



Project Name: SQAT

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Mapping the unseen: the Soil Quality Analysis Tool delivers precise and cost-effective soil properties maps to empower more precise digital agriculture

SQAT (Soil Quality Analysis Tool) is a pioneering initiative aiming to revolutionise modern agriculture. Through the integration of digitalization, robotics, and smart algorithms, SQAT helps address pressing challenges related to soil quality and sustainability issues of the agricultural sector.

Farms worldwide are facing significant environmental and societal pressures concerning soil health, including the need for cleaner water, enhanced carbon storage, and increased biodiversity.

SQAT can help. It offers a comprehensive (and affordable) soil mapping service that leverages multi-level, multi-technology, and multi-purpose solutions tailored to meet the diverse needs of farms. In turn, farmers can use the novel data to improve their production: increase resource efficiency, lower costs, increase resilience to erratic weather, and to safeguard key natural resources on which their production depends – in particular their soil health. SQAT's innovative approach depends on integrating different streams of data, harnessing their advantages while addressing their disadvantages. We use free and open satellite data from the European Union's Copernicus programme to identify patterns overtime that we can attribute to soil properties, effectively splitting a single field into multiple zones. Based on this analysis, we deploy a toolbox of sensors to the field to collect on site readings. To make this process fast and precise, we mount the sensors on an autonomous robotic platform that auto-navigates depending on field properties identified from satellite data.

The SQAT solution is highly flexible, to fit specific conditions wherever it will be used. In the project, we will customise for field trials in the different contexts of Belgium, Germany, Ireland, the Netherlands, Serbia, Switzerland, and Ukraine. Working with farmers, we will develop five new smart farming applications to turn data into value on the farm: Variable rate liming, Variable rate macronutrient fertilization, Variable rate seeding, Variable depth tillage, and Carbon farming MRV solution.

The SQAT consortium includes seven innovative agritech companies and four leading research institutes. SQAT adopts a market-focused approach, actively promoting the commercial uptake of its results. Through a strategic marketing and pre-sales effort supported by business experts, SQAT aims to create new Copernicus-powered soil data value chains and contribute to key European policies.

As the project progresses over its 42-month duration, SQAT remains committed to delivering tangible benefits to farmers and stakeholders, including precise and cost-effective soil maps, near real-time mapping results, the reduction of laboratory samples, costs associated with soil mapping and promoting environmental sustainability across European farming communities. The project was officially launched 1 February 2024, supported by the EU under the grant agreement number 101129644 and the Swiss government.

