SOWIT

MOROCCO BERRY CONFERENCE

Every drop counts: optimizing irrigation and drainage with data and AI.

SOWIT

Smart Water Management through Data

Bridging the data gap on farms through technology to better adapt to water stress and optimize water management.

The accessibility of open-source satellite data provides a valuable source of agricultural information without requiring any investment.

Only 10 to 15% of farms currently utilize open-source data.

Deployment of connected sensors for smart management and precise control of water use.

Between 5 and 10% of farms worldwide use connected sensors or IoT technologies to manage irrigation.

Use of AI to optimize agricultural management and monitoring in the face of water scarcity.

Less than 5% of farms currently use AI-based technologies for irrigation management.

Challenges

SOWIT

Turning farm data into drivers of performance and resilience.

Global Overview

Current Challenges in Greenhouse Irrigation

- Insufficient Precision
- Lack of Real-Time Data
- Challenges in Managing Variability
- Drainage Issues
- High Water and Energy Consumption
- Insufficient Traceability and Historical Records

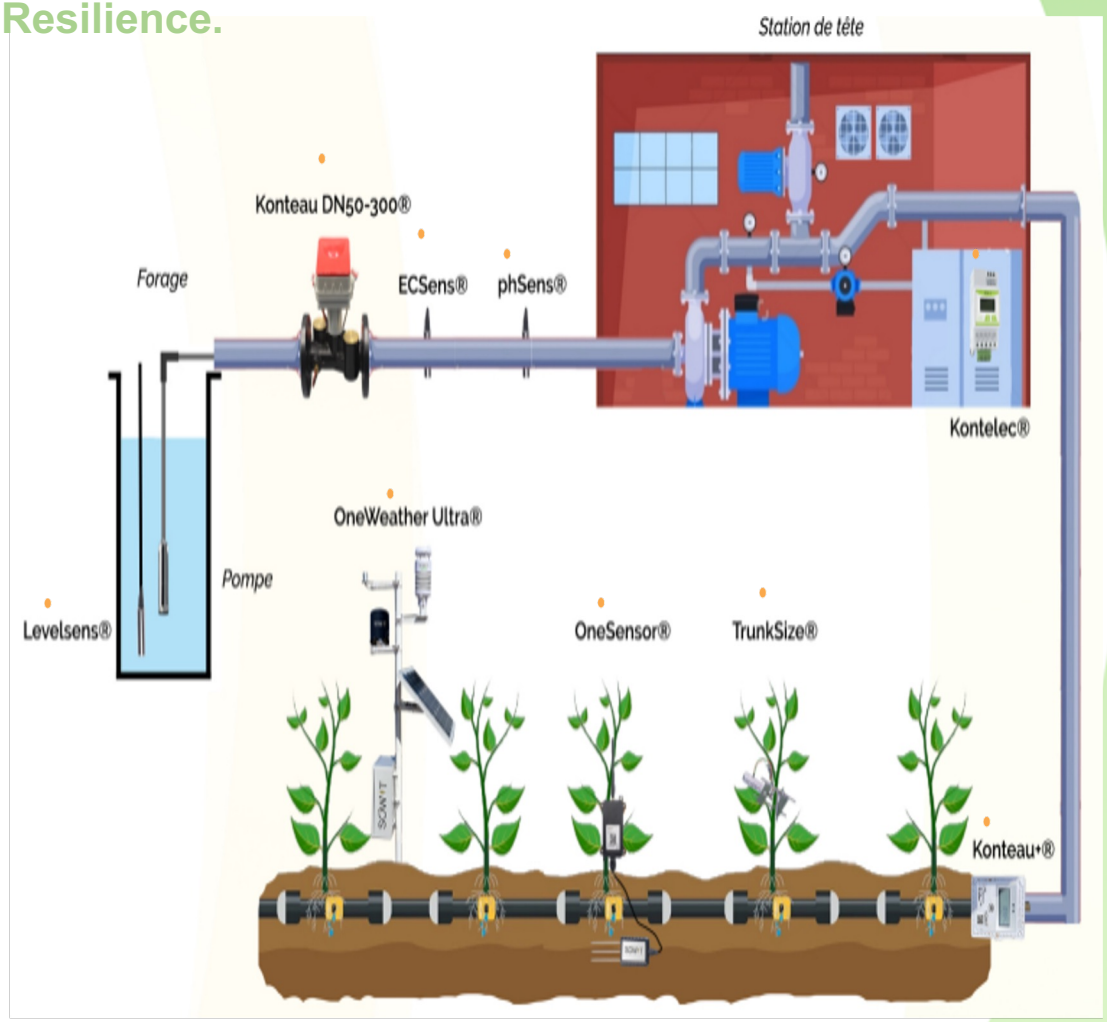
Challenges

➡️ From Intuitive Management to Scientific, Data-Driven Control.

👉 Turning Farm Data into Drivers of Performance and Resilience.

Greenhouse

- ❑ Is my microclimate under control?
  Monitoring environmental interactions.
- ❑ How much am I supplying and how much am I draining?
- ❑ Is my water available and of good quality?
  Smart management of the resource in terms of quantity and quality.



USE CASE: Soil _ Climate_Plant

💧 70% of water is used in agriculture.

🌡️ Micro-variations of 2°C can affect up to 10% of yield.

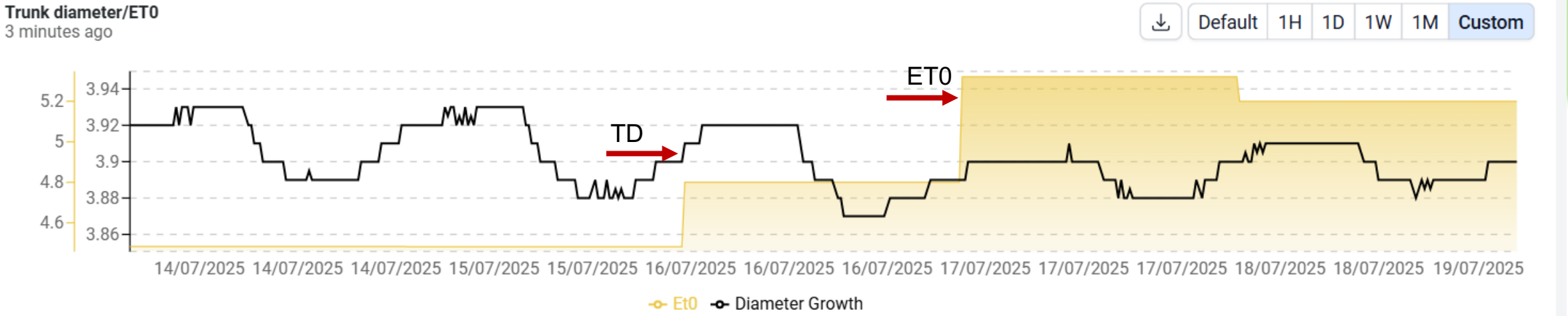
✅ Water savings: 20–30% without yield loss.

