# Development of a digital platform based on Artificial Intelligence for precision citrus farming

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Citrus are one of the major crops of the Mediterranean basin with an increased cultivation area of 1.5% in the last decade. In this Region, the most vacated areas for citrus growing are characterized by a warm-arid environment, thus citrus farming bases its economic sustainability on the contribution of significant amounts of irrigated water. Plants are indeed exposed, especially during summer, to water deficit that, if prolonged in time, leads to a strong deterioration of plants development with a consequent reduction in yields and fruit quality and, therefore, in farmers revenue. The SPIDAP project aims at defining an innovative Decision Support System (DSS) based on advanced sensors that consider hydrological soil conditions (tensiometer), plant phenotype (Plantarray, a functional phenotyping system) and plant needs (bioristor, an in vivo sensor able to continuously and effectively monitor plant water requirements) to increase irrigation water use efficiency of citrus farming and concretely respond to the productive realities of the territory by ensuring crop production and quality.

Part of the project are: Lualtek (https://lualtek.io): Lualtek develops advanced sensors based on artificial intelligence; Agrigeos (www.agrigeos.com): Agrigeos contributes to the project with its agronomic expertise and experience developed using Plantarray system (www.agrigeos.com/phenotyping-system); IMEM-CNR, Parma (www.imem.cnr.it): IMEM-CNR provides the bioristor device for the experimentation.