Collective management of crops at the service of environmental programs related to the use and quality of water. LIFE-AGROGESTOR

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LIFE16 ENV/ES/287

Con la contribución del instrumento financiero LIFE de la Comunidad Europea

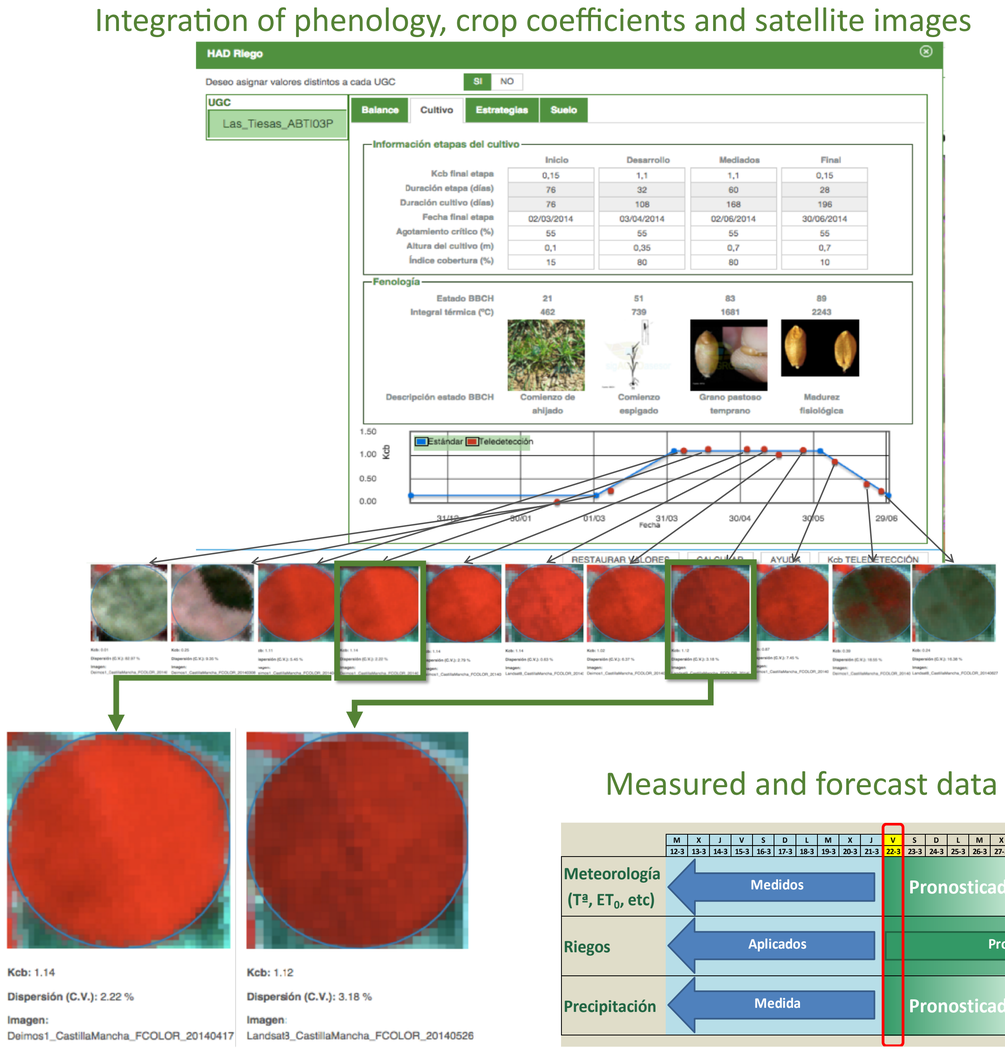
Introduction & objectives

In the framework of the environmental EU LIFE program, Agrogestor project (www.agrogestor.es) aims to develop an online platform that will support the collective management of crops to meet common enviromental and economic objectives. This platform is designed to provide sustainability indicators for field crops management and the traceability of agricultural products and activities. It will allow the evaluation of group management strategies to achieve environmental objectives using those indicators, including controlled deficit irrigation, irrigation group networks governance and water quality parameters.

