



EIP-AGRI Workshop 'Enabling farmers for the Digital Age: The Role of AKIS'

26-27 April 2018
Jūrmala, Latvia

All information of the workshop
available on www.eip-agri.eu
at the event webpage

<https://ec.europa.eu/eip/agriculture/event/eip-agri-workshop-enabling-farmers-digital-age>



EIP-AGRI Workshop 'Enabling farmers for the digital age: the role of AKIS

Thursday 26 April 2018 – Jūrmala, Latvia

13:30 – 13:45 **Welcome & introduction**

- Opening by Jānis Dūklavs, Minister of Agriculture of Latvia
- Opening by Dušan Chrenek, Head of Unit, European Commission – DG AGRI
- Introduction to Day 1 programme, Antonio Carlos Ruiz Soria – EIP-AGRI Service Point

13:45 – 14:45 **Knowledge exchange and innovation supporting the digital transformation of the farming sector: who is doing what? Carousel of inspiring examples**

14:45 – 15:00 Introduction and preparation for the breakout session

15:00 – 16:00 Breakout session 1 Strengthening AKIS connections to meet the digitisation challenges

16:00 – 16:30 Coffee break

16:30 – 16:40 Introduction and preparation for the interactive session

16:40 – 17:55 Digital technologies stepping up advice and transforming AKIS

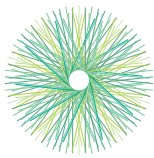
- Inspiring examples
- Breakout session 2

17:55 – 18:00 Wrap-up and introduction to next day

19:30 – 22:00 Social dinner

Knowledge exchange and innovation supporting the digital transformation of the farming sector: who is doing what? Carousel of inspiring examples

1.	<u>State supported services for digitalisation of Estonian agriculture</u>	Pille Koorberg and Leho Verk	Estonia
2.	<u>Gaiasense smart farming system</u>	Theodoros Zografos	Greece
3.	<u>IBERS Distance Learning</u>	Neil MacKintosh	UK
4.	<u>SC-TRACE project</u>	Gaëlle Cheruy	France
5.	<u>eServices for Forest Owners and Service providers - Metsään.fi</u>	Markku Granander	Finland
6.	<u>Digital tools supporting Farm Machinery Cooperatives</u>	Stephane Diard	France
7.	<u>Focus group on digitisation and big data in the Agri-food & Forestry sectors and rural areas</u>	Rocío Wojski and Andrés Montero	Spain
8.	<u>ReCAP: Reinforcing CAP</u>	Machi Simeonidou	EU
9.	<u>The Single Application</u>	Greet Pauwels	Belgium
10.	<u>Precision Farming with Elements of Geoinformatics "AGRO e-learning"</u>	Przemyslaw Kupidura	Poland



State supported services for digitalisation of Estonian agriculture

Agricultural Research Centre (ARC) / Rural Development Foundation

www.pmk.agri.ee - mes.ee

ESTONIA

Long-term programme for the use of agricultural big data

Creation of central electronic system to link and integrate existing data with analytical models and practical applications. It helps to create an added economic value to agricultural data, supports development of precision and environmentally friendly farming. Facilitates presentation of agricultural data, results in more efficient and precise resource management (e.g. fertilisation advice based on soil data while taking into account the nutrient balance). System is a basis for commercial applications. RDP 2014-2020 funding (knowledge transfer measure). Consortia led by ARC. Implementation in 2 phases (1+1,5y). Stage 1 (2018-2019): feasibility study for development of big data system + development of few prototypes. Stage 2 (2020-2021): development of big data system.

E-solutions in payment processing (E-ARIB) www.pria.ee

One portal for all agricultural support services, faster management, and paper free management – 100% use on e-services for clients of the Paying Agency. Customer focus, high level of automated controls. Start in 2005 (animal register, farmers notifications), E-applications for area and animal supports since 2008, Price Catalogue for Agricultural Equipment 2014, Client register e-services 2016, Satellite based mowing detection "SATIKAS", 2016-2017 combining Sentinel 1, 2 data, crop detection functionality in 2018, geo-positioned photos for on-the-spot control (project 2018-2019).

