Climate-smart farming: AI, sensors and satellite data for resilient and sustainable crop management

Federica Mori, Cristina Cabeza Fernández, Chiara Soffietti

16/03/2026 h14.30-15.30

Summary

*Advances in **AI, IoT sensors, and satellite intelligence** now enable precision decisions at field and greenhouse level–reducing inputs, improving resilience, and supporting sustainable food systems.*

In this session, we explore solutions that deliver:

- ***Predictive analytics and crop modeling** powered by AI*
- ***Real-time soil, climate, and crop-health monitoring** via connected sensors*
- ***Satellite-based environmental mapping and variability analysis***
- *Applications for **irrigation optimisation**, **nutrient efficiency**, **soil-carbon measurement**, **early stress detection**, and **automated harvesting***

Presentation flow:

1. ***BioDscan (UK)*** – *AI-driven biodiversity monitoring*
2. ***TerraNIS (France)*** – *Satellite intelligence for sustainable crop management*
3. ***GeoPard Agriculture (Germany)*** – *Precision farming through remote sensing and field analytics*
4. ***Digit Soil (Switzerland)*** – *Real-time biological soil diagnostics*
5. ***OASIS Carbon (Spain)*** – *Digital carbon farming and soil-carbon monetisation*
6. ***xFarm Technologies (Italy)*** – *Integrated digital farm management platform*
7. ***avemoy (Austria)*** – *Autonomous drone systems for greenhouse crop insights*
8. ***Octiva (Belgium)*** – *AI and robotics for automated, climate-smart harvesting*

AI Powered Biodiversity Monitoring for Climate Smart Agriculture: "NO POLLINATORS; NO FOOD."

BioDscan

Khalid Mahmood
Founder

Challenge

Pollinating insects show an average decrease in distribution of 18% since 1970.

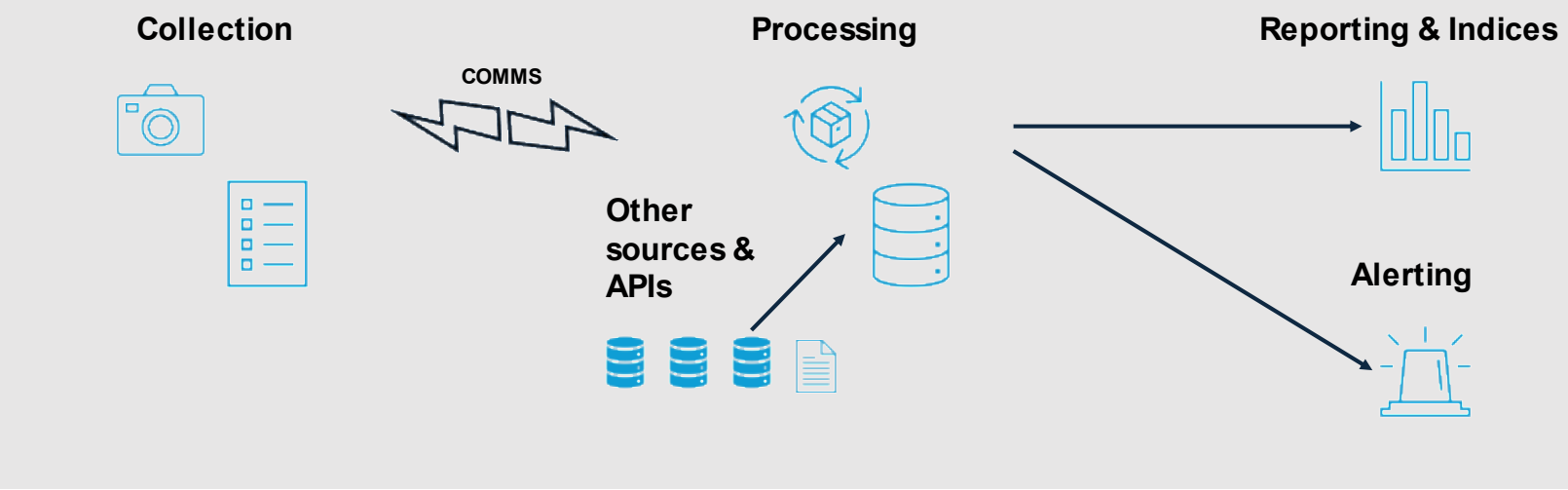
With over 75% of crops and £375B of economic services dependent on insect pollination.

Monitoring data missing
Lack scale
Costly and in efficient

Sources: Nature, 2017, State of Nature Report, 2024, World Economic Forum, 2019,University of Reading, 2018

What is Biodscan Innovation

Making biodiversity visible, measurable and usable at farm level.



Measurement in Field	Data Platform	Customer Consumption
raw data	*aggregation / frameworks*	*information / insights*
• Model training (ML) • Ground sensors (IoT) • Transmission	• Analysis • Aggregation • Analytics • Benchmarking	• Farmers, value-chain (supply chain) • Decision making • Policy, indices

Differential Value And Sustainable Impact

"0.6% increase in bee activity = 3.2% increase in berry weight" *Study at soft fruit grower*

✓ **AI + Computer Vision Sensors**
Automated insect and pollinator monitoring.

