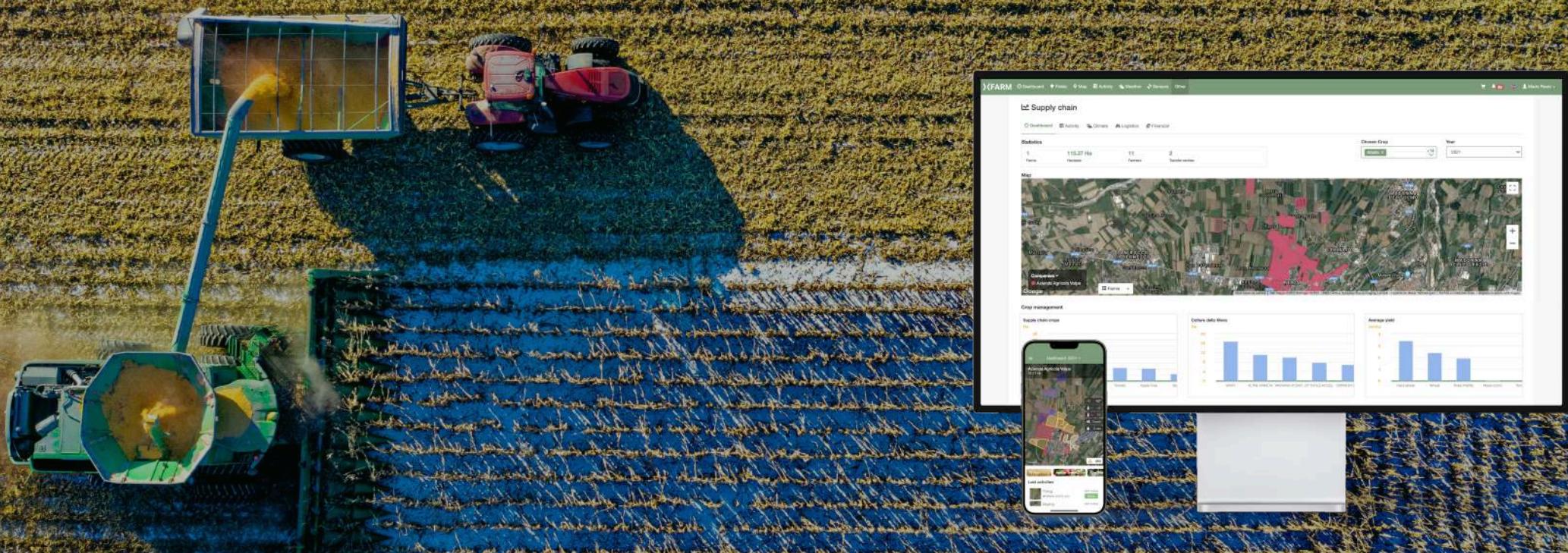


XFARM TECHNOLOGIES



xFarm introduction



xFarm Technologies

Company

AgTech company specialized in **digital** and **sustainable farming**.

We have developed an **all-in-one** solution:

- Farm Management System
- Corporate Analytics
- Agronomic advices
- Integration of sensors and machines
- Sustainability services
- Fintech



Team

+180

greenfield
TECHNOLOGIES

Space
sense



Go-to-Market

B2F - Smart Farming

- Farmers
- Associations

B2B2F - Corporate solutions

- | | |
|--------------|------------|
| ■ Food | ■ AgInputs |
| ■ Machinery | ■ Fintech |
| ■ Irrigation | |

Offices & Operations

R&D



HQ:



Direct Sales:



Distributions:



The most complete digital farming suite to support all farmers

A comprehensive *Farm Management Information System* coupled with advanced Analytics tools



All-in-one

30+ modules
400+ crops

Easy

Mobile-first
Low manual input

Connected

70+ integrations
Analytics portal

All a farmer's work, right in their pocket

Management

Bureaucracy

Machinery

Agronomics

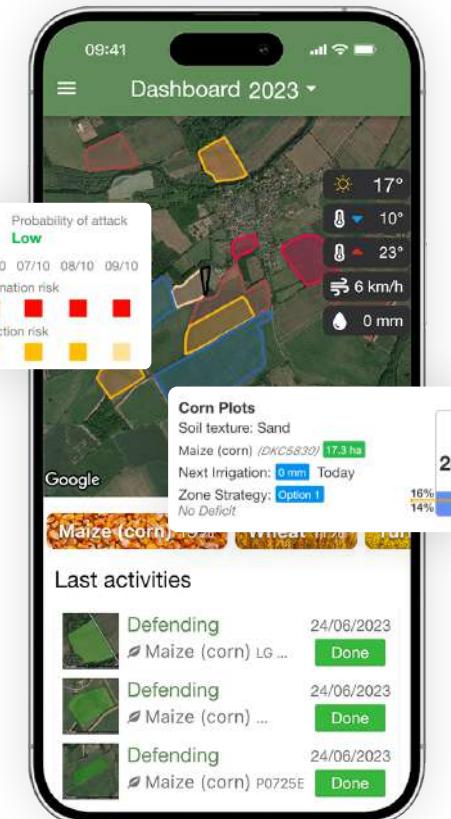
Satellite intelligence

Economics

Livestock

Sustainability & Regen Ag

InsurTech



xFarm: the Leading digital platform on Food ecosystem

Some of the xFarm main partners



Core components of food supply chain digital transformation

Farmers and Corporate platform

Farmers data platform



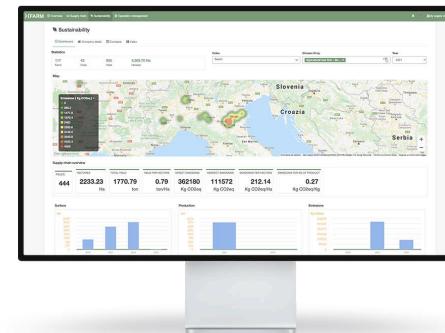
Farm Management
Agronomics DSS
Finance and Logistics
Satellite monitoring
Machinery integration

Ground-truth data
collected at Farm-level

Interconnectivity with
other FMIS

XFARM
CONNECT

Corporate Analytics



XFARM
ANALYTICS



Supply chain monitoring
Verification
Auditing
Traceability
Sustainability

Aggregation of ground-truth data collected at Farm-level

Single-tool for digital supply chain monitoring and other services

Farmers platform



We have developed a 360° solution for farm operational management

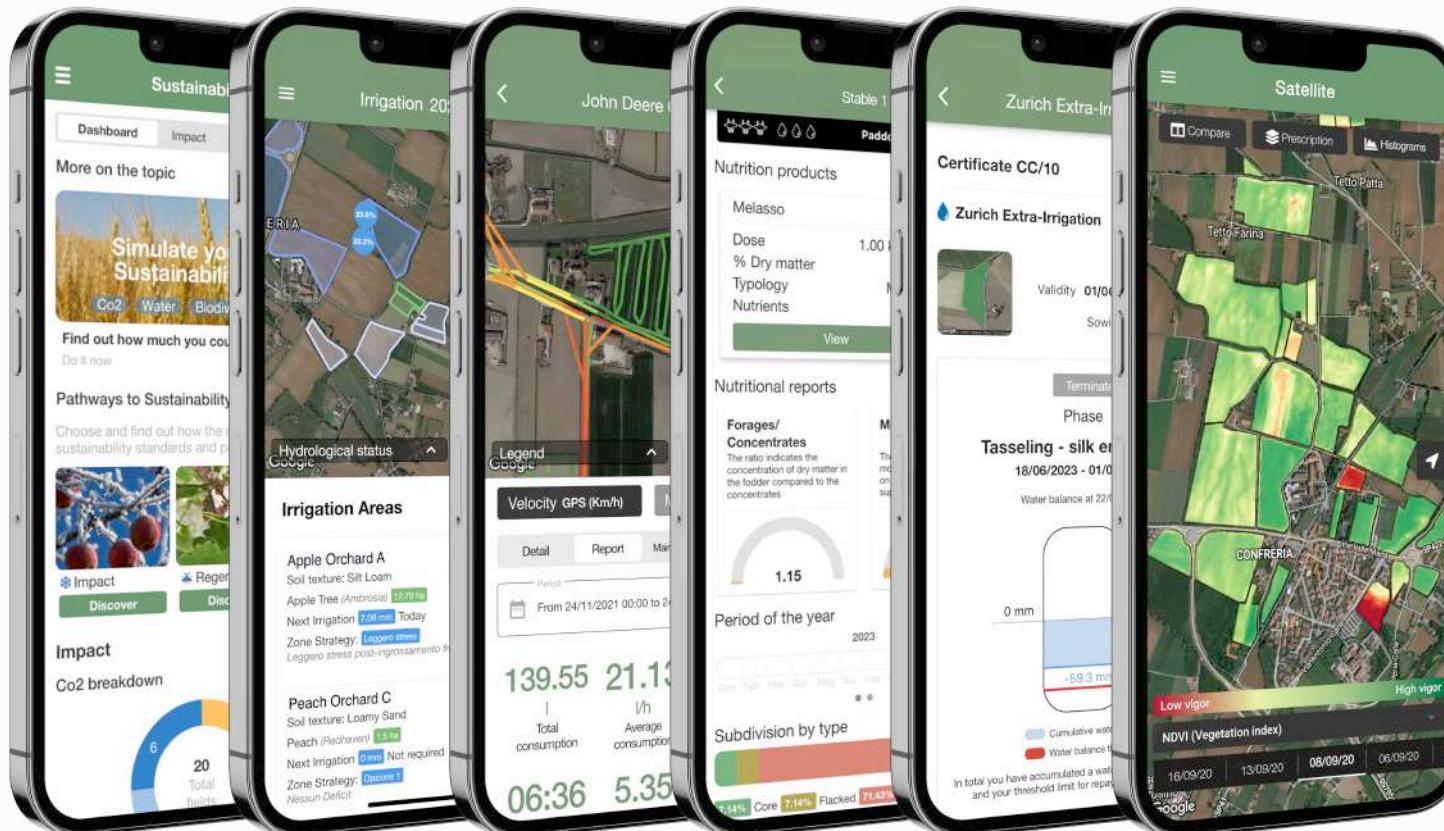
All-in-one platform

- Farm Management
- Agronomic advices
- IoT & Machine Integration
- Sustainability
- Livestock



Management of all farming operations

Always in farmers' pocket



Sustainability

Emission and regenerative agriculture

Agronomics

Irrigation, pests & disease forecasting

Telemetry

Fleet tracking, data sharing & analytics

Livestock

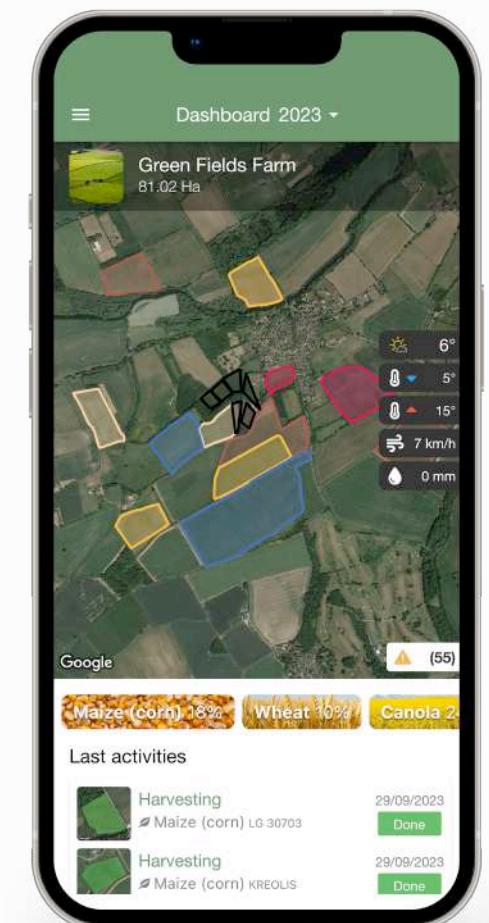
Management, milk loads and wellness

Fintech

Insurance, Credit and Audit

Precision

Satellite, variable rate & maps management



Management & Bureaucracy

Documents, task, fields, economics

In-field sensors

Obtain real-time data from your fields to take smart decisions

Professional
Weather stations

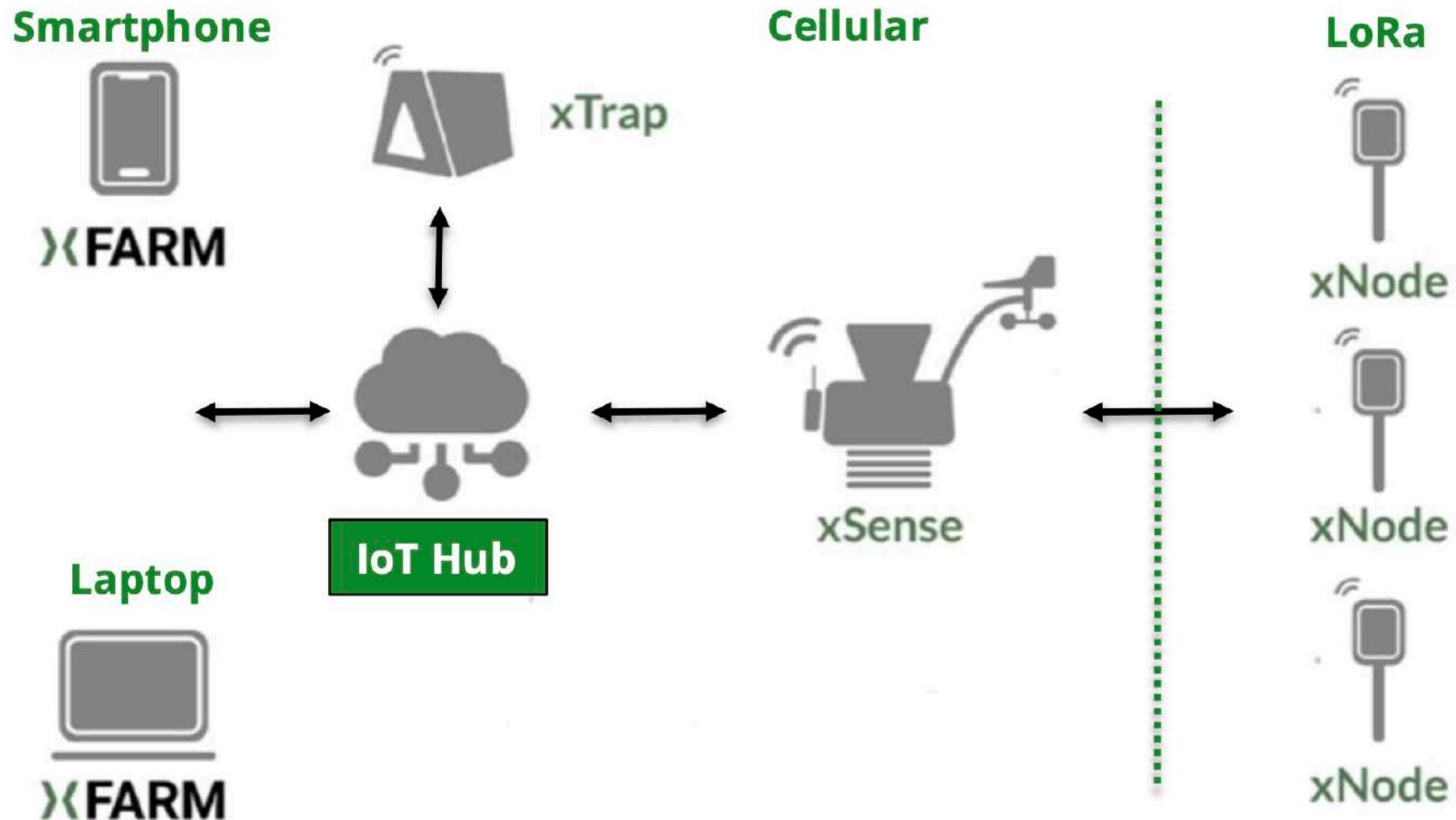
Insects
automatic Traps

Soil sensors
(Moisture, T, EC)

