EIP-AGRI Workshop

Connecting innovative projects: water & agriculture

30 – 31 Mai 2018 - Almeria, Spain

Innovative projects represented at the workshop

funded by European Commission

This booklet was created for the **EIP-AGRI Workshop "Connecting innovative projects: water & agriculture"**, 30-31 May 2018 in Almeria, Spain. For more information on Operational Groups, download **the EIP-AGRI brochure on Operational Groups** from **www.eip-agri.eu**

The content for this document was provided by the workshop participants and does not represent the views of the European Commission.

funded by European Commission

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EIP-WATER: EIP-WATER Action Group
LIFE: EU Financial Instrument for the Environment
INTERREG: European Territorial Cooperation

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Controlled Traffic Farming (CTF)

Controlled Traffic Farming (CTF) – vaste rijpaden

BELGIUM - FLANDERS

Starting date - end date | **01.11.2016 – 28.02.2018**

More information (in Dutch): http://www.inagro.be/Artikel/guid/1939/type/1

Operational Group

Benefits of controlled traffic lanes have been proven in research and practice in recent years: optimal growing conditions for soil life and roots, more water storage capacity and better mechanical weed control are some of them. While these benefits are favourable for organic farming, lock-ins such as investments, legislation, adaptation of machinery, … hamper the implementation on farm level.

This project supports (organic) farmers in implementing CTF on their specific farm. The experiences of these 4 cases and the current knowledge inspires other farmers and stakeholders. Challenges for further research and development will be proposed to technology firms and research institutes.

As a main outcome, this project made CTF more accessible in Flemish (organic) agriculture.

Lead partner: Inagro (research institute)

Other partners

Research

- ILVO (research institute)
- University of Ghent (University)

Farmers

- Thierry Beaucarne (organic arable crops and vegetables)
- Frank Schelfhout (organic vegetables)
- Antoon & Jakob Devreese (organic dairy)
- Van den Borne Aardappelen (conventional arable crops)

SME

- Agri Lemahieu (constructor/distributor)
- Hilaire Van Der Haeghe (constructor/distributor)

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MeerGewinn - Nutrient removal by the production of renewable resources in constructed wetlands

Nährstoffrückhalt durch Produktion Nachwachsender Rohstoffe in Constructed Wetlands - MeerGewinn

GERMANY – MECKLENBURG-VORPOMMERN

Starting date - expected end date | 19.12.2016 – 30.06.2019

http://www.duene-greifswald.de/de/projekte.php_meergewinn.php

Operational Group

The Project "MeerGewinn" promotes and sets up pilot projects dealing with the cultivation and utilisation of innovative plant species. Therefore we use nutrient-polluted water – for example from preflooders or farm runoffs.

Our goals: The Baltic Sea and the majority of all waterbodies of Mecklenburg-Prepommerania are issue to heavy nutrient discharge. Our goal is to use those nutrients for growing renewable resources within constructed wetlands. Besides removing a portion of the nutrients, the plants can be used to create economically interesting products. Those can be fodder, ornamental plants, herbs or simply renewable resources created by using formerly unused land.

Constructed Wetlands – a Chance for reducing the N and P concentration and, at the same time, to enhance the revenue

Lead partner: Institute DUENE Institute of sustainable development of landscapes of the earth" (German: Institut für Dauerhaft Umweltgerechte Entwicklung von Naturräumen der Erde e.V. - DUENE)

Other partners

Research

- University of Greifswald, Institute of landscape ecology and Nature conservation

Farmers

- TP Haffküste GmbH, Ückermünde

SME

- Joachim Krüger Pflanzenkläranlagen GmbH

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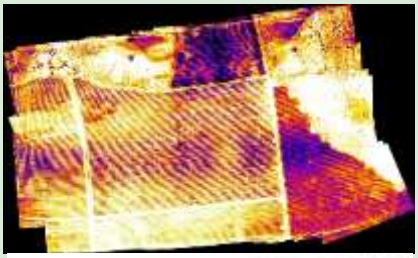
Profitability of new technology application to enhance irrigation efficiency in a conventional and organic vineyard

Rendibilitat de l'aplicació de noves tecnologies per a la consecució d'un reg amb màxim d'eficiència hídrica en una finca pilot de 100-ha de vinya ecològica i convencional

SPAIN – CATALONIA (LLEIDA)



Starting date - expected end date | **01.02.2016 – 30.09.2017**

Operational Group

The objective of this OG is to improve irrigation water use efficiency, enhance water productivity (kg/m^3 water) and improve berry composition in a commercial vineyard throughout the adoption of a Precision Irrigation (PI) system which integrates remote sensing, crop simulation models and vine physiology.
One of the main goals of organic farmers is to reduce the vineyard inputs. Thus, by adopting PI, they can know the exact amount of water to be applied in each irrigation sector considering the variety and phenology.
With PI, we saved up to 25% of water in comparison with previous years. Also, yield productivity and berry composition improved.
The analysis of within-field variability (using spectral vegetation indices obtained with satellite imagery) indicated a significant reduction in heterogeneity of vegetative growth from 2015 (when precision irrigation was not adopted) to 2017. This technology will benefit winegrowers by increasing water-use efficiency, and improving yield and berry composition.

Lead partner: IRTA (Institute of Agri-Food Research and Technology) (www.irta.cat)

Other partners

Farmers

- Codorniu winery (winery)
- Raimat Irrigation District (irrigation district)

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H3. Precision Agriculture as an Advantage in Fruits and Vegetables production in Andalucía

SPAIN - ALMERIA

Starting date - expected end date | 01.02.2018-30.09.2019

http://www.coexphal.es/grupos-operativos-autonomicos/

Operational Group

The main objective set by the H3 Operational Group is the establishment of a methodology that allows an efficient use of water in intensive agriculture through technology.

The competitiveness of the F&V sector is closely linked to the development of tools that allow farmers to adapt their crops to future difficulties caused by water scarcity and market demands.

This project aims to provide farmers with the means and knowledge to make their farms more profitable. Therefore, "Water Footprint" protocol will be developed for intensive agriculture, promoting the use of innovative technological tools (precision agriculture).

Lead partner: COEXPHAL, Association of Producer Organisations (80 cooperatives/ PO and 15.000 farmers)

Other partners

Research

- COEXPHAL-UAL of horticulture, cooperative studies and sustainable development
- Department of economics and business, University of Almería

Users (Farmers)

- CAPARRÓS NATURE S.L.

Other collaborators

- PROYECTA INGENIO S.L.
- WISE IRRISYSTEM S.L.

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Les ArboNovateurs, for resilience in fruit growing and fruit growers proud of their craft

Des ArboNovateur® pour une arboriculture résiliente et des arboriculteurs fiers de leur métier

FRANCE - OCCITANIE

Starting date - expected end date | **01.01.2016 - 31.12.2017**

Operational Group

Water management of orchards in the territory is a strong issue for the different players in a deficit water catchment area, particularly in dry periods.

The aim is to improve water management in orchards, analysing different irrigation systems and designing decision tools.

Improved water management through the choice of more adequate irrigation systems and by enhancing their efficiency, thus adjusting the water quantity to the needs.

The water savings in optimized management are around 30%, i.e. 1000 m3 / ha on average for several years in apples. These data are being verified at CEFEL.

Lead partner: Chambre d'Agriculture de Tarn et Garonne (farmers organisation)

Other partners

Research

- Centre d'Expérimentation Fruits et Légumes (research institute)

Farmers

GIEE Arbonovateur (farmers association)

SME

- TCSD-Comsag

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Transfer of mature irrigation management technologies and protocols for irrigation optimization

Trasferimento di tecnologie e protocolli di gestione irrigua maturi per l'ottimizzazione dell'irrigazione" (TRAS.IRRI.MA.)

ITALY - BASILICATA

Starting date - expected end date | **2018 - 2020**

Operational Group

The GO aims at transferring sustainable irrigation from a hypothesis to practice. The GO is building up with fruit growers a decision support system (DSS) providing the "irrigation advice". The DSS requires: 1) the degree of tolerance of the species to a temporary water stress; 2) short-term weather forecasts.

The DSS allows to save: money, water resources, energy for irrigation, agro-chemicals for controlling biotic attacks. At the same time it ensures the quality at the end of the supply chain.

The success of the GO is based on the farmers' training: tutorial activities on irrigation methods and agro-technological innovations.

Lead partner: Asso Fruit Italia (Producers' organisation)

Other partners

Research

- UNIBAS-DiCEM (University); CREA-AA (Public research centre for agriculture & environment); CNR-IMAA (National research council); ENEA (National agency for the new technologies); ALSIA (Regional agency for agriculture innovation)

Farmers

- APOFRUIT Italia; Viticoltori Associati del Vulture; Grimolizzi Nicola

SME

- RAPOLLA FIORENTE; AGREENMENT srl

Basin authority

- BASILICATA basin authority

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Regulation of soil moisture

Drėgmės režimo dirvožemyje reguliavimas

LITHUANIA

Starting date - expected end date | **12.12.2016 - 11.12.2019**

Operational Group

As 87% of agricultural land area in Lithuania is tile-drained, agricultural drainage has a large impact on the soil-water balance. However intensive drainage systems, necessary to provide trafficability during extreme wet periods, often remove more water than necessary during drier periods, leading to temporary overdrainage. Finally, there is high demand to meet environmental requirements as nitrate leaching has to be reduced.

Therefore main idea of the project is to assess adaptiveness and efficiency of controlled drainage (CD) technologies for soil moisture control. It is expected through the installation of CD systems, more effective use of rainfall, soil moisture storage and reductions in nutrient losses can be achieved. During project implementation as well special attention is being given on evaluation of economic value (changes of yields, reduced amount of fertilisers and ect.) of applied innovation; identification of the automatization needs and preparation of the recommendations for projects of drainage renovation in Lithuania.

Lead partner: Aleksandras Stulginskis University (ASU)

Other partners:

Advisory

- Lithuanian Agricultural Advisory Service (LAAS)

Research

- ASU Institute of Water Resources Engineering

Farmers

- Alfredas Bardauskas, Edgaras Varkalys, Audrius Baltūrnas, Paulius Pikšrys, Agricultural cooperative: Mūsų ūkis

NGOs

- Lithuanian Farmers Union, Lithuanian Association of Agricultural Companies, Lithuanian Association Grain Producers'

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Waterpark Zuid-Holland

Waterpark Zuid-Holland

THE NETHERLANDS – SOUTH HOLLAND

Starting date - expected end date | **14.10.2017 – 31.12.2019**

https://www.ltonoord.nl/projecten/waterpark-zuid-holland

Operational Group

In a world of increasing economic and ecological pressure on agriculture, we need to anticipate and adapt. Water related issues like extreme rainfall, salinization, drought and soil subsidence are not exceptional anymore. This forces us to explore new ways to enhance agricultural entrepreneurship.

