



**Project Partner:** SENSING SOLUTIONS S.L.

**Country:** Spain

**Industrial ecosystem:** Agrifood

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**Duration:** 01/12/2023 – 30/11/2024

~ Real-time bacterial monitoring of re-used water in agriculture to reduce water scarcity ~

Led by Sens Solutions, the AGRI-S3DP project focused on addressing water scarcity in agriculture by enabling the real-time monitoring of bacteria in reused water. With the support of CirclnWater funding, the project successfully upgraded the Hydro-S3DP system to detect *E. coli* and legionella in water within five minutes, compared to the one to two days required by traditional laboratory methods. This significantly reduced reaction time and prevented potential contamination events.

A key milestone was the installation and three-month pilot validation of the AGRI-S3DP system at Badalona Municipal Stadium in Spain. The system demonstrated high accuracy, with no bacteria being detected in the monitored water, which confirmed the effectiveness of real-time surveillance. Monthly microbiological tests confirmed the accuracy of the sensor readings.

The platform innovatively allows for 24/7 water quality control, leading to energy savings of up to 30% and the avoidance of 23–230 tons of CO<sub>2</sub> emissions per year by optimising cleaning and disinfection processes. Furthermore, AGRI-S3DP reduces food waste by ensuring safer irrigation water, thereby aligning with EU Regulation (EU) 2020/741.

The project has achieved a significant leap in technology readiness level, advancing from TRL 5 to TRL 7. Additional innovations included an improved detection algorithm, enhanced data visualisation and a preliminary pricing strategy, making the solution scalable and commercially viable.

Beyond the technical outcomes, the project has contributed to the digitalisation, sustainability and development of skills within the SME. Communication milestones were also achieved, including video dissemination, networking participation, and presence at international events.

This successful pilot paves the way for broader deployment, future pilots and funding applications under larger European initiatives.