Irrigation
Remote control



Simplified IoT network structure



Weather station

Professional device for the environmental data collection

- Connects 16+ xNode LoRa devices
- 30-minute update rate
- H/T sensor
- Rain collector
- Wind speed and direction

Options

- Solar radiation sensor
- Leaf wetness sensor
- Camera 8Mpx



xNode - Soil monitoring sensors

Soil data collectors for the forecasting models

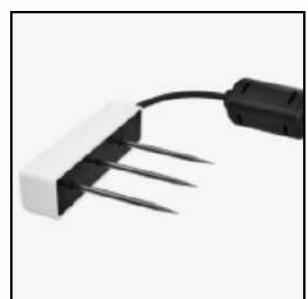
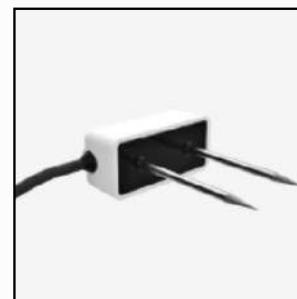
- LoRa or cellular radio technology
- 30 minutes update rate for cellular based
- Single or combined sensor
- Irrigation DSS

Data collected

- Volumetric water content
- Temperature
- Electrical conductivity (EC)

Sensor

- Meter
- Sentek



xTraps - insect monitoring

Smart cam for the insect monitoring

- Chromotropic/pheromone trap for different targets
- Yellow/white sticky papers
- Based on xCam

Options

- Self-cleaning sticky paper
- Ambient monitoring sensor



xIdro Mini/PRO

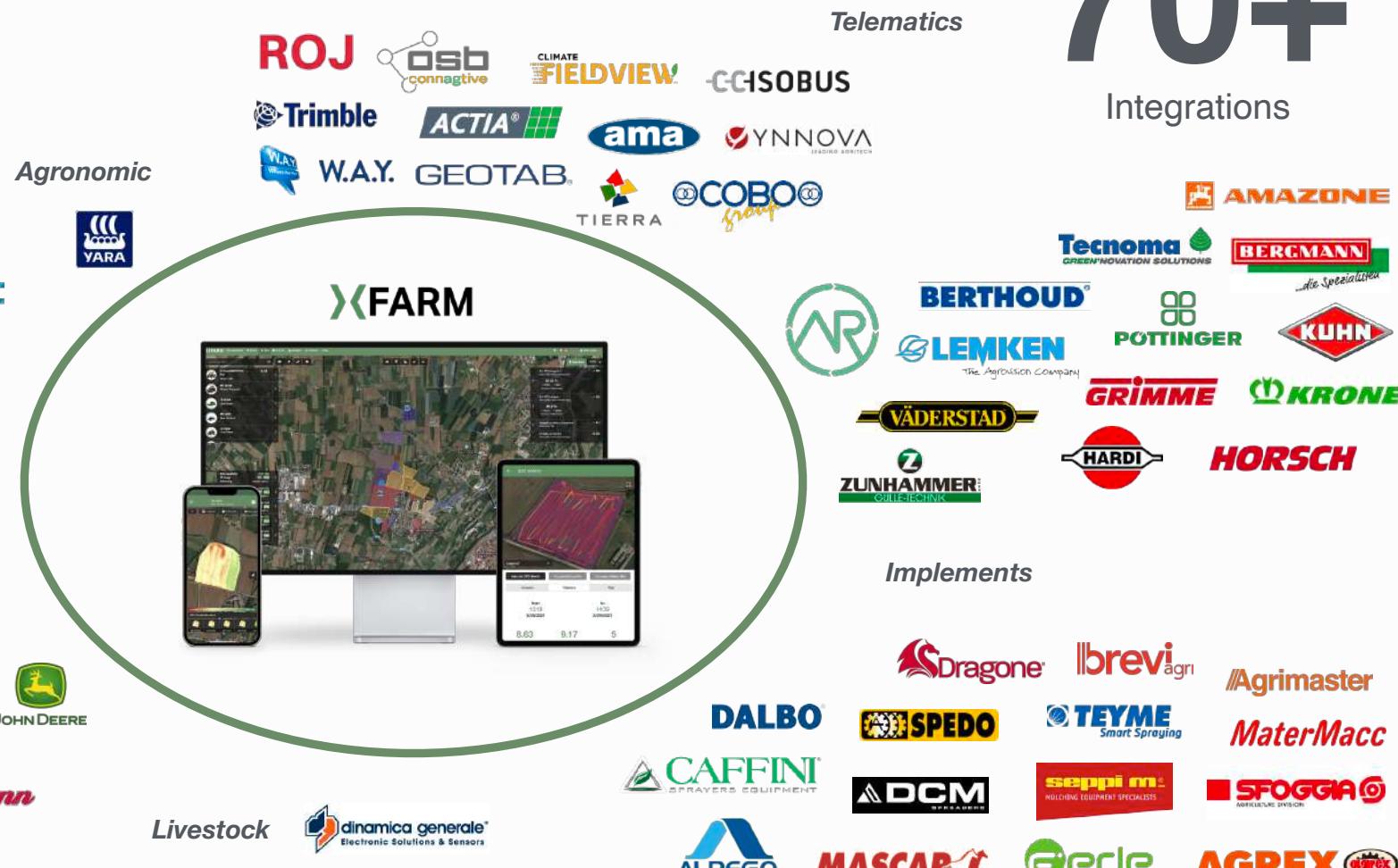
Remote irrigation devices

- Complete professional/mini pump-system
- From 4 to 12 EV/pump drivers
- Switching pressure system
- Permanent connectivity via cellular network
- Solar panel



Data Integration is the key strategy

Market requires data circulation



70+
Integrations

Why farmers are using xFarm?
**Savings and efficiency
on a simple app**



#irrigation
-20/40%



#fertilizer
-5/12%

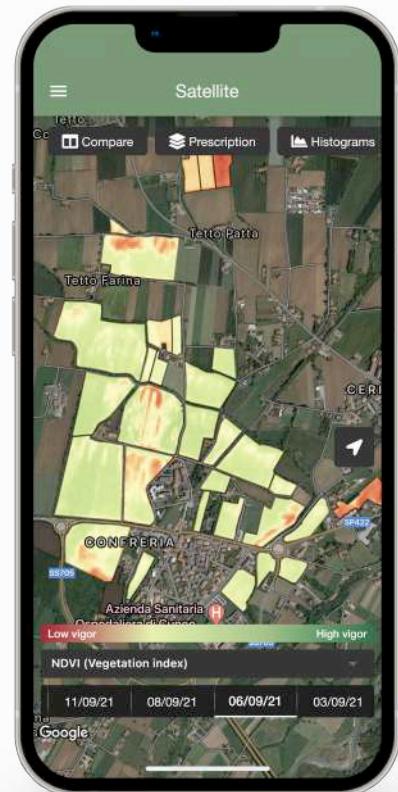
Agronomic DSS



AI-powered Agronomic Decision Support Systems (DSS)

Always in farmers' pocket

Satellite Analysis for Variable Rate



Machine Learning Diseases

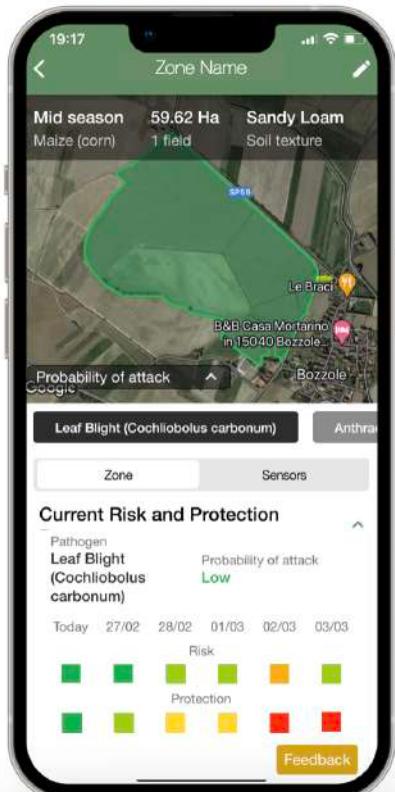


Image Recognition Scouting

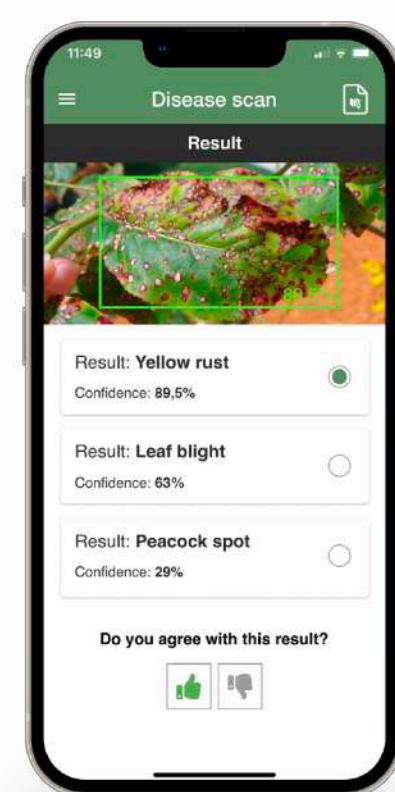
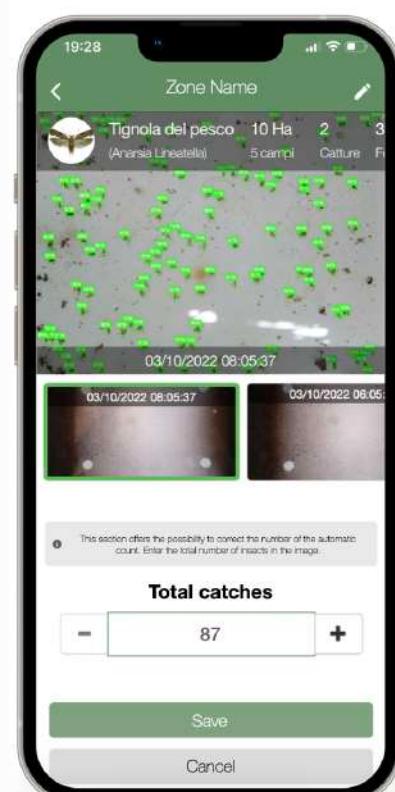
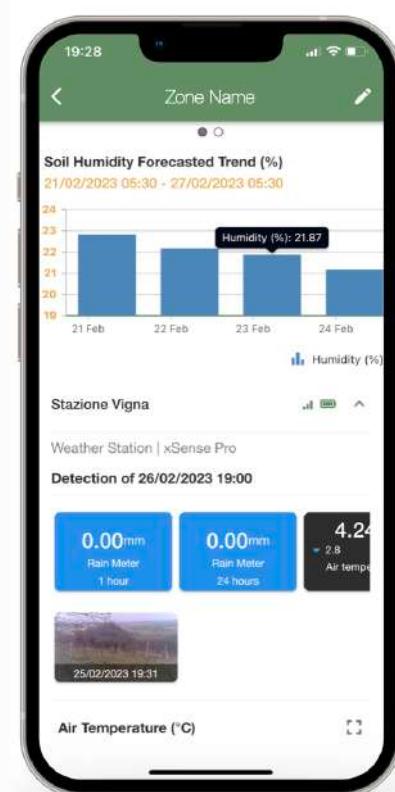


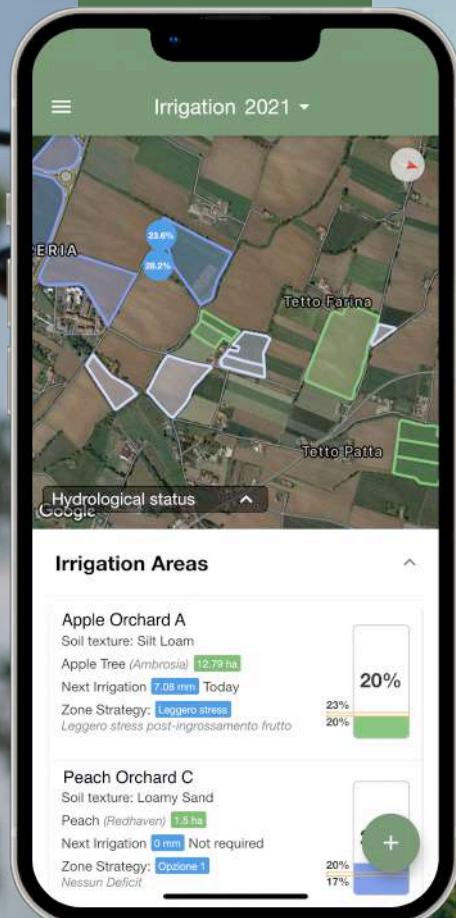
Image Recognition Insects



Machine Learning Irrigation



Irrigation Models



XFARM
TECHNOLOGIES

Irrigation advice

Aim

- Maintain the water status in an **optimal range** avoiding stress from both deficit and excess
- It allows to efficiently manage the water resource by irrigating only **when necessary** and at **ideal volumes** according to the phenological phase and the chosen strategy

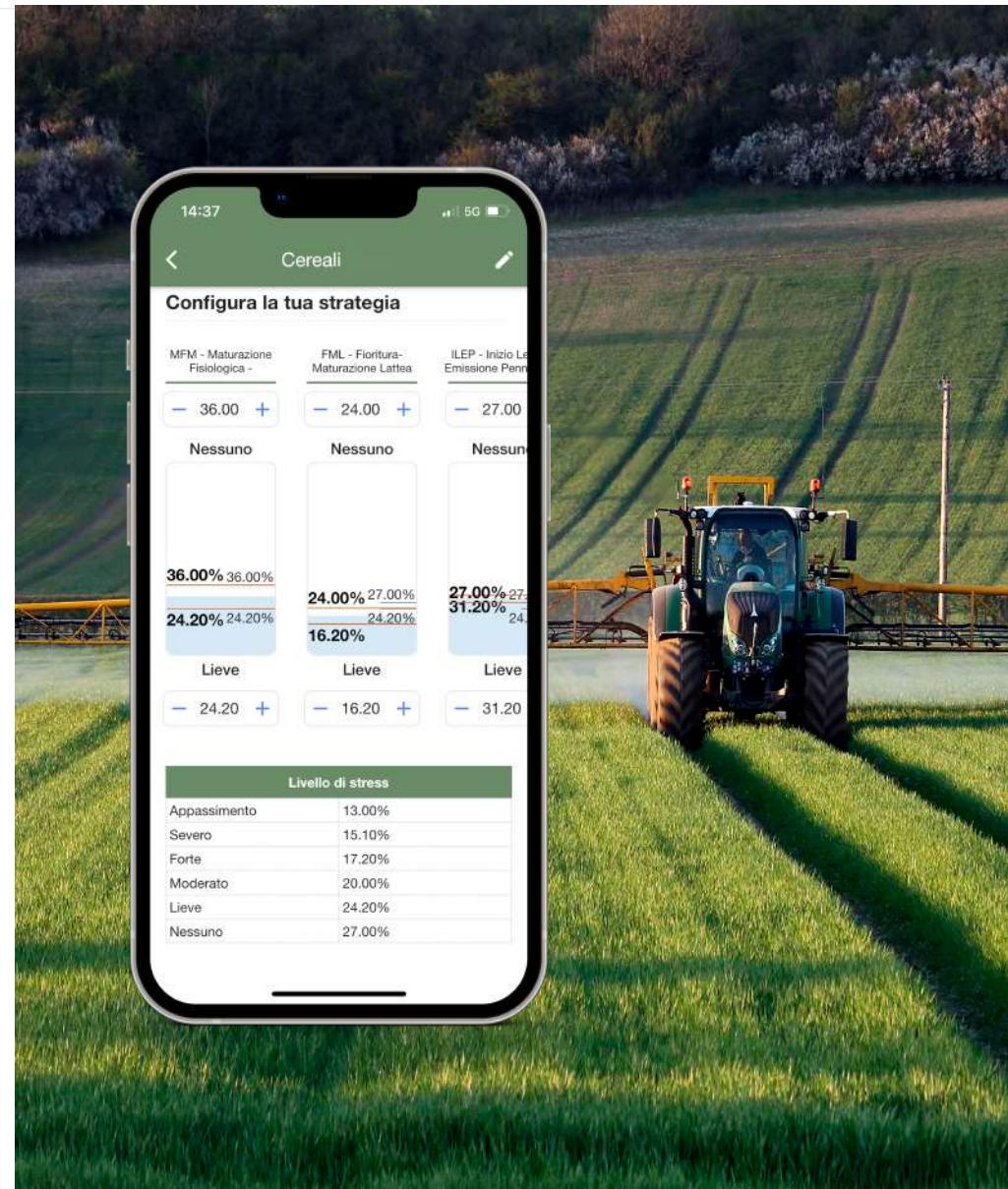
- Reduction of water waste**
- Greater efficiency of water resources**
- Greater product quality**