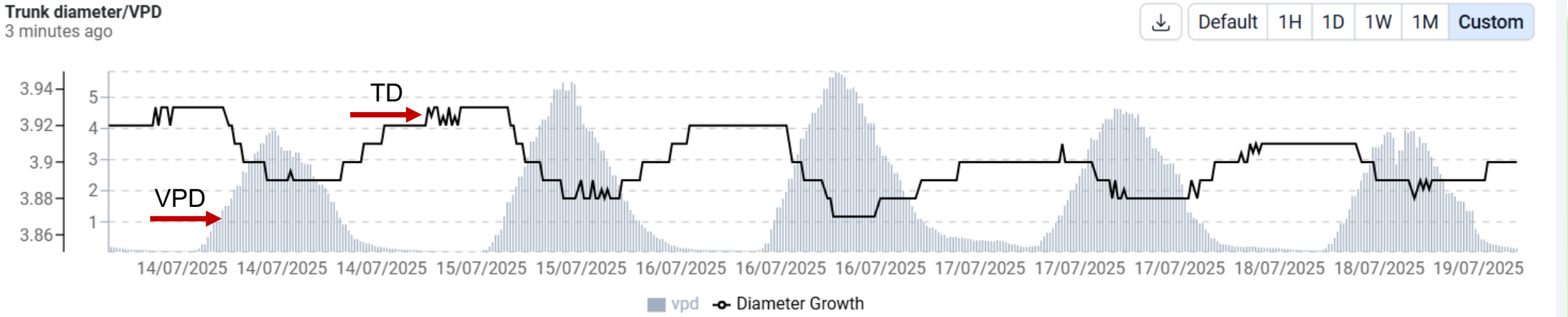
✅ Reduced fertilizer loss / improved fertigation efficiency.

Indicator	Before (Traditional Method)	After IoT + AI Integration	Improvement
Water Consumption	1000 L/m²	700 L/m²	-0,3
Yield	2,5 kg/m²	3,1 kg/m²	0,24
Losses Due to Water Stress	0,15	0,05	-0,66

USE CASE: Soil _ Climate_Plant

➡️ **Accurate evaluation of water performance requires an integrated approach that considers the interactions between the plant, the microclimate, and the soil.**





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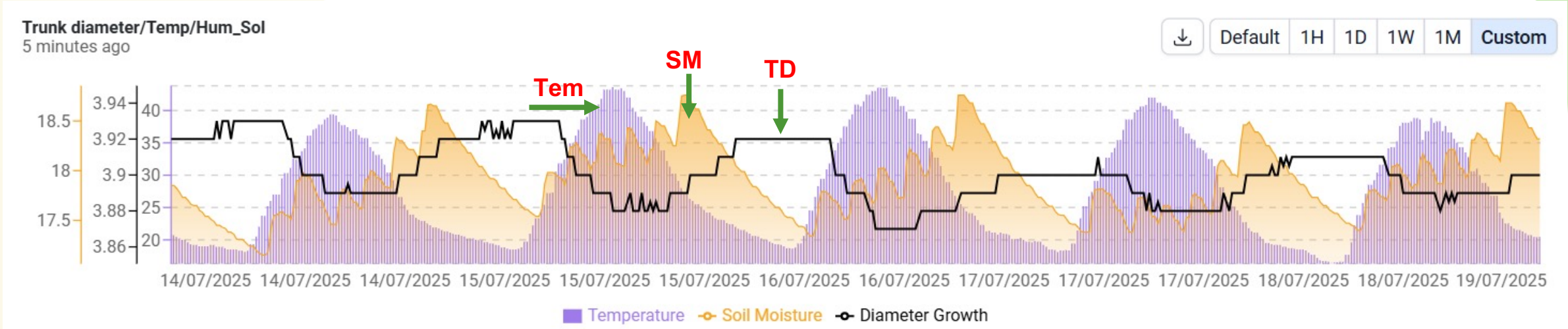

