



Water Quality SensorStick

**Early detection of water
quality changes with autonomous,
sustainable monitoring**

European
Innovation
Council





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Your Mission

Maintaining the quality of your produce while meeting tightening emission requirements is a constant challenge. Growers and farmers must focus on delivering top-tier crops and healthy animals — yet are increasingly expected to monitor nutrient losses and emissions with precision. But real-time insight is often missing:

- **Manual sampling is time-consuming**, infrequent, and easy to postpone during busy seasons.
- **Emission peaks go unnoticed**, especially after rainfall, irrigation, or manure application.
- **Regulatory pressure is rising**, demanding transparent, verifiable water quality data.

The result: growers and farmers carry the responsibility for water quality, but lack the tools to see what's happening on their site — exactly when it matters most.



Our solution

Thanks to our long-lasting **microbe-based power source**, we can provide sensors that are continuously powered. This eliminates the need for battery replacements and enables uninterrupted, long-term data collection.

By combining our autonomous energy-harvesting technology with either local or terrestrial network or **satellite connectivity** for remote sites, there is no need to physically retrieve data from the sensor. The system operates fully wirelessly. This makes the SensorStick especially attractive for agricultural environments where manual measurement or data retrieval is impractical or undesirable.

The SensorStick can collect **EC and temperature data for early detection of nitrate leaching**. Validation and modeling are being conducted in collaboration with water authorities and Wageningen University & Research (WUR).



Power from the soil

The SensorStick is powered by Plant-e's groundbreaking and patented plant-power source. It works 24 hours a day and year-round. This power source is always on and provides a long-lasting energy solution, delivering power for decades for measuring and data-transmission. This enables continuous data collection without the need to replace batteries or collect your data manually. This is how it works:

1.

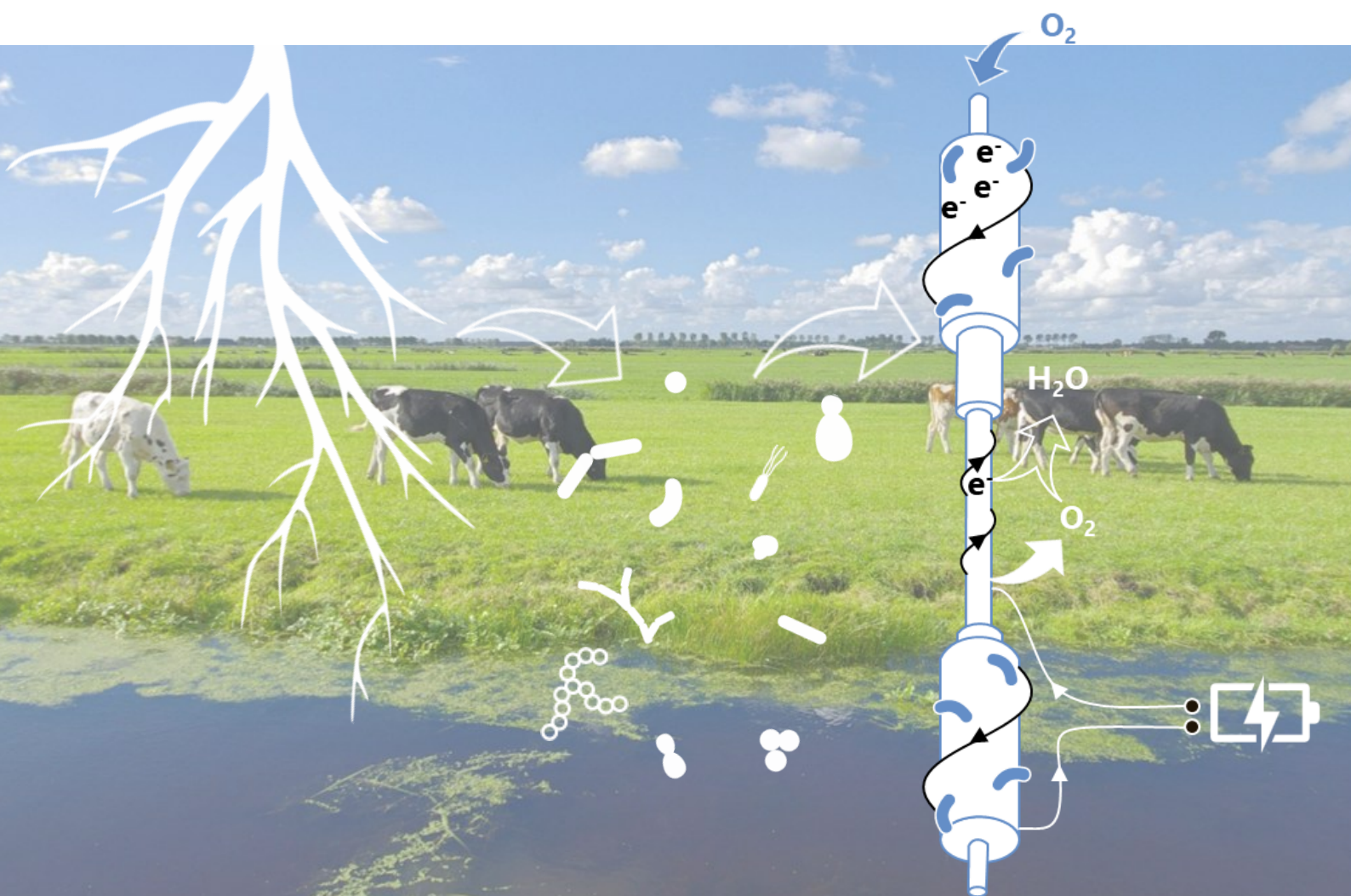
Plants release organic matter into the soil.