Irrigation advice

Irrigation schedules

- Possibility to set irrigation strategies: **controlled stress level** in certain phenological phases
- Potential **increase** in **yield/ha** and **quality**
- Saving water resources → **Increase irrigation efficiency**
- **Enhances the experience of the farmer/ Technician**
- **Controlled water deficit:** the plant feels the lack of water and triggers metabolic mechanisms whereby the fruit or plant is loaded with compounds that improve the quality



Disease models



Weather Station

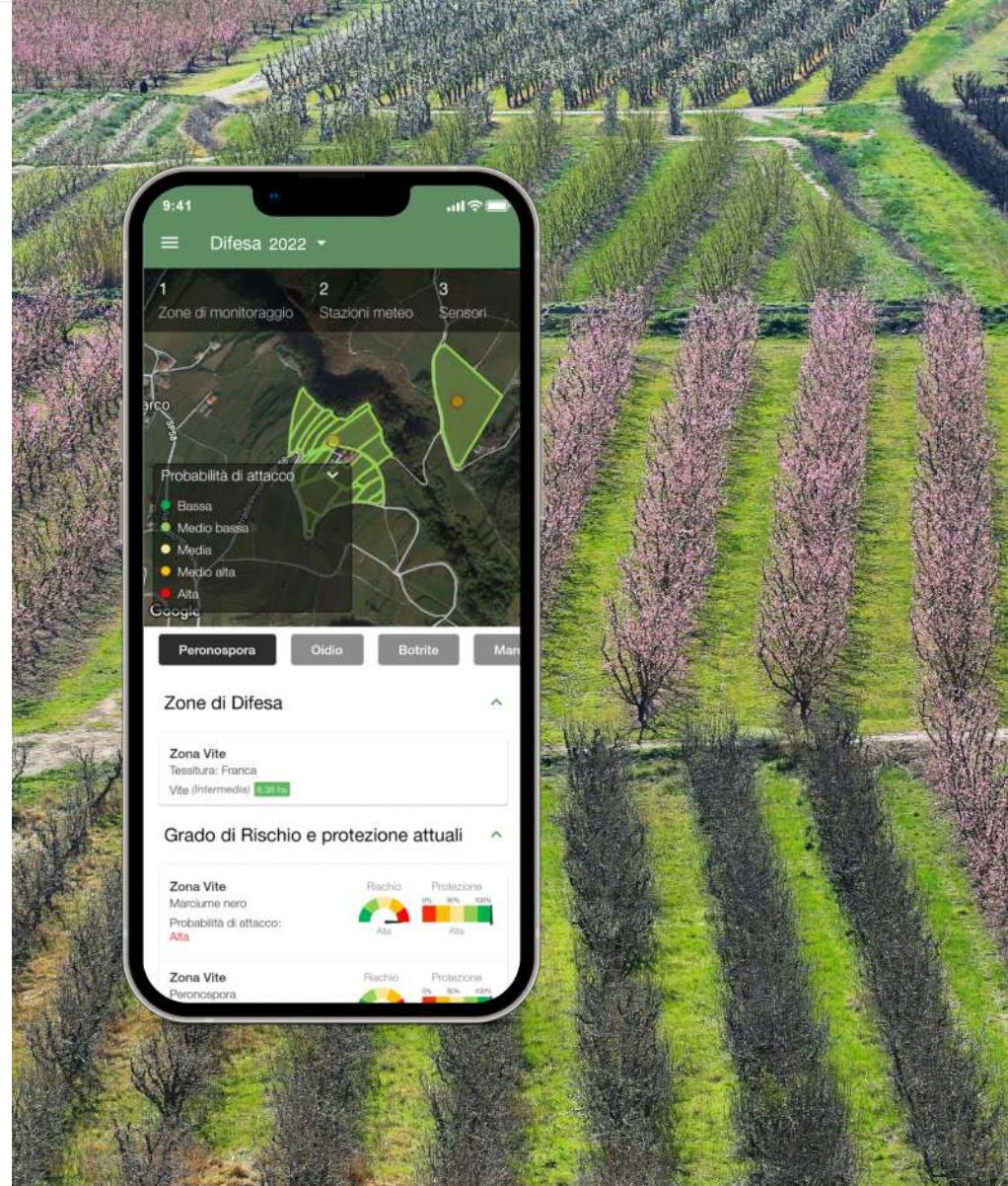


XFARM
TECHNOLOGIES

Predictive defense

Fungal diseases

- Estimate the **risk of occurrence** of various fungal **diseases** and some bacteriosis
- Allows to know the period in which the risk is higher or lower depending on the **environmental conditions**
- **Planning of phytosanitary treatments** according to the real risk of occurrence and not calendar (**Automatic alerts**)
- Data also on the **protection/effectiveness** of the treatment carried out against the controlled pathogen



Predictive defense

Fungal diseases

■ Probability of attack: Risk x Protection

Some controllable pathologies:

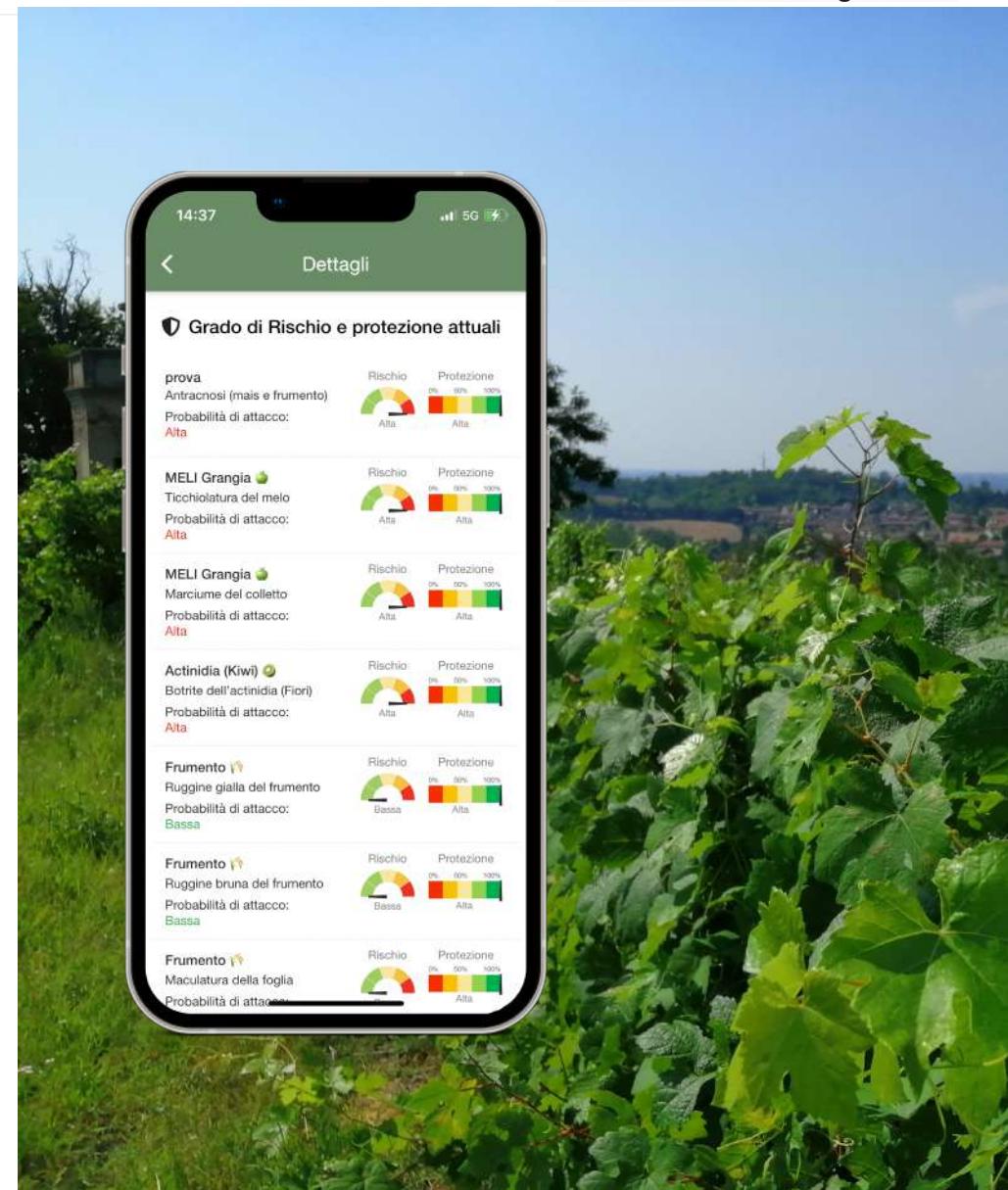
- Downy mildew
- Powdery mildew
- Apple tick
- Coal
- Fusariosis
- Rot collar

205

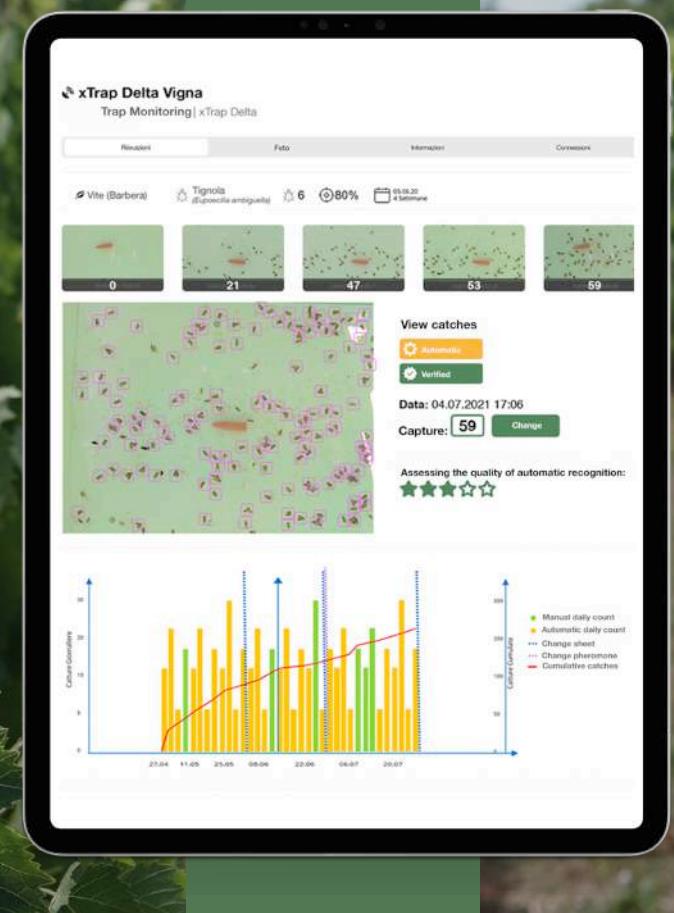
Pathologies

58

Crops



Insect smart monitoring



Insects Smart Monitoring

How it works

xTrap combines an **optical high-resolution camera system**, together with a **computer vision software** using AI algorithms in order to automatically **recognize** and **count** the insects from the picture

Prediction models to forecast the development of insect **generations** and their **flight peaks** for the **next 14 days**

Automatic counting of trapped insects through **AI algorithms** also take into account **agronomist/client feedback**

The different types of traps allows to cover a **broad spectrum of insect species**

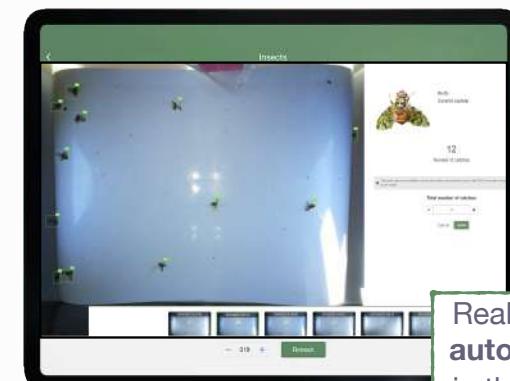
Automatic xTrap



Smartphone picture
(Virtual xTrap)



AI & ML Algorithms



Real time
automated counting
in the xFarm platform

Key Clients



FERRERO

Insects Smart Monitoring

Benefits

Targeted interventions at the right moment = **High Agronomic Efficiency**

Remote monitoring optimizes **intervention time** and avoids **continuous traveling** allowing to **save up to 15% of insects' crop protection**

Models for flights forecasting through AI algorithms take into account weather forecast and **client feedback** for **localized provisions**

50+
Insect
types

700+
Traps
installed

3 types of traps

- Delta (pheromone)
- Color (color sheet)
- Stink (pheromone, specific for stink bugs)

Key Clients



FERRERO

Key Users



Food Industry



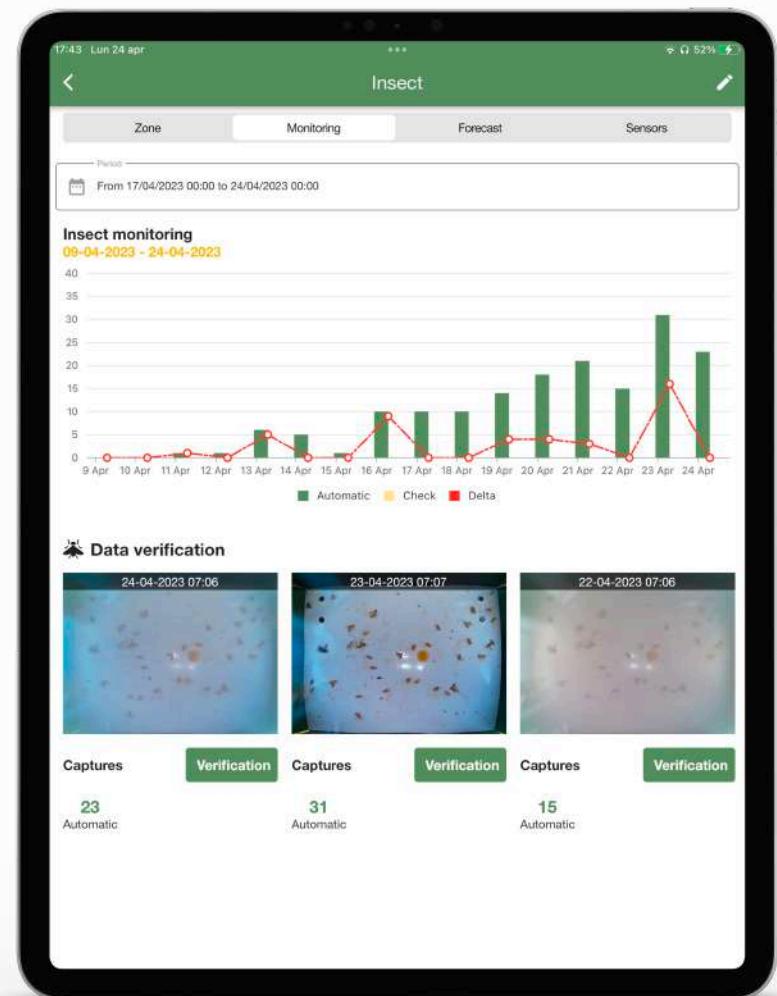
Cooperatives



Consortiums



Farmers



Corporate Analytics



xFarm Methodology for Food Supply Chains

The proven methodology to guarantee successful execution and expected results

1

Digitalization

- Training at all levels
- Data monitoring through season
- Farmers' support (chat, phone)