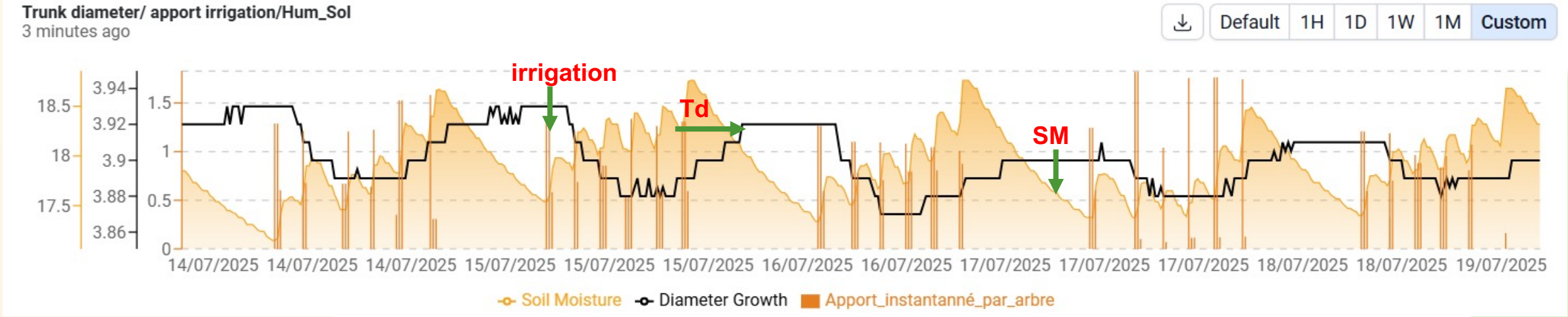

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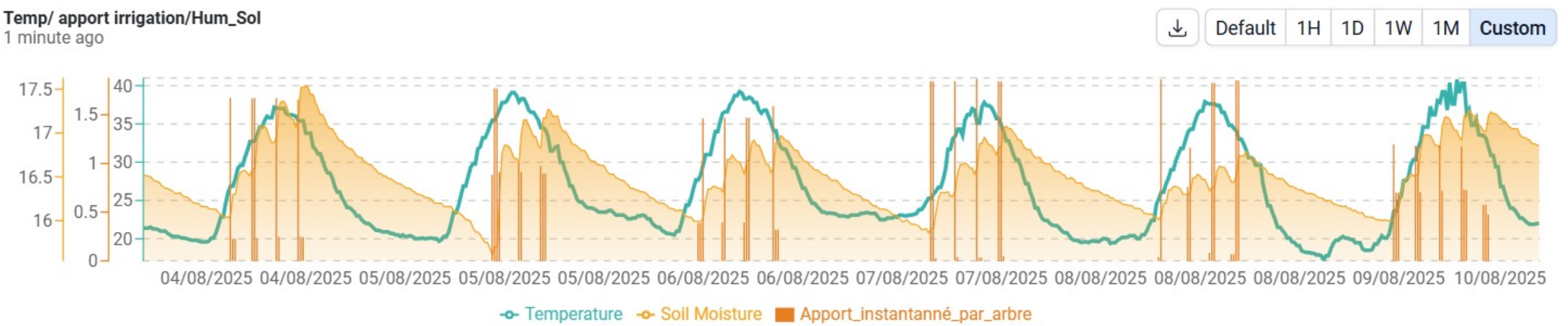


➡️ **IOT**

- 👉 Substrate Moisture
- 👉 Temperature
- 👉 VPD
- 👉 Solar Radiation

🌡️ **Intelligent Climate Control**

- 👉 **Automatic management** of misters and heaters
- 👉 Reduction of daily **temperature fluctuations**
- 👉 Better control of **VPD**

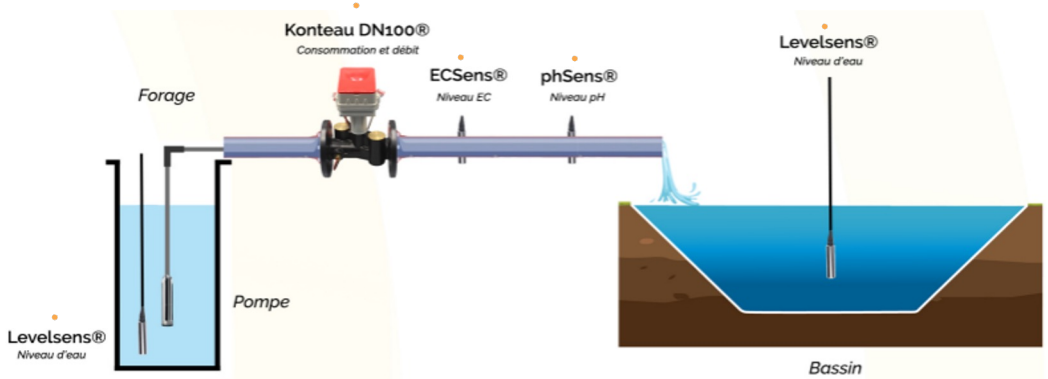
📊 **Observed Results:**

- 👉 Reduction in water consumption: **-30%**
- 👉 Increase in average fruit size: **+18%**
- 👉 More uniform production

