Dear Reader

The ICT-AGRI ERA-NET is now more than half way through its four year project time. It is a great pleasure for me to announce that the FP7 work programme for 2013 includes a follow-up ERA-NET with similar objectives. The ICT-AGRI secretariat is preparing suggestions for ICT-AGRI 2, which soon will be available for all interested organisations.

It is important for me to continue the good collaboration with the current partners and to increase the collaboration with more countries.

It is my suggestion to base ICT-AGRI 2 on the Strategic Research Agenda developed by ICT-AGRI. The agenda is now in a final hearing by partners and experts. The Strategic Research Agenda is a result of a dedicated work by many people and I want to congratulate with a result that will set the directions for R&D in ICT and robotics for a greener and sustainable European agriculture.

In ICT-AGRI 2 there will also be an increased focus on innovation and collaboration with industry, farmers and consumers. We have already started in this direction by our Public-Private Partnership Action. The main goal is to obtain a dialogue with private enterprises and end user organisations, and, if possible, to establish more R&D projects with private as well as public partners.

ICT-AGRI has in 2012 launched its second call for transnational projects. We received 29 innovative proposals concerning ICT and automation for a greener agriculture. The funding agencies invited 14 to submit full proposals, which are now being reviewed by an independent panel. Funding will be decided in November and projects are expected to start in January 2013.

I want to thank all the enthusiastic applicants for their proposals as well as the funding agencies for their contributions to the call. A special thanks goes to the two new associated partners: The French National Research Agency (ANR, France) and Department for Environment, Food and Rural Affairs (DEFRA, United Kingdom) for their contributions to the call.

Niels Gøtke, ICT-AGRI Coordinator
ICT-AGRI ERA-NET: Results and expectations

ICT-AGRI ERA-NET: Towards an ICT AGRI 2

The ICT-AGRI ERA-NET was launched in May 2009 to strengthen the coordination of the European Research Area concerning ICT and robotics in agriculture. After 3 years this is a timely opportunity to look at progress and results and to have an outlook for the years to come, since the EU FP7 work programme includes a call for a successor, ICT-AGI 2.

In these 3 previous years, the ICT AGRI ERA-NET contributed with several activities to link ICT and Robotics communities in 21 European countries participating as partners or observers.

The Meta Knowledge Base (MKB)
First designed to collect information about research and researchers in the ICT and robotic fields, the MKB also became an useful tool for Era-net members and for all users. More than 1,000 users are registered, having opportunities to search for knowledge or partners, discuss on some thematic (forum) and provide their inputs (abstracts, profile, etc.). The MKB is becoming a central internet-based resource for researchers, developers and users within ICT and robotics in agriculture.

Two calls and perhaps a third one
Two calls for trans-national projects were initiated by the ERA-NET. The first call, in 2010, helped to fund 7 European projects and the second call is on-going.

These calls boost European research with practical projects, helping the connections between the various countries involved. A third call is considered for 2013 in connection with the PPP Action.

A Strategic Research Agenda
A huge collective work by the Era-net partners has been carried out in order to develop a common European research agenda concerning ICT and robotics in agriculture. A final version of the agenda is planned for November 2012, and will be a significant contribution to national as well as European Research and Innovation funding in the future.

Public-Private Partnerships Action
A specific PPP Action was launched to extend the ICT and Robotics network to others actors, such as private companies and end-user association. This action also aims to boost the design and market of concrete innovation in Europe. (See page 4 for more information).

And from 2014?
With the collective efforts of its partners, the ERA-NET has succeeded in starting a European network concerning ICT and Robotics in agriculture. However, much more work remains to be done, especially to cover all Europe. Further partners will be sought to extend the network. It is a requirement that partners in an ERA-NET are able to contribute to funding of joint European calls for projects.

The contents and outline of ICT-AGRI 2 will be based on ICT-AGRI’s Strategic Research Agenda and on the visions in Horizon 2020. As illustrated in the figure below, a main goal is to move R&D from a national focus to a European focus. A further goal is to obtain a better utilization of R&D results through innovation. In ICT and Robotics for agriculture there is a particular need for securing the application of technology in thousands of farms throughout Europe. It is therefore a great challenge to enhance collaboration among actors normally operating on different geographical scales in Europe.