Cloud based workflow system for advisers

Client management, reporting services provided by advisers and applying for advisory services support from the Paying Agency. Rural Development Foundation, the largest rural advisory organization in Estonia.

Other web-based tools

- ▶ Identifying fertilisation needs spatially based on soil samples, crops and yields. Farmers get recommendations for fertilisation (K and P fertiliser) through GIS server (Spectrum software) according to the results of soil samples, cultivated crop, crop yield and used fertilisers. 2017-2018.
- ▶ Plant protection advice and decision support systems (weed control, pest and disease control of cereals) - www.itk.etki.ee, GIS based <http://monitooring.etki.ee/2017>, application for field based counting of pests' data <https://legulus.tools/#/>



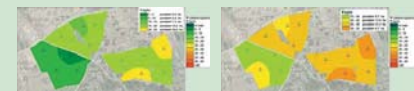
AGRICULTURAL BIG DATA SYSTEM



Agricultural data collected by the state:

- soil fertility data, soil texture
- environmental monitoring data
- spread and estimation of harmful organisms/pests
- LPIS, location of farm buildings
- land improvements systems
- areas with environmental restrictions
- agricultural statistics etc.

FERTILISATION MAPS BASED ON SOIL SAMPLES, CROPS AND YIELDS



MOWING AND GRAZING DETECTION SYSTEM "SATIKAS"



Cooperation / actors involved in Big Data Programme

Research

- ▶ Agricultural Research Centre (lead partner, www.pmk.agri.ee) – coordination, knowledge transfer, trainings and information events
- ▶ Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences (www.emu.ee); Estonian Crop Research Institute (www.etki.ee) – input for indicators, algorithms, data management

Farmers

- ▶ Active farmers will be selected for the analysis of big data system. Farmers' organisations are involved from the start of the programme via information days, presenting prototypes etc. Farm data which is available by agricultural software developers involved in consortia will be used as input for the system analysis

Advisers

- ▶ Collection and dissemination of information via advisers' organizations e.g. via advisers under Rural Development Foundation (<http://mes.ee/>)

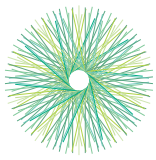
Other partners involved

- ▶ IT and software developing companies: Tieto Estonia AS (<https://www.tieto.ee/>) / E-Agronom OÜ (<https://eagronom.ee/>) – description of system architecture, development of a standard for E-Field Record Book



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SC TRACE

Agro EDI Europe

www.agroedieurope.fr

FRANCE - Paris, Lyon

Created in 1992, Agro EDI Europe (AEE) is a non-profit association which aims to regroup all the economic actors of the agricultural and agro food industry who could be interested in the development of digital project and EDI (Electronic Data Interchange) in the upstream of agro food chain. AEE was in charge of UN/CEFACT PDA Sectoral Agricultural for 10 years (2005-2015) and published several UN EDI messages for agricultural sector as Crop Data sheet (traceability data from the field) or Agronomical Observations Message available on UNCEFACT website.

Contribution to digitisation of farming sector

Objectives: Launched in 2011 on the initiative of professionals of the agro supply chain, The SC TRACE project aims to optimize traceability of phytosanitary products and seeds thanks to the optical reading. All the chain was organized in a voluntary way to implement an harmonized and coherent traceability thanks to the use of supports containing all necessary information.

Expected results/ who will benefit: All the products and logistical units are traced thanks to an homogeneous and standardized marking: 2D Data matrix code. Actors (including Farmers) all along the chain are able to recover traceability information automatically in their information system.



