

Collaboration: Strong partnerships between scientific researchers, applied agricultural researchers, and farmers.

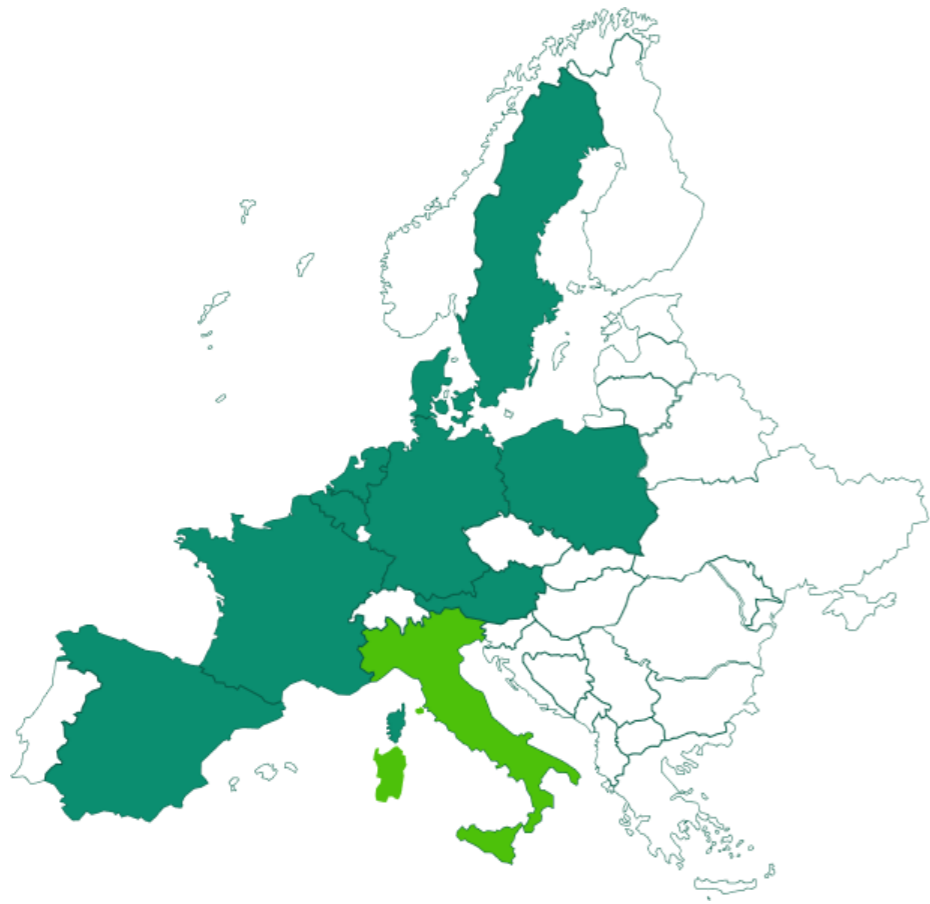**Continuous improvement:** AI models are regularly updated with field data for better accuracy.

SKILLS AND TRAINING NEEDS:

Basic smartphone and app usage for farmers. Extensive data collection is essential for scaling up and effectiveness across crops and insects.

agrifoodTEF

Sebastian Gruber
sebastian.gruber@fhwn.ac.at

agrifoodtef.eu

DESCRIPTION OF THE PROJECT

AgrifoodTEF is a European network of test centers supporting AI and robotics development in agriculture and food production. It helps companies validate solutions in real-life conditions, accelerating market readiness. Co-funded by EU member states and the EC (Digital Europe Programme), it serves businesses across Europe.

BENEFIT/VALUE FOR PRACTITIONERS

Companies of all sizes (e.g., start-ups, SMEs) can access physical and digital services to advance their solutions from TRL6 (in-lab validated) to TRL8 (in-field validated). All nodes follow common standards and collaborate across regions to ensure broad accessibility.