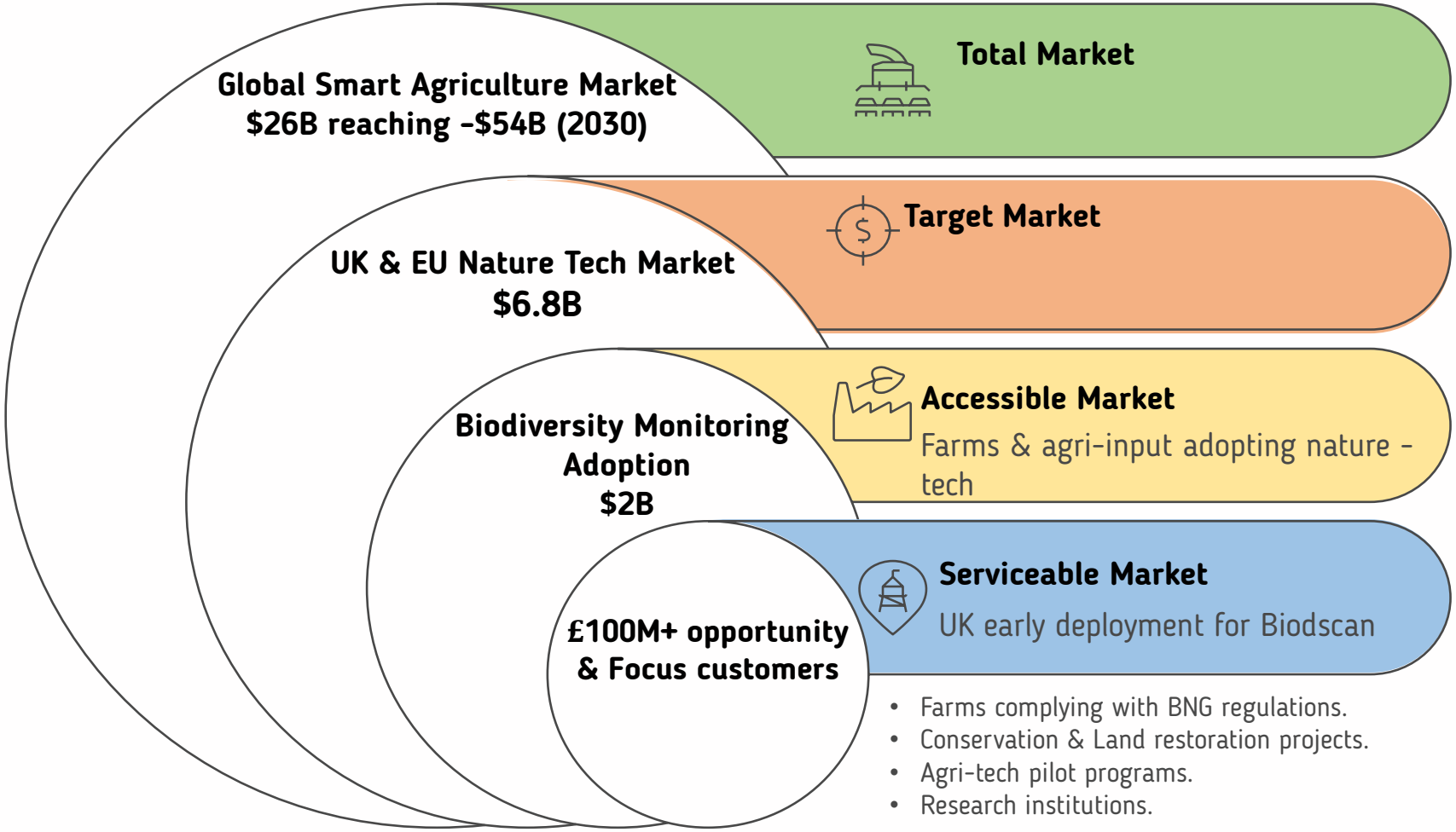
✓ **Dual Data Streams**
Field IoT sensors + satellite EO data.

✓ **Continuous Monitoring**
Real- time field data collection.

✓ **Species – Level Detection**
Precise biodiversity insights.

✓ **Scalable Deployment**
From farms - Landscapes - regions

Market Landscape & Target Audience



- Farms complying with BNG regulations.
- Conservation & Land restoration projects.
- Agri-tech pilot programs.
- Research institutions.

Cooperation & Value Chain Partnerships

European Pilot Farms & Cooperation

- Cross-border biodiversity monitoring at different climates.

Agri-Tech Integrators & Distributers

- Precision agriculture platform compatibility

Biodiversity & Carbon Credit Platform

- Validation & quantification of measurable biodiversity

Growing the EU's biodiversity monitoring ecosystem as it mobilises over £2B annually for nature restoration by 2030.

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Book a meeting with: BioDscan

Dr Khalid Mahmood
Founder
BioDscan Ltd.
khalid.mahmood@sawie.net

een.ec.europa.eu

PIXAGRI by TERRANIS

TERRANIS
EARTH OBSERVATION FOR SUSTAINABILITY

TERRANIS

David Hello
Co-founder - CEO

SustainableSolutionsMatch

Precision and sustainable farming

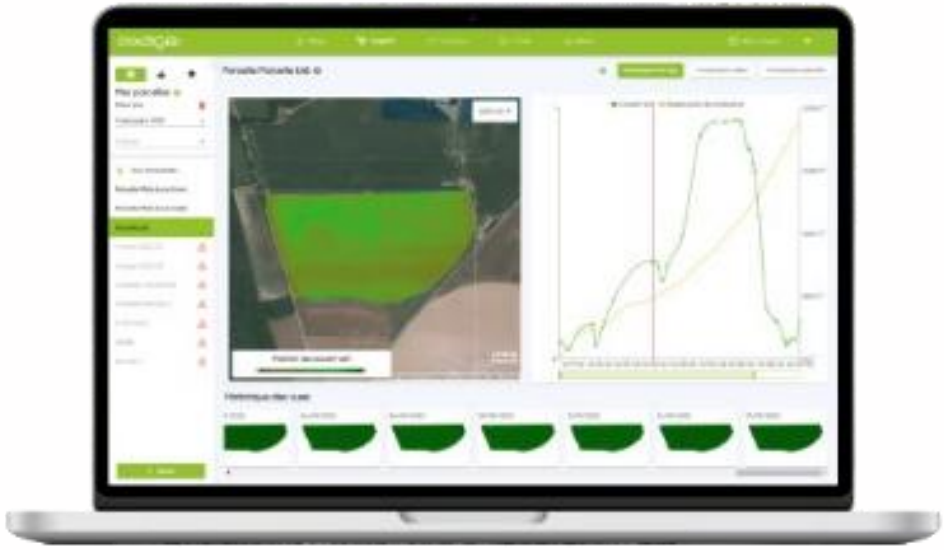
- *Climate hazards, declining yields, rising energy costs, costly and time-consuming manual labor–the challenges facing agriculture are numerous.*