Cooperation / actors involved

- ▶ Coop de France, FNA (national federation of agricultural trader)

Distributors (cooperatives and trade companies)

- ▶ AREA, ODALIS, SEVEAL, SOUFFLET, INTERRALOG

Phytosanitary and seeds suppliers

- ▶ BAYER, BASF, SYNGENTA, DOW, EURALIS, LIMAGRAIN)
- ▶ AFA (French federation of adjuvants), IBMA France (biocontrol federation); UIPP (PPP french federation), AFA (French Federation of adjuvants); UFS (National Seeds Suppliers Federation)

Software companies



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The Single Application

Flemish Land Agency, Manure Bank - Department Agriculture and Fishery

www.vlm.be - www.facebook.com/VlaamseLandmaatschappij - www.linkedin.com/company/vlaamse-landmaatschappij

BELGIUM - Flanders

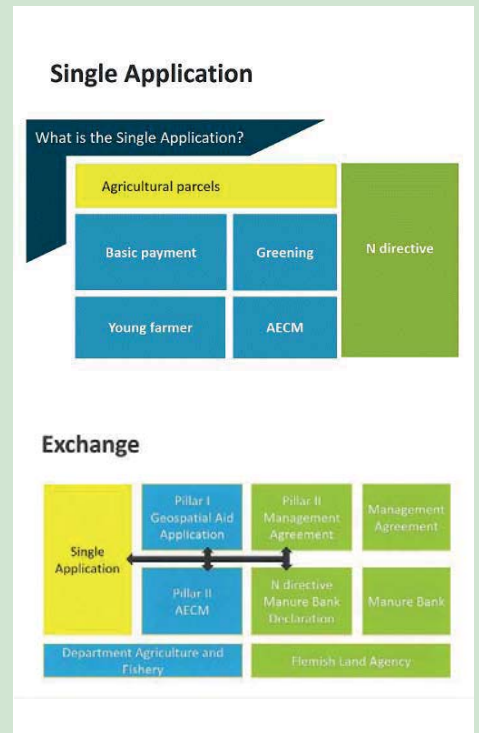
Starting date - expected end date | from 2007 onwards

The Single Application is one declaration for the basic payment (Pillar I) of the Department Agriculture and Fishery, the Agricultural Environment Climate Measures (Pillar II) and the Nitrate directive (Manure Decree). It contains a single parcel registration and identification.

Contribution to digitisation of farming sector

The Single Application is used for the registration of agricultural parcels. The Single Application is done at the e-office of the Department. The system is a digital tool for the registration of parcels for many issues related to the Common Agricultural Policy, the Nitrates Directive and Rural Development. It is used for the direct payments, agri-environmental agreements and the calculation of legal fertilisation standards. Watercourses are shown as well, so the farmer knows on which parcels he has to respect the distance to watercourses for fertilisation. The system is interactive and helps the farmers to make the right choices on different areas. The farmer receives feedback on different issues like overlaps, geospatial information (P classes, Areas, Soil Type,...). The Single Application is constantly being improved and adapted because of new legislation.

With correct declarations there are less objections and administration for all actors, farmers, mandate holders, advisors, and government.

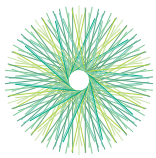


Cooperation / actors involved

The Single Application is a collaboration between the Department Agriculture and Fishery and the Flemish Land Agency. To prepare a new Single Parcel Registration, data from the Manure Bank and Management Agreement is offered to the Department. Beside the identification of the farmers, data like crops, period of use, acres, specialised production methods, greening, ecological focus area elements, AECM and Management Agreements from existing and new parcels are exchanged. There are different kind of checks on the Single Application during the completion and afterwards. These can be blocking warnings, notices and controls. All of them can be exchanged for administrative and terrain controls. The Manure Bank uses this information for fertilisation standards, derogation, Nitrate Residue, Audits, Inspections and measures, adaptations and sanctions. Mandate holders, advisors and agricultural consultants are informed and consulted about new developments on the Single Application. All structural recommendations from all actors are being considered.