USE-CASE: Pumping Control

➡️ Monitor my well's potential and water reserves.

- **Preservation of water resources and soil** (less over-pumping, less salinization).
- **Reduction of water volumes by 20–30%** on average without any loss of production.
- **Preservation of the aquifer** → prevents shortages and extends the lifespan of wells.
- **Water Balance**



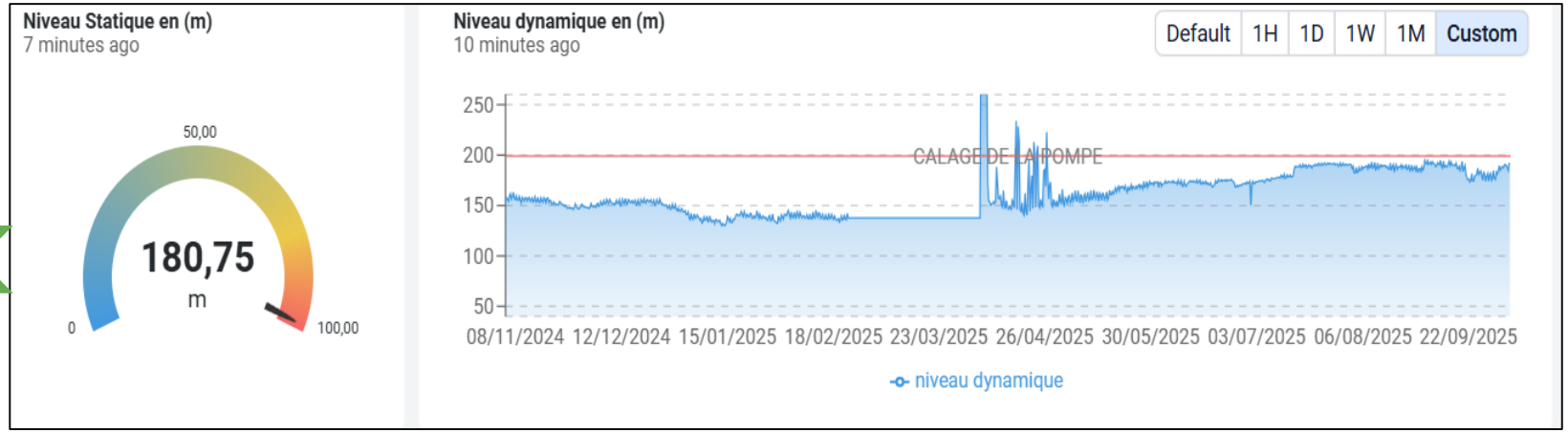
- **Decisions based on** historical observations.
- Late detection **of changes in aquifer levels and** water reserves.
- **Risk** of over- or under-use of water, leaks…