**2**

Agronomic Project

- Develop disease, irrigation models based on your needs
- xFarm R&D team coordination

**3**

Sustainability

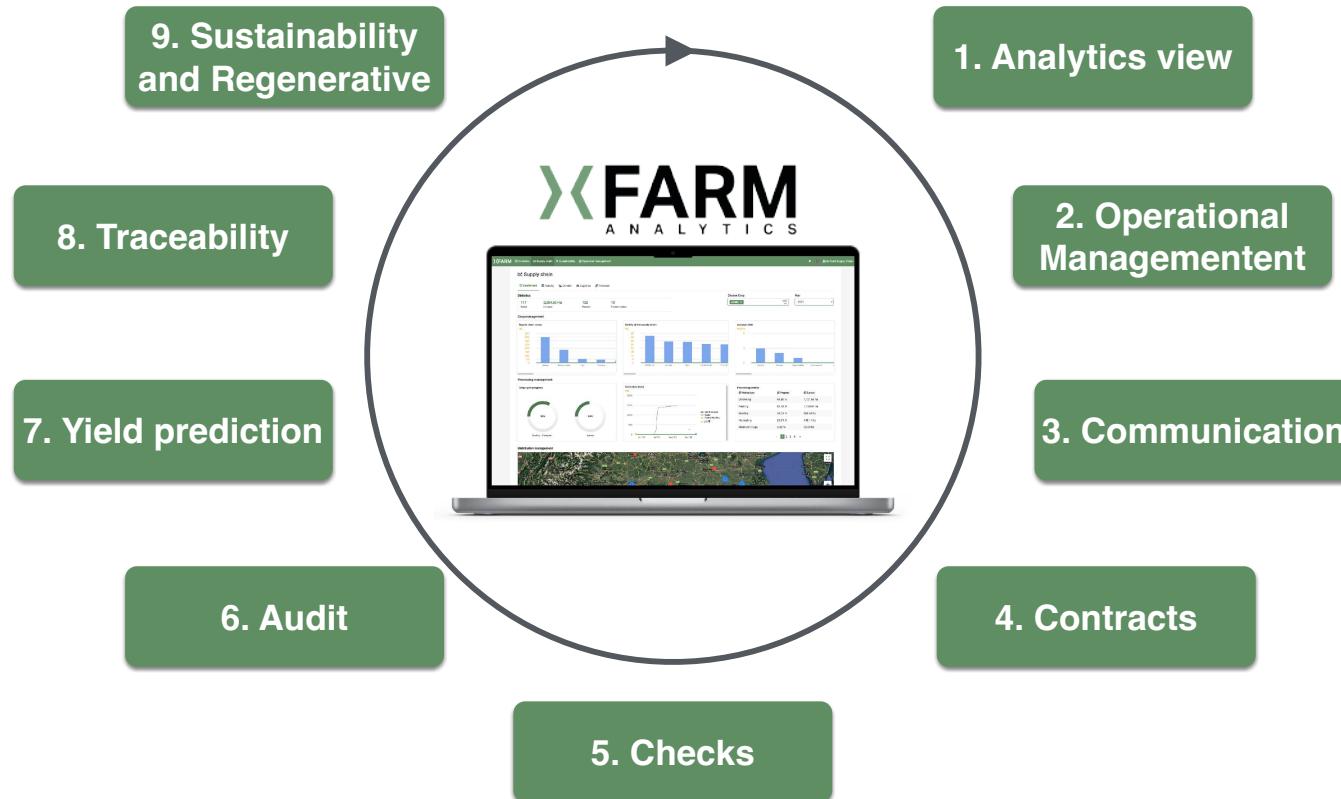
- Production protocol to meet sustainability targets
- Reporting and communication



All the services for your Supply Chain

Fully integrated in one single platform

xFarm Analytics is the control center for **supply chains management** where monitoring data provided by farmers, provide **services** to the supply chain and **enhance** collected data for your customers.



Sustainability suite



Supply Chain Analytics View

Data collection and analyses on field-level practices

1. Analytics view

Main Features

Real time data from all the supply chain

KPI aggregated view

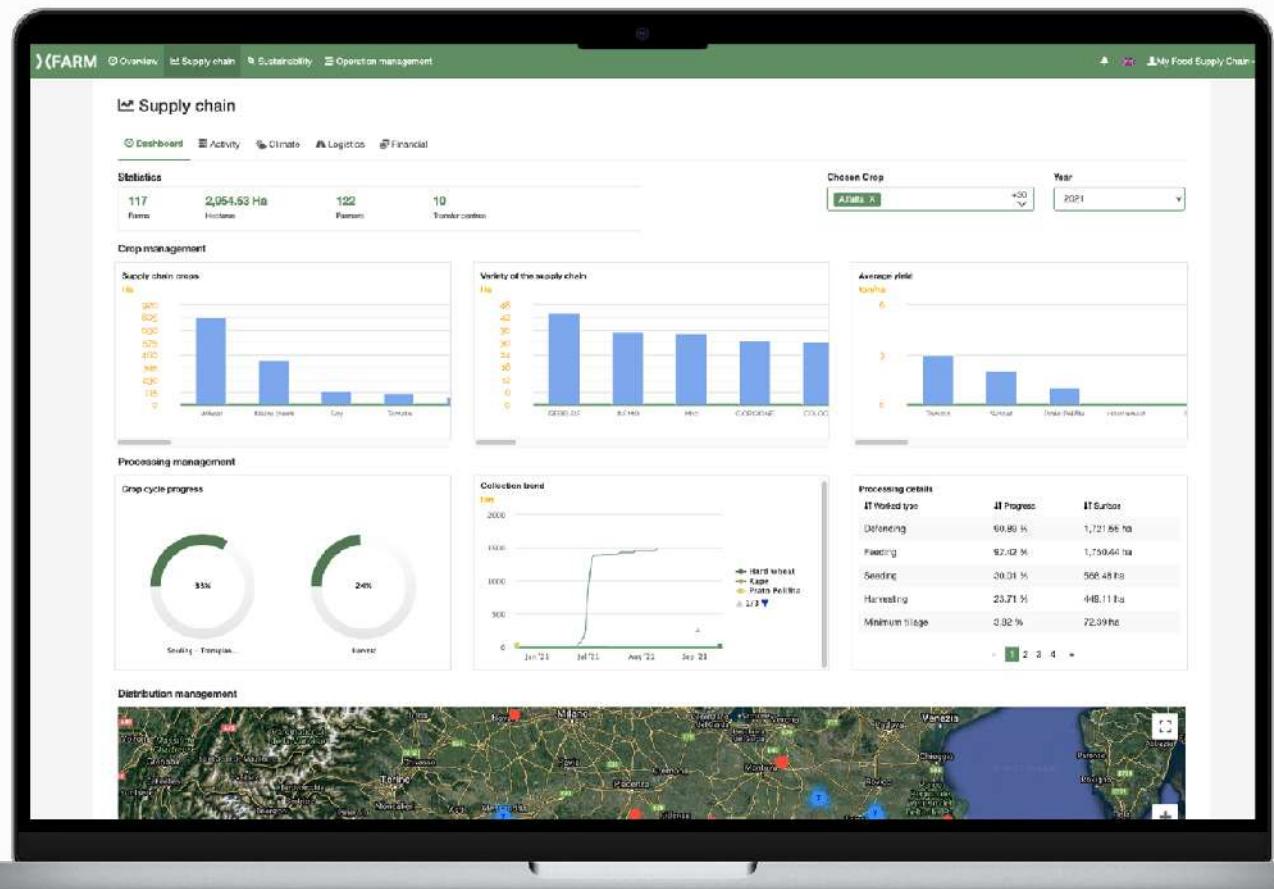
Filter by crop, season, supply chain

Benefits

Yield evaluation at farm level

Save time on monitoring your suppliers' data

Make decisions based on real-time data



Key Users



Food Industry



Traders



Cooperatives Consortiums

Key Clients



Supply Chain Sustainability

Monitoring Impacts and Fostering Change

Carbon Footprint

Net Water Use

Acidification

Eutrophication

Impact Monitoring

Tracking Main Impacts

Scope 3 Emissions

Farmer/Food Company

Real-time KPIs

Data Analysis



Sustainability Improvements

Satellite & IoT

Agronomic Models

Fertilizers Reduction

Irrigation DSS

Crop Protection DSS



International Standard



World Food LCA Database

Agri-footprint
a Blonk solution

Certification



Valid for

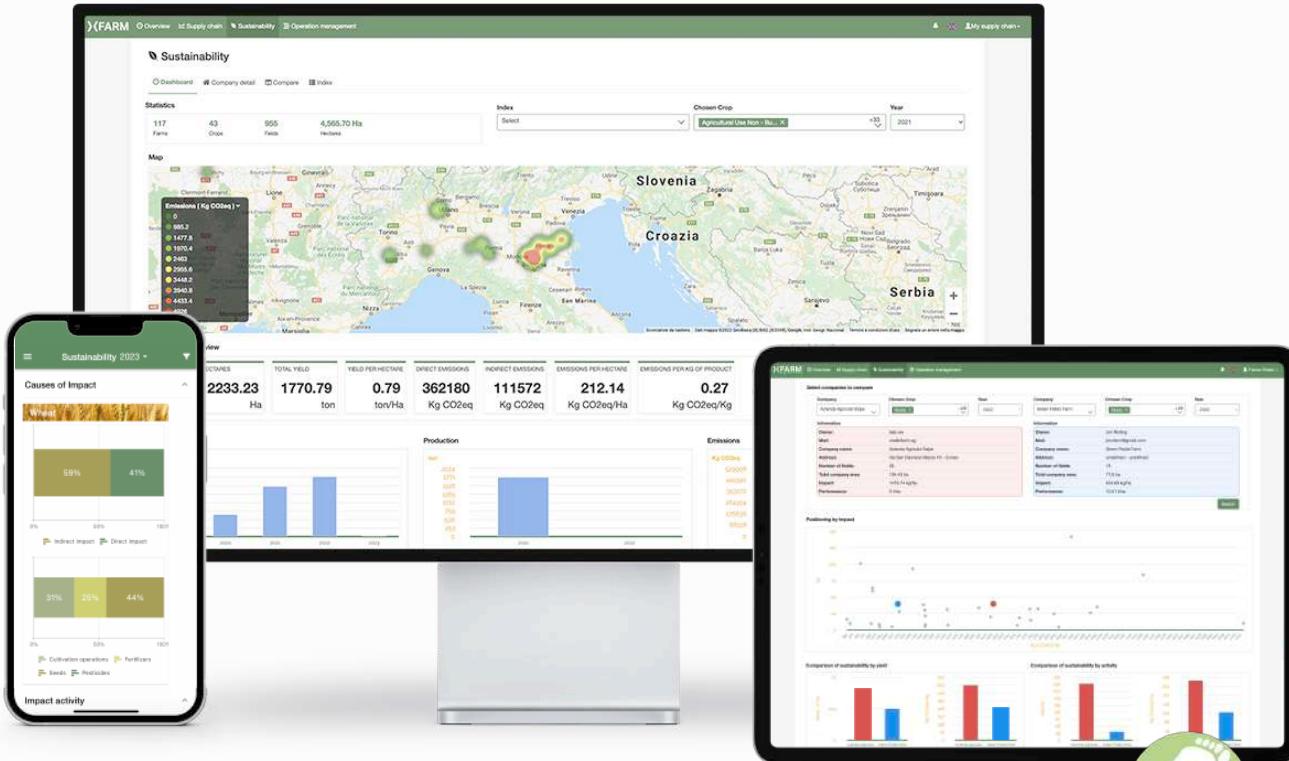


Impact Monitoring

Monitoring Impacts and Fostering Change

9. Sustainability and Regenerative

- Farm-level Impacts
- Scope 3 Emissions
- Real-time KPIs
- Compare farms' performance
- Direct vs Indirect Impacts
- Causes of Impact
- ISO certified



RELEASING

Carbon Footprint

Net Water Use

Acidification

Eutrophication

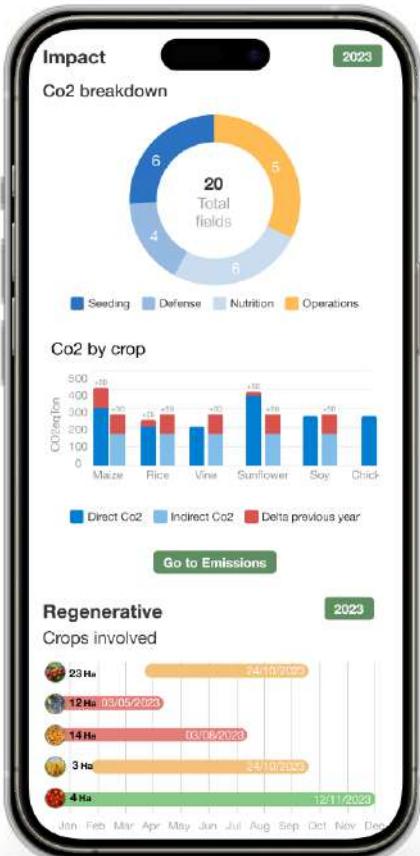
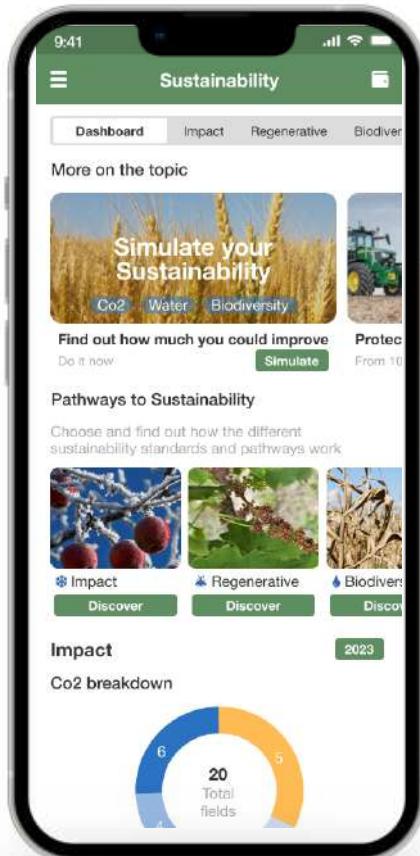
Biodiversity



Our UX and interconnectivity are the key differentiators

Market's first "mobile-first" sustainability tool

9. Sustainability and Regenerative



LCA Databases:



Features

Simulation

Impact

Sequestration Soil

Biodiversity

FSA

MRV - Remote

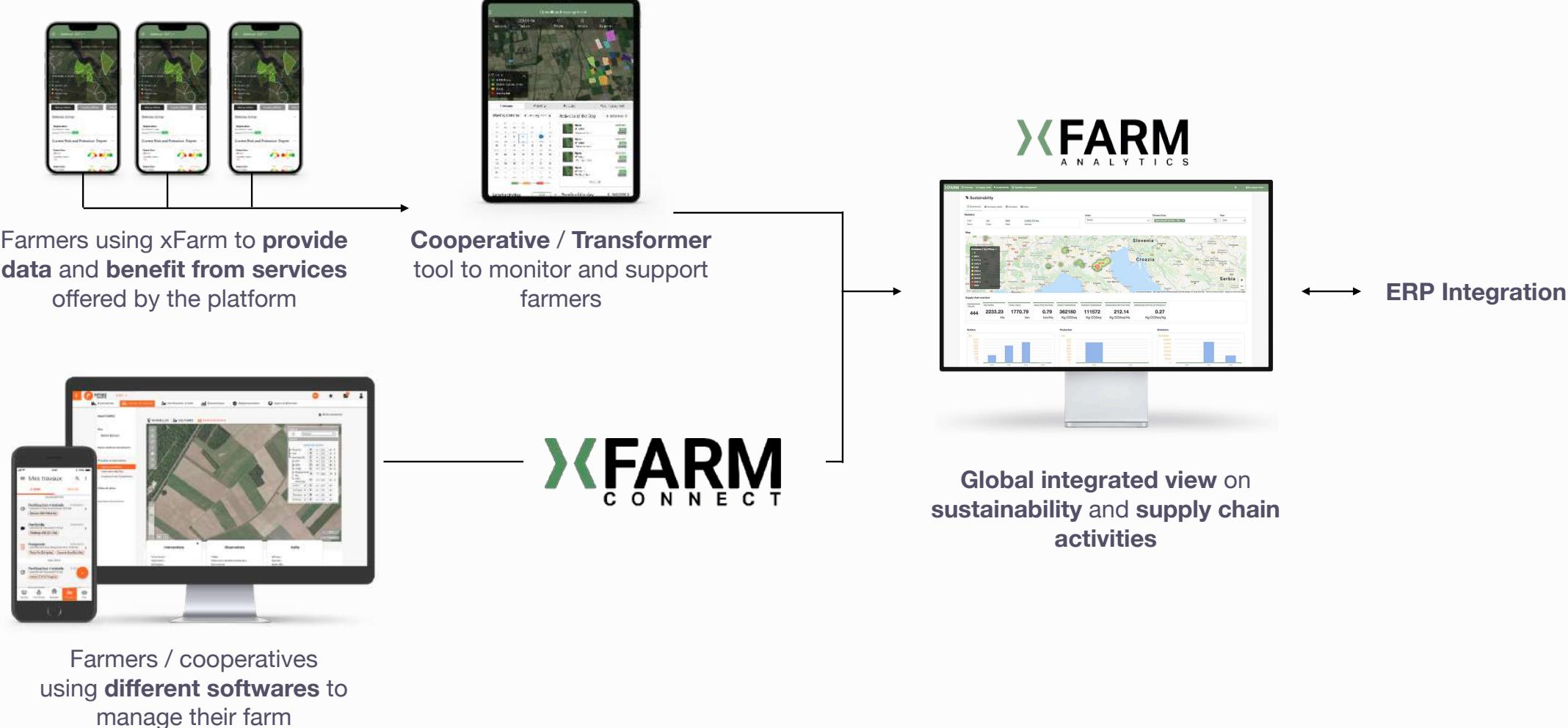
Cool Farm Tool

ISSC+



How it works: project setup

Multi-level platform and full integration



Supply Chain Sustainability

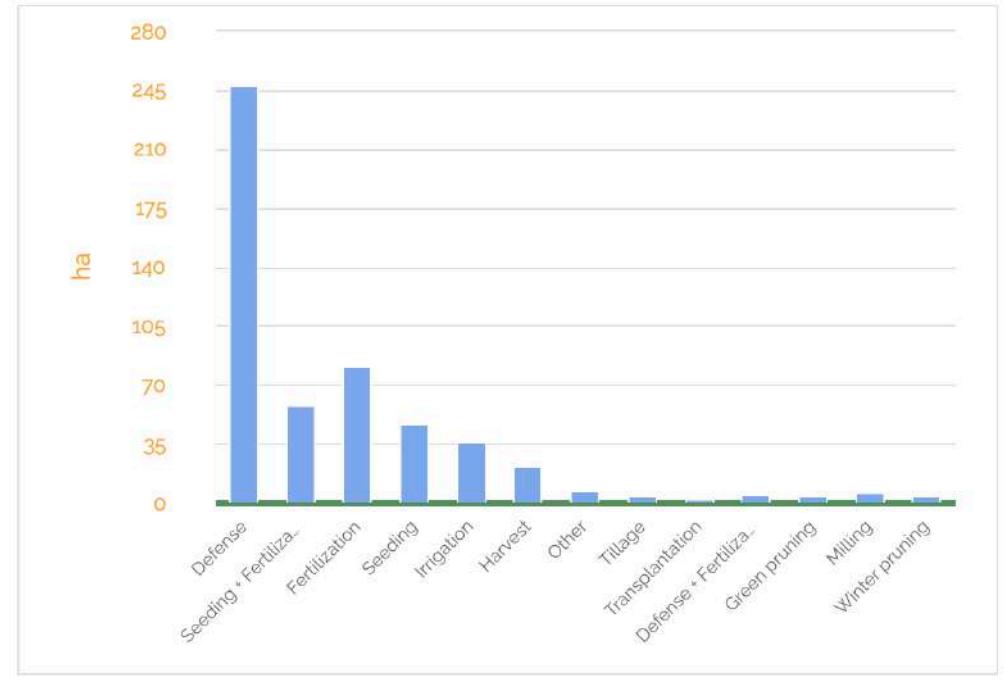
Farm Level: Detail of the impacts

Impact activity

↑↑ Date	↑↑ Type of activity	↑↑ Impact
19/10/2022	Seeding	381.61 kg
28/10/2022	Seeding	134.81 kg
28/10/2022	Seeding	706.79 kg
28/10/2022	Tillage	155.06 kg
26/01/2023	Fertilization	16.69 kg
26/01/2023	Fertilization	15.3 kg
03/02/2023	Defense	1437.03 kg
08/02/2023	Defense	75.65 kg

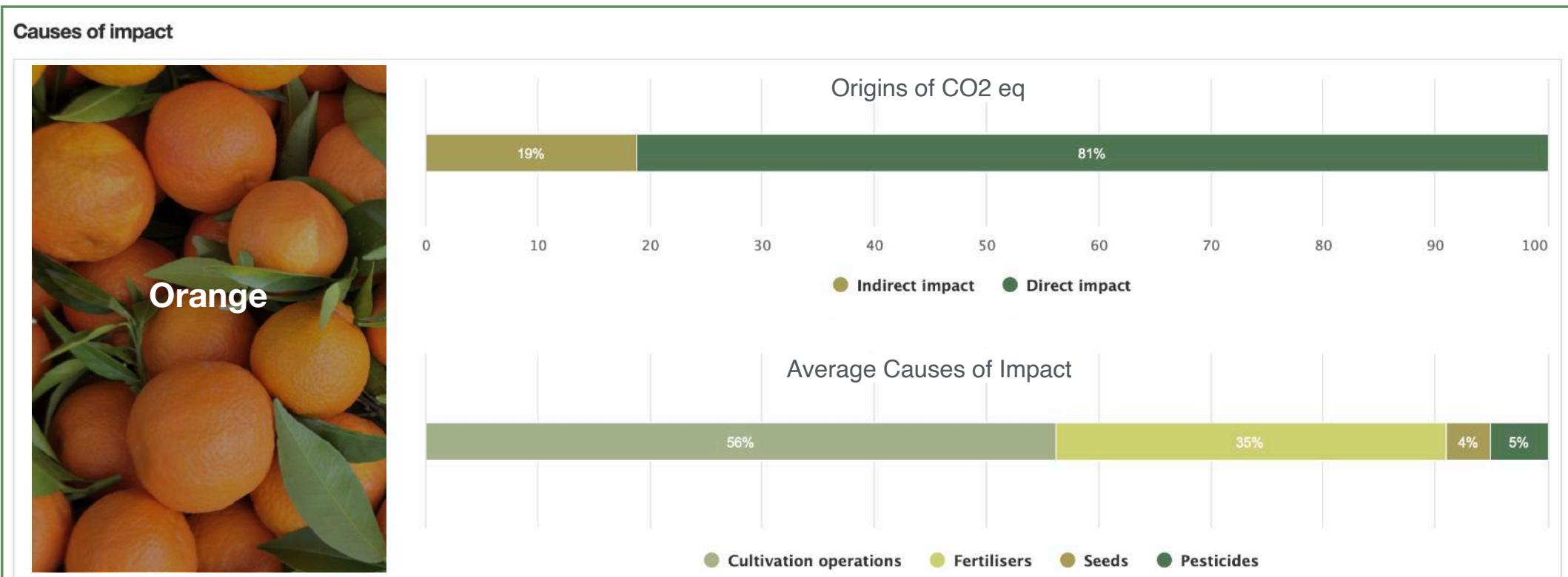
« 1 2 3 4 5 ⋯ 21 »

Activity count



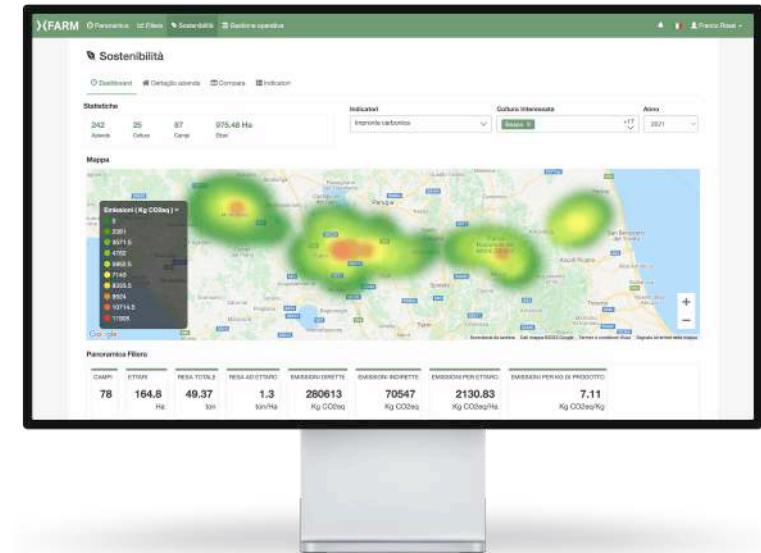
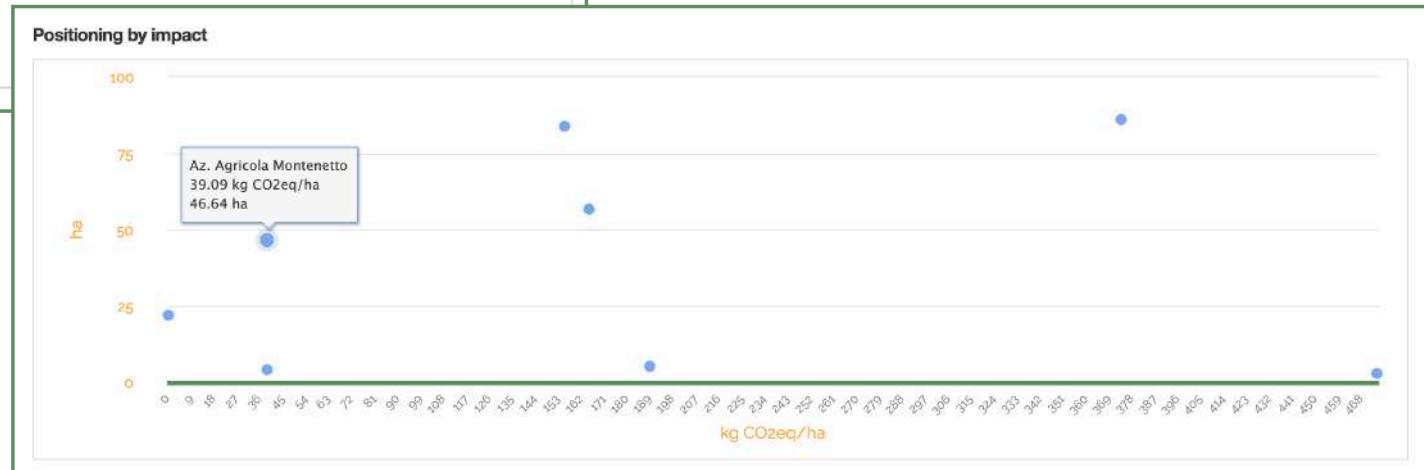
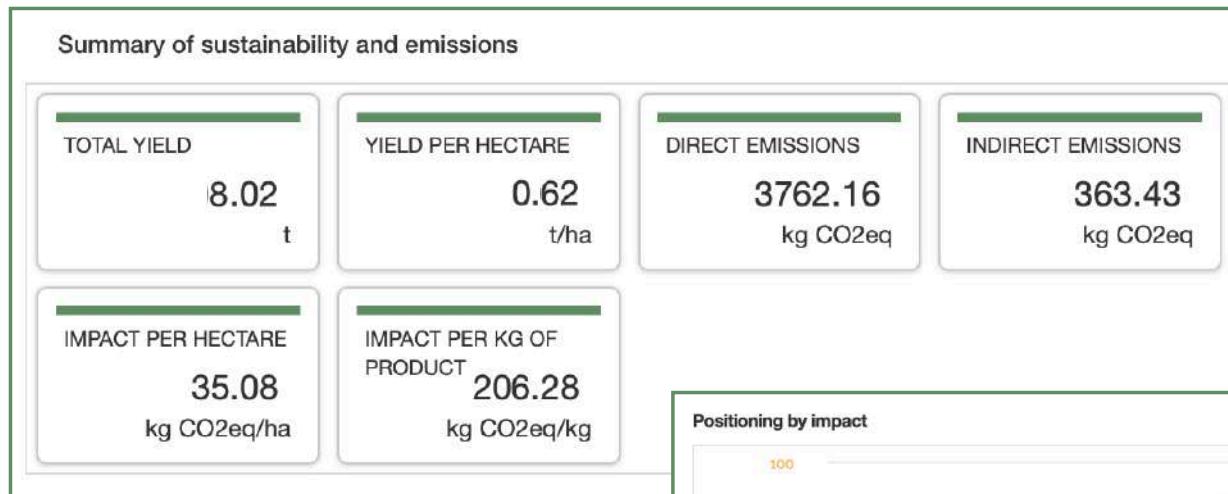
Supply Chain Sustainability