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IBERS Distance Learning

Institute of Biological, Environmental and Rural Sciences, Aberystwyth University

www.aber.ac.uk - twitter.com/ATP_PASTURE -
www.linkedin.com - www.facebook.com

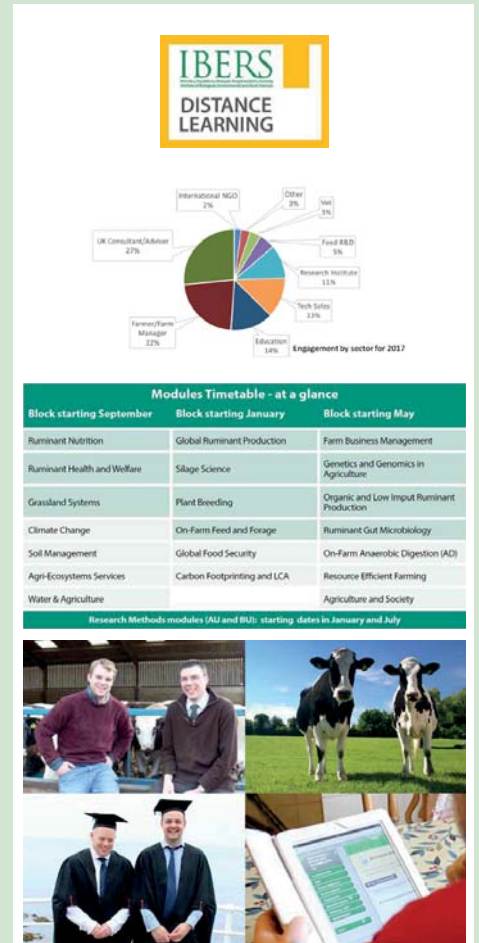
UK

Starting date - expected end date | 10.2012 - currently to 2020

IBERS Distance Learning offers fully online postgraduate-level training for the pasture-based agri-food supply chain. Our courses critically evaluate cutting-edge research, relating it to real situations in industry and teaching students scientific interpretation skills. Establishing links between industry and researchers, in order to influence future research directions, is a further benefit.

Contribution to digitisation of farming sector

- ▶ Providing flexible online postgraduate research to the global pasture-based agri-food industry
- ▶ Enabling industry to critically evaluate current and past research in order to identify research that benefits their businesses
- ▶ Encouraging knowledge transfer between industry and research, to increase research impact and initiate new industry/research links



Cooperation / actors involved

Research

- ▶ Any research organization in any country whose research is relevant to our courses

Farmers

- ▶ Innovative farmers have provided examples of their applying research findings to their own situations

Advisers

- ▶ Provide examples of problems and current possible solutions

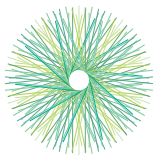
Other partners involved

- ▶ Students interact with one another through online forums, bringing their own expertise into the course



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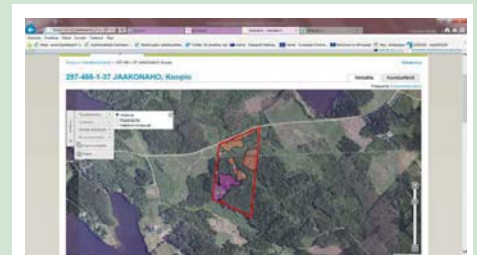
Metsään.fi: eServices for Forest Owners and Service providers Finnish Forest Centre

www.metsakeskus.fi - www.metsaan.fi/en/briefly-english

FINLAND

Starting date - expected end date | continuous work in several projects

Open eService for managing private forest property and conducting business with third parties. The Finnish Forest Centre collects and maintains data of forest resources covering the private forests. Metsään.fi is integrated with internal operative systems, customer information and forest information systems. Also integrated with external services. Land information, background maps and aerial photography. Our goal is to make the most out of Finnish public sector data sources. Data is updated according to forest owners' and service providers' notifications. eService has now 100 000 users and 12 mill. ha



Contribution to digitisation of farming sector

- Forest Owners and Forestry Operators can share same information and conduct business in eService.
- Forest Owner can see the possibilities of each estate encourages to use full potential of forests
- easy to contact professionals regardless of where you live and how familiar you are with forestry



Cooperation / actors involved

Research

- Essential part is the remote sensing of forest resource data. New technologies continually developed with SME's and Natural Resources Institute

Farmers

- Forest Owners as users and beneficiaries. Forest resource data covers all private forests and is free of charge for forest owners

Advisers

- Advisors from Finnish Forest Centre give guidance to Forest Owners. Other Operators can conduct their businesses. Metsään.fi is nowadays a basic tool for contacting forest owners.