The application for ICT-AGRI 2 is due by February 2013. For further information, please contact the ICT-AGRI project office.

A focus for the future ERA-NET: Linking basic and applied research and innovation to manufacturing, supply, support and practice on different geographical levels.
Second ICT-AGRI Call: 
ICT and Automation for a Greener Agriculture

ICT-AGRI’s second call was launched in March 2012. The call received 29 pre-proposals comprising 160 researchers and developers from 18 European countries. Fourteen consortia were invited to submit a full proposal by 7 September. The full proposals are now being evaluated by an independent review panel. The funding agencies behind the call will in early November select the projects to be funded with an expected start early 2013. A total of 6 mio. EUR is available for 6-10 projects.

EFITA Conference 2013
ICT-AGRI has agreed with EFITA to use the EFITA Conference for the final reporting of the seven projects by the first ICT-AGRI call.

EFITA 2013 will take place in Torino, Italy, 24-27 of June 2013.

Consortium changes
In connection with the second ICT-AGRI call, new collaboration was initiated with four organisations:

♦ The French National Research Agency (ANR), France;
♦ Department for Environment, Food and Rural Affairs (DEFRA), United Kingdom

Co-funding the ICT-AGRI call:
♦ Department of Agriculture, Food and the Marine (DAFM), Ireland;
♦ Centre for Industrial Technological Development (CDTI), Spain

iProjects in ICT-AGRI Meta Knowledge Base

What are iProjects?
An ICT-AGRI iProject is a closed room, where a group of users can exchange messages and documents. iProjects can be used for matchmaking, consortium building and proposal preparation for an ICT-AGRI call or any other call. iProjects can also be used for any other purpose.

iProjects can be public or private. A public iProject is shown with title, abstract and contact to all visitors; registered users can request to join the iProject; membership is granted by the iProject leader, who also can invite other users to join. A private iProject is not shown to any other than its members and potential members invited by the iProject leader.

Applications to ICT-AGRI 2nd Call were prepared by iProjects.

Matchmaking
- how to find or to be found. iProject leaders can invite users by searching PROFILES or RESEARCH (an Invite link will appear in the right column of search result pages). Users can request to join iProjects; the iProject leader can view the user’s profiles and research postings before granting membership. If you wish to be found, it is therefore important that you have updated profile and research postings in the Meta Knowledge Base.

Join now
The box below shows 10 iProjects, which are currently in the Meta Knowledge Base and waiting for your participation.

You need to be logged in as a registered user to use iProjects.

Public iProjects in Meta Knowledge Base
♦ Customization and validation of Decision Support System (DSS) for weed control
♦ Customization and validation of Decision Support System (DSS) for weed control
♦ Intelligent Integrated Information Management Platform for Sustainable Crop and Livestock Production Systems
♦ Application of WFC+UWD in horticulture
♦ Master Management Systems for agriculture, forestry, horticulture and aquaculture.
♦ ”INTEGRA - Integrating and collecting data in livestock production management”.
♦ Development of automated greenhouse experimental prototype
♦ ”Dodich” - We save the life of the grape growers!
♦ In-situ field lysimeters for optimizing water and nutrient use efficiency
♦ i-spray
♦ Development of a a portable sensor for the early detection of fungal infections
Focus: Public-Private Partnerships

ICT-AGRI Action to boost cooperation between public and private players in ICT and Robotics for reduction of pesticide use in agriculture

Innovation is today considered in Europe as the main key for economical growth. Cooperation between all players involved in the innovation process is thus becoming crucial. In response to this challenge, ICT-AGRI has, in addition to its other activities, launched a specific PPP (Public-Private Partnerships) Action with a focus on reduction of the use of pesticides. Let’s get some insight on this action.

Why a PPP Action?

Much research and ‘innovations’ are unknown or not used by farmers for many reasons, mostly other than technical or scientific: Costs of the technologies, lack of links between industry, public research and end-users needs, etc.

But, agriculture is facing huge challenges: Produce more with less environmental impacts and stay competitive. Innovation by farmers is therefore becoming crucial.