- *Whether you are a farmer, technician, agricultural distributor, seed producer, or agro-industrialist, we are here to help you make informed decisions in the field.*
- *How? With our* PIXAGRI by TERRANIS *service offering!*

A proven technology

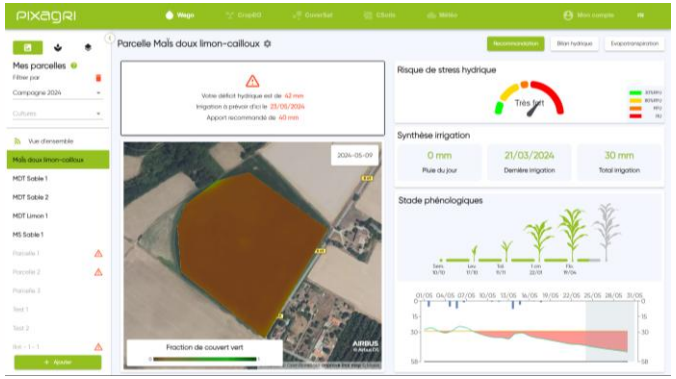
- PIXAGRI by TERRANIS *is a web-based service offering comprising several Decision Support Tools based on*

  - Satellite data
  - Meteorological data
  - Parcel/field data
  - Agronomic models



PIXAGRI IRRIGATION

Pixagri Irrigation, based on a water balance model (updated daily), ***estimates crop water requirements to prevent water stress*** *and* ***optimize irrigation practices while preserving water resources***



Decrease water and energy consumption by 20%

PIXAGRI CROISSANCE

Pixagri Growth helps farmers ***monitor crop growth from sowing to harvest*** *by assessing the* ***vigor and heterogeneity of plots****.*

Save scouting time and improve yields

PIXAGRI COUVERTS

Pixagri Covers allows you to ***monitor the cover crops growth****,* ***estimate the biomass and minerals*** *(N,P,Mg,K) returned to the soil thanks to the cover,* ***estimate the optimal date for destruction***

Preserve soils and reduce chemical inputs

Who can apply your solution?

- *As of today, PIXAGRI by TERRANIS is sold mostly in France but also in some European countries*
- *Users' profiles*
  - Cooperatives (or equivalent entities)
  - Seed companies
  - Agro-industries

X 10.000ha monitored in the past 3 years and ~1000 recurring farmers

How to collaborate !

- *Local presence aboard is mandatory to sell (and tune) precision agriculture services*
  - Need for local partners : commercial representatives and/or technical partners
    - Cross selling?
  - Focus on central and eastern Europe countries

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Book a meeting with: TERRANIS

David HELLO
Cofounder - CEO
TERRANIS
david.hello@terranis.fr

een.ec.europa.eu

TERRANIS
EARTH OBSERVATION FOR SUSTAINABILITY

Up2Circ

enterprise europe network

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Up2Circ

GeoPard Agriculture

GeoPard Agriculture: satellite-based precision farming for climate-smart decisions

