Dear Reader

It is my pleasure to announce that ICT-AGRI will continue for four more years as ICT-AGRI-2, a new ERA-NET starting 1 January 2014.

ICT-AGRI-2 is based on the Strategic Research Agenda published by ICT-AGRI almost a year ago. In ICT-AGRI-2 there will be an increased focus on innovation and collaboration with industry, farmers and local SMEs. There is a growing attention to European innovation nationally as well as in the EU. In ICT-AGRI-2 we intend to federate with both levels and become the bridge between national and EU initiatives with regard to ICT and robotics in agriculture.

I warmly welcome the six new partners in ICT-AGRI-2 (listed at the back page). I am sure that we have a very strong network capable of contributing significantly to European development.

In 2013 seven projects funded by the first ICT-AGRI transnational call in 2010 are ending, while eight new projects funded by the second ICT-AGRI call is starting. We are seeing very valuable outcomes from the projects ending now and we expect more value to arise also from the new projects. I thank all the researchers who has engaged themselves in creating brilliant proposals and carrying out the projects.

ICT-AGRI is planned to end at 31 March 2014 and we are working on finishing the remaining deliverables in our work plan.

We are also investigating the possibility for continuing ICT-AGRI for another year in parallel with ICT-AGRI-2. The purpose is to launch a third call in 2014 in collaboration with the Future Internet Public-Private Partnership (FI-PPP). This large EU supported partnership has developed novel services and technologies for Internet-enabled innovation, and it is preparing a wide deployment throughout Europe. In a joint call, FI-PPP would fund and support web developers for the implementation of FI technologies, while ICT-AGRI would fund researchers, advisers, public services and others for providing agricultural knowledge and testing the new applications.

Niels Gøtke, ICT-AGRI Coordinator
ICT-AGRI-2 (Information and Communication Technologies and Robotics for Sustainable Agriculture) is a new ERA-NET within the 7th framework programmes theme “Agriculture and Food supply”. It will start January 1st 2014 and will run until December 31st 2017.

ICT-AGRI-2 will work towards solutions related to the recommendations in ICT-AGRI’s Strategic Research Agenda, as illustrated to the right.

ICT-AGRI recognises the current developments within ICT and robotics in agriculture: In several EU FP7 projects (some mentioned in this Newsletter); in other ERA-NETS and similar transnational efforts; in large EU initiatives as European Innovation Partnerships and Future Internet Public-Private Partnership; and in the industry within companies as well as through Technological Platforms and Public-Private Partnerships.

It is a main goal for ICT-AGRI-2 to bridge the national and EU level activities. Sixteen EU or associated countries are represented in ICT-AGRI-2 with ministries, funding agencies and research organisations, who will act as an efficient communication link between national and EU levels.

The annual work plan is illustrated down-left. It will be repeated three times, resulting in three action plans with identification of main problems and possible solutions. At the end of ICT-AGRI-2 a new Strategic Research and Innovation Agenda will be produced.

The primary instrument of an ERA-NET is to issue transnational calls for projects. In ICT-AGRI-2 the traditional R&D calls will be supplemented by innovation-oriented calls. Other funding agencies than those represented as ICT-AGRI-2 partners are welcome to participate in the calls. Three calls will be issued in 2015—2017 on basis of the annual action plans.

In connection with the calls ICT-AGRI-2 will promote researcher mobility and career. A further activity is concerned with Open Access to scientific and technical data.

Each year ICT-AGRI-2 will co-organise a workshop. The first is with FIspace and eFoodChain:

SmartAgriMatics 2014
18th -19th June in Paris
Agricultural engineering projects: 
Important road maps for successful research cooperation

Representatives from agricultural research, administration, politics and industry met the 3rd of September 2013 to discuss expectations and potentials of EU level collaboration.

The grand challenges - climate change, food production and food security - require our joint efforts. Strengthening agricultural research is crucial. The willingness to cooperate - between countries as well as between disciplines - plays a crucial role. ICT-AGRI is considered as a good model due to its interdisciplinary and innovative capacities.

