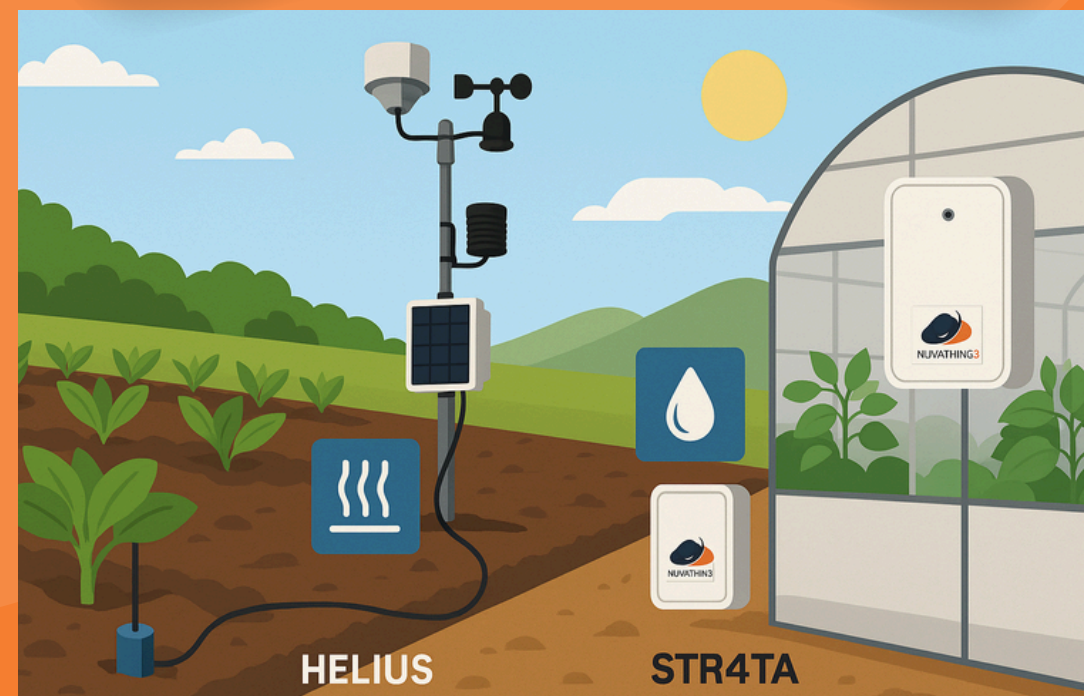


# NUVATHINGS SMART AGRO INNOVATION



# THE SCENARIO...



**Climate change is intensifying water scarcity**, especially in regions such as the Mediterranean, Latin America, and North Africa.

**Rising temperatures and decreased rainfall** are directly impacting agricultural productivity and the availability of water resources.