2.

Micro-organisms break down this matter, releasing electrons.

3.

The SensorStick captures these electrons, generating electricity on the spot.



Satellite connectivity

Our SensorStick ensures continuous, gap-free monitoring, even in the most remote agricultural area. Our sensor sends its measurements straight to satellites passing overhead, eliminating the need for local gateways, SIM cards, or terrestrial networks. Regardless of local circumstances, our SensorSticks always send their data directly to the satellite, fully powered by its own power sources.

1.

The SensorStick collects data from the soil.

2.

The built-in node in SensorStick transmits the data directly to the satellite.

3.

Users receive the data, secured and encrypted.



Key benefits

Long-term durability: the SensorStick provides a long-lasting solution for monitoring. Powered by plants and microbes, the SensorStick removes the need for disposable batteries.

Boost emission control: accurate and continuous data every 1 to 4 hours ensures a reliable platform on which you can base your nutrient management. Our customers benefit from a dedicated account manager who responds actively to provide personal support.

Reduce costs and labour: eliminate manual monitoring trips with autonomous, wireless data transmission.



Save 50%

on monitoring costs



99% accuracy

on water data



50+ years

lifespan



Quick and easy installation

The SensorStick is built for **simplicity and speed**. Installation is straightforward, even in drainage ditches. You simply insert the device into the soil under water, position it vertically, and it begins operating almost immediately.

Once deployed, the SensorStick begins to autonomously generate electricity using the energy produced in the soil. It starts transmitting **real-time EC and temperature data**, to the user's online dashboard which is accessible from anywhere in the world.

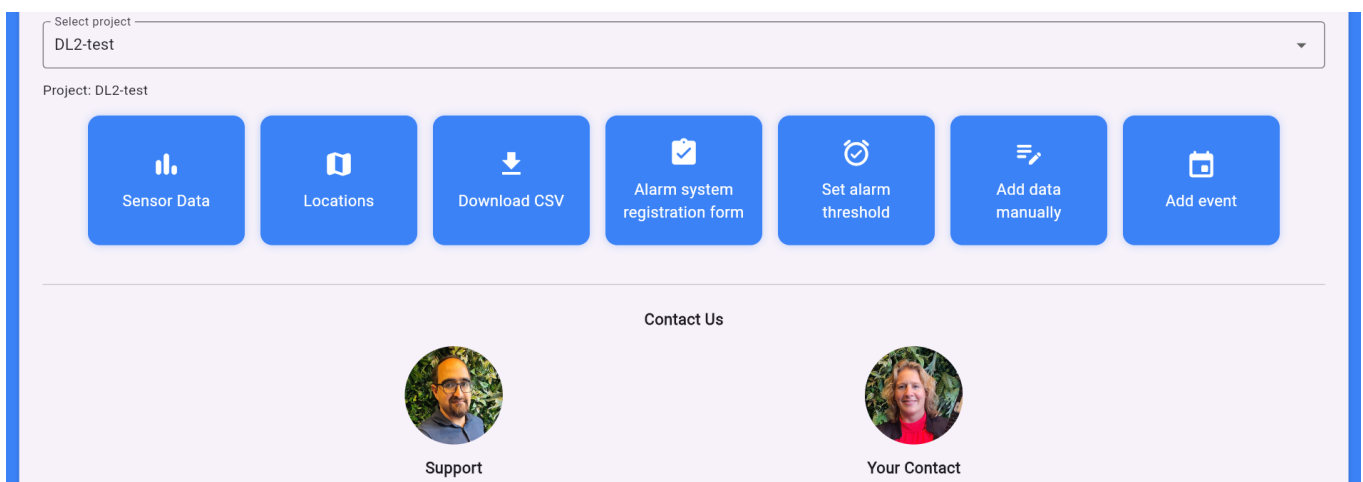
With this telemetered system backed by the **Water authorities** and **Wageningen University and Research (WUR)**, you're ensuring the highest standards in data integrity.