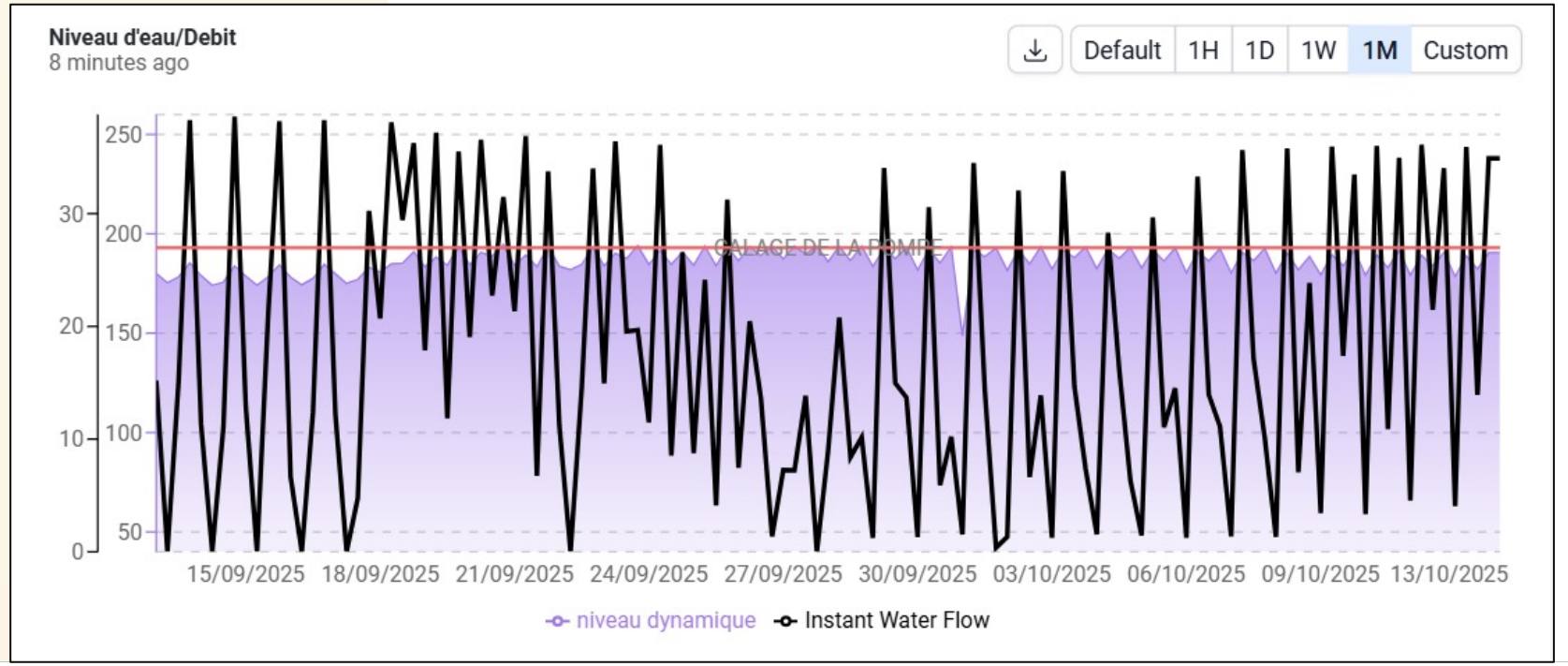
USE-CASE: Pumping Control

➡️ Monitor my well's potential and water reserves.

➡️ **Water level in the well (or drawdown).**

👉 Detect over-pumping or **a weak aquifer.**
👉 Calculate **drawdown.**
👉 Determine **the depth** of the aquifer.





➡️ **Flow / Level**

👉 Determine the sustainable capacity of **the well.**
👉 Water **consumption**
👉 Enables **planning for sustainable** management