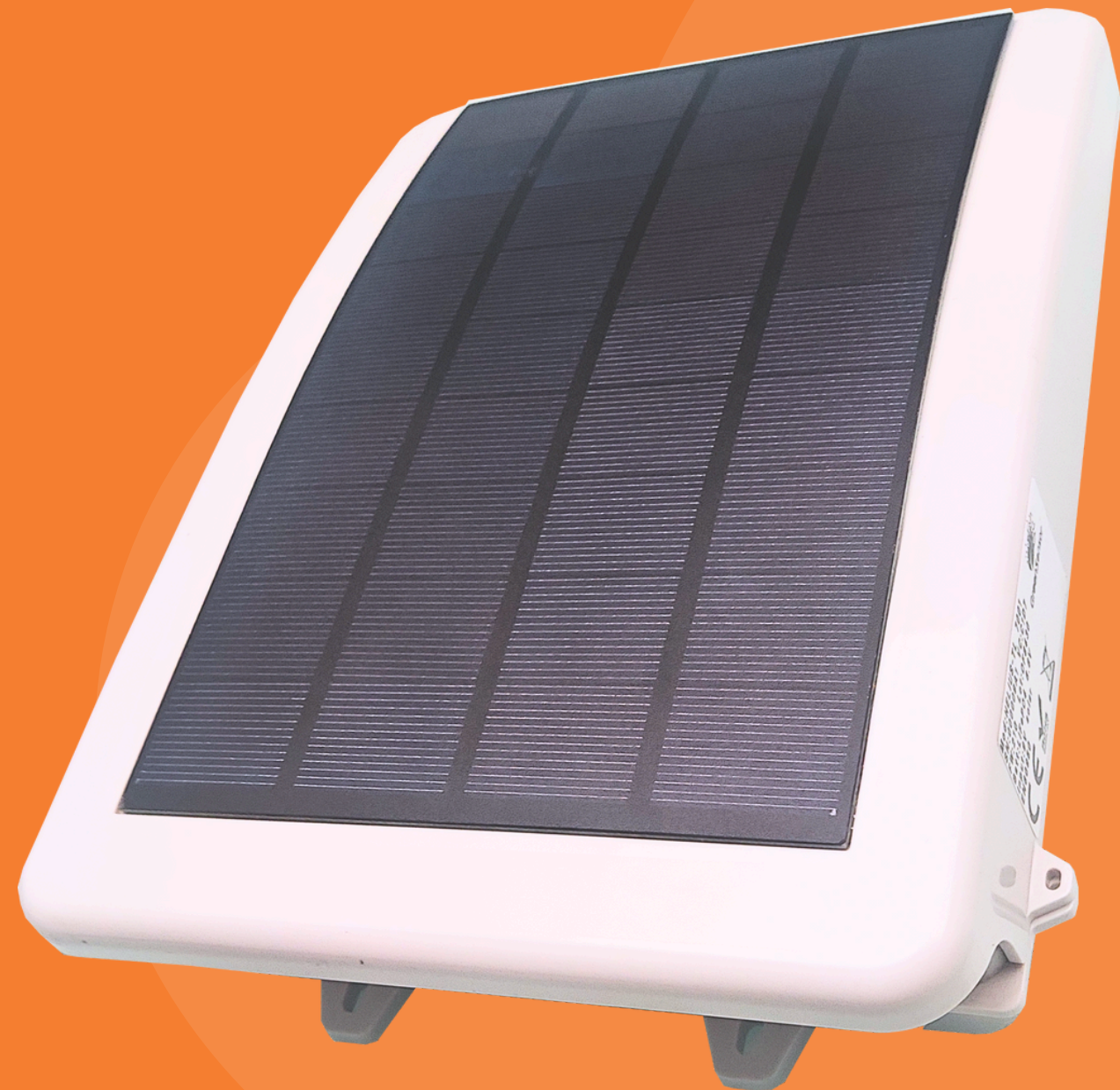
**Agriculture is one of the most vulnerable sectors**, facing challenges such as prolonged droughts and extreme weather events.

**Technologies like IoT, AI, and sensor networks** provide solutions to monitor and optimize water usage in real time.

**HELIUS positions itself as a key tool** for implementing smart and sustainable farming practices, adapting to new climate conditions.