The objective of the project Waterpark is to develop business cases in three polders where water related issues occur. Farmers will contribute - besides new ways of food production - to water management, landscape management and recreation/tourism.

We use ideas, experiences and solutions of farmers themselves to develop possible solutions. Together with experts, water boards, municipalities and NGO's we investigate possibilities to develop a Waterpark. At the end of 2019 we expect to have developed three business cases which we can apply to three different polders.

Lead partner: LTO Noord, Projecten LTO Noord

Other partners

- Water boards
- Universities
- Other research institutes
- Municipalities
- Provincie Zuid-Holland

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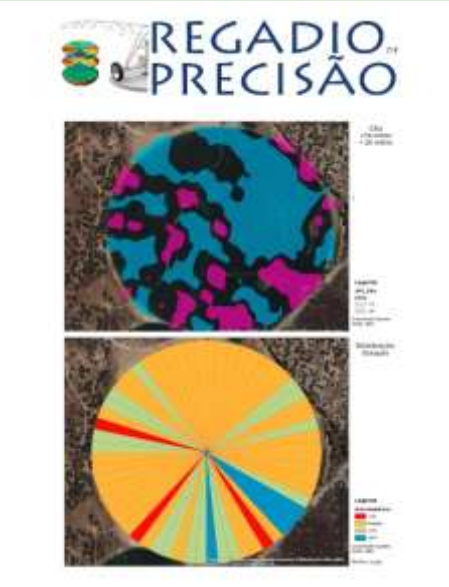
Precision Irrigation

Regadio de Precisão

PORTUGAL – RIBATEJO E ALENTEJO

Starting date - expected end date | 01.02.2017- 31.12.2020

https://terraproagricultura.wixsite.com/regadioprecisao



Operational Group

Climate change and higher food demands are two of the main threats to farming systems, with direct consequences on the availability of water for irrigation, soil integrity or food quality. Therefore, urges to improve water storage and efficient distribution infrastructures without compromising yields, in a sustainable way.
This OG focuses on pivot irrigated crops, mainly on the gain of efficiency through the analysis of spatial variability, its impact on agricultural management options and its positive consequences on soil conservation, water use efficiency and crop yield control.
To develop an integrated precision farming system in order to increase the efficiency of irrigation per pivot, is the main goal. For that, is necessary to acquire and analyse precision georeferenced data as soil electrical conductivity, soil moisture content, yield mapping, NDVI, among others, to know the variability of each plot and define homogeneous areas. The irrigation is then done through an integrated system installed on the pivot for differentiated application, based on the real needs of the crop. The differentiated irrigation system will be distributed to farmers on a large scale. It is also expected to minimize irrigation costs, energy, and water demand, without compromising the crop yield and gaining in its homogenization.

Lead partner: TPRO TECHNOLOGIES, LDA

Precision farming consulting (SME)

Other partners

Research

- Universidade de Évora

Farmers

- Pereira Palha Agricultura, Lda.
- Muita Farinha – Atividades Agrícolas, Lda.
- Mencoca Agricultura, Lda.
- Raízes Verticais – Exploração Agrícola, Lda.

Associations

- Associação de Beneficiários da Obra da Vigia

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PVAIZEC/MASLOWATEN

THE MEDITERRANEAN REGION

Starting date - expected end date | 01.09.2015 - 31.08.2018

http://maslowaten.eu/

EIP Water/Horizon 2020 project

MASLOWATEN Project aims at the large scale demonstration of the technical and economic feasibility of efficient and intermittency-free PV pumping systems for irrigation, allowing 100% renewable energy consumption. The main objectives are (i) to reduce 30 % of the water consumption, (ii) to achieve significant *savings* (at least 50%) for the farmers, in terms of energy costs and (iii) the market uptake and replication of a new green product consisting of PV Irrigation systems consuming 100% renewable electricity. In fact, the Project has currently 5 demonstrators operating in the facilities of four different types of end-users: farmers, cooperatives, irrigator communities and agro-industries. The technology developed in the scope of the Project was then adapted to the reality of each farm. According to the Technical Specifications developed under MASLOWATEN project four criteria need to be met in a PV irrigation system: a) Integration of the PV system in the pre-existing irrigation system; b) Ability to support problems related to the PV power intermittences; c) Matching PV production and irrigation/water needs; and d) Ensuring the reliability of the system for at least 25 years.

Lead partner: Universidad Politécnica de Madrid (University)

Other partners

- CAPRARI SPA
- OMRON EUROPE BV
- RKD IRRIGATION SL
- KOMET AUSTRIA GMBH
- DOMUS INGENIERIA ENERGETICA SL
- SISTEMS ELECTRONICS PROGRES, S.A.
- UNIVERSIDADE DE EVORA
- UNIVERSITA DEGLI STUDI DI SASSARI
- AIMCRA
- ELAIA
- EUROMEDITERRANEAN IRRIGATORS COMMUNITY
- MARTIFER SOLAR SA

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FATIMA

Farming Tools for external nutrient Inputs and water MAnagement

EUROPE - INTERNATIONAL

Starting date - expected end date | **01.03.2015 - 28.02.2018**

www.fatima-h2020.eu

Horizon 2020 project

FATIMA addresses effective and efficient monitoring and management of agricultural resources to achieve optimum crop yield and quality in a sustainable environment. It covers both ends of the scale relevant for food production, viz., precision farming and the perspective of a sustainable agriculture in the context of integrated agri-environment management. It has developed innovative and new farm capacities that help the intensive farm sector optimize their external input (nutrients, water) management and use, with the vision of bridging sustainable crop production with fair economic competitiveness.

FATIMA has been implemented and demonstrated in seven pilot areas representative of key European intensive crop production systems in Spain, Italy, Greece, Czech Republic, Austria, France, and Turkey.

Lead partner: Universidad de Castilla-La Mancha (UCLM), Instituto de Desarrollo Regional – Spain.

Higher education and research public entity.

Other partners

Research

- Public Partners: ITAP (SP), CREA (IT), VU/VUmc (NL), INRA (FR), VUMOP (CZ), MGFI (GR), DIMITRA (GR), AUA (GR), BOKU (AT), UTAEM (TR).

SME

- Aliara (SP), Ariespace SRL (IT), 2eco (PT), METCENAS (CZ), BOSC (LV), Redcoast (GR), DRAXIS (GR), SIGMA (DE), EA-TEK (TR).

THE PILOT PROJECTS

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FERTINNOWA: Transfer of INNOvative techniques for sustainable WAter use in FERtigated crops

BELGIUM-SPAIN-FRANCE-NETHERLANDS-UK-GERMANY-POLAND-ITALY-SOUTH AFRICA

Starting date - expected end date | **01.01.2016 - 31.12.2018**

www.fertinnnowa.com

Horizon 2020 Thematic network

The aim of the FERTINNOWA network is to build a knowledge exchange platform to evaluate existing and novel technologies for fertigated crops and ensure wide dissemination of the most promising technologies. During the first phase, we used a bottom up approach and identify the main problems that being faced in the fertigated horticulture. During the second phase, we reviewed existing technologies as well as technologies from other sectors, which could resolve the problems identified by the growers. All the information have been collected on an online database at www.fertinnowa.com that led to a useful and grower friendly book the "Fertigation Bible",which gives the growers all the initial information required to lead initial decisions. At the final stage more than 23 technologies are being showcased across Europe aiming to provide potential solutions on regional problems.

FERTINNOWA

Lead partner: Proefstation voor de Groenteteelt Duffelsesteenweg

Other partners:

- Association Provençale De Recherche et d'Experimentation Legumiere (APREL)
- Centro de Investigaciones Cientificas y Tecnologicas de Extremadura (CICYTEX)
- Centro di Sperimentazione ed Assistenza Agricola (CERSAA)
- Centrum Doradztwa Rolniczego W Brwinowie (CDR)
- Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung Ev (Fraunhofer)
- Fundacion Cajamar (FC)
- Instituto de Investigación y Formación Agraria y Pesquera (IFAPA)
- Instituto Navarro de Tecnologias e Infraestructuras Agroalimentarias SA (INTIA)
- Instituto Valenciano de Investigaciones Agrarias (IVIA)
- Kmetijsko Gozdarska Zbornika Slovenije Kmetijsko Gozdarski Zavod Maribor (CAFS)
- Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek (TNO)
- Niab EMR
- Optima Agrik PTY LTD (OA)
- Priva BV
- Proefcentrum Hoogstraten (PCH)
- Proefcentrum Voor Sierteelt (PCS)
- Provinciaal Proefcentrum voor de Groenteteelt (PCG)
- Research Institute of Horticulture (INHORT)
- Station Expérimentale Du Caté (CATE)
- Stichting Proeftuin Zwaagdijk (ZW)
- The Agriculture and Horticulture Development Board (AHDB)
- Universidad de Almeria (UAL)

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MOSES: Managing crOp water Saving with Enterprise Services

ITALY, SPAIN, BELGIUM, NEDERLANDS, ROMANIA AND MOROCCO

Starting date - expected end date | **01.07.2015 - 30.10.2018**

www.moses-project-eu

Horizon 2020 project

The main objective of MOSES is to put in place and demonstrate at the real scale of application an information platform devoted to water procurement and management agencies (e.g. reclamation consortia, irrigation districts, etc.) to facilitate planning of irrigation water resources, with the aim of: saving water, improving services to farmers, reducing monetary and energy costs.

To achieve these goals, the MOSES project combines in an innovative and integrated platform a wide range of data and technological resources: EO data, probabilistic seasonal forecasting and numerical weather prediction, crop water requirement and irrigation modelling and online GIS Decision Support System. Four Demonstration Areas are set up in Italy, Spain, Romania and Morocco.
This SME-led project address to the irrigated agriculture users an integrated and innovative water management solutions.

Lead partner: **ESRI Italia spa** (Private for-profit entities)

Other partners

Research

- Agenzia regionale per la prevenzione, l'ambiente e l'energia dell'Emilia-Romagna - Italy
- Agencia Estatal de Meteorologia - Spain
- Institutul National De Hidrologie Si Gospodarire A Apelor - Romania
- Administratia Nationala De Meteorologie R.A. - Romania
- Alma Mater Studiorum - Università di Bologna italy
- Consorzio di bonifica di secondo grado per il Canale Emiliano Romagnolo -Italy
- Technische Universiteit Delft - Netherlands
- Universidad de Castilla - La Mancha - Spain
- Universite Chouaib Doukkali - Morocco

End Users

- Consorzio di Bonifica della Romagna
- Asociacion Feragua De Comunidades De Regantes De Andalucia

SME

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- Agromet srl
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SPADIS Smart Prices and Drought Insurance Schemes

EUROPEAN UNION

Starting date - expected end date | Since **01.09.2014**

An Action Group within the European Innovation Partnership EIP Water

SPADIS aims at contributing to strengthen research and innovation efforts of its partners, is meant to develop pilot and demonstration projects, should contribute to anticipate any necessary regulation on innovative instruments to tackle water scarcity and droughts, and aims at generating conditions for relevant innovation outputs to reach the market in a straightforward way.