Farm Level: Causes of impact divided by crop

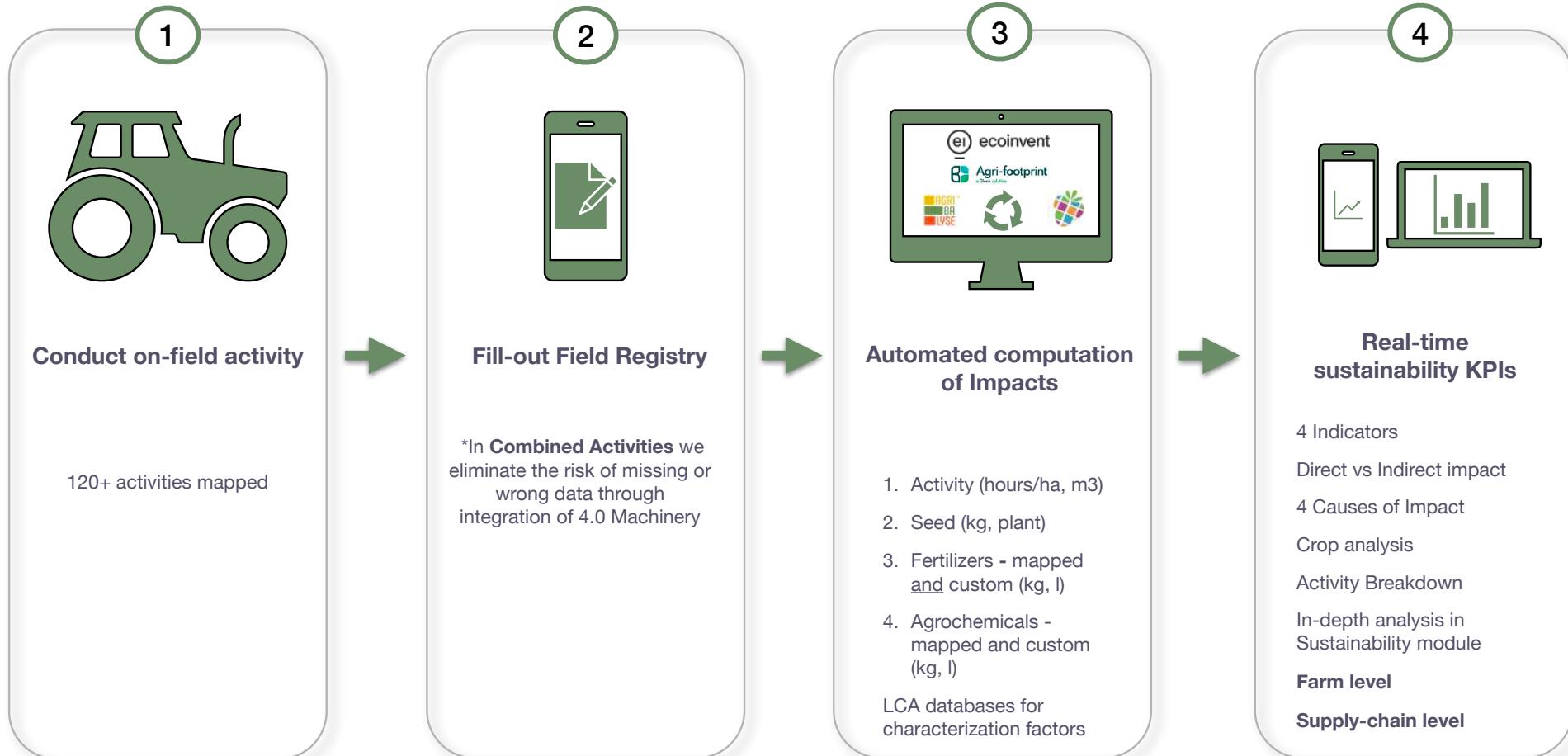


Supply Chain Sustainability

Supply Chain level: Summary and comparison of the farms



How it works - Data Flow



Livestock module





Dairy / Livestock

Barn Environment

- Herd management
- Barn Registry
- Ration composition
- Ration management

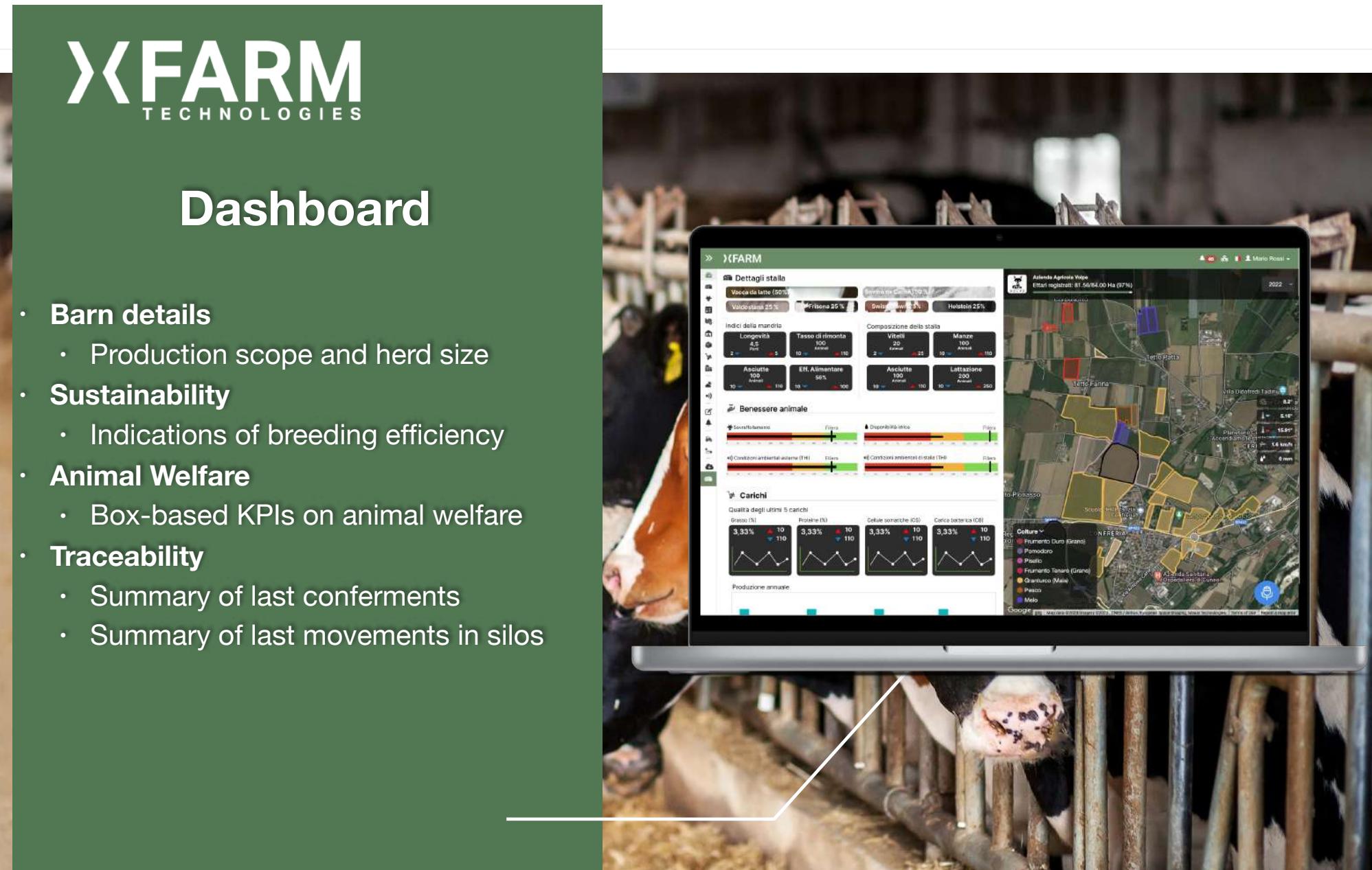
Animal Welfare

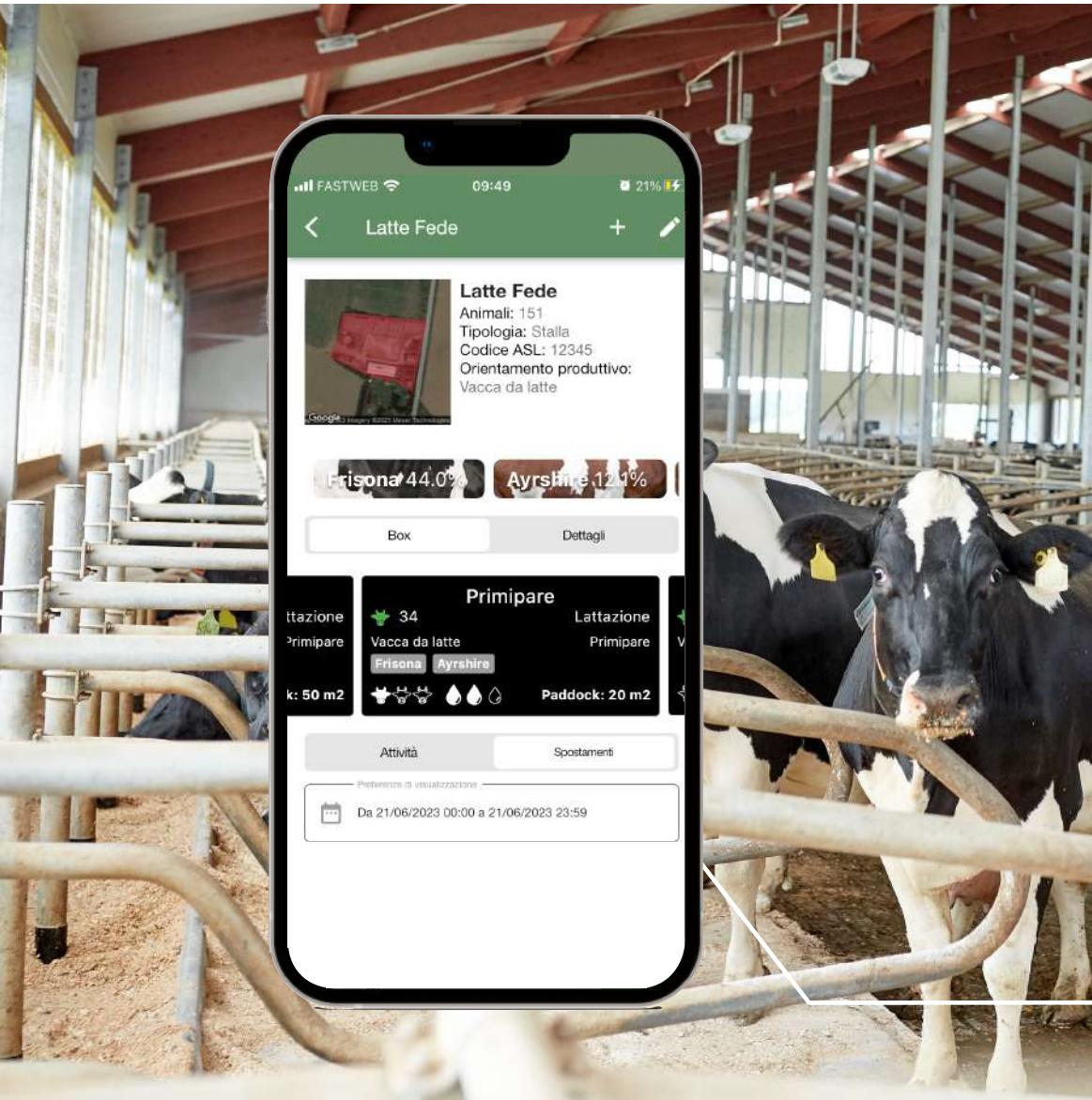
- Environmental monitoring
- Index calculation
- Herd monitoring



The image displays a composite view of agricultural technology. On the left, a black and white cow stands in a barn with wooden stalls. In the center, a screenshot of the XFARM software interface shows 'Stables details' for 'Az. Agr. Volpe' with 72 animals, including metrics like Longevity (0), Recovery rate (0.6%), and Stable composition (Calves 6, Heifers 26). It also shows 'Loads' (Fertilizer, Potassium, Nitrogen) and 'Annual production' (bar chart for Jan-Apr 2023). On the right, a smartphone screen shows a map with green fields and a legend for 'Telericerca' (Telemetry) with values from 1.2 to 15.6. Below the phone is a table of data:

Indicatore	Valore	Unità
Velocità GPS media	21	km/h
Velocità media	1:30	minuti
Tempo di sosta	0:55	minuti
Tempo di sosta	2:24	minuti
Tempo Totale d'uso	1:46	minuti
Ciclo media	10,89	minuti
Ciclo minimo	4,46	minuti
Ciclo massimo	37,18	minuti
Velocità GPS media	58	km
Velocità media	10,72	km
Velocità minima	7,45	km
Coefficiente efficienza delle polveri	N/A	
Velocità media	0,41	km/h
Coefficiente efficienza delle polveri	N/A	