# HELIUS Datalogger – Key Aspects



**Dataloggers** are electronic devices that automatically measure and record environmental parameters in the field.

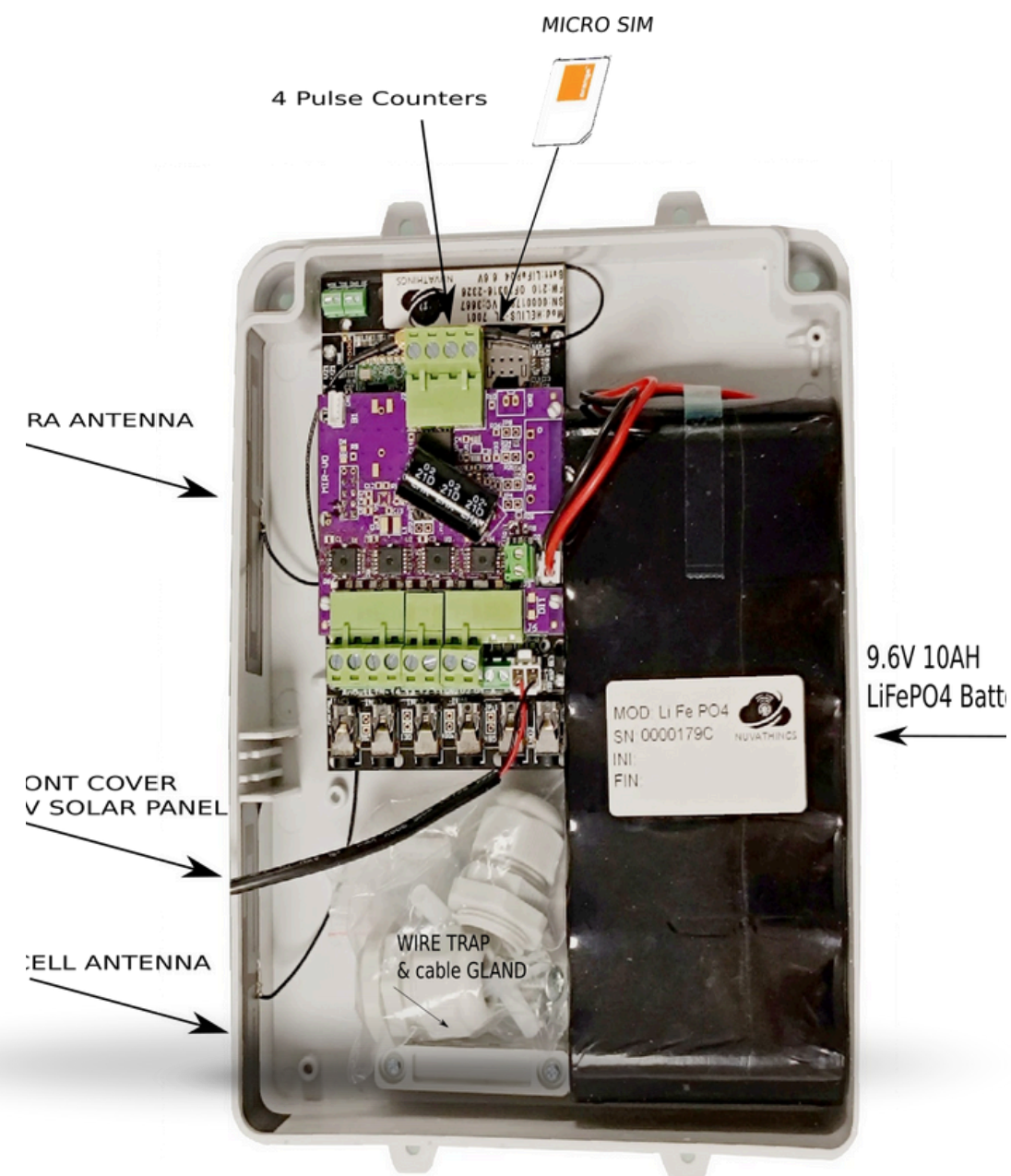
In agriculture, they are used to monitor crops, livestock, storage, and product transportation.

**HELIUS** by Nuvathings is the first datalogger designed specifically for agronomy, featuring integrated triple communication:

- **Terrestrial networks** (NB-IoT, LTE-M, 2G)
- **Satellite networks NTN, HELIUS-TSL model**
- **LoRa Noo and Gateway** (up to 15 km range)  
Compatible with a wide range of soil, weather, and flow sensors. SDI12, RS485.  
**Fully autonomous** power supply via integrated 12V – 4.3W solar panel, with real-time data transmission.

Ideal for demanding environments and applications such as irrigation valve control.

# TECHNICAL SPECIFICATIONS



Internal memory capable of storing up to **126,000 32-bit records**.

## Ultra-efficient power consumption:

- **60  $\mu$ A** in standby mode
- **20 mA** in active mode

## Versatile connectivity:

- 6 JACK connectors for METER GROUP probes and other manufacturers
- Inputs: 3 analog, 2 digital, 1 flow meter
- Supports up to 4 pulse counters + solenoid valves in HELIUS-TL+ model
- 2 I2C ports for SHT21 probes
- Bluetooth 5.0 sensors (up to 500 m range)

## Integrated triple communication:

- NB-IoT / LTE-M / EGPRS
- LoRa (up to 15 km range)
- NTNsatellite networks

## Intelligent power management:

- Automatic adjustment of communication frequency based on battery level and sunlight availability
- Configurable reporting interval from the web platform

## LoRa gateway functionality:

- Operates as a LoRa gateway for STR4TA sensors, enabling network expansion without the need for additional infrastructure.

