



Agrivoltaics Solutions



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The Group

Diagram was established in 2024 through the transformation of the IBF Servizi SpA Group and the **acquisitions** of Agronica Srl, Abaco SpA, Agriconsulting SpA, and Netsens Srl.

It is a **leading Italian and European company in the digitalization of services** dedicated to the **agri-food sector**, in the development of **farm management software** and in the management of processes for **delivering, monitoring** and **controlling** environmental and agricultural support programs.

As a **partner to major Governments** across Europe, it supports Public Administrations, farms, banks and insurance institutions and the agri-food industry with the goal of **promoting social, economic, and environmental sustainability**.

Today, the company is owned 41.6% by **CDP Equity**, 41.6% by **Trilantic Europe**, and 15% by **BF International**.



Agrivoltaics

Agrivoltaics is a hybrid system that combines **agricultural or pastoral production with energy production**, optimizing management.

Agrivoltaics systems allow crop development beneath and alongside photovoltaic panels: a synergy that maximizes land use and optimizes water resources.

A Trusted Agritech Partner

Diagram is a trusted agritech partner for those who aim to maximize agricultural production efficiency while monitoring the environment and crop performance.



The Group was founded in 2024 following the transformation of the leader in precision farming solutions, IBF Servizi S.p.A., following its acquisition by the NEXTALIA Sgr fund. Thanks to a careful and targeted M&A strategy and strong commercial development, it quickly became the Italian and European leader in the provision of precision agriculture services and the production of farm management software. It is a partner of important governments across Europe, supporting public administrations, agricultural companies and the agri-food industry with the aim of promoting social, economic and environmental sustainability. At the end of 2024, an agreement was signed for the acquisition of the Group by CDP Equity, a subsidiary of the Cassa Depositi e Prestiti Group, and Trilantic Europe, one of the leading pan-European private equity investors in the mid-market.

Legal Obligations

The regulatory framework for agrivoltaics sets out a range of requirements to ensure that advanced agrivoltaics systems meet agricultural productivity and environmental sustainability goals, both during authorization and during operational phase.

Key obligations include:

AGRONOMIC REPORTS

several agronomic reports are required to certify the compatibility of the installation with agricultural practices and the preservation of its agricultural continuity, both at the time of entry and throughout its entire operation.

MONITORING SYSTEMS

* Monitoring of the Continuity of Agricultural/Pastoral Activity

It is necessary to ensure that agricultural or pastoral activity continues without interruption despite the installation of the photovoltaic system. The monitoring system must verify that land use remains compatible with farming or livestock practices, documenting both production trends and the maintenance of crops or herds.

* Monitoring of Water Savings

Agrivoltaic systems must demonstrate effective water resource management. Monitoring must measure the reduction in water consumption achieved through the shading effect of photovoltaic panels, which reduces evaporation and improves water-use efficiency for crops or grazing.

* Monitoring of Soil Fertility Recovery

It is essential to ensure that the agrivoltaics system does not impair soil quality. The monitoring system must assess the recovery of soil fertility by measuring indicators such as the presence of essential nutrients and soil biodiversity. This makes it possible to verify that agricultural activity does not suffer long-term negative impacts.

* Monitoring of the Microclimate

The installation of photovoltaic panels modifies microclimatic conditions, particularly temperature and humidity, in shaded areas. These parameters must be monitored to ensure that vegetation or pasture is positively influenced, or at least not adversely affected. The monitoring system must therefore collect data on changes in environmental conditions beneath the panels.

* Monitoring of Climate Change Resilience

Agrivoltaics systems must contribute to the resilience of agricultural and pastoral activities in the face of climate change, such as rising temperatures or changes in precipitation. Monitoring must measure the effectiveness of the systems in improving soil and crop adaptation capacity, including enhanced water retention and protection against extreme events.

Key Requirements

Agrivoltaics must ensure **agricultural efficiency and continuous monitoring**.
This requires:

SPECIALIZED AGRONOMIC EXPERTISE

Required for the preparation of the mandatory agronomic report.

SUITABLE SENSOR SYSTEMS

The regulatory framework requires the monitoring of all critical aspects, including the continuity of agricultural or pastoral activity, water savings, soil fertility recovery, microclimate, and resilience to climate change.