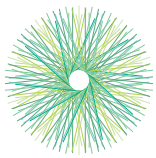
Other partners involved

- Ministry of Agriculture and Forestry- strategic choice to digitize forest resource data and services to support bioeconomy
- Further applications developed in open markets



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Precision Farming with Elements of Geoinformatics "AGRO e-learning"

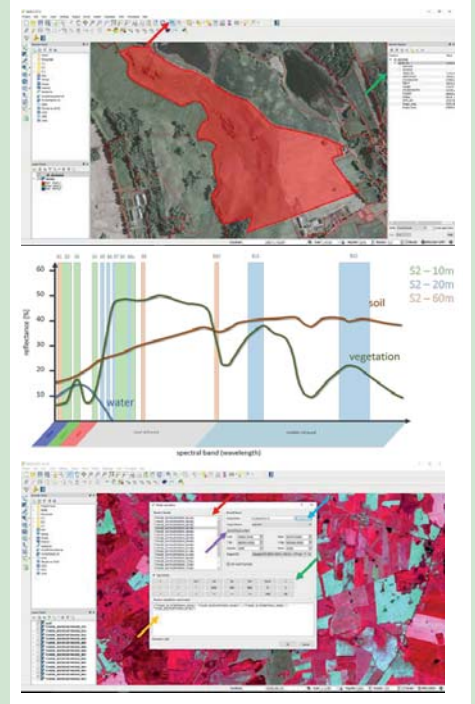
ACIEE - ERASMUS+

agrolearn.eu - www.aciee.pl - ec.europa.eu/education/erasmus-plus/national-agencies_en.htm

POLAND

Starting date - expected end date | 01-12-2017 – 28-02-2019

- ▶ E-learning platform for GIS supported precision farming
- ▶ Didactic materials
- ▶ GIS applications
- ▶ Workshops on GIS and precision farming
- ▶ Exchange of experiences: research institutes – commercial companies
- ▶ Using satellite images for soil and vegetation assessment
- ▶ Presentation of Internet applications supporting crop management
- ▶ Usefulness of different approaches for farms



Contribution to digitisation of farming sector

- ▶ Development of e-learning platform
- ▶ Use of UAV, Sentinel satellite images, GPS
- ▶ Utilisation of INSPIRE
- ▶ Multispectral imaging – soil and vegetation indices
- ▶ Raising awareness of different GIS applications for farming

Cooperation / actors involved

Research

- ▶ No research is being carried out in the project. One of the main objectives is to adapt the presentation of didactic materials and GIS software for target users – FARMERS.

Farmers

- ▶ Students and teachers of agricultural schools.

Advisers

- ▶ The educational platform will be available for agricultural consultancy for the purpose of self-education and strengthens the application of precision farming.

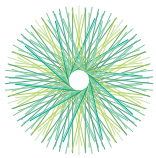
Other partners involved

- ▶ ACIEE – (PL – non-governmental organization) – role: design of needs and validation (with the help of all partners).
- ▶ GEORGIKES EKMETALEUSEIS - (GR – agri-food organization) – role: cooperation in organizing seminars and trainings, verification of the educational offer prepared for the AGRO e-learning educational platform.
- ▶ SAPS n.o. – (SL – non-governmental organization) – role: education and training resources and support for the development of a utility model for companies engaged in agricultural activities
- ▶ RESTAMER LTD. - (CY – IT company) – technical and advisory support in all aspects of designing and implementing an e-learning education platform.
- ▶ Association for Rural Development Advisors AGROPLUS: Polish Partner (PL – Association) – educational resources and the preparation of the educational platform and the verification of didactic materials.