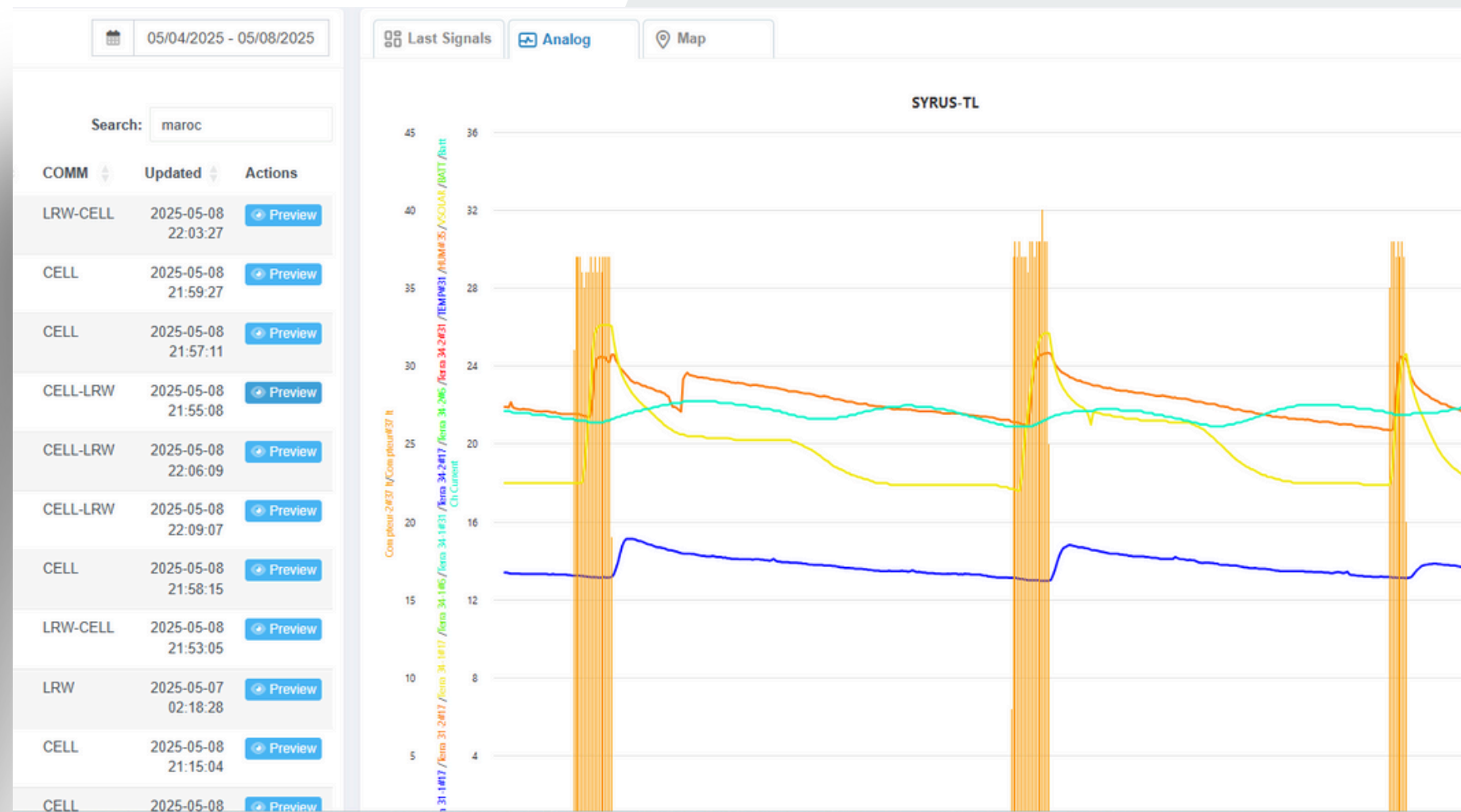


# UNIQUE CONNECTIVITY



- **NUVA's** proprietary LoRa mesh network, optimized for large agricultural environments.
- Each **HELIUS** datalogger functions as a repeater node, enabling communication between sensors and gateway without the need for external infrastructure.
- **Greater resilience** against obstacles and localized failures, thanks to path redundancy.
- A **more robust and autonomous solution** than LoRaWAN, which depends on centralized gateways with limited coverage.
- Ideal for rural or remote areas without cellular coverage or where connectivity costs are to be avoided.
- **Dynamic topology** capable of automatically adapting to changes in the environment or sensor deployment.
- **Advantage over LoRaWAN:** all HELIUS units act as gateways, so if one fails, the others can support the network.