SPADIS stands for Smart Prices And Drought Insurance in Mediterranean countries. As an Action Group, it responds to some of the strategic priorities included in the Strategic Implementation Plan (SIP) of the EIP-Water: flood and drought risk management, on one side; water governance, on the other. Specifically, its initial actions deal with innovative designs of pricing water security and drought insurance to reduce vulnerability to scarcity and increase resilience to drought events. This is pursued through the development of decision support tools, sound information systems, and models to support decision-making on relevant water management issues. Besides its relevance for assessments of policy alternatives to tackle water governance challenges, the decision support tools developed by SPADIS aim at understanding the multiple links between water and energy, food, climate change adaptation, disaster risk reduction and, in general, to enhance the contribution of water to a more sustainable and a more robust growth.

Lead partner: IMDEA Agua, Universidad de Alcalá

Farmers: FENACORE, FENAREG

Project contact: **Carlos M. Gómez** | Universidad de Alcalá
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Sensor supported irrigation control of potatoes

Sensorgestützte Beregnungssteuerung in Kartoffeln (SeBeK)

GERMANY – NORTHEAST LOWER SAXONY

Starting date - expected end date | 08/2016 – 08/2019

www.wasser-suderburg.de

Operational Group

Increasing demand and competition for water access requires a sustainable utilisation concept to avoid future water scarcity. An innovative sensor-based irrigation control system will lower the amount of water for agricultural use. Due to sandy soils in the northeast region of Lower Saxony, irrigation infrastructure covers more than 90% of the agricultural area where potatoes and sugar beets are the predominant crops.

The approach is to exactly determine the demand for irrigation timing and duration by using thermal sensors measuring the crop temperature. This leads to data about the transpiration rate indicating drought stress (Crop Water Stress Index (CWSI)).

The goal is to increase the efficiency of irrigation and enhance the quality of potatoes. The concept will be assessed for regional farms first, later the potential for different regions and crops will be evaluated

Lead Partner

Ostfalia University of Applied Sciences

Faculty of Civil and Environmental Engineering, Campus Suderburg

Other partners

Research

- Johann Heinrich von Thünen Institute
  Federal Research Institute for Rural Areas, Forestry and Fisheries
- Georg-August-Universität Göttingen
  Faculty for Agricultural Sciences
- Chamber of Agriculture Lower Saxony, District office Uelzen

Farmers

- Farmer Hartmut Becker, Niendorf II/Wrestedt

Project contact: **Dominic Meinardi** | Herbert-Meyer-Str. 7, 29556 Suderburg, Germany
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Irrigation efficiency improvement in crop rotations within the section III of the third sector of the Najerilla river left bank. Efficient water application in irrigation communities

Mejora de la eficiencia del riego en las rotaciones hortícolas y extensivas de la comunidad de regantes del sector III tramo III de la margen izquierda del Najerilla.- Riego eficiente en comunidades de regantes.

ESPAÑA – LA RIOJA

Starting date - expected end date | 01.01.2018 - 31.12.2020

Operational Group

From 2012 to 2015 the OG members carried out different trials using the FAO56 water balance to determine the irrigation doses and the optimal moment of water application. Several conclusions were extracted from those tests, they showed it was possible to improve irrigation management, optimising the use of water and energy and improving the quality of life of farmers, also the availability of information regarding the crop irrigation needs was very useful to irrigators.

In spite of the simplicity of the water balance calculation, it is currently complex to obtain the relevant data necessary to make the calculations, especially the irrigation data, in real time. Additionally, water balance calculation requires feedback from the user at specific moments, such as the phenological stage or the local rainfall, to adjust the calculations to the reality of the plot.

Throughout the creation phase of our OG a computer application for the calculation of the FAO56-water balance was developed. This application has been developed in open code and it is available for any other irrigation community.

Lead partner: AIMCRA (Asociación de Investigación para la mejora del cultivo de la Remolacha Azucarera)

Other partners

Farmers

- SIAR (Servicio de Información agroclimática de La Rioja)
- COMUNIDAD DE REGANTES DEL SECTOR 3º TRAMO III
- CANAL MARGEN IZQUIERDA DEL NAJERILLA

Project contact: **Jose Manuel Omaña** | Ctra. Villabañez nº 201, 47012 Valladolid, SPAIN
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Saving and conservation of nitrogen in agricultural systems with pigs - RISCOSSA

RISparmio e COnservazione dell'azoto nei SiStemi Agricoli suini – RISCOSSA

ITALY – EMILIA-ROMAGNA

Starting date - expected end date | **01.09.2016 - 31.07.2019**

http://riscossa.crpa.it

Operational Group

The aim is to develop a sustainable pig farm model, to be replicated in areas where groundwater and surface water pollution are relevant (such as Nitrate Vulnerable Zones).

The model is based on the introduction of two best practices:

• feeding of pigs with multiphase diets, low and balanced in protein, that allow to reduce nitrogen excretion and the environmental impact on surface and ground water;

• conservation tillage, with the correct management of slurry to reduce environmental emissions, producing cereals to increase self-sufficiency in pig feeding.

Other than the effects on water quality, the economic sustainability and the C footprint will be evaluated.

Lead partner: Fondazione CRPA Studi Ricerche

(Research Organisation)

Other partners

Research

- Centro Ricerche Produzioni Animali – CRPA
- Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria – CREA (Unità di ricerca per la suinicoltura)

Farmers

- Azienda Agricola Spaggiari

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FERRARA NITRATES: Agricultural practices to prevent nitrates pollution and promote organic matter conservation

Tecniche agronomiche per la prevenzione dell'inquinamento da nitrati e la conservazione della sostanza organica

ITALIA – EMILIA ROMAGNA

Starting date - expected end date | **01.09.2016 – 31.08.2019**

http://www.fondazionenavarra.it/nitrati_ferrara.htm

Operational Group

The aim is to develop agricultural practices to prevent nitrates pollution through the increase of organic matter content in soils. Organic matter decreases the risk of water leaching and runoff and thus nitrates mobility. Moreover, recent scientific evidences prove that in fine soils organic matter availability favours the removal of the excess of nitrates via denitrification.
The project is carried out in two farms representative of fine-texture soils of the Pianura Padana, declared vulnerable to nitrates from agricultural origin. No tillage and minimum tillage regimes are compared to conventional practices for maize and wheat.
Expected results are the increase of soil organic matter, prevention of nitrates pollution, increase in the water retention capacity, stabilisation

Lead partner: Fondazione per l'Agricoltura F.lli Navarra

Other partners

Research

- Università degli Studi di Ferrara – Departement of Life Sciences and Biotechnology
- Fondazione CRPA – Research organisation
- i.ter – Progettazione ecologica del territorio
- Horta – Spin Off dell'Università Cattolica del Sacro Cuore
- Aretè – Research & Consulting in Economics

Farmers

- Azienda Agricola Sarto Graziano
- Azienda Agricola Sperimentale Fondazione F.lli Navarra

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Conservation agriculture and bioenergy buffer strips for soil and water quality improvement (CABIOS)

Implementazione di tecniche di agricoltura conservativa e fasce tampone bioenergetiche per il miglioramento della qualità dell'acqua e del suolo

ITALY – EMILIA ROMAGNA

Starting date - expected end date | 01.01.2017 – 31.12.2019

http://cabios.crpa.it/ngcontent.cfm?a_id=14747

Operational Group

The main objectives are: 1) to improve crop N and water use efficiency and limit the release of nitrates and pesticides in surface and subsurface water bodies 2) to increase physical, chemical and biological soil quality. The farms involved in the project are four associated farms each other for the production of biogas. The project aims to implement an innovative management system of agroecosystem based on the integration of conservation agriculture (no tillage, cover crops and crop rotation) in combination with punctual and localized distribution of liquid fraction of digestate, subsurface drip irrigation (SDI) system and along the field borders with the realization of bioenergy buffer strips.

Lead partner: Università Cattolica del Sacro cuore (UCSC)

Other partners

Research

- Fondazione CRPA Studi Ricerche, Italy

Farmers

- Azienda Rossi
- Azienda Paraboschi
- Azienda Eridano
- Azienda Serena

Project contact: **Stefano Amaducci** | Via Emilia Parmense, 84, Piacenza, 29122, Italy
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Flexible agricultural water level management East Veluwe

Flexibel agrarisch peilbeheer Oost Veluwe

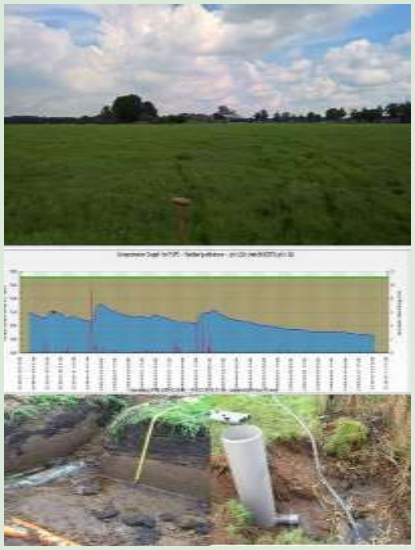
THE NETHERLANDS - UTRECHT

Starting date - expected end date | **26.06.2017 - 31.12.2020**

Operational Group

Three dairy farmers from the east of the province of Utrecht will manage the water level in drains / drainage systems and ditches for three years. This gives them the opportunity to finetune at field level in order to reduce drought and flooding losses and improve the water quality.

From the early spring of 2018 weirs and level-controlled drainage will be installed to control the water level. This control takes place on the basis of groundwater level measurements by the farmers. The effects on the soil-water system and crop yields will be monitored during the years 2018-2020 The results are shared with the colleagues in the area and demo meetings.



Lead partner:

Farmers: Art van Wolleswinkel, Wim Thomassen, Jan van der Wind

Other partners:

GO

- Waterboard Vallei & Veluwe

SME

- K&G Consultancy (agricultural consultancy)
- Aequator Groen & Ruimte (soil & hydrology consultancy)

Project contact: **Johan Kranenburg** | Fokjesweg 24, 3752 LT Spakenburg, the Netherlands
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Fertile circularity Achterhoek - Gelderland

Vruchtbare kringloop Achterhoek - Gelderland

NETHERLANDS – GELDERLAND

Starting date - expected end date | **01.01.2014 - 31.12.2019**

www.vruchtbarekringloop.nl

www.vruchtbarekringloopgelderland.nl

Operational Group

The aim of the project is a sustainable agricultural sector in the Achterhoek region. Overall goals are:

- Sustainable water and soil management, to improve water quality and water availability;
- Introduction of the instrument of fertile circularity, which promotes the efficient use of minerals;
- Introduction of new techniques such as sensors for measuring water quality;
- Knowledge exchange on fertile circularity in the region and abroad.