The conference “ERA-NET Initiatives – Joint research for Europe (ICT-AGRI ERA-NET - Innovation Drivers of Agricultural Technology)” was organized by the German Federal Office for Agriculture and Food (BLE) under the auspices of the Federal Ministry of Nutrition, Agriculture and Consumers Protection (BMELV). 80 participants from 16 countries attended the conference.

BMELV secretary of state Dr. Robert Kloos and BLE president Dr. Hanns-Christoph Eiden opened the conference. They emphasized the importance of consolidating the success of European economy by understanding and applying the European Research and Innovation funding system. Therefore, actors have to be supported and mobilized for further interaction.

Representatives of the EU Commission Dr Hans-Jörg Lutzeyer (GD Research & Innovation) and Dr Martin Scheele (GD Agriculture) presented EU funding instruments and showed future perspectives. The approaching EU programme Horizon 2020 will strongly focus on the engagement with stakeholders (SMES) and the further encouragement of knowledge exchange.

The industry’s point of view was represented by Prof. Dr Peter Pickel (John Deere, ETP Manufuture) and Dr Hans-Peter Grothaus (CLAAS, VDMA). Both agreed that the bottleneck of future development in agricultural machine research lies in overcoming the diverse standard systems from the manufacturers.

Dr. Bernhard Polten (BMELV) introduced the general aim of ERA-NETS before focusing on ICT-AGRI and its two calls for transnational projects. The innovative capacities and benefits of transnational projects were demonstrated in two projects of the first ICT-AGRI-Call, which were presented by Prof. Dr. Manuela Zude (3D-Mosaic, ATB, Potsdam-Bornim) and by Prof. Dr. Engel Hessel (PIGWISE, University of Göttlingen). Both speakers highlighted the value of using the Meta Knowledge Base to find partners.

Dr Martin Holpp (ART, CH) presented the Strategic Research Agenda developed by ICT-AGRI. Professor Dr Reiner Brunsch (Scientific director of ATB, chairman of ENGAGE), who explained the interests and influences of scientific stakeholders.

Dr Elke Saggau and Dr Niels Gøtke gave background information about ICT-AGRI and the continuation ICT-AGRI-2. The proposed cooperation of ICT-AGRI-2 with the future-oriented EIPs (European Innovation Programmes) is considered very important. Niels Gøtke closed the meeting with thanks to the presenters and the audience.

A special highlight of the conference in Berlin was the official handover of the Grant Contract for ITApic, a second ICT-AGRI call project.
**ICT-AGRI funded projects in the second call**

The second ICT-AGRI transnational call funds eight European projects

All eight projects are running over three years from 2013 to spring 2016. For further information about the projects, please visit the ICT-AGRI Meta Knowledge Base

**ICT in large and small dairy systems (DairyICT)**
Coordinator: Chris Knight, University of Copenhagen; Countries: DK, UK, FR, IT, CH, IR

**Fusion of multi-source and multi-sensor information on soil and crop for optimized crop production (FarmFuse)**
Coordinator: Abdul Mouazen, Cranfield University; Countries: UK, GR, DE, TR

**User-centric adoption of sustainable farming operations involving ICT and robotics – case: Grassland harvesting operations for biogas and biorefinery plants (GrassBots)**
Coordinator: Claus Grøn Sørensen, University of Southern Denmark; Countries: DK, UK, FIN

**Use of ICT-tools to capture grass data and optimize grazing management (ICTGRAZINGTOOLS)**
Coordinator: Bernadette O’Brien, Animal & Grassland Research and Innovation Centre, Teagasc
Countries: IR, UK, FR

**Advanced cattle feeding on pasture through innovative pasture management (i-LEED)**
Coordinator: Zoltan Gobor, Bavarian State Research Center for Agriculture; Countries: DE, FR, TR

**Application of information technologies in precision apiculture (ITApic)**
Coordinator: Egils Stalidzans, Latvian University of Agriculture; Countries: LV, TR, DE, DK

**Smart Integrated Livestock Farming: integrating user-centric & ICT-based decision-support platforms (SILF)**
Coordinator: Claus Grøn Sørensen, University of Southern Denmark; Countries: DK, GR, IR, BE, FIN

**Usability of environmentally sound and reliable techniques in precision agriculture (USER-PA)**
Coordinator: Victor Alchanatis, The Volcani Center; Countries: IL, DE, TR, CH, GR, UK, IT, DK

**ITApic received the funding documents at the ICT-AGRI Conference in Berlin**

“If the bees disappears from the surface of the earth, man would have no more than four years to live.” True or false, this shows the importance of the small, hardworking insects.