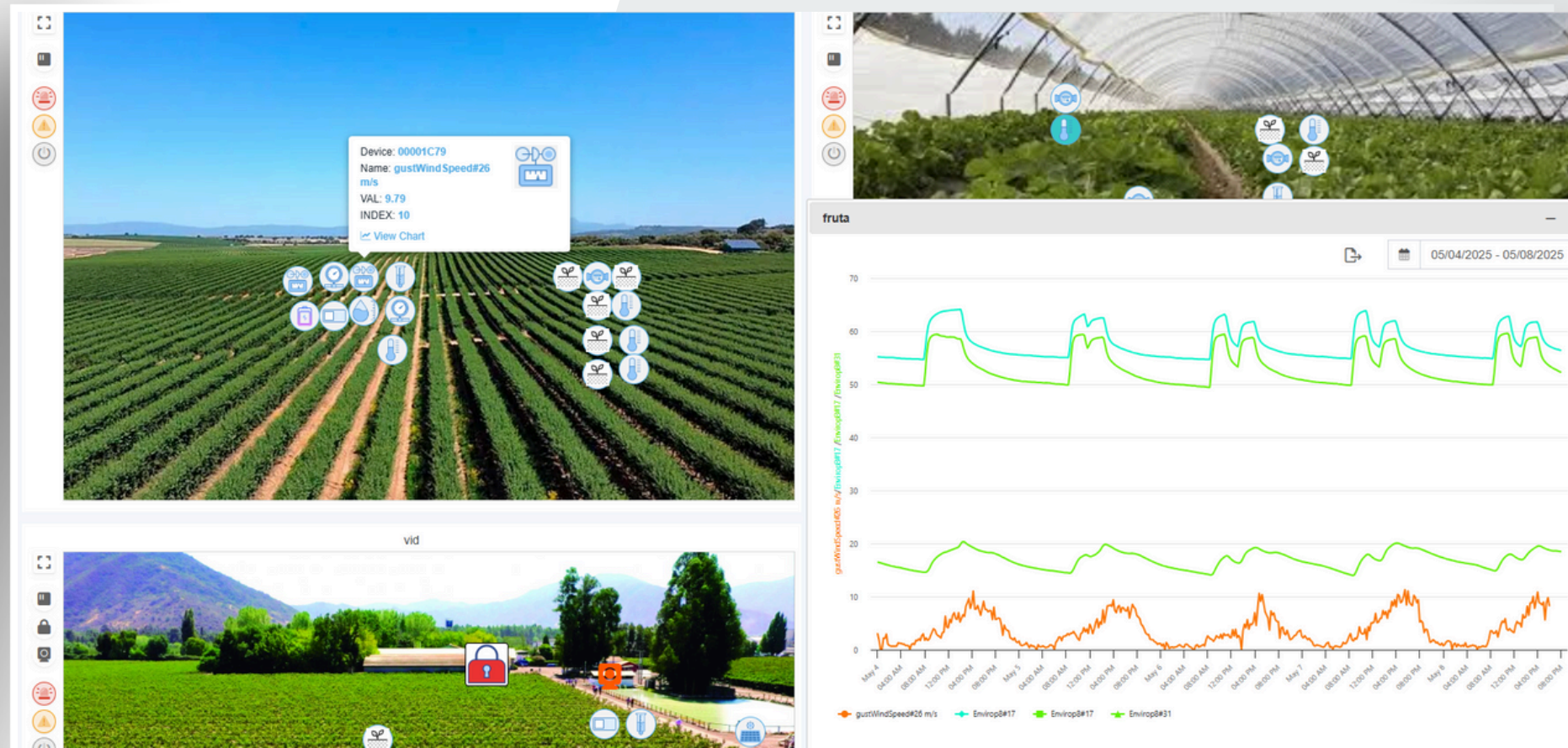
# NUVA PLATFORM



- **Secure and Scalable Cloud Platform by Nuvathings**, designed for efficient agricultural data management.
- **Native integration with SCADA** systems via standard protocols such as CoAP, facilitating interoperability with existing infrastructure.
- **Geo-referenced visualization of sensors**, devices, and agricultural plots, enabling precise and contextualized monitoring.
- **Customizable dashboards with real-time graphs**, historical data, and predictive analytics for informed decision-making.
- **Configurable alert and notification system** for critical events, improving response capabilities in case of incidents.
- **Bidirectional synchronization** between field devices and the cloud platform, ensuring seamless and up-to-date communication.



# SCADA AGRO PLATFORM



- **Geo-referenced visualization** of crops, sensors, and devices.
- **Real-time monitoring** with indicators over aerial imagery and greenhouse views.
- **Dynamic charts** for critical parameters (humidity, wind, salinity, etc.).
- Integration of **multiple plots and zones** through interactive maps.
- Side panel with status notifications and alarms.
- **Historical data queries** by date range and data export functionality.



**NUVA**THINGS