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FG on digitisation and big data in the Agri-food&Forestry sectors and rural areas Spanish Ministry of Agriculture and Fisheries, Food and Environment-MAPAMA

<http://www.redruralnacional.es/grupo-focal-nacional-aei-agri-sobre-digitalizacion-y-big-data-en-el-sector-agroalimentario-y-forestal-y-en-el-medio-rural>

SPAIN - MADRID

Promoting and interactive process for the Digital Agenda setting

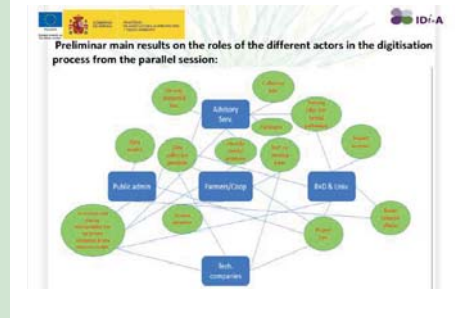
Contribution to digitisation of farming sector

Objectives

- ▶ Take stock of the state of the art of research and innovation
- ▶ Identify the needs of the practice and the possible orientations for future research and innovations
- ▶ Definition of strategic lines of digitisation for the agro-food and forestry sectors and for the rural environment, together with the identification of barriers
- ▶ Design a manual or toolbox for the end user (farmer, agro-food or forestry company, etc.) to facilitate digital transformation in the sector and in rural areas

Expected results/ who will benefit

- ▶ Develop the Agri-food and forestry sectors and rural areas digital Agenda of the Ministry
- ▶ Develop the setting – up of new operational groups, pilot projects and other ways of cooperation



Cooperation / actors involved

38 experts

- ▶ Public administration (National and regional) (9)
- ▶ Sector (Cooperatives, Farmers org., Food ind., retailers) (5)
- ▶ Tech companies (Large tech, AgTech, Start-Ups) (10)
- ▶ Advisory services (Public and private) (2)
- ▶ Academia and research (10)
- ▶ Public companies (2)

Working in:

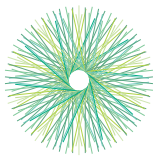
- ▶ The identification of best practices and available technologies
- ▶ The different challenges through 3 axis: available technologies and its adoption; digital divide; and Governance and data ecosystem
- ▶ The identification and prioritization of:
 - ▶ Barriers for the digital transformation
 - ▶ Roles that the different actors can developed in the digital transformation process
 - ▶ Incentives (also non-economic)



Activity & workshop contact

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RECAP – Reinforcing CAP DRAXIS ENVIRONMENTAL S.A.

www.recap-h2020.eu - Facebook - LinkedIn: RECAP H2020 project

GREECE - THESSALONIKI

Starting date - expected end date | 01.05.2016 – 31.10.2018

RECAP solution

RECAP builds bridges between Public Administrators (PA) & farmers through the use of innovative Earth Observation solutions & cost-efficient tools. || RECAP addresses existing gaps in compliance & monitoring processes, while facilitating the translation of CAP into farming practices. || RECAP contributes to the simplification & modernisation of CAP.

Contribution to digitisation of farming sector

Objectives

- Turns Cross-Compliance (CC) into an easy task
- Enables farmers' active participation to CC monitoring
- Makes CC monitor inspection more efficient and transparent
- Transforms knowledge into added value services

Benefits

- Personalised guidance for farmers
- Less red tape for farmers
- Increased transparency and efficiency of PA procedures
- Reduced administrative costs for PA
- Improved advisory services for Agricultural Consultants



Cooperation / actors involved

Research

UREAD: Co-creation & co-production of services; **NOA:** Use of Satellite data; **DRAXIS:** Cloud based software as service platform.