FlyPard Analytics GmbH

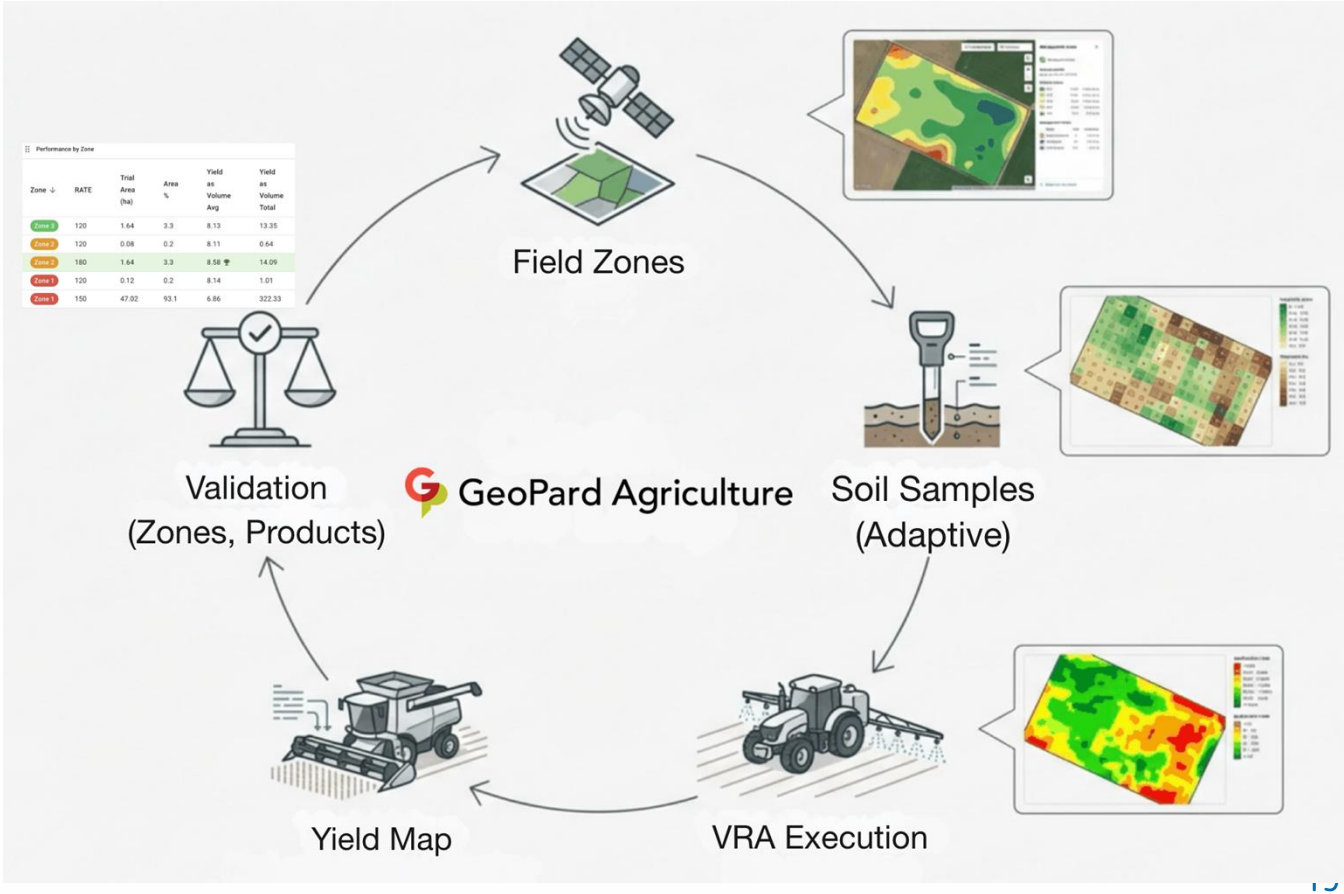
Vladimir Klinkov

Managing Director & Co-Founder

SustainableSolutionsMatch

Introduce your sustainable solution

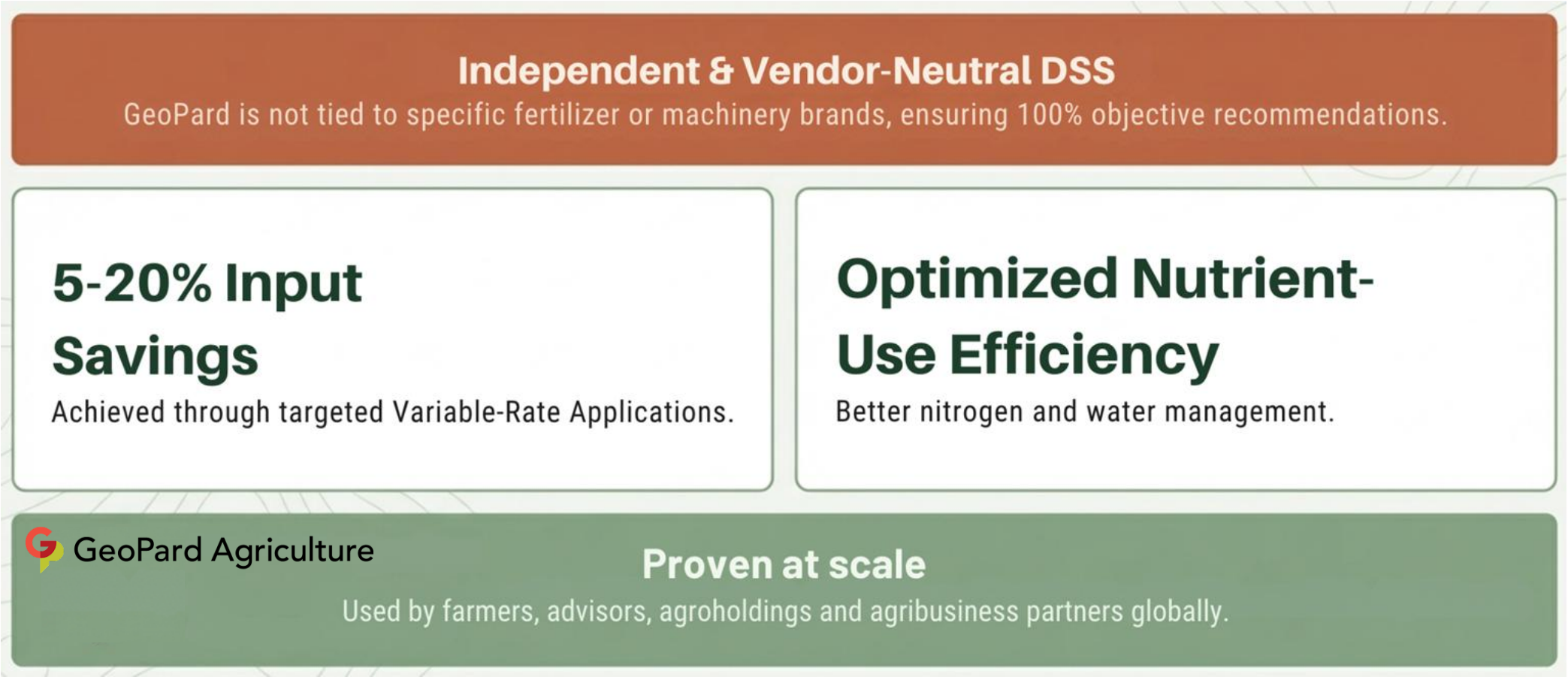
- **GeoPard turns:** Copernicus Sentinel-2, Landsat, Planet imagery into field-scale decisions.
- **Fuses:** satellite, soil, topography, and machinery data (yield, as-applied) for a ‘digital field twin’.
- **Delivers**: variability zones, monitoring, soil sampling, trials, scouting recommendations, VRA prescription maps and validation.
- **Adaptable** across crops, regions, farm sizes



