

Publishable Summary

Following the Executive Summary, the FIGARO project interim report summarises the project activities and results for month 13 through month 30, the second period of the 48 month long project.

The main results and developed foregrounds of the project are detailed task by task for each work package including the main progress toward achieving the objectives, significant difficulties and delay if any, as well as corrective actions envisaged if required. The use of dissemination to present the project's foreground is presented as the WP10 summary. The project management activities are noted in WP1 description and full list of deliverables and milestones are listed at the end of this report. The Figaro financial report is submitted separately.

The first period from October 2012 through September 2013 (M1-12) of the project implementation focused on setting up the Figaro platform, mapping the development and integration of its components while defining and maximizing the potential borders of its impact for use in the real world. Implementation of the first year of field testing began – using state of the art technologies. Tools for assessment were developed and dissemination activities ensued. The second period from October 2013 through March 2015 (M13 through M30), was mainly dedicated to development of the technologies, creating upgraded components for expanding the Figaro platform beyond the state of the art and field testing the first version of the Figaro platform at nine sites across Europe including an associated country. WP1, Management activities were implemented by the managing partners as planned and detailed below. WP2 designed the basic Figaro platform and was finished in period one. In work package 3, crop models were optimized, hydraulic and energy models scaled down to suit on farm level use. Additionally the Figaro decision support system was built based on integrated knowledge collected from modelling simulation tools, real time data from the field collected from sensors and data from remote sensors and systems such as satellite imaging and weather forecast data. Interfaces were developed to connect the models and other data sources with the decision support system. Extra work on optimization of the models has been done with remarkable results (publications are detailed in the dissemination section). This extremely complex and ambitious work package experienced slight delay which was predicted in the first report. At this stage, objectives have been achieved. A significant appendix detailing work and results is a separate accompanying document to this report. In WP 4 development and integration of a control and monitoring interface and communication system was implemented by the key ICT partners, each bringing on board their existing technologies. A new solar powered sensor for measuring nitrate, phosphate and potassium has been developed. Like all sensors in the Figaro platform, the new sensor will upload data at defined intervals and be used for decision making. Likewise a tractor mounted imaging tool for measuring leaf area index and nitrogen in crops at intervals of growth has been further developed and tested. WP5 effort involved implementation of irrigation strategies into the Figaro system. During this phase it was determined that a new tool would further enhance accessibility and feasibility of implemented the most

appropriate irrigation strategy on farm level. In response to this need, the irrigation strategy selection tool WISeUp was developed and made available on the web as well at the following link <http://servizi.consorziocer.it/FIGARO/> in order to better interconnect it with the Figaro platform (WP6 link) and support WP3 activities. The irrigation strategies have been tested in all crops at the field testing sites and data analysed for use in the next round of field testing. WP6 activities all centre on the integration of the tools and systems developed in WP2, 3, 4 and 5. Likewise the interface with end users is part of the WP6 activities. The optimisation activities have enhanced the system but its inclusion into the Aquasafe module has caused a slight delay. The automatic uploading of data from off the shelf sensors is still not operational as it requires agreement with the vendors. The consortium is in the process of collecting, where possible, the sensors connection plugins in the Platform. Additionally the new WISeUp tool which was unforeseen is being integrated into the Figaro platform. The WP7 activities relate to assessment. The planned definition of KPI, benchmarks and indicators of success were published during the first period. The tools to be used include Life Cycle Assessment, Cost Benefit Analysis, Water Footprint Assessment and HuraGIS, a spatial assessment tool of the hydraulic irrigation supply network. Some delay was suffered in the organization of data collection. The collection of data is in its final stages with a slight delay envisioned. WP8 directed field testing. All results have been reported with details on individual sites included as separate annexes to this report. WP9 will see the final season of testing. Based on consensus of the consortium, additional data collection will continue during the demonstration phase to enable further testing of the Figaro Platform in scientific and commercial field settings. WP 10 focuses on dissemination, training and exploitation activities. A significant amount of publicity has been generated by the project and this is envisaged to increase with further stakeholder engagement and open field days.