Several working groups of livestock farmers focus on:

- Mineral efficiency;
- Water quality;
- Sustainable soil;
- Sensor techniques;
- Milk and climate change.

Lead partner: LTO Noord (Dutch Federation of Agricultural and Horticulture)

Other partners

- Waterboard Rijn en IJssel
- Vitens, drinking water company
- FrieslandCampina, dairy company
- ForFarmers, feed company
- Province of Gelderland

Farmers

- Over 250 individual farmers

Project contact: **Carel de Vries** | Zwartewaterallee 14, 8031 DX, Zwolle, The Netherlands

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Multifunctional buffer zones SamZons - an innovative method for optimization of environmental goals and production goals

Multifunktionella skyddszoner SamZons – en innovativ metod som kombinerar miljö- & produktionsmål

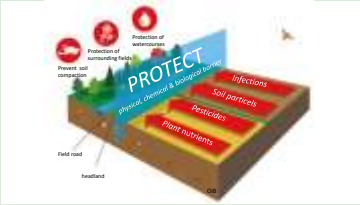
SWEDEN

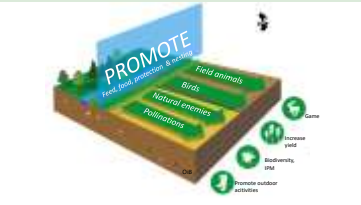
Starting date - expected end date | **2017 - 2020**

EIP-Agri Innovative project

The SamZons innovation project presents a new concept for site-based implementation and management of multifunctional protection zones that combine efficient environmental objective with high productivity.

A clever combination of strips with varied species of herbs and grass provide multiple functions such as:
* prevent losses of phosphorus or pesticides to water bodies.
* food and shelter for insects, which increase the number of wild pollinators and field birds in the agricultural landscape.
* field roads for farmers which protect the field against soil compaction.
* they can be customized to attract field wildlife.
* promote natural enemies, which reduces the need for control
* benefits honey producers





Lead partner: Odling I Balans, Farming In Balance

Other partners

Research

- SLU, Swedish University of Agriculture

Farmers

- Farmers in the Farming In Balance project

Agricultural business:

- Advisery services: Hushållningssällskapet, VäxtRåd, HIR Skåne
- Lantmännen, Yara, Svenskt Växtskydd

NGO

- WWF

Project contact: **Helena Elmquist** | Franzeng.6, 115 33 Stockholm
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Water2REturn

Recovering and Recycling of nutrients TURNing wastWATER into added-value products for a circular economy in agriculture

SPAIN - ANDALUSIA

Starting date - expected end date | **01.07.2017 - 31.12.2020**

www.water2return.eu

Horizon 2020 project

Resources recovery from wastewater has been recognised as a valuable and efficient source of nutrients for use in agriculture. At the same time, the food industry, especially the EU slaughtering sector, produces large amounts of waste and wastewater. Hence, there is a need to move towards more efficient and sustainable production methods.

To address this situation, **Water2REturn** faces the environmental and economic constraints of the slaughtering industry as a market opportunity and aims to adopt a Circular Economy approach to extract the maximum value from slaughterhouse wastes. In this sense, it proposes a viable, cross-sectoral and integrated full-scale demonstration process for nutrients recovery from slaughtering industry's wastewater by using a novel combination of biochemical and physical technologies and processes in cascade, aiming also a positive balance in terms of energy footprint and potential water recycling.

Through this system, three agronomic products (one organic fertiliser and two biostimulants) will be produced, being free of pathogens, heavy metals and emerging pollutants, allowing for the safe re-use of slaughterhouse wastewater and ready to be commercialised at EU and international level.

Lead partner: BIOAZUL S.L. (ES), SME

Other partners:

Research organisations

- University of Seville (ES)
- University of Cadiz (ES)
- Foundation Centre for the New Water Technologies (ES)
- University of Ljubljana (SL)

Farmers

- Slorom D&C Draghiceni (RO)

SMEs

- Agroindustrial Kimitec (ES)
- Adventech, Advanced Environmental Technologies Lda (PT)
- AlgEn, Algal Technology Centre, d.o.o. (SL)
- Enco Consulting Srl (IT)
- 2B Srl (IT)
- Isitec GmbH (DE)
- Exergy Ltd (UK)

Associations

- European Livestock and Meat Trading Union (BE)
- European Landowners Organization (BE)

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LIFE REAGRITECH

Regeneration and reuse of runoff and drainage water in agricultural plots by combined natural water treatment systems (LIFE11 ENV/ES/579)

SPAIN - CATALONIA

Starting date - End date | **01.01.2013 - 30.12.2016**

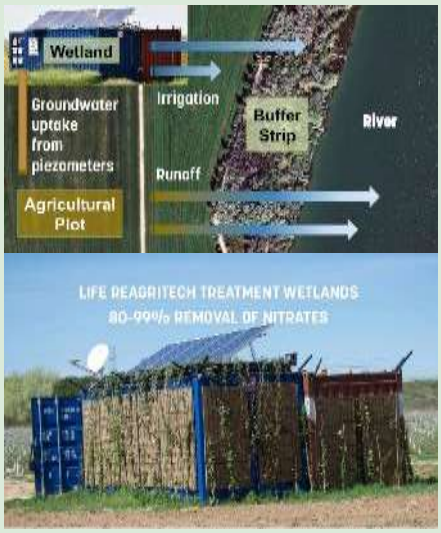
www.reagritech.com

LIFE+ Environment Policy and Governance 2011

REAGRITECH has been a demonstration project with the main objective to reduce the consumption of water resources and improve its quality, integrating natural systems (treatment wetlands and buffer strips) for wastewater treatment controlling nutrients and pesticides from the generation source: agricultural activity.

The main aim of REAGRITECH Project was to demonstrate a sustainable method for water reuse of agricultural runoff and groundwater polluted by nitrates from irrigated crops.

The expected longer-term results for the REAGRITECH were the implementation of the innovative systems to treat agricultural runoff on a large scale, improving water quality and the riparian ecosystems affected by agricultural activities.



Lead partner: UNESCO Chair on Sustainability, Universitat Politècnica de Catalunya-BarcelonaTech, Spain

Other partners

SME

- TYPSA Group - Técnica y Proyectos SA / Consulting company, Spain

Research

- LEITAT - Acondicionamiento Tarrasense / Technological Center, Spain.

Farmers

- Jordi Prim/Farmer, Lleida, Spain

Project contact: **Jordi Morató** | Carrer Colom 1, TR1, EET, Terrassa, 08222, SPAIN
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Irrigation control in crop production - situational, site-specific and automated (Precision Irrigation)

Steuerung des Zusatzwassereinsatzes in der Pflanzenproduktion - situativ, teilschlagspezifisch und automatisiert

NORTHEASTERN GERMANY

Starting date - expected end date | **08.04.2016 - 31.12.2019**

http://eip-pi-bb.de/de/

Operational Group

In the federal state of Brandenburg (Germany), irrigation of arable land is a measure to maintain agricultural value despite decreasing summer rainfalls. To avoid over-using the available water resources, however, a precise irrigation control needs to be developed and tested under local conditions.

We seek for an user-friendly solution for site-specific irrigation, which takes into account the actual water need of the crops. The potential of infrared thermography for precision irrigation control is evaluated in addition to traditional soil-based approaches. Cost-benefit analyses will reveal the economic feasibility of precision irrigation in our region.

Lead partner: Research Institute for Post-Mining Landscapes (Research Institute)

Other partners

Farmers

- Grünhagen Ackerbau GmbH (cropping farm)
- Agrarbetrieb Altdöbern (cropping farm)

Professional association

- Fachverband Bewässerungslandbau Mitteldeutschland (Association for irrigation farming)

Advisory service

- Irrigama Projektgesellschaft

Company

- Hydro-Air international irrigation systems GmbH

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Water and resilient livestock (agua y ganadería resiliente)

Innovative systems for the best use of rainwater as adaptation to climate change

SPAIN - EXTREMADURA

Starting date - expected end date | **15.09.2018 - 15.09.2021**

Operational Group

Different studies and experts confirm that climate change is producing longer dry periods and the increment of temperatures in sensible southern European areas. This effect is having a direct negative impact on the availability of fresh water on field for our livestock.
The main objective of the project is the development and testing of innovative systems for an efficient collection, storage and use of good quality water in our farms so that the access to fresh water on field is guaranteed for longer periods. These technologies will help also to prevent the transmission of diseases such as tuberculosis among the livestock and wild animals that inhabit the Dehesa such as boars or deers.

Lead partner: AGEDREX (non-profit Organisation). The Association of Managers of the Dehesa in Extremadura aims to defend and promote the values of the Dehesa as cultural, agroforestry and pastoral ecosystem of high environmental quality

Other partners:

SMEs

- GESTIONA GLOBAL
- TERRAPRIMA

Research

- UNIVERSITY OF EXTREMADURA

Farmers

- AGEDREX represents the farmers and managers of the Dehesa ecosystem in the Region of Extremadura

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Automated platform for irrigation and fertirrigation management in horticultural crops

SPAIN - ALMERIA

http://www.coexphal.es/grupos-operativos-autonomicos/

Operational Group

The main objective of this Operational Group is the development of an integrative computer tool, aimed at the fruit and vegetable production sector, as well as the companies supplying technology for irrigation.

The irrigated area in Spain represents 14% of the useful agricultural area, but irrigated agriculture contributes a little more than 50% to the Final Vegetable Production, 2.4% to the Gross Domestic Product of the country and employs 4 % of its employed population. In return, irrigated agriculture uses a very large volume of water (68% of total volume) in a country with many territories where this resource is scarce, so it has to compete with users from other productive sectors.

AUTOMARRIEGO

The aim is to promote the use of automation technologies for irrigation and fertigation in horticultural crops to achieve a more efficient and sustainable management of water and fertilizers through the integration and automation of available knowledge and the use of sensors.

