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# ENHANCING PRECISION AGRICULTURE FOR WOODY CROPS THROUGH PUBLICO-PRIVATE COLLABORATION

**Abstract**

The agricultural sector is undergoing a significant transformation fueled by advancements in technology, particularly in the realm of precision agriculture. While large crop areas and extensive farming have benefited from satellite-based digital tools, woody crops such as vineyards, orchards, olive groves, and citrus fruits have faced challenges due to their unique morphologic characteristics and the limited integration of the available data sources.

**SPASCAT**, along with **Agopixel** and **Codorniu**, and thanks to a project lead by the **Catalan Institute of Space Studies (IEEC)**, addressed this current gap in precision agriculture by proposing a novel approach that integrates satellite spectral images with on-field observations in order to empower technicians and workers of such woody crops. By harnessing the information available from hyperspectral imaging, like the one available by ESA's Copernicus program, and combining it with high-resolution ground-level imagery (airplane and/or on-foot photos) and physicochemical data from on-field sensors, SPASCAT developed an AI based tool that provides comprehensive insights into the state and classification of the cultivated plots of interest.

Thanks to SPASCAT's innovative tool, we now provide improved continuous monitoring and classification. It is being used by agricultural workers that are now equipped with better information to optimize resource management and maximize production efficiency. This includes identifying specific areas within plots that require attention, determining optimal management strategies, and accessing simplified yet comprehensive reports with historical data and future predictions.

By presenting this innovative approach at IAC 2024, we aim to catalyze discussions and collaborations within the agricultural community to drive forward the adoption of precision agriculture in woody crop cultivation, so that the challenges faced by this sector are overcome and start to pave the way for a more sustainable and productive future in agriculture.