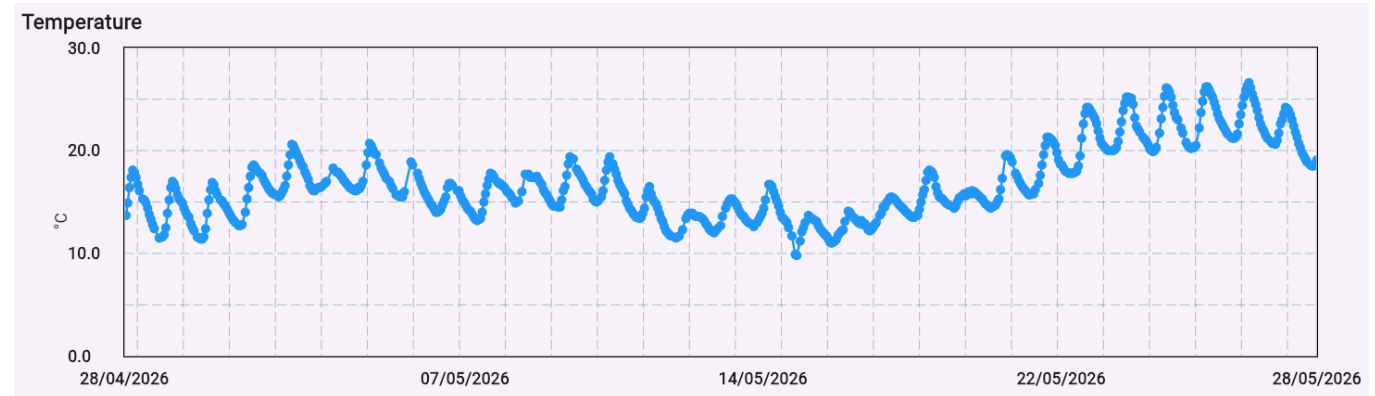
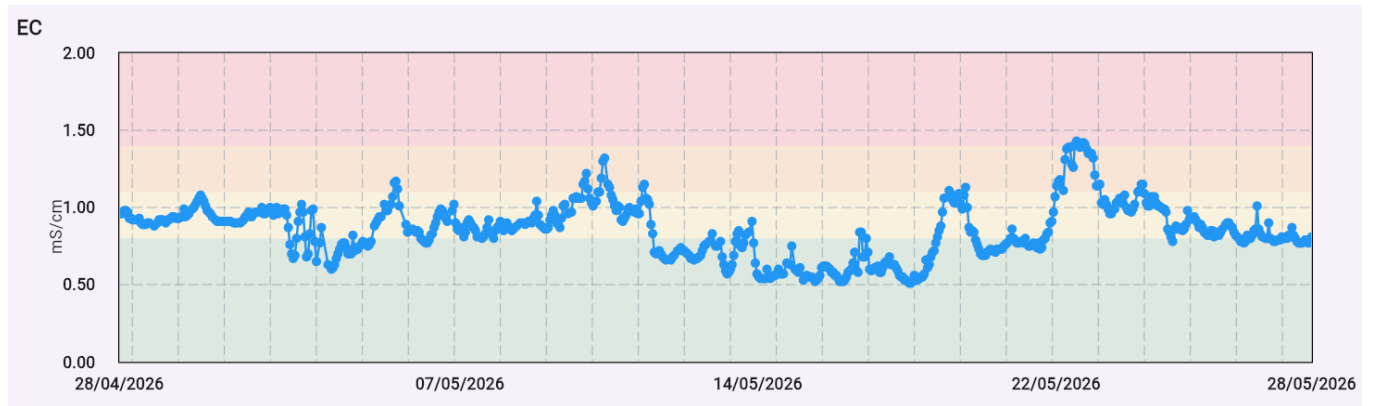
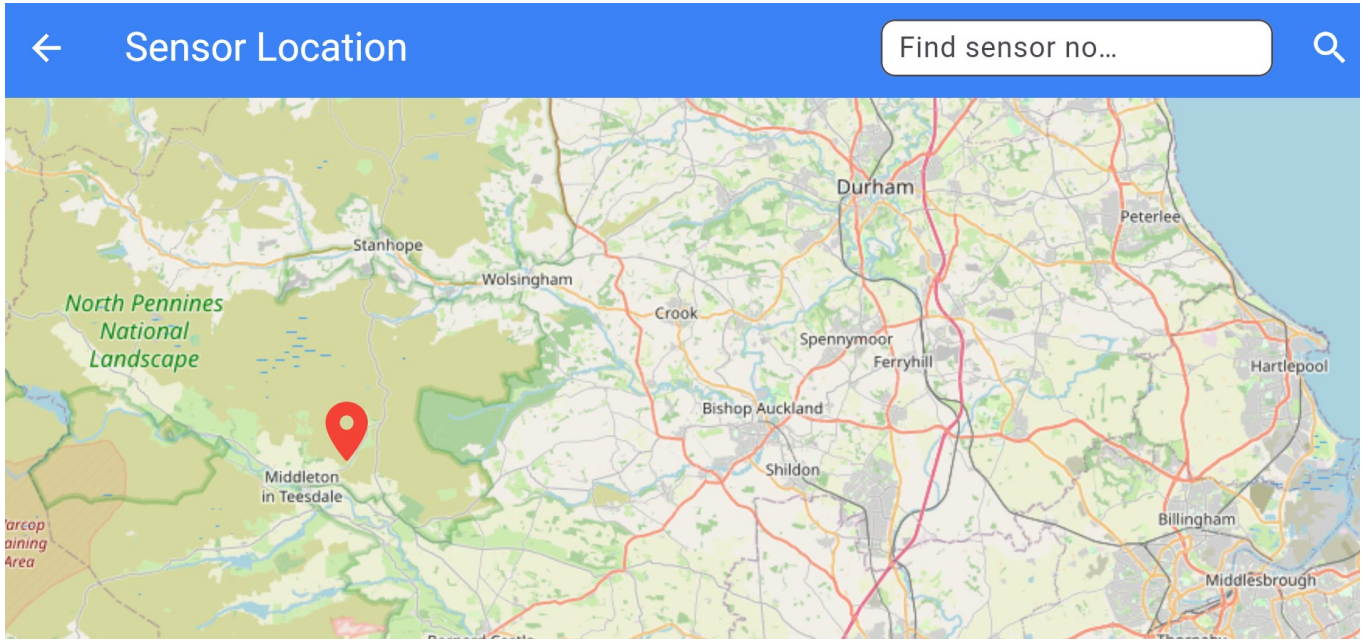