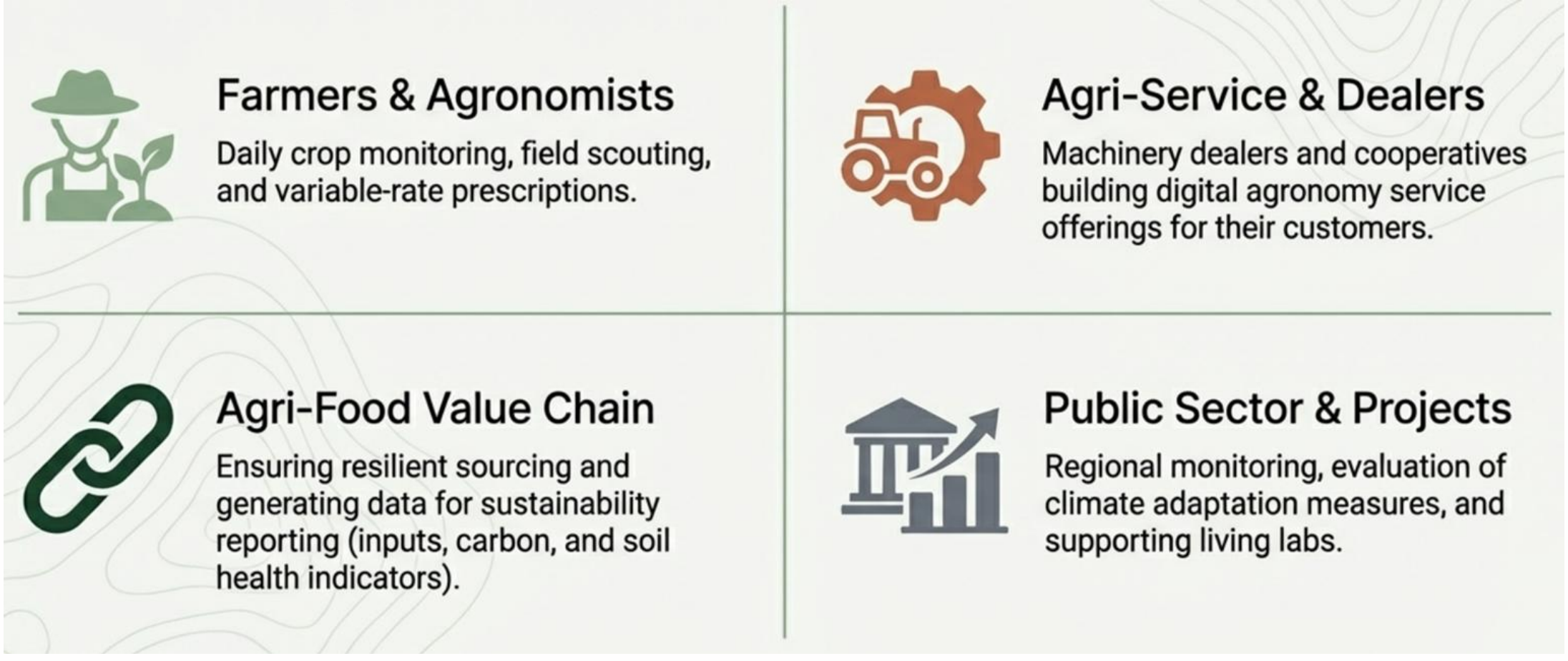
If relevant, give further details on the technology/process

- **Data ingestion:** Sentinel-2/Landsat/Planet, soil sampling and soil sensors, topography, weather, and machine data (yield, as-applied).
- **AI + agronomic models**: stress and anomaly detection, Field Potential management zones, yield limiting factors, recommendations.
- **Workflow**: import → diagnose yield constraints & variability → plan (soil sampling, VRA prescriptions, field trials) → validate (yield, NUE, profitability).
- **Outputs:** ISOXML/shapefile, direct machinery integration, accessible via web app and API.

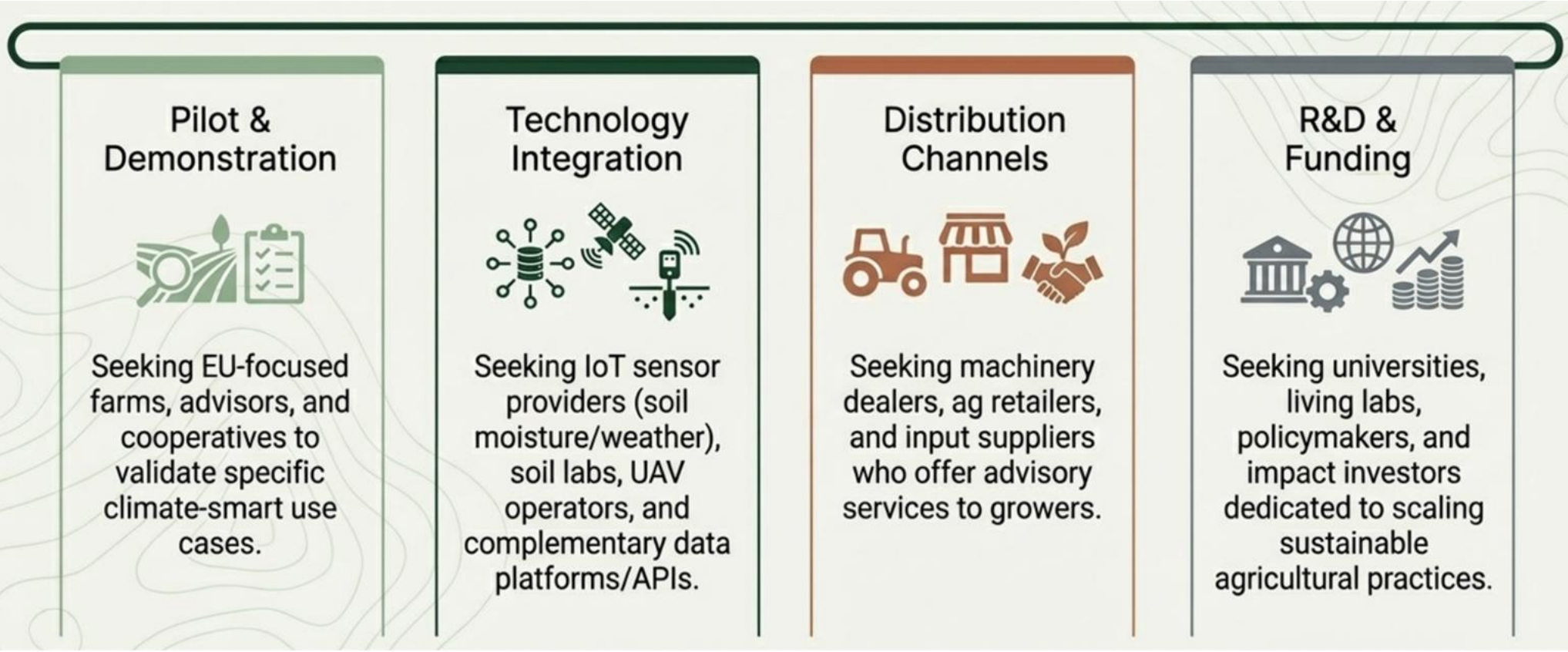
Describe your solutions differential value and sustainable impact



Market/Target audience – Who can apply your solution?



Sustainable and circular innovation needs good networks along the whole value chain.