USE-CASE : Drainage

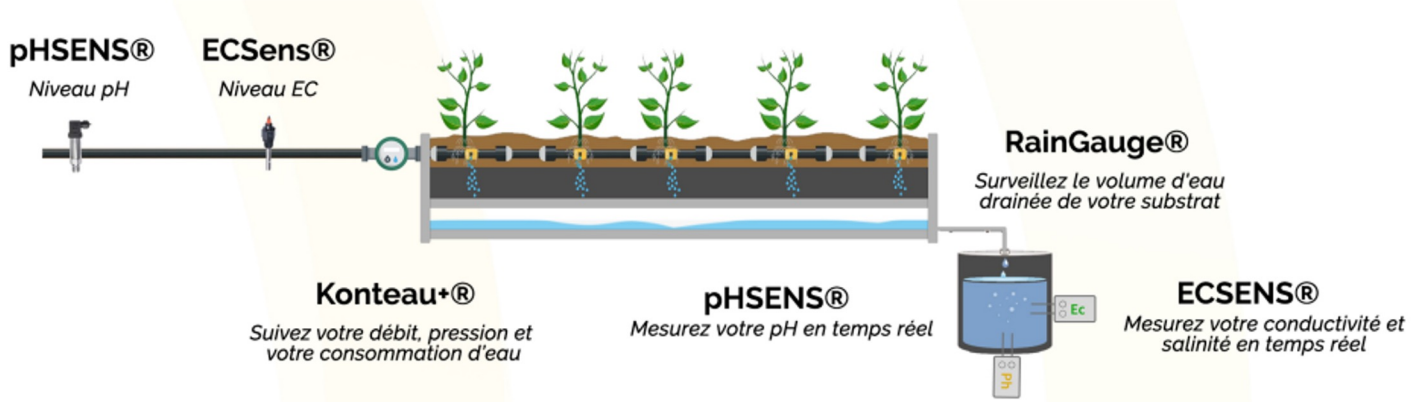
➡️ How to effectively monitor drainage rates, flow rates, as well as EC and pH levels, while benefiting from real-time tracking and daily reports.

Agronomic and Logistical Benefits:

- Fewer root diseases related to excess water.

Optimized operations:

- **Prioritization of drainage investments** based on proven high-risk zones (using spatial data).
- **Reduced leaching** (monitored drainage EC).
- **Improved irrigation efficiency** → soil becomes more predictable.



USE-CASE: Drainage

➡️ Monitor drainage rates, flow rates, as well as EC and pH levels in real time.

Drainage (Manual Control

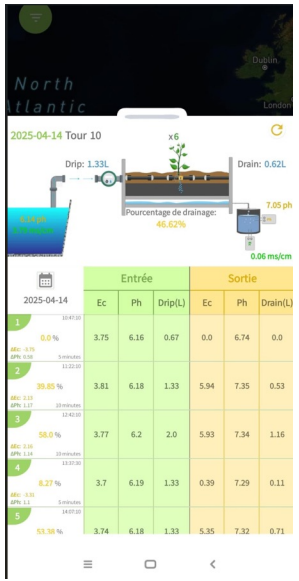
- 👉 Irrigation often based on **observations**.
- 👉 Risk of **under- or over-irrigation**, leading to:

Significant **water loss** (up to 30–40%).

- ❖ Fluctuating **substrate salinity**.
- ❖ **Uneven yields.**
- 👉 Difficulty in detecting water stress.

Controlled Drainage via IoT

- 👉 Use of **connected sensors** to measure in real time:
  - ❖ Substrate moisture
  - ❖ Input / drained volume
  - ❖ EC and pH – In/Out
- 👉 Data automatically transmitted to the platform.
- 👉 Irrigation automated and **adjusted** according **to real conditions** (VPD, radiation, growth).



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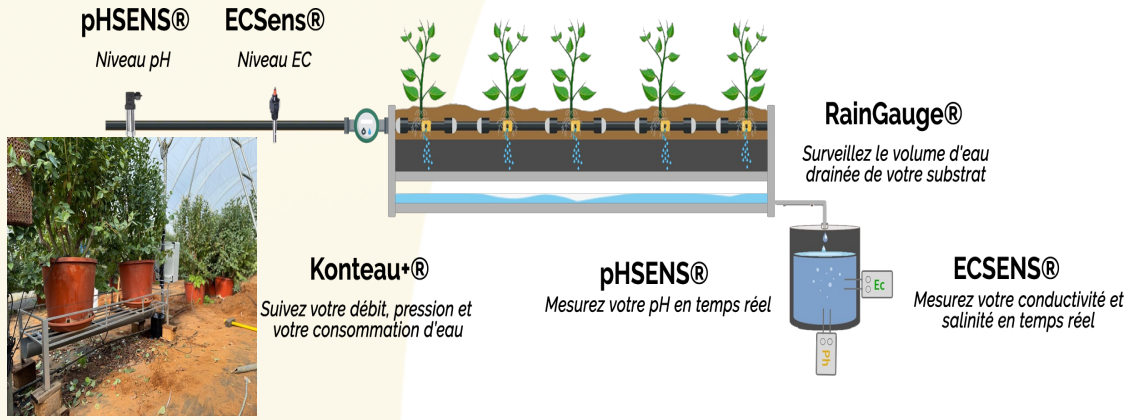