Lead partner: COEXPHAL, Association of Producer Organisations (80 cooperatives/ PO and 15.000 farmers)

Other partners

Research

- University of Almería
- IRTA
- CYCITEX

Users (farmers)

- HACIENDAS BIO SA

Other collaborators

- FUNDACIÓN CAJAMAR
- GRUPO DESARROLLA
- ASG
- LABFERRER
- SISTEMES ELECTRONICS PROGRÉS

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Network management of the shallow ground water table depending on rainfall and the seepage from conveyance network of land reclamation consortiums

Gestione della rete di misura della falda ipodermica in funzione delle precipitazioni e del sostegno dei canali della rete dei Consorzi di Bonifica

ITALY – EMILA ROMAGNA REGION

Starting date - expected end date | **01.04.2016 - 31.03.2019**

http://www.consorziocer.it/it/p/gestione-delle-rete-di-misura-della-falda-ipodermica-in-funzione-delle-precipitazioni-e-del-sostegno-dei-canali-della-rete-dei-consorzi-di-bonifica/

Operational Group

The shallow groundwater table of Emilia-Romagna plain is a resource whose contribution either positive (water supply of crops), or negative (salt wedge) has still not been clearly delineated.

This Plan proposes to determine the influence of shallow water table on crops, in particular in the strip in which it is fed by seepage from the network consortium channels, and to make an estimation of the environmental and economic benefits. In addition, it intends to make economically sustainable the regional monitoring network of freatic water table.

Lead partner: Consorzio di Bonifica di secondo grado per il Canale Emiliano Romagnolo (Research organisation)

Other partners

Research

- Università di Bologna (DICAM)
- Consiglio Nazionale delle Ricercha (CNR Ibimet)
- Centro Ricerche Produzioni Vegetali (CRPA)

Farmers

- Societa' Agricola Visentini Di Mario Visentini E C. S.S.
- Az. Agr. Cremonini Marco e C. Società Agricola s.s.
- Fruit Modena Group Soc.Coop. Agricola

Project contact: **Roberto Genovesi**
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Contact at workshop: **Tommaso Letterio**
T: + 39 3440105306 letterio@consorziocer.it

Clean Farm, Clean Ditch

Schoon erf, schone sloot

NETHERLANDS – GELDERLAND

Starting date - expected end date | **21.12.2016 - 31.12.2018**

www.NFOfruit.nl

Operational Group

Farmyard runoff is an important cause of water pollution. The 'Clean Farm, Clean Ditch' project stimulates fruit growers to take innovative measures to reduce emissions. This results in improved water quality and strengthened biodiversity in and around orchards.

Project goals are:

- to reduce standard emission overruns to zero;
- to increase awareness of the impact of emission overruns on water quality amongst fruit farmers;
- to stimulate the use of new innovative concepts for emission overrun reduction and biodiversity;
- to stimulate the use of concepts of circularity;
- to stimulate knowledge exchange amongst fruit farmers and fruit consultants.

Lead partner: Dutch Fruit Growers Organization (NFO), Province of Gelderland, waterboard Rivierenland

Other partners

Research

- Fruitconsult (consultancy)
- WUR PPO Randwijk (research institute)
- CLM (developer of emission reduction scan)

Farmers

- J. Kusters Fruit
- Fruit farm B. Tijssen
- Cruijsen Fruit B.V.
- Fruit farm Bleiend Merm
- Over 10 other fruit farms in the Betuwe region

Project contact: **Patricia Hoogervorst** | Louis Pasteurlaan 6, 2719 EE Zoetermeer, NL
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Marc Balemans | mbalemans@LTONoord.nl

NEP – high Nitrogen Efficient crop Production for better water management

NEP – Produção de culturas em elevada Eficiência de Azoto para uma melhor gestão da água

PORTUGAL

Starting date - expected end date | **02.11.2017 - 31.12.2020**

Operational Group

Nitrogen (N) is a crucial element to life and a limiting factor for agricultural production when it does not exist in sufficient amounts. However, the excess of this nutrient in the environment can also be a serious and harmful problem for all the different environmental compartments: when N inputs exceed the crop needs there is a real potential for water pollution with nitrate (NO_3^-).

The objective of this project is the development of two new agricultural products with low N footprint which do not currently exist in the national and international markets: processing tomato and wine.

For this purpose, new production processes will be developed to change agricultural practices of the producers. We plan to obtain distinct commodities produced with defined and marked concerns to mitigate N emissions during their production process: changes in the primary production of fresh grapes and processing tomato (e.g. fertilization and irrigation), will be conducted in order to obtain low N-footprint production. The reduction of N losses will be monitored by the N Footprint calculation tool built in this project.

Lead partner: Instituto Superior de Agronomia (University)

Other partners

SME

- Fundação Eugénio de Almeida (FEA) (farmer)
- Lusovini Distribuição, S.A. (farmer)
- Sociedade Agro-Pecuária do Vale da Adega, S.A. (farmer)
- Reguenguinho – Sociedade Agrícola, Lda (farmer)

NGOs

- Centro de Competências para o Tomate Indústria (CCTI) - Associação para a Investigação, Desenvolvimento e Inovação no Sector (non-profit private association)
- Benagro – Cooperativa Agrícola de Benavente, C.R.L. (non-profit private association) (farmer)

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AGIR: Efficiency assessment of water and energy in collective irrigation systems

AGIR: Avaliação da eficiência da áGua e energIa em aproveitamentos hidroagRícolas

PORTUGAL - MEDITERRANEAN REGION

Starting date - expected end date | **03.07.2017 - 30.06.2020**

http://www.fenareg.pt/?p=3010

Operational Group

Improving the sustainability of collective irrigation systems (CIS), through the efficient use of water and energy (W&E), is one of the concerns of the managers of water user Associations, a priority of the National Rural Development Programme 2014-2020 and a key-driver addressed by the EU Common Agricultural Policy. The project aims at establishing an innovative performance assessment system to support the diagnosis of inefficiencies and the identification of solutions for problem-solving in CIS. Project action plan involves: (1) Robust methodology for assessment of W&E efficiency in the primary and secondary networks of the CIS; (2) Validation and consolidation, through the implementation of three case studies; (3) Technical guides to support W&E inefficiency diagnosis and decision-making about the solutions in CIS. The preliminary results of the water balance calculation indicate that the real losses component is the most relevant in the non-revenue water, regardless of the type of CIS (pressurised, channel or mixed). These results demonstrate the importance of investing in the rehabilitation of existing infrastructures, besides the need to improve operational control of physical losses.

Lead partner: FENAREG – Federação Nacional de Regantes de Portugal, represents the irrigation water sector in the national and international institutions concerned with water resources management for irrigation. (non-profit association)

Other partners

Research

- LNEC – Laboratório Nacional de Engenharia Civil, IP (public research institute)
- UÉ – Universidade de Évora (university)
- IPS – Instituto Politécnico de Setúbal (university)
- INIAV – Instituto Nacional de Investigação Agrária e Veterinária, IP (public research institute)
- COTR – Centro Operativo e de Tecnologia de Regadio (non-profit associacion)

Managers of water users association

- Associação de Regantes e Beneficiários da Obra de Rega de Odivelas (non-profit association)
- Associação de Regantes e Beneficiários do Vale do Sorraia (non-profit association)
- Associação de de Beneficiários da Obra da Vigia (non-profit association)

Irrigators

- Agro-Vale Longo
- Mencoca Agricultura
- Sociedade Agrícola Bico da Vela II

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Fairway - Farm systems that produce good water quality for drinking water supplies

Starting date - expected end date | **01.06.2017 - 31.05.2021**

https://www.fairway-project.eu

Horizon 2020 project

Safe drinking water is vital for human health. Diffuse pollution of nitrogen and pesticides from agriculture is the main obstacle to meet drinking water quality targets. Policies to protect drinking water resources have not achieved a consistent effectiveness in all member states.

The overall objective of the FAIRWAY project is to review current approaches and measures for protection of drinking water resources against pollution caused by pesticides and nitrate from agriculture, and to identify and further develop innovative measures and governance approaches for a more effective drinking water protection, together with relevant local, regional and national actors.

Specific objectives of FAIRWAY are: (i) to increase the scientific understanding of the relationship between agriculture and drinking water protection; (ii) to increase the understanding of the social, technical and economic barriers to practical implementing of measures; (iii) to deliver innovative measures and tools to overcome these barriers; (iv) to develop protocols and data-sets for monitoring of farming practices and water quality, and to increase awareness and involvement of farmers and other citizens in the monitoring of water supplies; (v) to develop effective governance approaches for small to large water supplies; (vi) to identify key strategies and good practices for drinking water protection and assess the implications of these options for policy and practice.

Lead partner: Stichting Wageningen Research

Other partners

- 22 project partners across Europe

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EUFRUIT- EUropean FRUIT Network

EU-WIDE

Starting date - expected end date | **01.03.2016 - 28.02.2019**

www.eufrin.org

Horizon 2020 Thematic network

EUFRUIT aims at establishing a framework and a systematic approach to increase the connectivity between research outcomes and knowledge implementation in the fruit sector.

The project consortium consists of 21 members, including research institutes, universities, and industrial partners who represent key parts of the fruit supply chain, from 12 European countries.

Through its 5 Work Packages (WPs) EUFRUIT addresses the main aspects of the fruit production chain: WP1 Project coordination; WP2: Performance of new fruit varieties; WP3: Reduction in pesticide residues; WP4: Fruit quality; WP5: Secure sustainable fruit production with focus on maintaining yield and quality of fruit production under combined water and heat stresses.

Lead partner: Aahrus University (Denmark)

Other partners

Research

- INRA: Institut National de la Recherche Agronomique (Fr)
- PCFRUIT: Proefcentrum Fruitteelt VZW (BE)
- OVA: Obstbauversuchsanstalt Jork (DE)
- UHOH: University of Hohenheim (DE)
- NARIC: National Agricultural Research and Innovation Centre (HU)
- LAIMBURG: Laimburg Research Centre for Agriculture and Forestry (IT)
- UNIBO: University of Bologna (IT)
- IRTA: Institut de Recerca I Technologia Agroalimentáries (ES)
- LRCAF: Lithuanian Research Centre for Agriculture and Forestry (LT)
- CTIFL: Centre Technique Interprofessionnel des Fruits et Légumes (FR)
- AGROSCOPE: Institute for Plant Production Sciences (Switzerland)
- StDLO: Stichting Dienst Landbouwkundig Onderzoek, Wageningen (NL)
- USAMV: The University of Agronomic Sciences and Vet. Medicine (RO)
- NIAB EMR: NIAB East Malling Research, SME (UK)
- UoG: University of Greenwich, Natural Resources Institute (UK)

Stakeholders

- AREFLH: Assemblée des Régions Européennes Fruitiéres, Légumiéres et Horticoles (FR)
- FRESHFEL: European Fresh Produce Association (BE)
- FC: Fruitconsult BV (SME) (BE)
- EO: Elbe-Obst Erzeugerorganisation (SME) (DE)

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LIFE AQUEMFREE - In-Farm remediation by solar photocatalysis of agro-waste water with pesticides from remnants, cleaning and rinse

Remediación in-situ mediante fotocatálisis solar de aguas residuales agrícolas contaminadas por plaguicidas procedentes de sobrantes, limpiezas y enjuagues de equipamientos y envases

SPAIN – MURCIA REGION

Starting date - expected end date | 01.07.2014- 30.06.2018

http://www.life-aquemfree.eu/?lang=en

Video

LIFE project

Despite obligations in the EU Directive on the Sustainable Use of Pesticides (2009/128/EC), no available technology is fully adequate to enable farmers to manage pesticide residues of agro-waste water. The project AQUEMFREE (LIFE13 ENV/ES/000488) designed and demonstrated on five commercial farms an on-site innovative equipment allowing pesticide remnants in waste water to be dealt with. Through the use of solar energy, an oxidant and a catalyst, recovered at the end of the process for its reuse, the AQUEMFREE system completely degrades pesticides without generating any other residue. The implementation of the AQUEMFREE system in medium-sized and large farms could provide a solution for 80-90% of this environmental problem, especially in Mediterranean farms because of solar irradiation conditions.