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Book a meeting with: GeoPard Agriculture

Vladimir Klinkov
Managing Director & Co-Founder
GeoPard Agriculture
vladimir.klinkov@geopard.tech

een.ec.europa.eu

GeoPard Agriculture

Up2Circ

enterprise europe network

Real-Time Biological Diagnostics for Precision Nutrient Management

Digit Soil

Dr Sonia Meller
CTO

The insight into soil biological activity in 40 min at any time – anywhere

DIGITSOIL

Sampling and analysis

Fertilization recommender

Fertilization planning

Farm and soil data

Weather data

Climatic data

Yield data (biomass)

Fertilization recommender

Fertilization recommendations

Digit-Soil fertilization planning App

Value and sustainable impact

Our app tells growers how much nutrients is released from the soil and matches it with plant needs and local climate conditions

It is driven by real field data that anyone can collect

It translates into calendar of activities with explanation for every step

USER LANDSCAPE: WHO BENEFITS FROM OUR SOLUTION

AGRICULTURAL ADVISORY

AGRONOMISTS & CONSULTANTS: Precision nutrient advice for clients.

ASSOCIATIONS

FARMER UNIONS & COOPERATIVES: Supporting members with data-driven practices.

TECHNOLOGY DISTRIBUTORS

AGTECH RETAILERS: Integrating advanced soil diagnostics into their portfolio.

FERTILISER & AGRICULTURAL EQUIPMENT COMPANIES

INPUT PROVIDERS: Validating product efficacy and optimizing application rates.

AGRICULTURAL RESEARCH INSTITUTES

ACADEMIA & R&D: High-resolution High-resolution biological data for studies.

FARMERS

CROP PRODUCERS: Real-time soil health insight for better yields.

FOOD PRODUCTION COMPANIES

PROCESSORS: Monitoring sustainability in the supply chain.

FOOD RETAILERS

GROCERY STORES & MARTS: Verifying sustainable sourcing credentials.

POLICY MAKERS

REGULATORS & AGENCIES: Science-based environmental data for land use planning.

Desired partnerships

Commercial partners

- Commercialisation and market entry of the advisory platform for different geographies.
- Building distribution networks, and integrations to existing advisory and farming support systems.
- Implementation of optimised soil management system on farms and in food value chain

Research partners

- Field studies and validation trials for various crops, soil and geographies (field validation, regional calibration, impact assessment)

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Book a meeting with: Digit Soil

Sonia Meller
CTO
Digit Soil AG
sonia.meller@digit-soil.com

een.ec.europa.eu

OASIS Agro Carbon.
Agricultural Adaptation and Mitigation

OASIS Carbon

Francisco López Alarcón
CEO

Promote Carbon Farming

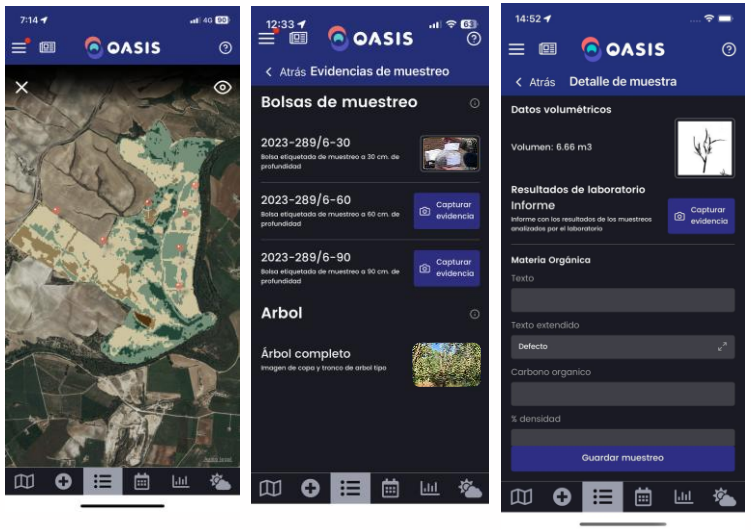
Handle Credit Generation

Sell CO_2 Credits on the market

OASIS CARBON

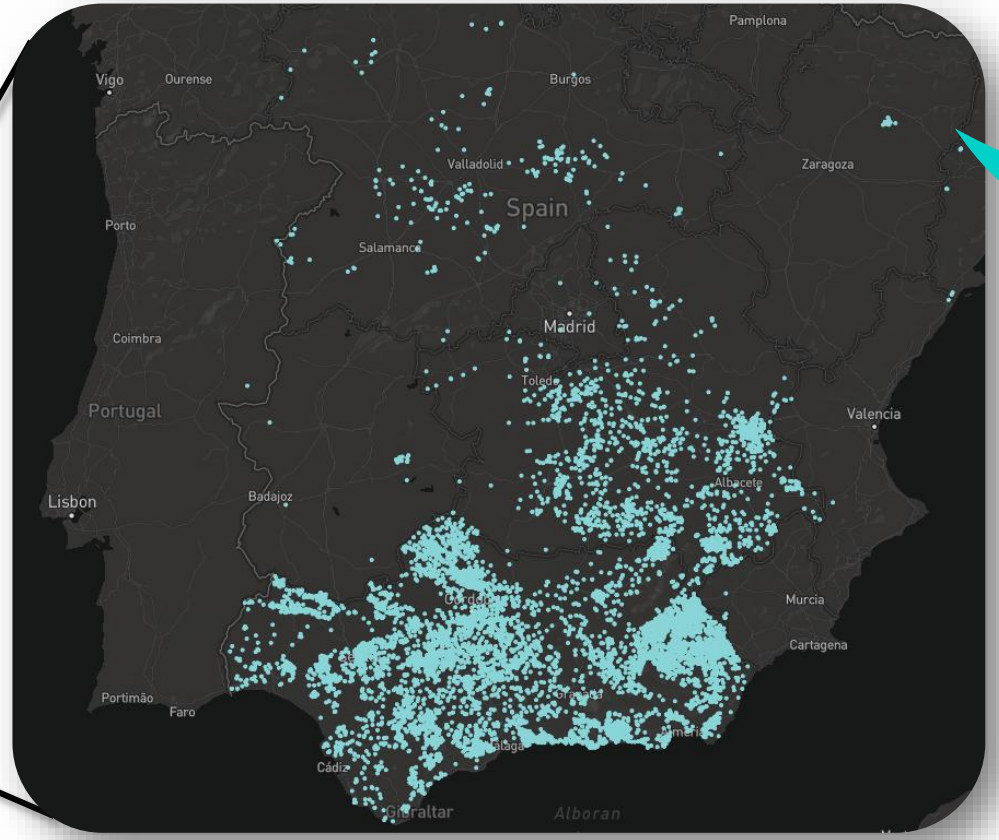
- *OASIS Carbon is a turnkey system that transforms farms into verified carbon-credit generators.*