Easy-to-use online dashboard

The SensorStick's **dashboard** is designed for simplicity, featuring the following intuitive panels:

- **Sensor data view** - electrical conductivity, temperature, and battery status.
- **Location view** of each SensorStick.
- **Data downloads** where you will also find direct contact details for your dedicated account manager and **technical support team**.
- Setting for **threshold alarm**.
- **Manual data measurement** and adding **events**.





Success stories

You're in good company! Our products have been installed in the ditches surrounding Dutch greenhouse horticulture companies. Here's what our customers had to say about their experience.

About the Transparante Tuinder

In the Netherlands 15 SensorSticks were successfully installed in ditches at three participating growers. An evaluation of the measurements shows that a short-enough measurement interval is important to avoid missing peaks. Furthermore, rainfall appears to have a significant influence on the EC in the ditch. The discharge of groundwater from drainage is reflected as an increase in EC.

Based on these measurements, the growers are optimizing the sensor network and establishing a preliminary draft of alarm values that require the grower to take action to detect leaks.

“By deploying this innovative technology, we can not only detect potential leaks early, but also be more transparent with our customers about how we handle water quality.” - Division Q

The best solution for Water quality monitoring

Contact Plant-e to explore how the SensorStick can empower your emission reduction.

Email: sales@plant-e.com