Lead partner:

IMIDA (Murcia Institute of Agri-Food Research and Development)

Other partners

Research

- Universidad de Murcia. Departamento de Química Agrícola

Farmers

- FECOAM. Murcia Federation of Co-operatives
- Farm Los Rizaos: Pablo Galindo
- Farm Cabezo Grande: Miguel Martínez Coronado
- Farm La Deseada (coop. Thader): José Luis Nortes
- Farm Los Buitragos: Ramón Sánchez

Company

- Novedades Agrícolas S.A.: leading company in irrigation and farm technology

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LANDmark

LAND Management: Assessment, Research, Knowledge base

EUROPE

Starting date - expected end date | **01.05.2015 - 31.10.2019**

http://landmark2020.eu/

Horizon 2020 project

LANDMARK is a pan-European multi-actor consortium that will develop a coherent framework for soil management aimed at sustainable food production across Europe. The LANDMARK proposal builds on the concept that soils are a finite resource that provides a range of ecosystem services known as "soil functions".

LANDMARK will deliver through multi-actor development: 1. LOCAL SCALE: A toolkit for farmers with cost-effective, practical measures for sustainable (and context specific) soil management. Farms are treated as "managed ecosystems" that provide "a range of ecosystem services"; 2. REGIONAL SCALE - A blueprint for a soil monitoring scheme, using harmonised indicators: this will facilitate the assessment of soil functions for different soil types and land-uses for all major EU climatic zones; 3. EU SCALE – An assessment of EU policy instruments for incentivising sustainable land management.

Lead partner: Soil Biology and Biological Soil Quality, WAGENINGEN UNIVERSITY and RESEARCH, The Netherlands (Academia)

Other partners

- TEAGASC - Agriculture And Food Development Authority , Ireland
- University of Copenhagen, Denmark
- Joint Research Centre – European Commission
- The CIRCA Group Europe Ltd., Ireland
- Plant Research International – Wageningen University and Research (WUR1), The Netherlands
- National Institute for Public Health and Environment (RIVM) The Netherlands
- Szent Istvan University, Hungary
- University of Ulster, Northern Ireland
- Universiteit Antwerpen, Belgium
- Assemblée Permanente des Chambres d'Agriculture, France
- Chambers of Agriculture of Lower Saxony, Germany
- Austrian Agency for Health and Food Safety, Austria
- French National Institute for Agricultural Research, France
- Institute of Soil Science - Chinese Academy of Sciences, China
- University of Sao Paulo, Brasil
- Federal Institute of Technology in Zurich, Switzerland
- University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania
- Swedish University of Agricultural Sciences, Sweden
- Josef Stefan International Postgraduate School, Slovenia
- University of Parma, Italy
- University of Seville, Spain

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NUTRINFLOW: Practical actions for holistic drainage management for reduced nutrient inflow to Baltic Sea

FINLAND, LATVIA, SWEDEN

Starting date - expected end date | **01.09.2015 - 28.02.2019**

http://nutrinflow.eu/

Innovative project (Central Baltic Interreg)

The idea is to take practical actions for holistic drainage management for reduced nutrient inflow to the sea. This is done by implementing, demonstrating and increasing the recognition of innovative water management measures in agricultural areas.

To achieve our goals, we search for practical and low cost innovations that can be used for flow and nutrient management. These can be innovations for environmentally friendly ditch clearing, two-stage ditches, bottom dams, sedimentation ponds, wetlands, adapted and integrated buffer zones, controlled drainage as well as new ways to target measures to make them more cost effective. By utilising the existing drainage system structures and improving drainage technologies as well as production on fields, we can reach better nutrient balance – less nutrient losses to waters.

Lead partner: ProAgria Southern Finland, Agricultural advisory organization, NGO, (FI)

Partners:

Research

- Latvia University of Life Sciences and Technologies (LV)
- Research Institutes of Sweden, RISE (SE)

Farmers

- Union Farmers' Parliament (LV)

Local or regional administration

- City of Loviisa (FI)
- Zemgale Planning Region (LV)
- Jelgava local municipality (LV)
- County Administrative Board Östergotland (SE)

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Valorization of agricultural waste into activated carbon for application in water treatment

Valorización de residuos agrícolas en biocarbón activo para su uso en tratamiento de agua

SPAIN-ANDALUSIA

Starting date - expected end date | **24.02.2018 - 14.02.2020**

Operational Group

The OG is composed of five partners and two collaborators that will work together on the achievement of one main objective: valorisation of agricultural wastes generated in large volume in our community, such as almond shells and rice husk, to manufacture activated carbon with strong applications in the water treatment sector. This project aims to generate a new economic activity in the frame of circular economy that will contribute to the reduction of greenhouse gas emissions and promote job creation, economic growth and the sustainable reindustrialization of Andalusia. It also promotes the development of bioeconomy in our region.
Four different work packages will be implemented: i) Development and validation of the manufacturing process of activated carbon from agricultural wastes at lab scale; ii) Demonstration of activated carbon performance in the treatment of water at pilot scale; iii) Design of the industrial process and feasibility study of manufacturing of activated carbon at industrial scale in Andalusia; and iv) Dissemination of results to end-users at a regional level in order to promote the market entry of activated carbon and encourage job creation in Andalusia.

Lead partner: ARSINGER SL (SME)

Other partners

Research

- CENTA (Research Institute)
- IRNAS-CSIC (Research Institute)
- IFAPA (Research Institute)

Farmers

- Pedro Santacruz/ CAMPEAGRO S.A.T.

SME

- SANTACRUZ INGENIERIA SL
- ASA ANDALUCIA

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Sustainable Use of Irrigation water in F&V under plastic greenhouses

SPAIN - ALMERIA

Starting date - expected end date | **01.02.2018-31.01.2020**

http://www.coexphal.es/grupos-operativos-autonomicos/

Operational Group

The project will try to develop tools that help to a sustainable management of irrigation water in the cultivation of fruits and vegetables under plastic in Almería. The regeneration and reusr of wastewater is becoming one of the most interesting strategies for water supply in agriculture.

This Operational Group will provide advice in water quality matters, development and application an ICT protocol from the evaluation of conventional water resources (groundwater, surface water) and non-conventional water (desalinated and regenerated water), studying the necessary and existing infrastructures, as well as regeneration techniques throughout the province of Almeria. All this information will be integrated into a Geographical Identification System (GIS) with the collaboration of users.

Lead partner: COEXPHAL, Association of Producer Organisations (80 cooperatives/ PO and 15.000 farmers)

Other partners

Research

- University of Almería
- COEXPHAL
- FUNDACIÓN CAJAMAR

Users (Irrigation communities)

- Junta Central de Usuarios del Acuífero del Poniente Almeriense (JCUPA)
- Federación de Regantes de Almería (FERAL)

Other collaborators

- COEXPHAL-UAL of horticulture, cooperative studies and sustainable development
- Department of economics and business, University of Almería

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Smart Ag Services- Advanced Service of Precision Agriculture in Agricultural Associative Entities

Servicio Avanzado de Agricultura de Precisión en Entidades Asociativas Agrarias

SPAIN - ANDALUSIA

Starting date - expected end date | **01.01.2018 - 31.12.2019**

institucional.us.es/smartag

Operational Group

The "Smart Ag Services" project aims to create an advanced agricultural precision service in agricultural associations (e.g. cooperatives) for efficient management in real-time of irrigation and fertilisation based on weather conditions and soil and crop status. To this end, different technologies, already mature in the university system, such as wireless sensors and multispectral images, will be integrated in order to monitor the weather, environmental, soil and water conditions. This specialized service, based on precision farming techniques adapted to the associative model, will make it possible to considerably reduce the consumption of water, fertilizers and energy, significantly reducing pollution of groundwater and surface water resources.

Lead partner: Rural Development Group Campiña-Alcores (Regional Government Partner)

Other partners

Research

- ETSIA, University of Sevilla (Prof. Manuel Pérez-Ruiz)
- ETSIAM, University of Córdoba (Prof. Juan Agüera Vega)

Farmer's Association

- ASAJA Sevilla (Asociación Agraria de Jóvenes Agricultores)

Regional Government Partner

- Rural Development Group Gran Vega

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Irrigation system optimization in fruit farming for adaptation to climate change

Razionalizzazione dei sistemi irrigui sulle colture arboree in risposta ai cambiamenti climatici

ITALY – EMILA ROMAGNA REGION

Starting date - expected end date | **01.04.2016 - 31.12.2018**

http://www.consorziocer.it/it/p/razionalizzazione-dei-sistemi-irrigui-sulle-colture-arboree-in-risposta-ai-cambiamenti-climatici/

Operational Group

Regional fruit growers have been facing increasing difficulties to face both the extreme variability in the environmental conditions and the increasing frequency of drought events. This project aims at providing solutions to rationalise the use of irrigation systems:

- Comparing the effect of traditional drip irrigation and microsprinkler irrigation on four different scion/rootstock combinations of pear.
- Studying the effect of ultra-low drip irrigation systems, with driplines positioned slightly under soil, to limit evaporative and percolation water losses, on apple and pear.
- Defining specific guidelines for cooling irrigation (warning temperatures, working intervals and volume of the system)
- Identifying the time for irrigation during the day which optimises resource partitioning to kiwifruit sinks

Lead partner: Consorzio di Bonifica di secondo grado per il Canale Emiliano Romagnolo – CER (Research organisation)

Other partners

Research

- Università di Bologna (DISTAL)
- Consiglio Nazionale delle Ricerche (CNR Ibimet)
- Centro Ricerche Produzioni Vegetali (CRPA)

Farmers

- Fondazione F.lli Navarra
- Az. Agricola Mazzoni
- APOFRUIT
- FRUIT MODENA GROUP

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Data assimilation from soil-crop-climate sensor network in IRRINET DSS

Sensori e IRRINET: integrazione delle informazioni provenienti da reti di stazioni meteorologiche e sensori privati con il modello di bilancio idrico IRRINET

ITALY – EMILA ROMAGNA REGION

Starting date - expected end date **01.09.2016 - 31.03.2019**

http://www.consorziocer.it/it/p/sensori-e-irrinet/

Operational Group

This Innovation plan stems from the increasing interest, from growers and producers organizations, in the adoption of sensors to monitor environmental data related to the soil-plant-air system, sometimes even without technical support.
Hereafter, we report the main expected results from this project:
1. Possibility to integrate environmental data from private sensors and weather stations to the IRRINET DSS.
2. Creation of links between IRRINET and weather and soil sensors located in pilot farms.
3. Validation of the IRRINET irrigation scheduling advices based on the irrigation needs identified in farms using other site-specific DSSs
4. Identification of regional areas where an increase in sensor density for data acquisition could lead to an improvement in the representativeness of the collected data.
5. Development of a specific installation manual for weather stations according to WTO standards
6. Development of protocols for validation and integration in IRRINET of weather, soil humidity content, and fruit growth data collected at farm level.