Where Daily Farm Work Becomes Verified Climate Impact



What Makes OASIS Carbon Unique

OASIS CARBON



VERRA Standards for a Sustainable Future

5440

OASIS AGRO CARBON agricultural adaptation and mitigation project

- *Proven Digitalization at scale*
- *Deep environmental and agronomic insight*
- *Cross-selling through a trusted farmer Network*

Total Solution, 'Triple Wins'

Environment, business, community

COMPANIES

Achieve Carbon Neutrality at Competitive Rates

FARMERS

Get Extra Money & Improve Soils Fertility

ENVIROMENT

High-impact Carbon Sequestration

Let's Build the Future of Climate-Smart Agriculture Together

Digital Transformation & Data Upgrade	*Low-Carbon & Traceable Commodities*	*High-Quality Carbon Credit Buyers*
Companies seeking to modernize agricultural supply chains through better data, traceability, and sustainability insights.	Food, feed, and agri-value chain companies aiming to source inputs with verified lower emissions and full farm-level transparency	Corporations looking for transparent, nature-based VERRA-certified credits to meet climate targets

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Book a meeting with: OASIS Carbon

Francisco López Alarcón
CEO
OASIS Carbon
francisco.lopez@oasisanalitica.com

een.ec.europa.eu

OASIS CARBON

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Accessible primary farm data for agrifood operational sustainability

XFarm Technologies

Tommaso Bertolini Agnoletto
Sustainability Manager

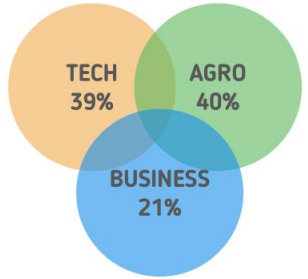
The Agrifood Digital Transformation company

Born from the union of Agro-Visionaries

Founded in **2017**

2017 · 2021 · 2021 · 2024 · 2024 · 2025

Merging key know-how



250
People

HQ & R&D:
Dev & Operations:
Direct Sales:
Distributors:

Backed by leading investors

PARTECH · United Ventures · swisscom · emerald Technology Ventures · NEVA SGR · mourocapital

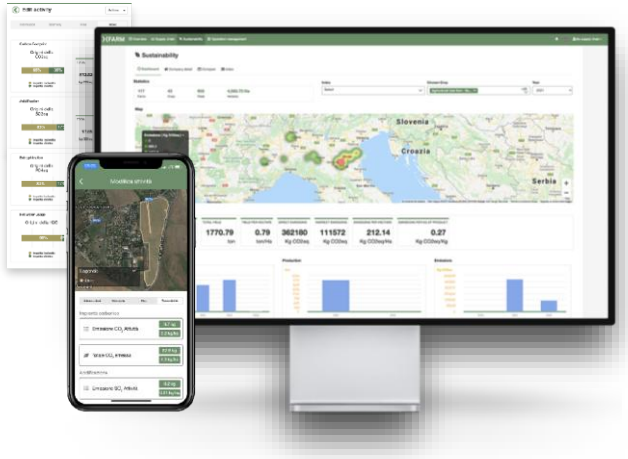
+ 600K
Users

+ 12M
Hectares

Our Sustainability computation tool

GHG emission baseline

- Causes of impact
- Parcel and farm details
- ISO 14040
- Aggregate b2b view
- Tier-2



Model for soil organic carbon

- CENTURY model
- Process based
- Parcel details
- Allows recalibration
- Tier-2 / 3

Audited

Approved Life Cycle Assessment ISO 14040

Tool validation for 2026

GREENHOUSE GAS PROTOCOL

Certified Sustainability ISCC ISCC PLUS

Developed with

dss+

Models

The **CENTURY** model ipcc

All-in-one solution

With a farmer-centric approach

Data Collection

Digitization of field operations and primary data collection to boost productivity and improved decision-making

Agronomic Support

Real-time recommendations trough AI-powered DSS that leverage field sensor and satellite data

Reporting & Compliance

Integration with public and private partners to guarantee compliance and make audits easier

BI Intelligence & Scope3

Supply chain data aggregation and business analytics for Scope 3 management

Regenerative Agriculture

Farmers engagement, protocol design, SOC tracking and simulation, implementation and MRV

Training & Execution

Dedicated team for project set-up, training and continuous support to ensure scalability

The partner for leading global agrifood stakeholders

Farmers

Driving efficiency in farms from 5 to 30.000 ha

Food Industry

Helping global & local companies building a resilient digital supply chain

Machinery

Enabling new digital experiences

Services

Building innovative business models

Ag Inputs

Driving efficient product usage

enterprise europe network

SustainableSolutionsMatch

Up2Circ

Sensors

iFarming
METER
SENSIRION
Sentek
Pessl INSTRUMENTS
DAVIS
ARABLE

Telematics

Trimble
osb connagtive
CLIMATE FIELDVIEW
ISOBUS
WAY
ACTIA
ama
YNNOVA
ROJ
ARAG A Nordson Company
TIERRA
COBO group