Barn Management

- **Digital Twin**

- Digital version of the barn with possibility to record all activities

- **Box animal welfare**

- Each box allows welfare calculation to optimize barn space

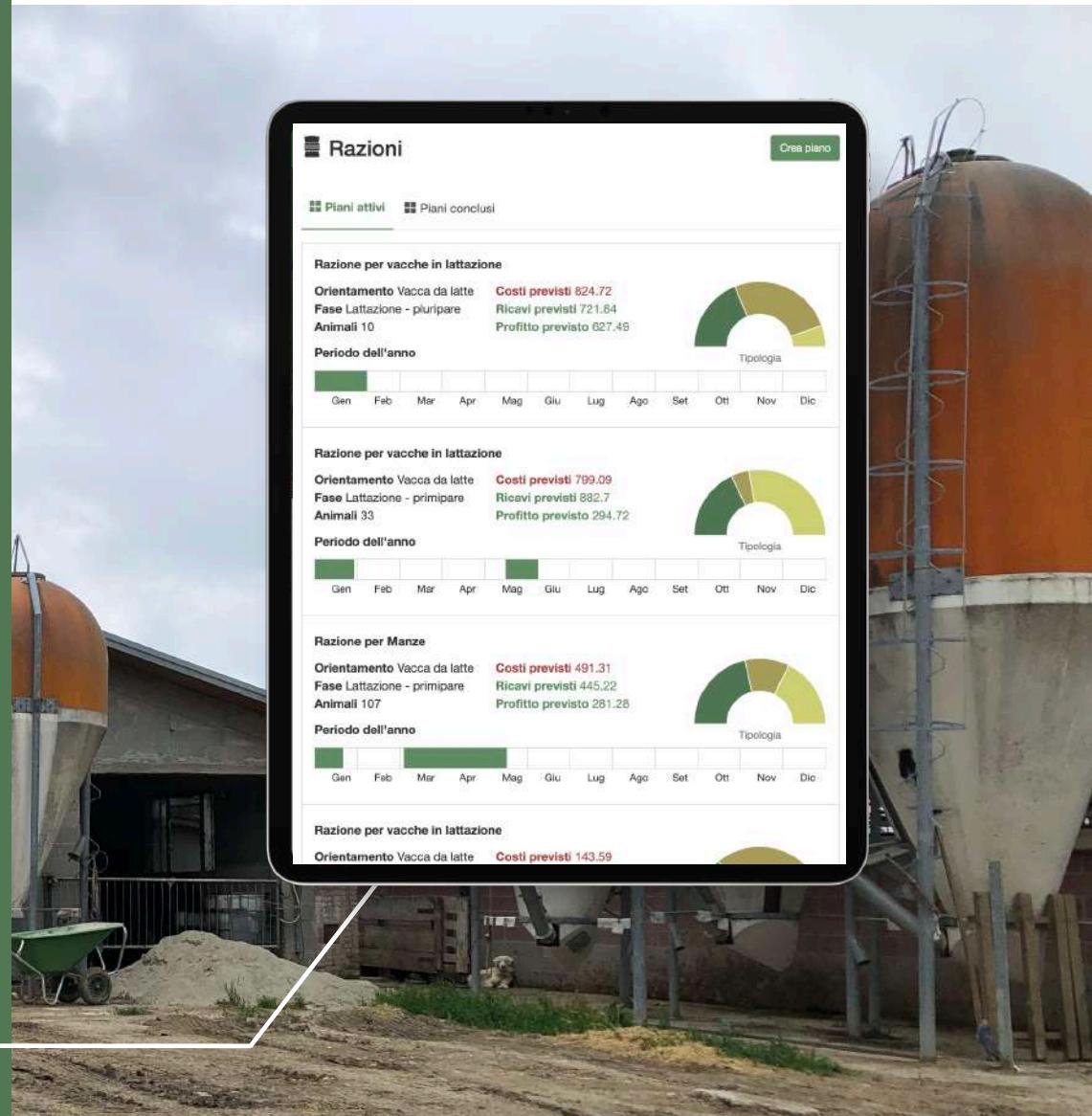
- **Movements**

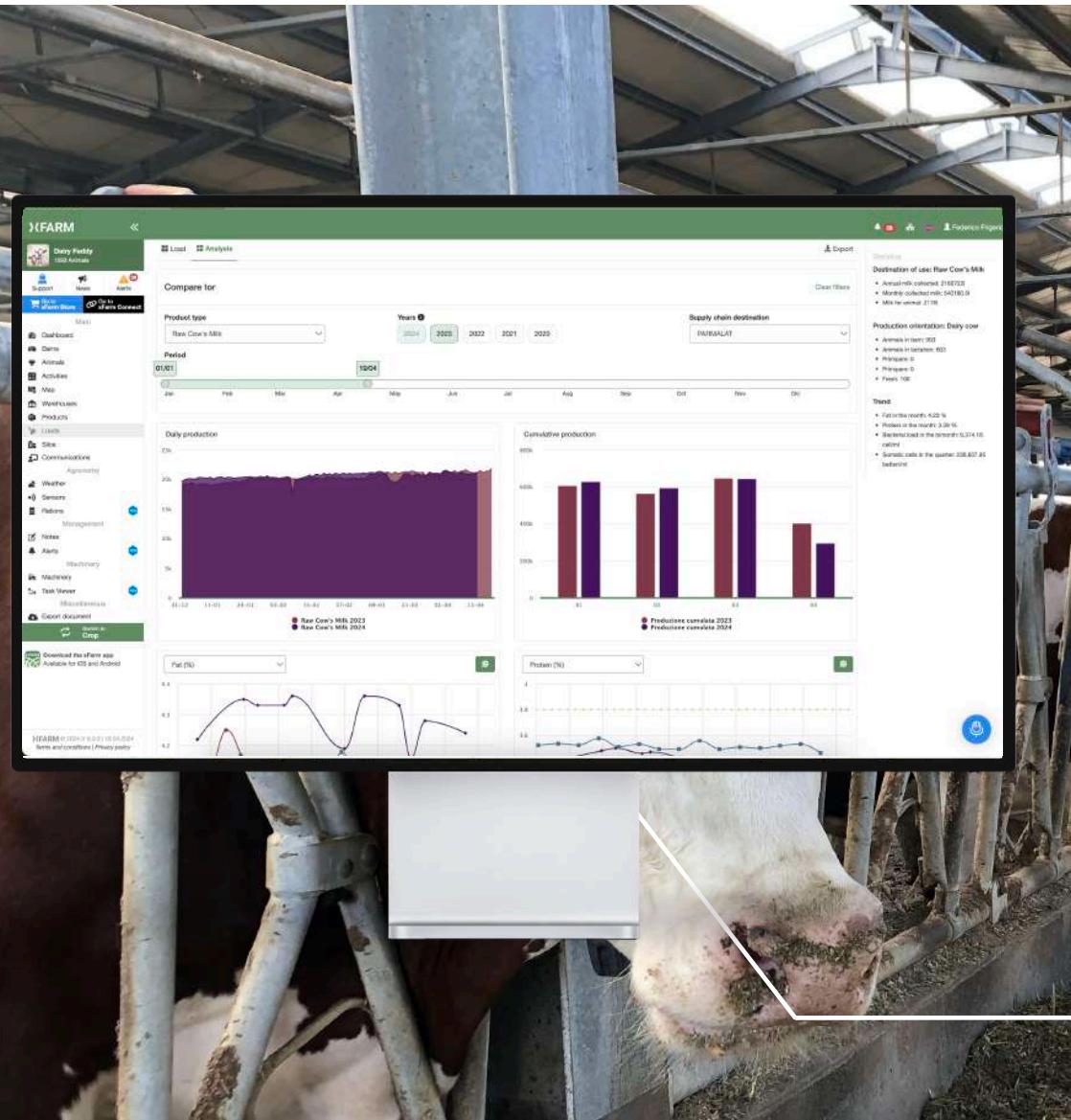
- Integration of national database of products
- Representation of barn movements for performance calculations



Ration

- **Bureaucracy support**
 - Provides support for ration traceability management
- **Sustainability and efficiency**
 - Indicators of breeding efficiency
- **Integrations**
 - Ready for automatic compilation with mixer wagon data
- **Feeders**
 - Digitization of the ration management process by external technicians





Milk conferences

Integration

- Allows the data to be received directly from the supply chain

Analysis

- Single data aggregation charts to show the trend in quality and quantity

Supply chain benchmark

- Anonymized supply chain data can be aggregated to show qualitative area reference



Regenerative Agriculture



Regenerative Agriculture

represents a holistic, results-oriented approach to agriculture. This approach not only produces agricultural goods but also generates positive impacts at both the farm and territorial levels, promoting **soil health**, **biodiversity**, **climate resilience**, and **water resource** management. At the same time, it supports the well-being and livelihoods of farmers



Regenerative Agriculture

Goals:

- Test feasibility and understand concrete benefits
- Analyze sustainability both from an environmental and financial perspective
- Obtain a Regenerative Agriculture Protocol scalable to the whole supply chain

Key points:



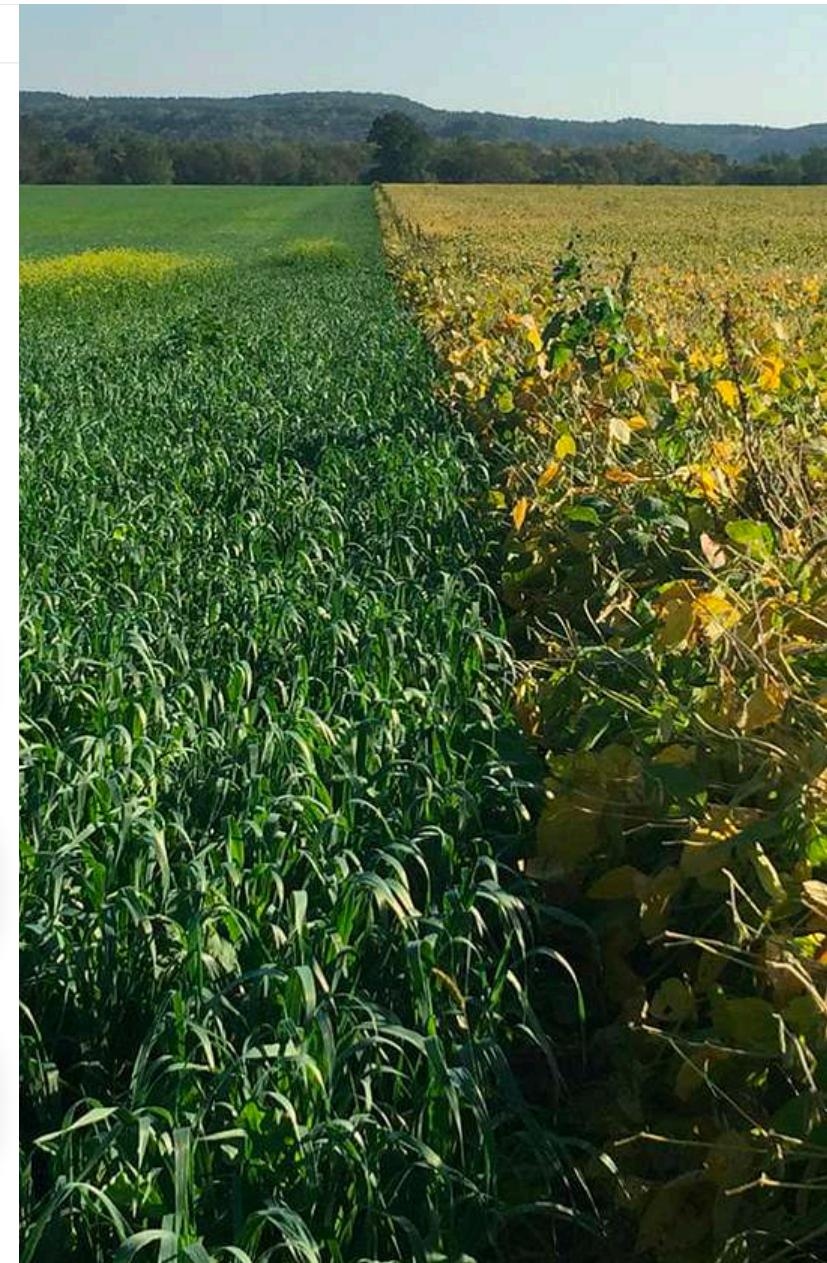
Minimum **3-year** project working with a selected group of farms (**model farms**); on field implementation of regenerative practices and subsequent analysis from an economic, agronomic and environmental point of view.



Use of **DSS, analytics and sensors** to measure and monitor regenerative practices to **refine agronomic techniques** by increasing efficiency, reducing resource waste and mitigating environmental impact.



The implementation of regenerative practices makes farms more **resilient** to climate change.



Regenerative Agriculture

Why joining Regen Ag projects?

- Increase the resilience of the production
- Reduce costs
- Generational turnover
- Measurement of the environmental, agronomical and financial benefits
- Farmers education
- Holistic approach, beyond CO₂
- Model simulator of SOC (IPCC)
- Statistically relevant number of soil samples
- Water drop effect



Rotazioni



Pascolo



Cover
crop



Minima
lavorazione



Gestione
residui colturali



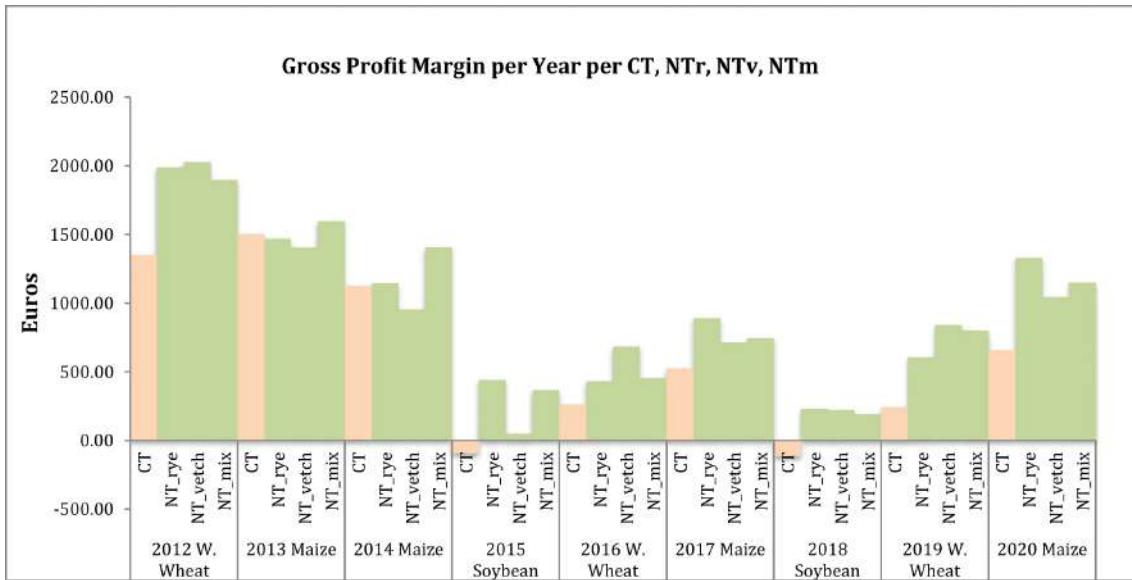
Fertilizzanti
organici

Potential impact of Regen Agricultural practices

Action	Practice	Soil	Biodiversity
Reduce soil disturbance	Minimum tillage, no tillage	● ● ●	—
Preserve soil cover	Cover crops, mulching	● ● ●	●
Crop diversification	Crop rotation, cover crops, agroforestry	● ●	● ● ●
Increase Soil Organic Matter	Biochar, compost, green manure, manure	● ● ●	—
Avoid pesticide use	Crop rotation, cover crops, agroforestry	●	● ● ●
Integrate animal grazing	Rotational grazing, pasture, silvopasture	● ●	?
Carbon farming	Green manure, agroforestry, silvopasture	● ● ●	● ●

Fonte: McGuire (2018), Burgess et al. (2019) and Merfield (2019)

Economical Potential of Regenerative Agriculture



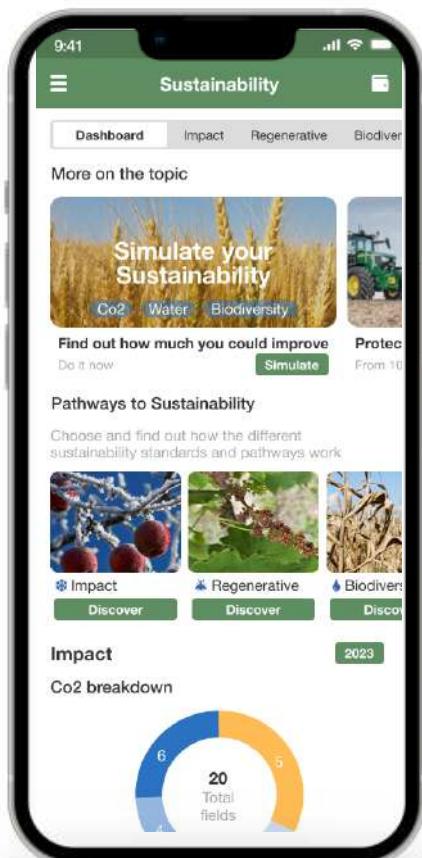
Gross profit margin for conventional agriculture and No Tillage per crop, per year. Source: Lorenzetti & Fiorini, 2023

- Reduction of the N° of passes for land preparation → ● 1-2 passes vs. 2+ → ● - 97€/ha
- Reduction in machinery wear and maintenance costs → ● - 30l/ha/year → ● 15% - 50%
- Fuel savings → ● 25% - 100%
- Reduction in energy consumption → ● - 85€/ha/year
- Increase in energy efficiency (yield/energy input)
- Reduction in costs due to the negative effects of erosion

Source: Conservation Agriculture Association for the United Kingdom (CA-UK)

Our UX and interconnectivity are key differentiators

Market's first "mobile-first" sustainability tool



Dashboard with all Sustainability KPI's



Overview on crops and results



Include biodiversity aside carbon considerations



Step by step regenerative journey and MRV

LCA Databases:



Features

Simulation

Impact

Sequestration Soil

Biodiversity

FSA

MRV - Remote

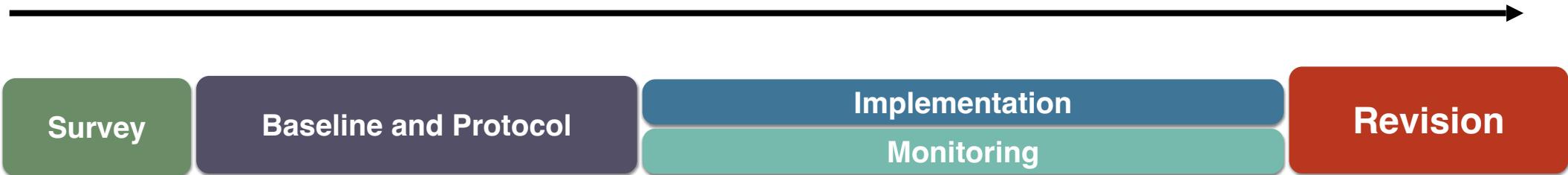
Cool Farm Tool

ISSC+



Regenerative Agriculture Long Term Roadmap

2024 2025 2028



In Summary:

- **Survey:** Evaluation and involvement of the supply chain in order to engage model farms
- **Baseline & Protocol:** More accurate analysis, allowing you to identify the practices to be implemented
- **Implementation:** Training of selected companies
- **Monitoring:** Measure, Reporting & Verification
- **Revision:** Practical validation and drafting of a final protocol

1. Survey

Preliminary assessment of the supply chain. From here we start specifically to the involvement of the selected model farms.

Survey

Baseline and Protocol

Implementation Monitoring

Revision



Readiness Survey:

Questionnaire to share with the farms. The purpose is a first mapping to establish the different levels of maturity.



Preliminary Simulation of Carbon Sequestration:

Using a simulation tool to have a preliminary assessment of the benefits in terms of carbon sequestration in the soil



Farms and fields selection:

Based on the data collected via survey, it is possible to delimit the scope of engagement, i.e. farms and fields to be involved



RegenAg Feasibility Report:

The result of this first module is a feasibility report, which is released at the end of the analysis.