Lead partner: Consorzio di Bonifica di secondo grado per il Canale Emiliano Romagnolo – CER (Research organization)

Other partners

Research

- Università di Bologna (DISTAL)
- Centro Ricerche Produzioni Vegetali (CRPV)

Farmers

- C.I.O. Consorzio Interregionale Ortofrutticoli S.c.a.r.l.
- Az. Agricola Sandri
- APOFRUIT

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MIrAgE: Improving irrigation efficiency toward a more sustainable agriculture

MIrAgE – Migliorare l'Irrigazione per un'Agricoltura Ecosostenibile

ITALY – EMILIA-ROMAGNA

Starting date - expected end date | 01.07.2016 – 31.12.2018

http://dipartimenti.unicatt.it/diproves-progetti-di-ricerca-mirage

Operational Group

MIrAgE aims to assess the efficiency of innovative irrigation systems (drip irrigation and subsurface drip irrigation) in comparison with traditional systems focusing on (i) effects on yield and grain quality; (ii) efficiency of the use of water (WUE) and fertilizers (NUE) and (iii) nutrients losses (NO_3 leaching). Expected results are:

- Resolution of water supply problems thanks to the use of smaller volumes distributed during the growing season in association with fertilisation;
- Implementation of technical and advisory services offered by agriculture consortia to encourage the diffusion of innovative irrigation systems on the territory.

Lead partner: Università Cattolica del Sacro Cuore, Italy (University)

Other partners

Research

- Azienda Agraria Sperimentale Stuard (Experimental Farm)

Farmers

- Michele Lodigiani/Società Agricola del Trebbia
- Giovanni Zangrandi/Azienda Agricola Zangrandi Giovanni

Extension services

- Agriform (Training center)
- Terrepadane (Agriculture Consortium)
- Consorzio di Bonifica di Piacenza (Land reclamation and drainage authority)

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Task force Agricultural Water management Gelderland

DAW: Deltaplan Agrarisch Waterbeheer - Gelderland

NETHERLANDS – GELDERLAND

Starting date - expected end date | **01.01.2013 - 31.12.2021**

www.agrarischwaterbeheer.nl

Operational Group

The task force agricultural water management is a national program. In the province of Gelderland, the Dutch Federation of Agriculture and horticulture, three waterboards and the Province of Gelderland work together to improve water quality, water availability and soil health. With regards to the Water Framework Directive, the task force aims to solve all water quality problems that are related to agriculture by 2027.

The approach is to prioritise areas with the most urgent water problems and to develop projects that are tailored to local circumstances and agricultural practices. If possible and relevant, other challenges, such as climate change, biodiversity, circular economy and healthy food are integrated in this local approach.

More than 20 projects improve water quality and availability and soil health and at the same time aim to increase agricultural production. In the execution topics such as nitrate, phosphate and pesticides in ground and surface water, clean ditch, healthy soil and circular agriculture are central.

Lead partner: LTO Noord (Dutch Federation of Agriculture and Horticulture)

Other partners

Governmental organisations

- Province of Gelderland (Regional government)
- Waterboard Rijn en IJssel
- Waterboard Vallei en Veluwe
- Waterboard Rivierenland

Farmers

- 2017: 750 individual farmers
- 2021: goal is to achieve over 7000 farmers in Gelderland

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Water Management of Lis Valley Irrigation District

Gestão da Água no Vale do Lis

PORTUGAL - CENTER

Starting date - expected end date | **01.01.2018 - 31.12.2022**

Operational Group

The Lis Valley Irrigation District has a significant importance in the Center Region of Portugal. The Operational Group aims to contribute to the improvement of district water management focusing on socioeconomic and environmental sustainability and regional agricultural competitiveness. The objectives are to carry out a field monitoring plan leading to better diagnosis of water supply and drainage problems, to improve the practices quality, to reduce water and energy waste and to modernise cultural technologies and systems. The progressive improvement of system management at several levels, like collective water conveyance, water quality and on-farm irrigation and drainage, will be performed. Operational plans for water demand and distribution will be outlined, as a result of the integration of information, to support the decision at the various levels of water network management in order to improve water management. The project recipients are: the Water User Association, the farmers, as private companies generating economic income, whose activity will be boosted with the best use of water and soil and innovative technologies, the consumers, since they will benefit, in terms of food safety and product quality, and the companies of agricultural factors, processing and commercialisation, that will benefit from the economic and productivity improvement achieved.

Lead partner: Instituto Politécnico de Coimbra

Other partners

Water Users Association

- Associação de Regantes e Beneficiários do Vale do Lis

Research

- Universidade de Coimbra (University)
- Direcção Regional de Agricultura e Pescas do Centro (Ministry of Agriculture)

Farmers

- Fábio Franco/Sociedade Agrícola do Vale do Lis, Lda
- Diogo Filipe Teles Braz
- Manuel Leal Rosa

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OMeGA - Water Reservoirs Management Optimization

OMeGA - OtiMização da Gestão de Albufeiras

PORTUGAL - SORRAIA

Starting date - expected end date | **01.01.2018 - 01.01.2021**

http://www.maretec.org/

Operational Group

The OMeGA project aims to develop an innovative operational tool that will provide users with information on water quantity and quality in reservoirs, meteorological forecasts, inflows and water consumption, volumes needed for ecological flows maintenance as well as recommendations to support managers on decision-making.

The project intends to make an important contribution to the management of reservoirs in irrigation perimeters, helping to better deal with a resource that is increasingly scarce.

This tool may become crucial at a time when volumes stored in hydro-reservoirs are reduced as a result of the drought periods that have occurred.

Lead partner: MARETEC - IST (Research Centre - University)

Other partners

- Bernardo G. Ferreira/ Soc. Agrícola Bico Vela II (farmer)
- ARBVS – Irrigation Farmers Association
- FENAREG – National Irrigation Association
- AQUALOGUS, Lda.
- Bentley Systems

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AGRO-gestor: Collective management of crops at the service of environmental programs related to the use and quality of water

Gestión colectiva de cultivos al servicio de programas ambientales relacionados con el uso y la calidad del agua

SPAIN - NAVARRA

Starting date - expected end date | **26.10.2017 – 30.11.2021**

https://www.agrogestor.es/

Life project

The development of the AGROgestor project will launch a demonstration of Collective Management of crop information, being an opportunity for the development of Sustainable Services in irrigated agriculture oriented to the governance of water, the efficiency in the use of water irrigation and the quality of water bodies. AGROgestor project will propose environmental and economic indicators that allow the analysis and collective management. The project will build a platform to analyze through indicators, real scenarios and scenarios of strategic planning or climate change. The core result of the project will be an innovative webGIS AGROgestor platform, with tools and utilities supporting

Lead partner: INTIA (Institute of Transfer and Innovation in Agri-food Sector)

Other partners

- ITAP (Agronomic Technical Institute, Albacete)
- PRODEVELOP (Consulting and Software Development, Valencia)
- IFAPA (Institute of Agricultural Research and training, Andalucía)
- NEIKER (Institute for Agricultural Research and Development. País Vasco)
- FMB (Agronomic Research Center, Cataluña)
- AEMET (Meteorology Statal Agency)

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WIRE: Water & Irrigated agriculture Resilient Europe

ITALY, SPAIN, BELGIUM, NEDERLANDS, SLOVENIA, PORTUGAL, FRANCE, GERMANY, GREECE, AUSTRIA, DENMARK, EU

Starting date - expected end date|01.03.2014 – not determined

Website

EIP Water Action Group

The big challenge of sustainable irrigation in Europe is addressed by the WIRE Action Group under the European Innovation Partnership on Water. WIRE is committed to unlocking the potential and accelerating uptake of innovative irrigation technology and improving agricultural water management in line with the objectives of the Water Framework Directive, promoting the EU green economy while preserving and increasing the employment in agriculture and related sectors. WIRE currently has 56 partners from nearly all the sectors involved in irrigated agriculture, ranging from science, companies dealing with irrigation technology and management, representatives of the farming sector at European and national level, advisory services, as well as water managers. Together they cover over 90 % of irrigated area in Europe.

WIRE promotes the involvement of end-users into the development of hard and soft innovative products and concepts, allowing their customisation, focusing on practical solutions to overcome operational and structural farming problems, increasing performances of cropping systems and techniques, creating new job and business opportunities in rural areas.

Lead partners: **Consorzio Bonifica CER** (Public Body) & **CopaCogeca** (Farmer Association)

Other partners

Research

- 36 Research centres and knowledge providers

End Users

- 11 End Users

SME

- 9 Companies

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Renewable Energy Desalination Working Group

http://www.eip-water.eu/RE_Desalination

EIP Water Action Group

The Action Group promotes the use of desalination powered by renewable energy, as an environmentally friendly and decentralised solution for sustainable water supply. Renewable energy desalination applied to agriculture as a new source of water for irrigation plays an important role in the Water-Energy-Food nexus.

Main Objectives: (i) Improve Renewable Energy Desalination technology and reduce its costs; (ii) Establish an economic and institutional support system for RE-desalination; (iii) Increase awareness on RE-desalination; (iv) Bring new technologies to the market.

Main Activities: (i) coordinate and promote R&D&I on RE-Desalination; (ii) support development and commercialization of RE-Desalination products; (iii) raise awareness about the technology and demonstrate its market potential; (iv) establish a long-term network to act on specific areas that face water problems; (v) support development and promotion of legal structures and policies to facilitate implementation of RE-desalination technologies; (vi) disseminate the activities and increase networking.