AGRONOMIC REPORTS AND ADVANCED REPORTING

During the incentive period, the provision of detailed reports certifying compliance with all requirements is mandatory, a continuous commitment that may be difficult to manage without adequate support tools.



Services and Solutions



A full support service,
from sensor system supply
to agronomic reporting.

SPECIALIZED AGRONOMIC CONSULTING

Assistance in agricultural activities both during the authorization phase (agronomic reports, etc.) and in the management and monitoring of the agricultural component of the installations during the operational phase. In particular:

- Agronomic reports for authorization procedures
- Support in designing agrivoltaics and monitoring system
- Start-up and yearly monitoring reports
- Agricultural parameters permanent monitoring: crop plans, production yields
- Agronomic and environmental data processing
- Support for digital Farm Notebook and crop plan management
- Support for reporting and digital farm management
- Coordination with regulatory authorities

Sensor Systems

SENSORS

The real-time detection of key parameters determining photovoltaic energy production (primarily solar irradiation, but also temperature, rainfall, and wind speed) is an essential requirement for solar power plants, including small and medium-sized installations.

Technological tools and monitoring systems are indispensable to verify the impact of the photovoltaic installation on crops, water savings, agricultural productivity and crop protection, microclimate, and climate change resilience. Specifically:

Main Weather Station – AgriSense IoT Central Unit:

- Central unit with Anemometer (wind speed and direction)
- Solar radiation, thermo-hygrometer (air temperature and humidity)
- Data transmission via 2G / LTE-NBIOT / or LAN connection
- IoT wireless receiver
- Power supply from electrical grid 220VAC – 12VDC / or standalone solar power kit
- Additional sensors for enhanced compliance with tenders: Barometer, Soil EC conductivity sensor, Rain collector

IoT Units for Parameter Detection under the Agrivoltaic Decree – 2 Wireless IoT Rpt Units with Sensors:

- Air temperature (°C), Air humidity (%)
- Two capacitive FDR soil moisture and temperature sensors
- Solar radiation
- Wind speed
- Sensor + wind mounting bracket
- Power supply from electrical grid 220VAC – 12VDC / or standalone solar power kit
- Range up to 8000 m LOS from central unit
- 3 m installation pole

Optional Sensors

- Soil pH sensor for Meteosense
- Rain collector on Wireless Unit

Monitoring Platform Livedata

Services and Solutions

MONITORING SYSTEM

A monitoring system based on a software platform that enables verification of all the requirements necessary to ensure proper management of the installation and agricultural production.

The functionalities comply with all monitoring requirements of micro-environmental parameters for advanced agrivoltaics:

Requirement

MONITORING OF THE CONTINUITY OF AGRICULTURAL/PASTORAL ACTIVITY

Functionalities:

- Management of farm assets (warehouses, agronomic inputs, equipment, workforce)
- Control and verification of average annual yields and generation of yield maps
- Execution of agricultural practices directly in the field via APP
- Monitoring of crop vigor as defined in the cropping plan
- Creation of a digital field logbook

Requirement

MONITORING OF WATER SAVINGS

Functionalities:

- Soil moisture sensors with cloud integration
- Measurement and control of irrigation inputs
- Soil moisture content alerts in case of water stress
- Water consumption reports (excluding dryland crops)

Services and Solutions

Requirement

MONITORING THE RECOVERY OF SOIL FERTILITY

Services:

- Knowledge of pedology, slopes and exposure of areas of interest
- Analysis and comparison of soil chemical data (organic C, organic N)

Requirement

MICROCLIMATE MONITORING

Services:

- Microclimate and weather station integrations to monitor wind, air temperature, and radiation
- Radiation DSS

Requirement

MONITORING RESILIENCE TO CLIMATE CHANGE

Services:

- System assessment and analysis of agricultural management in terms of resilience

ADDITIONAL FEATURES

- Monitoring of carbon stocks in agrivoltaic systems
- Estimation of CO2 produced by agricultural practices
- Provision of tools necessary for compliance with certifications such as carbon footprint

CONTACTS

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