Indicator	Manual Drainage	IoT-Controlled Drainage	Improvement
Water Consumption	1000 L/m²	750 L/m²	-25 %
Yield	2,8 kg/m²	3,3 kg/m²	+18 %
Plant Uniformity	Average	Excellent	✅
Nutients loss	High	Reduced	-40 % 🌿

tour_number	drain_time_start	duration_minutes	ec_in	ph_in	ec_out	ph_out	drainage_percentage	delta_ec	delta_ph	quantity_water_in	quantity_water_out
1	2025-04-14 09:47:10.093000	5	3.75	6.16	0.0	6.74	0.0	-3.75	0.58	0.67	0.0
2	2025-04-14 10:22:10.092000	10	3.81	6.18	5.94	7.35	39.85	2.13	1.17	1.33	0.53
3	2025-04-14 11:42:10.201000	10	3.77	6.2	5.93	7.34	58.0	2.16	1.14	2.0	1.16
4	2025-04-14 12:37:30.195000	5	3.7	6.19	0.39	7.29	8.27	-3.31	1.1	1.33	0.11
5	2025-04-14 13:07:10.095000	10	3.74	6.18	5.35	7.32	53.38	1.61	1.14	1.33	0.71
6	2025-04-14 13:47:10.215000	10	3.75	6.17	5.33	7.27	36.5	1.58	1.1	2.0	0.73
7	2025-04-14 14:27:10.131000	10	3.75	6.17	5.33	7.35	54.14	1.58	1.18	1.33	0.72
8	2025-04-14 15:07:09.716000	10	3.8	6.14	0.63	7.46	59.4	-3.17	1.32	1.33	0.79
9	2025-04-14 15:47:09.679000	5	3.79	6.14	0.17	7.3	53.38	-3.62	1.16	1.33	0.71
10	2025-04-14 16:27:10.290000	5	3.79	6.14	0.06	7.05	46.62	-3.73	0.91	1.33	0.62

Irrigation: When Plants Speak Data

SOWIT AgriAssistant
Smart Farm Data Assistant

SOWIT AgriAssistant - Smart Farm Data Insights 188 messages Session Active

Voici les recommandations d'irrigation basées sur les données actuelles de l'humidité du sol dans vos parcelles :

FERME - PARCELLE - APPAREIL	HUMIDITÉ ACTUELLE (%)	RECOMMANDATION D'IRRIGATION	ACTION REQUISE
Secteur 2 North - CP371	27.8	PAS D'IRRIGATION - SOL SATURÉ	Sol saturé - vérifier le drainage, éviter l'irrigation
Secteur 2 North - CP372	24.2	PAS D'IRRIGATION - SOL SATURÉ	Sol saturé - vérifier le drainage, éviter l'irrigation
Secteur 2 North - CP373	16.9	OPTIMAL - SURVEILLER	Humidité optimale - continuer la surveillance

Résumé :

- Deux parcelles ont un sol saturé, il est conseillé d'éviter l'irrigation et de vérifier le drainage.
- Une parcelle présente une humidité optimale, il faut continuer à surveiller sans irriguer pour l'instant.

Ask about your farm sensors, soil conditions, or weather data

"With AI and IoT, irrigation stops guessing and starts listening—because even plants deserve a little data-driven wisdom."

Thank you

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