EIP Water Action Group
Pooling resources – Innovating water

Lead partner: CIEMAT-Plataforma Solar de Almería, Spain

Other partners:

Research:

Agricultural University of Athens (GR); Aston University (UK);
Centre for Renewable Energy Sources & Savings (GR);
Fraunhofer Institute for Solar Energy (DE);
Middle East Desalination Research Centre (Oman);
IMIEU (BE); Technical University of Munich (DE);
University of Palermo (IT); University of Valladolid (ES)

SMEs:

AcuaGo (DE); Elemental Water Makers BV (NL); Sealeau BV (NL);
Instituto Tecnológico de Canarias SA (ES); Resolute Marine (IE);
Seawater Greenhouse (UK); SolarSpring Gmbh (DE);
Solwa SRL (IT); WIP Renewable Energy (DE);
European Desalination Society (IT)

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RichWater

Market introduction of combined wastewater treatment and reuse technology in agriculture

SPAIN - ANDALUSIA

Starting date - expected end date | **01.02.2016 - 31.07.2018**

www.richwater.eu

Horizon 2020 project

RichWater is an innovation action funded by the "Fast Track to Innovation" programme and aims to demonstrate a market solution for agriculture fertigation in water scarce areas based on the reuse of treated wastewater. RichWater is built on the outcomes of the previous FP7 project, TREAT&USE, where a pre-commercial prototype was tested in a tomato plantation in South Spain. RichWater will upgrade TREAT&USE technology in a demonstration plant installed at the region of La Axarquia (Malaga, Spain), optimizing energy consumption, system automation and control of fertilizer supply.

The project will demonstrate an integrated system combining water treatment and irrigation. RichWater is able to reuse treated wastewater producing a pathogen-free (99% of E. Coli removal) and nutrient-rich effluent (presence of N, P, K according to crop needs) for direct application in agriculture.

The project will perform a standardisation and certification of the RichWater modules within the ETV pilot Programme, and by developing in depth market assessment and business plans for target markets designing competitive marketing and finance strategies.

Lead partner: BIOAZUL S.L. (ES), SME

Other partners:

Research organisations

- Institute for Mediterranean and Subtropical Horticulture "La Mayora" (CSIC-IHSM-La Mayora) (ES)
- TTZ Bremerhaven (DE)

SMEs

- Isitec GmbH (DE)
- Pessl Instruments GmbH (AT)

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Solar powered desalination for irrigation of plant nursery

INDONESIA – BUKIT PENINSULA

Starting date - end date | **09.08.2011 - 18.08.2015**

http://www.elementalwatermakers.com/project-indonesia/

Innovative project

A plant nursery in Indonesia was faced with salinity issues in the water supply. Desalination was required to solve this salinity problem, however the high electricity costs involved in desalination were a big concern. Through an innovative system set-up the project provided a reverse osmosis unit 100% powered by solar energy. By incorporating an elevated salt water storage, the system is able to run 24/7 using the stored salt water, plus the pressure it provides from the elevation, to continue running the system also during the night. By avoiding the use of grid electricity and by optimal usage of the desalination equipment affordable fresh water is provided. More information on the technology can be found in the following video:

https://youtu.be/fjWDcG8xy9s

Lead partner: **Elemental Water Makers B.V.**

Elemental Water Makers provides efficient and easy reverse osmosis technology. Powered by the sun, wind, waves or your energy. In order to provide reliable access to fresh water that's affordable.

Other partners

Research

- Technical University Delft, Netherlands
- Institut Teknologi Bandung, Indonesia

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Off-grid desalination for irrigation in the Jordan Valley

JORDAN VALLEY

Starting date - expected end date | **01.04.2017 - 31.03.2019**

Transboundary groundwater resources in the Jordan Valley are seriously depleted and over-pumping has led to an increase in water salinity. Due to the inefficiency of the electricity grid in the Palestinian Jordan Valley, off-grid desalination technology, powered by solar energy, is a good solution to improve the quality of brackish water for irrigation by local farmers. In this student-led project, university students are working in international teams to develop a desalination prototype that is solar powered and provides high recovery of freshwater from brackish feedwater. A novel batch reverse osmosis (RO) concept maximises recovery of water and energy. This approach has potential in helping to build capacities in areas suffering from groundwater salinization and in encouraging international collaboration to address shared challenges in the Jordan Valley. Successful developments from the proposed project are being taken up by technical civil society organisations, such as the Palestinian Wastewater Engineering Group, to scale up and implement solar-powered desalination plants and extend the capacity building through training workshops for farming communities.

Lead partner: Aston University, Birmingham, UK

Other partners

Research

- Arava Institute for Environmental Studies, Israel

NGOs

- Palestinian Wastewater Engineers Group, West Bank

Sponsors

- British Council
- Douglas Bomford Trust

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Internet of Food and Farms 2020 (IoF2020) – USE CASE 4.2 Chain Integrated Greenhouse

SPAIN - ALMERIA

Starting date - expected end date | **01.01.2017 - 31.12.2020**

https://www.iof2020.eu/trials/vegetables/chain-integrated-greenhouse-production

Horizon 2020 large scale pilot-Innovation Action

IoT connects systems to enable an integrated, multidimensional view of farming activities and allowing a deeper understanding of ecosystems. This is based on the extensive use of ICT that involve large amounts of data, physical and virtual sensors, control loops, networks, models and optimization techniques to improve decisions.

The chain-integrated greenhouse production use-case develops a DSS for the greenhouse tomato supply chain based on IoT technology, focusing on optimisation and reuse of water and efficiency in the use of fertilizers and of energy, interoperability along the chain, improved products and processes and a lower environmental impact. Data-based decision technology will be developed with all heterogeneous data generated.

Lead partner of IoF2020: Wageningen University

Lead Partner of Vegetable Trials and of use case:

University of Almería and Cátedra COEXPHAL-UAL

Other partners

- VALORITALIA
- COEXPHAL Association of Producer Organisations (80 Cooperatives/15,000 farmers)

Other collaborators

- CASI S.C.A., BIOSABOR S.A.T., Luis Andújar (Farmer), UNICA Group S.C.A., VICASOL S.C.A., CABASC S.C.A., LAS HORTICHUELAS S.C.A., CASTELGREEN
- LAS PALMERILLAS, CAJAMAR EXPERIMENTAL FARM, and TRANSPORTE CARRIÓN (SME).

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AGRINUPES: Integrated monitoring and control of water, nutrients and plant protection products towards a sustainable agricultural sector

PORTUGAL, SPAIN THE NETHERLANDS, TURKEY AND SWEDEN

Starting date - expected end date|01.04.2017 - 31.03.2020

www.agrinupes.eu

ERA-NET / Co-fund WaterWorks2015

Better management requires reliable decision-making systems (DSS) based on water quality feedback making use of cost-effective, robust, low-maintenance and accurate sensors for nutrients and pesticides. So far, available sensor technology does not meet the challenges for on-site monitoring and feedback control. AGRINUPES intends to develop NPK sensors and integrate them into fertigation equipment, as well as low cost biosensors for insecticide detection, with demonstration of their use for practical management purpose at several European demo-sites.

Lead partner: INESC TEC Institute for Systems and Computer Engineering, Technology and Science – Portugal

Other partners

Research

- Faculty of Sciences of University of Porto - Portugal
- Wageningen University and Research - The Netherlands
- Turkish Water Institute – Turkey
- EGE University – Turkey
- Research Institutes of Sweden - Sweden

SME

- EGE Life Sciences - Turkey
- Riegos y Tecnología, S.L. - Spain

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ECOSAFEFARMING: DEVELOPMENT AND TESTING OF A NOVEL PHOTOCATALYTIC SYSTEM FOR EFFICIENT COGENERATION OF CLEAN WATER AND HYDROGEN FOR ECOSAFE AGRICULTURE

TURKEY, SPAIN, GERMANY, CANADA

Starting date - expected end date| 01.12.2017 - 30.11.2020

ERA-NET COFUND WATERWORKS 2015 project

ECOSAFEFARMING project aims to bring a solution to water and energy issues by achieving an optimized and energy free disinfection of UWW with novel solar assisted-treatment technologies for producing safe food and clean energy with reduced water footprint. A new photocatalytic reactor will be developed by integration of a photoactive photoanode electrode with a membrane stacking with the objective of design an efficient and energy free PCED reactor system for treatment-disinfection and desalination of UWW.

In addition, this PCED system is further modified with a photoactive membrane to allow the cogeneration of clean water and hydrogen (H_2-PCED) from solar (or UV) radiation and wastewater. CIEMAT-PSA will participate in the ECOSAFEFARMING project in the development and evaluation activities of the proposed PCED reactor and subsequent modification for the cogeneration of clean water and hydrogen (H_2-PCED). CIEMAT-PSA will carry out experimentation and reuse analysis of UWW treated for raw eaten crops irrigation to evaluate the capacity of this technological solution to provide regenerated water for agricultural reuse.

Lead partner: Istanbul University (Turkey)

Other partners

Research

- Istanbul University (Turkey)
- MIR Arastirma ve Gelistirme A.S. (Turkey)
- Brandenburg University of Technology (Germany)
- University Of Ontario Institute Of Technology (Canada)
- CENTRO DE INVESTIGACION ENERGETICA MEDIOAMBIENTAL Y TECNOLOGICA (CIEMAT) – PLATAFORMA SOLAR DE ALMERIA – Almería – Spain

SME

- FCC AQUALIA S.A
- Central Assembly of end-users of the aquifer of west Almeria and the local irrigation community (Almería),
- Ecosystem Environmental Services S.A.,
- CAJAMAR foundation (Las Palmerillas)
- IQD Invesquia

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WATER4FOOD: DEVELOPMENT AND EVALUATION OF NOVEL PHOTOCHEMICAL AND BIOLOGICAL PROCESSES FOR TREATMENT AND REUSE OF WATER IN FOOD INDUSTRIES

SPAIN

Starting date - expected end date | **01.01.2015 - 31.12.2018**

Spanish National funded project

The main objective of WATER4FOOD is to develop novel energy-efficient and environmentally sustainable processes for water treatment in food industries, increasing the efficiency in the use of water resources by the integration of the water disinfection and decontamination steps with the industrial washing process and irrigation of crops used as raw materials, evaluating the technoeconomic viability of the global process.

In addition, the project also involves the development of predictive models of the process that permit the evaluation of the microbiological and chemical risks derived of the cross contamination sources, allowing the optimization of the shelf-life of the food products in the market.

Lead partner: **University of Rey Juan Carlos**

Other partners

Research

1. Universidad Rey Juan Carlos – Madrid- Spain
2. CENTRO DE INVESTIGACION ENERGETICA MEDIOAMBIENTAL Y TECNOLOGICA (CIEMAT) – PLATAFORMA SOLAR DE ALMERIA – Almería – Spain

SME

3. Verdifresh S.L
4. Cítricos del Andarax
5. FCC Aqualia
6. IQD Invesquia
7. EcosystemEnvironmental Seervices
8. Sistemas DR

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