Developing and supporting Public-Private Partnerships aim to help closing this gap and to boost innovation in production and use. ICT and Robotic research surely plays a role in this challenge, and ICT AGRI has launched a specific PPP Action in this direction.

Reducing the use of pesticides

An initial investigations by ICT-AGRI partners resulted in a focus on the common challenge of reducing the use of pesticides in agriculture. A review of reports from several European projects and of an inventory of existing solutions (INRA), shows that ICT and Robotic have already led to significant advantages in many agricultural production areas and have demonstrated the added values for the current challenges. However, much remains to be gained in reduction of pesticides.

PPP Action: What is coming next?

ICT-AGRI will consider a third call in 2013. A special attention will be paid to suggestions of topics from private partners and end user associations.

A third call depends on the interest for participation by private partners.

Public partners are encouraged to suggest topics, projects, and partnerships together with private partners.

Participate in the open discussion in http://db-ictagri.eu/ppp/PPP_intro.php

If confidentiality is important, express your interest by email ppp@db-ictagri.eu.

Don’t hesitate to participate and make this call yours!

Time schedule:

Mid-October Expressions of interests in this action.
29th of October One-day meeting (Brussels) for interested participants
November Decisions regarding call and follow up of the PPP Action

A first public discussion last June

During the Smart AgriMatics conference (see next page) the PPP Action was discussed with interested participants in several sessions. The work made during these sessions by participants prove the interest of European actors concerning this kind of partnerships. The PPP Action has thereby reached another step and will accelerate in the coming months. Involvement of private actors and end users will be intensified, and ICT AGRI is considering concrete funding and support based on their suggestions. An important outcome of this meeting may be new kinds of calls and partnerships suited to support innovation.

For more information on the PPP Action:

db-ictagri.eu/ppp/PPP_intro.php

Three concrete products using ICT and robotics were proposed to start the discussion: (from left to right) a ‘e-services package’, smart adjustments tools on sprayers and a combined robotic platform.
The Smart AgriMatics conference

A great networking event about the future use of ICT and Robotics in agriculture.

The 13th-14th of June 2012, the international joint conference Smart AgriMatics on the future use of ICT and robotics in agriculture and agri-food was held in Paris. ICT-AGRI participated with several presentations and as co-organiser of this not-to-be-missed event.

ICT AGRI Era-net and two European projects, agriXchange and Smart AgriFood, organized collectively this conference with the same objectives:
- Building better bridges between project participants and all ICT and Robotics experts community,
- Testing future ideas against current practice.

It was a success: The conference gathered more than 170 experts, researchers, companies and authorities (from 106 different organisations) mostly from Europe, but also from a few other continents.

Participants could enjoy two plenary sessions with several interesting keynotes speakers and various parallel session according to their interest: Smart Farming; Smart Crop Protection; Smart Horticulture; Smart Food Awareness; Information and Data Exchange in Agri-Food; and Towards an European strategy for ICT in Agri-Food.

The conference created good conditions for knowledge exchange and collective work. Several sessions led to spontaneous breakout sessions where participants were able to go deeper into a subject!

See all presentations on [www.smartagrimatics.eu](http://www.smartagrimatics.eu).

Conferenc organisers

agriXchange EU FP7 project ([www.agrixchange.eu](http://www.agrixchange.eu)) Aims at coordinating and supporting the setting up of sustainable network for developing a system for common data exchange in agriculture.

SmartAgriFood EU FP7 project ([www.smartagrifood.eu](http://www.smartagrifood.eu)) The key objective is to elaborate requirements that shall be fulfilled by ‘Future Internet’ to drastically improve the production and delivery of safe and healthy food.

ICT-AGRI EU FP7 ERA-NET

New kinds of calls to support innovation?

Iver Thysen, Danish Agency for Science, Technology and Innovation, ivth@fi.dk

Traditional ERA-NET calls

In a traditional ERA-NET call the partners define the call topics together with the stakeholders. Each partner decide the their contributions to a virtual common pot (i.e., funding goes to national project partners.) Selection of projects is based on reviews of proposals by an independent expert panel. The purpose of this process is to ensure that the projects with the highest scientific merits, within the call topics, are funded.