SUCCESS FACTORS FOR ADOPTION

AgrifoodTEF offers 300+ tailored services, providing customized solutions, ongoing support, and expert-driven innovation. Close collaboration with customers ensures personalized guidance, while strong partnerships with leading research institutions guarantee top-tier expertise.

GEOGRAPHICAL LOCATION:
Several European Countries (see map above)

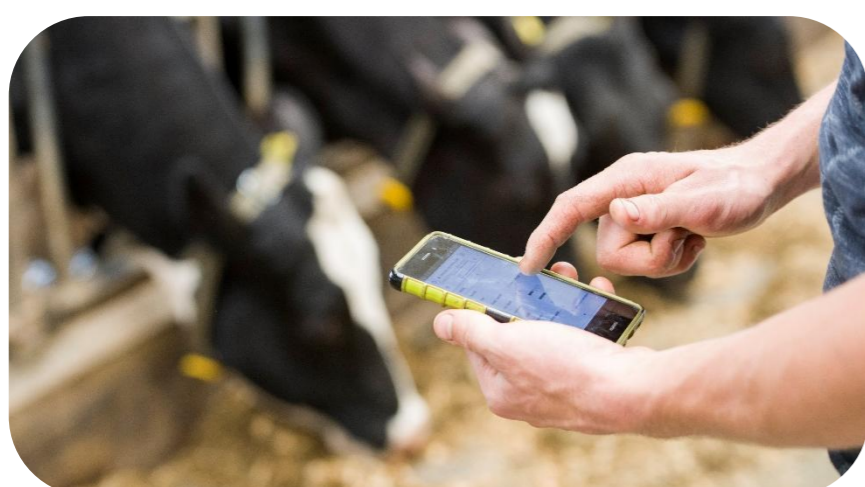**TARGET SECTOR:**
SMEs, Start-ups and Big Companies

PARTNERS INVOLVED:
Research Institutes all around the EU

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
agrifoodtef.at
linkedin.com/company/agrifoodtef
youtube.com/@agrifoodtef

SKILLS AND TRAINING NEEDS

There are no special skills or trainings required.

More information:

DIGICOW | NOLAME
Precision livestock farming for early disease detection in dairy cattle

Eleftherios Meletis
Emeletis@outlook.com

https://digicow.gr/   https://nolame.gr/

DESCRIPTION OF THE *PROJECTS*

➢Innovative research initiatives focused on leveraging precision livestock farming technologies to enhance dairy cattle health and productivity

DIGICOW

➢Focuses on the early detection of diseases in dairy cattle through real-time monitoring and data-driven decision-making

NOLAME

➢Aims to detect lameness at an early stage in dairy cows, a condition that significantly affects animal welfare and milk production

BENEFIT FOR PRACTITIONERS

✓Preliminary findings indicate early detection of disease → final prediction model end of 2025

✓One Health Approach: early detection of disease outbreaks, reduction of zoonotic disease occurrence, antibiotic misuse

✓Future application to human digitalized health data.

PROJECT PIPELINE

Installation phase

✓ Software and instrument installation for automation of several farm procedures

Application phase

✓ Automated data collection of health, behaviour and production indicators

✓ Veterinary check-ups as a reference

Prediction Model phase

✓ Development of a prediction model integrating Artificial Intelligence techniques

GEOGRAPHICAL LOCATION:
Greece

TARGET SECTOR:
Suited for both large-scale dairy operations and small farms, offering scalable and adaptable solutions for various environments

PARTNERS INVOLVED:
Faculty of Public and One Health, University of Thessaly, Karditsa, Greece.
Faculty of Veterinary Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

SOURCES OF INFORMATION, REFERENCES, WEBSITES:
https://digicow.gr/
https://nolame.gr/

SKILLS AND TRAINING NEEDS

➢Conservative & Therapeutic trimming protocols in the farm

➢Initiatives offer lameness detection without personnel's involvement in lameness scoring (LSC) & lameness identification