635 Farmers

150 140 75 150 120

Partners: PA of Greece, Lithuania, Spain (Navarra) and Cyprus, Copa Cogeca, Chamber of Agriculture of pays de la Loire.

Advisers

75 50 45 50 50

Partners: LAAS, Strutt & Parker (BNB Paribas), INO

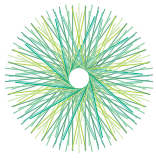
Other partners involved:

INI, ETAM, CREVIS



Activity & workshop contact

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Digital tools supporting Farm Machinery Cooperatives National Federation of CUMA

www.cuma.fr/france

FRANCE

CUMA are service co-operatives set up by and for farmers. Their objective: COLLECTIVE INVESTMENT AND USE of machinery, building, workers for tasks directly linked to production cycles. 12 260 CUMA in France, 25 members in average per group. A federative network provides services to the farmers in CUMA: advocacy, cooperative management, ag-equipment, trainings, etc.

Contribution to digitisation of farming sector

- ▶ Contribution deduced from the organisation in CUMA:
 - ▶ Lower the cost of digital investment
 - ▶ Facilitate the appropriation process: collective dynamic
See work in progress in the Smart-AKIS project – a regional federation of Cuma is involved in the partnership
- ▶ Contribution of the federations of CUMA:
 - ▶ Implementation of a specific digital tool for Cuma: Cumalink (Optimization of the use of equipment among CUMA)
 - ▶ Partnerships with start-up to emphasize the use of digital technologies in the CUMA (on-board technologies)



Cooperation / actors involved

Farmers

212 000 farmers are members of a CUMA.

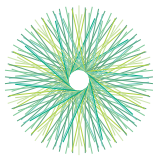
Advisers

A network of around 300 facilitators, based in 90 federations, in charge of helping farmers to develop their collective projects



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Gaiasense smart farming system NEUROPUBLIC S.A

www.gaiasense.gr/en - www.facebook.com/gaiasenseGR - twitter.com/gaiasensegr - www.linkedin.com/showcase/gaiasense/

GREECE

Starting date - expected end date | 2015 - ongoing

Gaiasense is a multidimensional smart farming system, combining information technologies with agricultural sciences in a holistic way. It supports farmers in their decision making by providing high quality advisory services for the optimization of production, through an innovative combination of data, research outcomes, scientific knowledge & practical experience.

Contribution to digitisation of farming sector

Objectives

- ▶ To help farmers, even smallholder ones, reap the benefits of smart farming and modern technologies without them having to invest in infrastructure and/or have advanced digital skills.
- ▶ To facilitate the digital transformation of agriculture in Greece in a simple & effective way.
- ▶ To ensure the exploitation of data, knowledge, experience and digital tools for improving the agricultural production.

Expected results/ who will benefit

- ▶ Farmers enjoy increased income through reduced production costs, improved production in terms of quality & quantity, reduced carbon footprint of production, increased competitiveness
- ▶ Advisors have access to the tools needed for providing improved & more accurate services to farmers.
- ▶ Researchers have access to huge volumes of high quality data & testbeds for testing their research outcomes.
- ▶ Environment: the impact of agriculture on the environment is minimized through the rationalized application of inputs (agrochemicals & irrigation water).



Cooperation / actors involved

Researcher specialized in fertilization, irrigation & crop protection collaborate with gaiasense as scientific associates, focusing on the development & adaptation of scientific models and interpretation of the results.

Farmers: Innovative agricultural cooperatives & farmers willing to adopt smart farming for improving their farm management are the end users of this digital transformation effort. They are the ones providing the requirements for the solutions to be developed.

Advisers contribute to gaiasense with their combination of knowledge & experience and responsible for personalization & validation of the advice provided to farmers. gaiasense is a valuable tool for advisers who wish to improve the services they provide to farmers and increase their effectiveness.

Other partners involved: NEUROPUBLIC develops the technological components of gaiasense & has the operational responsibility for the gaiasense network of stations. GAIA EPICHEREIN is responsible for the coordination of the cooperation and marketing networks of gaiasense.



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