Topics defined by industry?

For innovation, the aim is rather to apply research results into making products, and the scientific height is thus lower. It may also be necessary to use more specific call topics, which are difficult for the ERA-Net partners to define. A solution could be to let industry define problems according to their needs and keep a competition among research institutes to solve the problems. Participation by industry is required.

Collaborative projects?

The industry will often require confidentiality in relation to competitors. However, in some cases the industry as a whole will benefit from innovation, e.g. when the purpose is to improve the demand by spreading compliance to standards. A non-competitive call composed by self-funded projects collaborating in implementing technologies and software, could aim at making it easier for farmers to use advanced machines. This might for example be relevant for the ‘e-service package’.
ICT-AGRI funded projects are making progress

The seven R&D projects funded by ACT-AGRI’s first call in 2010 are making significant progress. The projects are now in the second of the two years project time and it is already now evident that these projects will produce results that makes a difference. All projects will present their final results at the EFITA conference in Torino 24—27 June 2013.

3D-MOSAIC

Coordinator: Manuela Zude, Leibniz Institute for Agricultural Engineering Potsdam-Bornim, Horticultural Engineering, Group Sensor Application, Germany

Advanced Monitoring of Tree Crops for Optimized Management

Spatial patterns of soil and plant properties can be regarded as a 3D mosaic. Thus, an optimum orchard management has to address seasonal and spatial variability in soil and micro-climate as well as the apparent phenotype variability. The project 3D-Mosaic aims at automated orchard monitoring, employing an autonomous platform and wireless sensor networks for data transfer, plant and fruit sensors, and spatial decision support system.

On the tree-scale, leaf area, fruit load, fruit water content, and maturity-related pigmentation represent information vital for orchard management. Until now, these parameters have been underutilized due to lack of automation of their monitoring as well as evaluation of their feasibility. The target of 3D-Mosaic is to provide a reasonable automation concept for precision management of orchards. 3D-Mosaic objectives are:

- Data acquisition in orchards by autonomous platform
- Monitoring of plant growth and fruit quality by means of sensors using geo-information system
- Derivation of tree adapted management maps based on pre-knowledge of soil maps and actual plant data
- Verification of concept by field tests

The project was launched in May 2012. The methodological work has been achieved to enable two field trials – the first one held in subtropical climate in November 2011 - still with manual sensor readings. While the second field trial – held in temperate climate in August 2012 - was carried out with an advanced degree of automation. Data on the soil pattern, micro-climate, plant growth and fruit development will build the basis for the delineation of management maps considering soil and plant mosaic structure in the orchards.
Predictor

Preparing for the EU Soil Framework Directive by optimal use of Information and Communication Technology across Europe

Soil has a mechanical strength that is dependent on soil type and soil water content. Soil compaction occurs if soil stress imposed by machinery exceeds soil strength. Soil compaction creates persistent effects on several soil functions in subsoil layers, including environmental footprints and crop production. Soil machinery producers are showing increased interest in ICT solutions allowing for optimization of field operations like soil tillage and traffic. The EU has launched a proposal for a Soil Framework Directive for soil protection, including soil compaction as a major threat to a sustained soil quality. The project includes four work-packages addressing i) improvement and combination of state-of-the-art models for the soil compaction process with pedotransfer functions for estimating soil strength and stress propagation patterns in the soil, ii) preparation of data on soil properties and meteorological observations for direct access by the models, iii) programming of the support tool in an internet environment, emphasizing end-user needs (e.g. icon-based selection of machinery and with ‘go’/’stop’ advice for a planned traffic situation), and iv) online display of European-wide maps of the wheel load carrying capacity for user-selected combinations of soil water regime, tyre type and tyre inflation pressure.

For more information about soil compaction and the Internet tool developed in the project, visit the project’s website http://www.soilcompaction.eu to take a look at Terranimo, the test version of the online DSS.

PigWise

Optimizing performance and welfare of fattening pigs using High Frequent Radio Frequency Identification (HF RFID) and synergistic control on individual level.