2. Baseline Definition and Model Farms Cultivation Protocol

More accurate analysis, allowing you to identify the practices to be implemented.

Survey

Baseline and Protocol

Implementation Monitoring

Revision



Soil Analysis:

Soil sampling for selected fields to capture soil organic matter baseline



Data collection for baseline:

Input of activity data into xFarm (at least past 2 years).

This information will allow the calculation of environmental impact and quantification of yields.

Optional: entry of cost information by macro category.



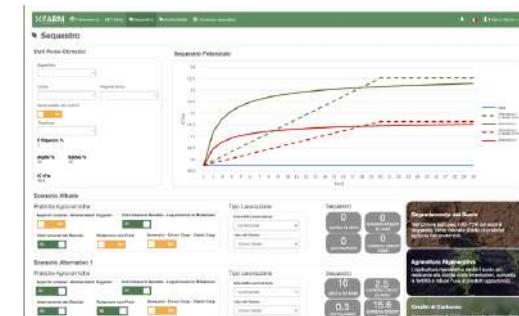
Co-design workshop with farmers:

Exchange and involvement with farmers, gathering feedback on practices already in place or already tested to identify opportunities for further practices to implement.



Modeling the sequestration potential:

Simulation to establish the sink potential following the implementation of selected regenerative practices.



Implementation Protocol:

Drafting a protocol containing the regenerative practices to be applied on the selected model farms.

3. Implementation

Engagement and training for selected farms

Survey

Baseline and Protocol

Implementation
Monitoring

Revision



Model Farms Engagement & Training:

Offer training sessions on Regenerative Agriculture (practices, implementation, case study, learnings, etc.)



Practical Implementation:

Selected farms have all the theoretical tools and can start with the implementation of established practices, followed by specialized agronomists within regenerative agriculture



4. Monitoring

Measure, Reporting & Verification

Survey

Baseline and Protocol

Implementation
Monitoring

Revision



Evaluation of annual results:

Each year we evaluate the progress of the practices, analysing data on sustainability, costs and co-benefits, as well as data obtained through xFarm's MRV (monitoring-reporting-verification) system.



MRV System (1/2)

Satellite + advance simulation tool



Process-based model & satellite imagery data to simulate carbon dynamics and monitor implementation of practices via satellite

■ Advanced Simulator:

- Century Model combined with IPCC scenarios
- Based on soil analysis samples
- Allows for recalibration

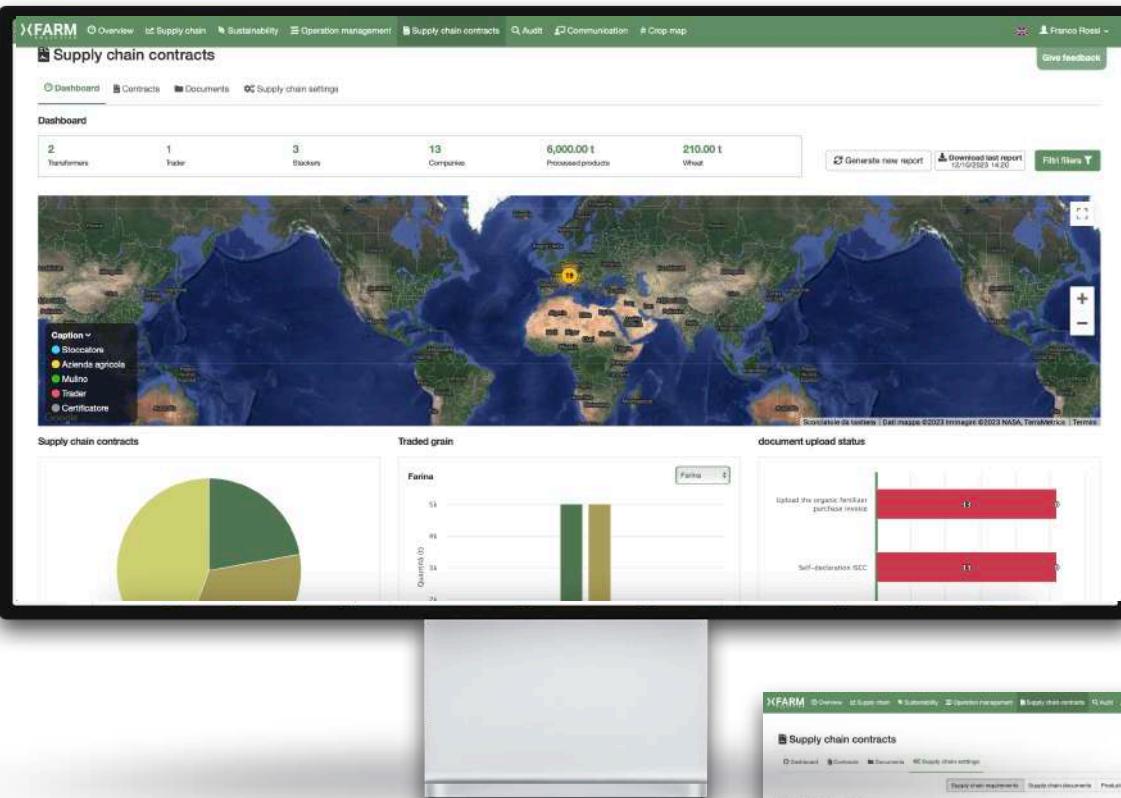
■ Satellite:

- Boundaries Identification
- Crop detection (main and cover crop)
- Crop rotations
- Tillage



MRV System (2/2)

Supply Chain Contracts features



The dashboard displays the following key metrics:

- Transformers: 2
- Farms: 1
- Stakeholders: 3
- Companies: 13
- Processed products: 6,000.0 t
- Wheat: 210.00 t

Map details: Scopio satellite imagery, Gdal module ©2023 Imagenet ©2023 NASA, TerraMetrics, Esri.

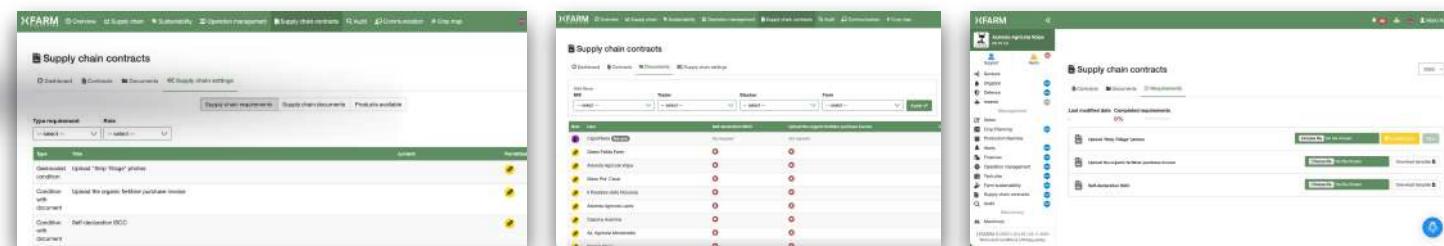
Supply chain contracts section:

- Traded grain: Farina (51), Farina (49)
- document upload status:
 - Upload the organic fertilizer purchase invoice: In progress
 - Self-declaration (SCC): In progress

Proofs, activities and self-declaration data management system to collect, monitor and verify practices

Supply Chain Contracts features:

- Create your own set of rules and documents to be required
- You can monitor the status of rules completion by farmers
- Farmers directly from xFarm can input evidences (photos, documents, self-acceptance)
- You can download reports for advancements



Left screenshot: Rule creation interface showing requirements like "Upload 'BIO' logo" and "Upload the organic fertilizer purchase invoice".

Middle screenshot: Stakeholder monitoring interface showing a table of requirements for different stakeholders (Farmer, Processor, Supplier, Farmer) with status indicators (green, yellow, red).

Right screenshot: Document management interface showing a list of modified rules and their completion status (e.g., 60% completed).

5. Revision

Validation and drafting of a final Regenerative Agriculture supply chain protocol.



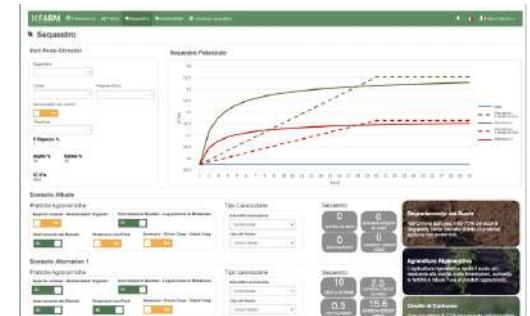
Validation of practices through soil analysis::

We repeat the soil analysis after 3 years in order to have quantitative data to compare and evaluate the implemented practices.



Protocol revision:

Based on the renewed soil analysis, and after having assessed agronomic, environmental and economic benefits, the protocol implemented with the model farms will be adjusted accordingly. This protocol will now be refined to be extended to the whole chain.



xFarm Use Cases



Barilla Mulino Bianco: Sustainable soft wheat

Customer:



The Italian Food Company. Since 1877.

Industry:

Baked goods production

Crop:

Soft Wheat

Geography:

Europe

xFarm Products:

SaaS

Farmers' platform

Supply Chain Data

Sustainability

Partners:



Project Description:

Barilla commitment to sustainable sourcing is implemented through Barilla Farming platform (the farm management platform developed with xFarm) to support farmers in reducing carbon impact of their activities. A production protocol that requires crop rotation, flower bands and other practices is implemented and monitored through the platform.

Project Started: 2021

Status:

Pilot

Scaling

Full speed

Project Metrics:

2.600

Farms involved

390K

Tons of Wheat

100+

Products impacted

Results:

-7%

CO2 emissions of
Barilla wrt standard
wheat production

3%

YoY improvement
with adoption of
xFarm systems



Parmalat: Sustainable milk production

Customer:**Industry:**

Dairy production

Product:

Milk and cheese

Geography:

Italy

xFarm Products:

SaaS

Farmers' platform

Livestock platform

Supply Chain Data

Sustainability

Project Description:

Parmalat, part of Lactalis Italian branch, has a strong commitment in social and environmental responsibility: thanks to a new digital platform for their suppliers the data gathering will be more transparent and useful to help the whole supply chain improving the animal welfare thus reducing the total carbon emissions of milk production.

Project Started: 2022

Status:

Pilot

Scaling

Full speed

Project Metrics:

850

Farms involved

2 Billion

Liter of milk

20

Brands impacted

Results:

3%

Suppliers already engaged with the new digital tool developed

200 h

Training delivers to the farmers



Birra Peroni: Barley traceability from field to bottle

Customer:

Industry:
Beer Production

Crop:
Barley

Geography:
Italy

xFarm Products:
Farmers' platform
Supply Chain Data
Traceability
Sustainability

Partners:**Project Description:**

Peroni is investing in Italy to enhance the cultivation and production of barley for the malt of this beer. With xFarm, fields where barley is produced are traced with a multitude of data that are made available to end customers. Through the QR code on the bottle, consumers can retrieve all information, validated through blockchain.

Project Started: 2022

Status: Pilot Scaling Full speed

Project Metrics:

3.000

Hectares involved

250

Farmers

Results:

100%

Traceability from farm
to bottle



Melinda: Regenerative transition

Customer:



Industry:
Fruit trading

Product:
Apple

Geography:
Italy

xFarm Products:
DSS
Farmers' platform
Supply Chain Data
Sustainability
Regenerative agriculture

Partner:
dss⁺

Project Description:

Melinda, has a strong commitment in social and environmental responsibility: thanks to a new digital simulator the suppliers will be able to figure out the best practices to improve the soil health. The new agronomical manual identified will prove, through data, the carbon emission saving and the related economics needed to scale the solution.

Project Started: 2023

Status:

Pilot

Scaling

Full speed

Project Metrics:

30

Model Farms involved

24

Micro-weather environments

3

Years duration

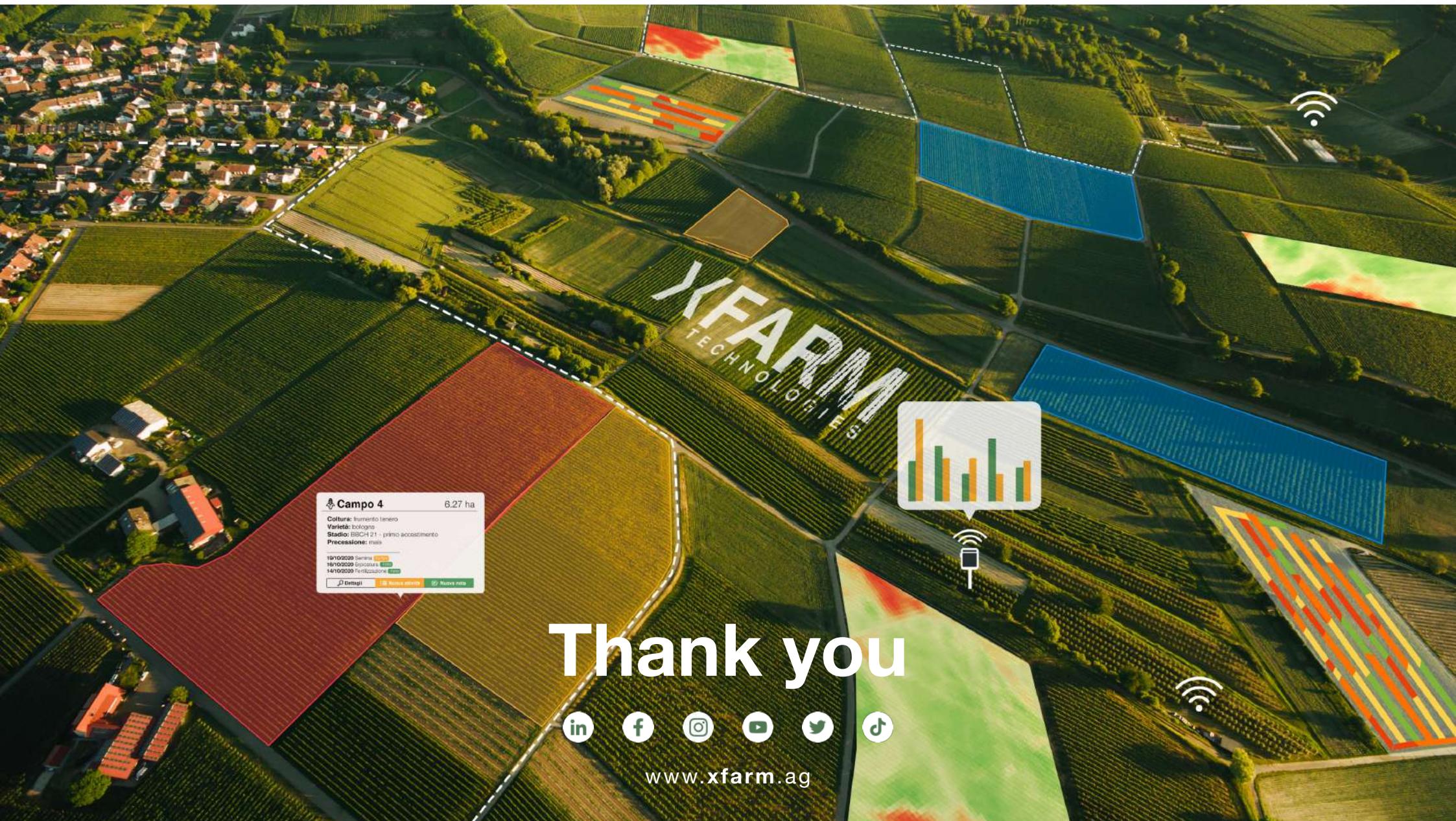
Targets:

7

Regenerative practices to be tested

DSS and new agronomical manual





Thank you



www.xfarm.ag