70+
Integrations

Irrigation

OCMIS
netsens
MaterMacc
OTECH
Irrigazione Veneta
irritec

Fintech

ZURICH

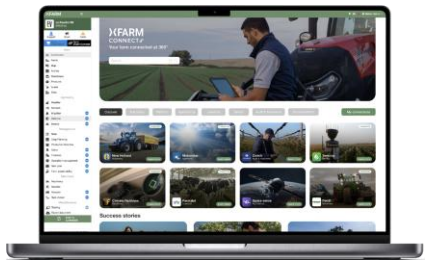
Services

DNV·GL
RINA CERTIFICATION DIGITAL PARTNER

Machines

Landini
McCORMICK
GOLDONI
VALTRA
FENDT
MASSEY FERGUSON
Challenger
STEYR TRAKTOREN
NEW HOLLAND AGRICULTURE
TAFE
CASE IH AGRICULTURE
Lamborghini TRATTORI
ANTONIO CARRARO
SAME
DEUTZ FAHR
CLAAS
JOHN DEERE

Connect, to make farmers life easier



Livestock

dinamica generale Electronic Solutions & Sensors

Agronomic

HARA

AMAZONE
Tecnoma GREEN'NOVATION SOLUTIONS
BERGMANN ...die Spezialisten
BERTHOUD
LEMKEN The Agrovision Company
POTTINGER
KUHN
GRIMME
KRONE
VÄDERSTAD
HARDI
HORSCH
ZUNHAMMER GÜLLE-TECHNIK

Implements

KRUKOWIAK
Dragone
brevi agri
BERTONI Green Technology
Agrimaster
DALBO
SPEDO
TEYME Smart Spraying
MaterMacc
CAFFINI SPRAYERS EQUIPMENT
DCM SPREADERS
seppi m. MULCHING EQUIPMENT SPECIALISTS
SFOGGIA AGRICULTURE DIVISION
ALPEGO The Best Technology in the Field
MASCAR
UNIA
AGREX

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Book a meeting with: xFarm Technologies

Tommaso Bertolini Agnoletto
Sustainability Manager
xFarm Technologies
tommaso.bertolini@xfarm.ag

een.ec.europa.eu

True TOMATO AI Autonomy: Hortiscan – drone, big data and AI

avemoy FlexCo

Michael Gruber
CEO

How it works today (worldwide)

Visual observation work and its derivation on tomato plants in the greenhouse

by humans (eye, brain and data transfer)
no automatisation
high extrapolation

⇨ very costly and albeit flawed procedure

HortiScan – Plug&Play industrial solution

avemoy drone, bigdata, AI models and Cloud

customer functions developed with the customer not only for the customer

⇨ 24/7; P&P; industrial fit; less extrapolation; -50% toleranz

⇨ quality push, less waste, resource-efficient

ONE System, ONE hectare, ONE thousand per ONE month, automates ONE employee

SaaS – software as a solution – licence model >98% Marge

Automatic:
scaling, adjustment of resources, software & OS updates

Standardized subsidiaries:
180 systems per year - annual payment in advance

Hardware:
only prototyping via Avemoy, HW is produced
externally ,in series, Maintenance via mail delivery

Market:
worldwide 235,000 hectares of tomato cultivation area under glass

Pilot customers, customers, multiplier and supplier

ONE System, ONE hectare, ONE thousand per ONE month, automates ONE employee

1. Greenhouse tomato growers (area avemoy sales fields - Middle Europe)
2. Big growers up to 100 hectare (worldwide)
3. Greenhouse deliverer with same issues, like bumblebee or yellow tabs
4. Multiplier include hortiscan to their product catalog in the field of agriculture

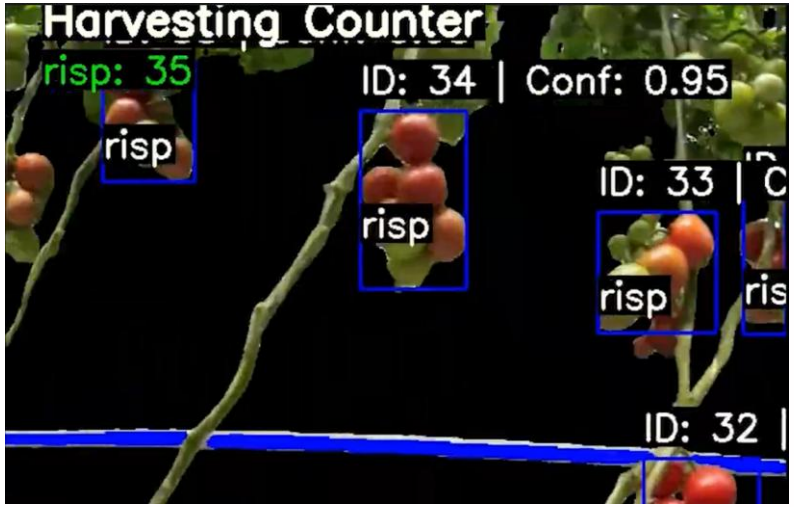
235.000 hectare worldwide tomato area under glass or plastic

MArket start done, now scale up – go international

1st step done:
avemoy NL - network given however help always welcome

2nd step under work:
avemoy CA or avemoy SAU

- network Ontario, office Toronto
- network Saudiarabien
  (near the prince family - Agri and water vision 2030)



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Book a meeting with: avemoy FlexCo

Michael Gruber
CEO
avemoy FlexCo
michael.gruber@avemoy.com

een.ec.europa.eu

Xenion autonomous platform for greenhouses

Octiva

Jan Anthonis
Managing partner

Challenge: powdery mildew

- Fungal desease
- Pesticide spraying
- More than 50% of residue due to mildew
- Spraying is problematic
  - Authorisation of active substances
  - Mildew resistance
  - Negative effect on biology

Lumion UV-C crop protection

- *Kills mildew: breaks down DNA*
- *Biostimulation: activate plant defense systems*
- *At night*
- *Autonomous navigation*
  - Over 250,000 km
- *Crops: strawberry, cucumber, tomato, rose*

Modular platform for other sustainable applications

Type of collaboration

- *Implement, robotic solution providers that need autonomous navigation*
- *New crops*
- *Expertise on UV-C treatment*

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Book a meeting with: Octiva

Jan Anthonis
Managing partner
Octiva
Jan.Anthonis@octiva,com

een.ec.europa.eu

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Thank you for the attention and enjoy the rest of Sustainable Solutions Match 2026!

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