The aim of the project is to develop an IT based tool that can be used to monitor performance, growth and welfare of pigs at the individual level. This tool allows detecting problems in an early stage (monitoring and decision support) and hence preventing economical losses. A broad approach will be undertaken combining an innovative individual online-monitoring system based on RFID with HF transponders, camera vision technology and software.

Accurate advanced computer-aided analysis of individual animals data enables to treat each animal as a production unit (instead of the pen or the herd), define animal based threshold values and hence develop early warning systems for potential drops in performance or potential health and consequently performance and welfare problems. For example, a pig displaying a reduced number and duration of feed visits, or even a lack of visits or too great pauses between visits, will be timely signalled and the pig farmer can intervention quickly. Also, a sudden change in activity rate may be caused by an arising lameness problem or problems with agonistic behaviours like tail biting, alerting the farmer to intervene and separate the animals that need special attention. This would mean that negative influences on animal health or economic losses can be prevented.

Coordinator: Per Schjønning, Aarhus University, Faculty of Science and Technology, Department of Agroecology, Denmark

Coordinator: Engel Hessel, University of Göttingen, Faculty of Agriculture Sciences, Department of Animal Sciences, Division: Process Engineering, Germany
The ICT-AGRI Secretariat is situated at the Danish Agency for Science, Innovation and Technology, Ministry of Science, Innovation and Higher Education in Copenhagen, Denmark.

There are 19 partners, 2 associated partners and 13 observer organisation involved in the ICT-AGRI ERA-NET covering 21 countries.

**Partners**
1. Ministry of Science, Innovation and Higher Education, Danish Agency for Science, Technology and Innovation (DASTI), Denmark
2. Ministry of the Environment, Danish Environmental Protection Agency (DEPA), Denmark
3. Ministry of Agriculture of the Flemish Community, Institute for Agricultural and Fisheries Research (EVILVO), Belgium
4. Ministry of Agriculture, Food and Forestry Policies (MiPAAF), Italy
5. CEMAGREF Technical Centres Development (CEMAGREF), France
6. Federal Agency for Agriculture and Food (BLE), Germany
7. Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), Germany
8. Greek Research and Technology Network (GRNET), Greece
9. Ministry of Agriculture and Rural Development (MARD), Israel
10. Ministry of Agriculture, Food and Forestry Policies (MIPAAF), Italy
11. Latvian Academy of Sciences (LAS), Latvia
12. Malta Council for Science and Technology (MCST), Malta
13. Swiss Federal Office for Agriculture (FOAG), Switzerland
14. Ministry of Agriculture and Rural Affairs, General Directorate of Agricultural Research and Policies (GDAR), Turkey
15. Scientific and Technological Research Council of Turkey (TUBITAK), Turkey
16. Netherlands Organisation for Applied Scientific Research (TNO), Netherlands
17. Agriculture and Food Development Authority (TEAGASC), Ireland
18. Region of Murcia Agency of Development (INFO Murcia), Spain
19. Ministry of Food, Agriculture and Fisheries, Danish AgriFish Agency (DAFA), Denmark

**Associated partners**
1. Department for Environment, Food and Rural Affairs (DEFRA), United Kingdom
2. The French National Research Agency (ANR), France

**Observers**
1. Leibniz-Institute for Agricultural Engineering Potsdam-Bornim (ATB), Germany
2. National Institute for Agricultural Research (INRA DARESE), France
3. Food and Agricultural Organization of the United Nations (FAO), Italy
4. Region of Lombardia (ROL), Italy
5. Cities on Internet Association (COIA), Poland
6. Romanian Academy of Agricultural and Forestry Sciences (ASA), Romania
7. Soil Science and Conservation Research Institute (SSCRI), Slovakia
8. Instituto Tecnologico Agrario de Castilla Y Leon (ITACYL), Spain
9. LEITAT Technological Center (LEITAT), Spain
10. Swedish Institute of Agricultural and Environmental Engineering (JTI), Sweden
11. Federal Department for Economic Affairs (DEA), Switzerland
12. Agricultural Research Institute, (ARI) Cyprus
13. Wageningen University (WUR), The Netherlands