The current version of the platform offers Decision Support Tools (DST) for the management of extensive crops, including fertilization and irrigation scheduling, crop cultivar selection, control of diseases and sustainability indicators. Remote sensing data are integrated into the irrigation DST to optimize the use of water. Daily meteorological information, weekly forecasts, provided by AEMET, and crop coefficients derived from Landsat-8 and Sentinel-2 satellites are supplied to the farmers and irrigation managers -together with classical tabulated FAO56 coefficients- as an alternative choice to compute the crop water requirements and schedule the irrigation. Remote sensing is also used to detect anomalies in crop growth and nitrogen application rates. This work represents a joint effort of research and technology transfer groups to integrate remote sensing data into daily farmer's decisions for crop management.

1) Irrigation/fertilization decision support tool at field scale

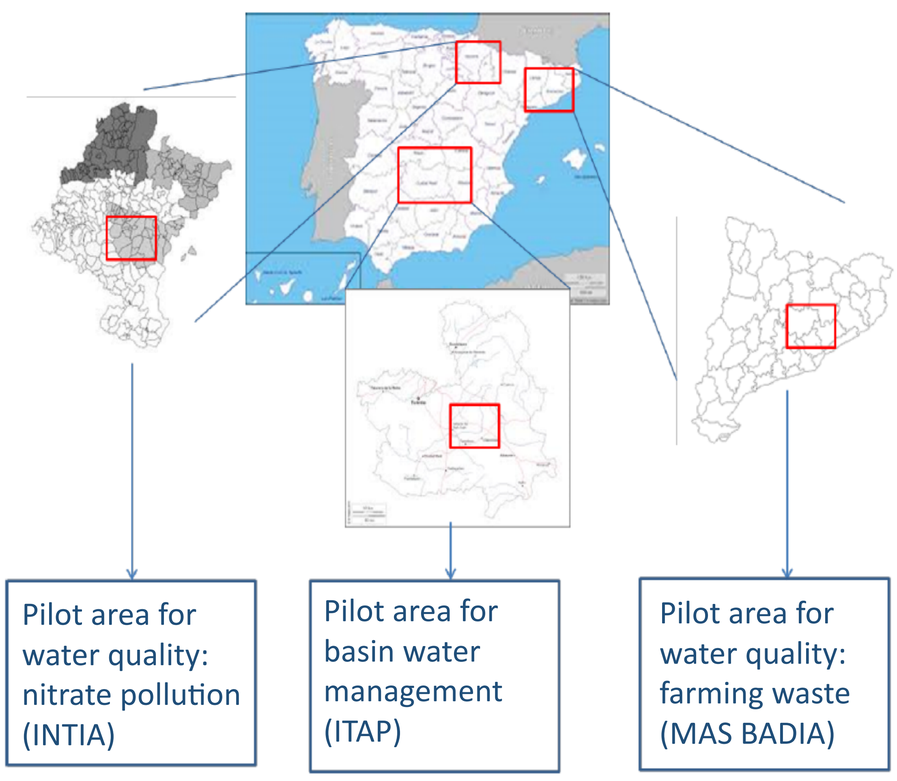
Integration of phenology, crop coefficients and satellite images



Measured and forecast data handling:

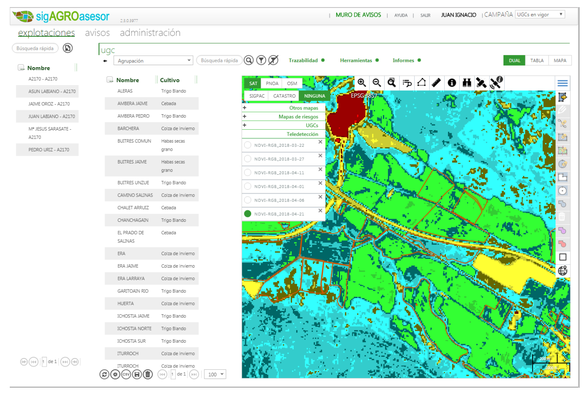
2) Collective planning tool:

- Environmental & economic indicators: water footprint, water consumption, Nitrogen balance, non-source pollution risk…
- Base scenario analysis
- Evaluation of alternative management strategies
- Governance strategies (incentive plan, tariff escalation…)



3) Collective management monitoring tools:

- Remote sensing: water consumption, growth anomalies and comparison to reference fields
- Warning and communication services between collective managers and farmers
- In-season environmental monitoring evaluation



Collective management areas (irrigation schemes, cooperatives, …)
Satellite sensors: Sentinel-2, Landsat-8, Deimos