The ITApic project proposes the implementation of Precision Agriculture technologies and methods in beekeeping.

Through detecting the different states of colonies in hives and apiaries, beekeepers are enabled to react rapidly in case of necessity. Digital measurements such as temperature, humidity, audio and video are used to detect several states of a bee colony e.g. swarming, broodless stage, brood rearing, illness. Plenty of scientific research has been done with these techniques related to bee biology, but the knowledge has never been combined to develop an apicultural health observation and warning system.

The ITApic partners are the Latvian University of Agriculture (Biosystems Group); Gazosmanpasa University (Department of Molecular Biology & Genetics), Turkey; University of Kassel (Department of Agricultural Engineering), Germany; and Aarhus University (Signal Processing and Control Group), Denmark.

Dr. Uwe Richter, University of Kassel (middle left) received the document of funding from Dr. Robert Kloos, BMELV (middle right) at the ICT-AGRI Conference in Berlin. Dr. Hanns-Christoph Eiden, BLE (left) and project coordinator Dr. Egils Stalidzans, Latvian University of Agriculture (right) witnessed the handover of the document.

More info about ITApic: [http://www.itapic.eu](http://www.itapic.eu)
Future Internet Public-Private Partnership — FI-PPP

FI-PPP is a European programme for Internet-enabled innovation. The FI-PPP will accelerate the development and adoption of Future Internet technologies in Europe, advance the European market for smart infrastructures, and increase the effectiveness of business processes through the Internet.

The Future Internet Public-Private Partnership is a “European programme for Internet-enabled innovation. It is intended to accelerate the development and adoption of Future Internet technologies in Europe, advance the European market for smart infrastructures and increase the effectiveness of business processes through the Internet.”

Two projects in FI-PPP have particular relevance for agriculture and food: SmartAgriFood worked on use cases, requirements and interfaces addressing the areas of farming, agri-logistics and food awareness. Flspace aims at driving the development of an integrated and extensible collaboration service, together with an initial set of domain applications, thereby establishing the standard for supporting and optimizing business collaboration in the business sectors of global transport, logistics, and agri-food. A further agri-food related project proposal is planned for next year.

The overall goals of FI-PPP are highly relevant for ICT-AGRI. As identified in the Strategic Research Agenda, the uptake of ICT and robotics in primary agricultural production is suffering from a lack of compatibility in the supply of ICT and robotics for farmers. A main reason seems to be a large number of non-collaborating suppliers. FI-PPP aims to relieve this situation. The Flspace project, for example, will employ FI technologies for enabling seamless collaboration in open business networks.

FI-PPP is now approaching Phase 3: Provide stable infrastructure for large-scale trials; prove viability of concept through large-scale trials including innovative SMEs; create a sustainable ecosystem for SME-driven innovation.

Phase 3 projects will publish open calls for the distribution of grants to SMEs and Web entrepreneurs.

ICT-AGRI Call is investigating the possibilities of issuing a third call in 2014 in collaboration with FI-PPP.

FI-PPP: www.fi-ppp.eu/
SmartAgriFood: smartagrifood.eu

European Precision Livestock Farming FP7 projects

Bringing Precision Livestock Farming from the lab to the farm

EU-PLF

The purpose of the EU-PLF project is to refine the many tools developed in research projects into services for farms. Specifically, EU-PLF investigates the process of making these tools operational in dairy, pig and poultry farms and will produce a generic procedure (blueprint) that will assist people in translating PLF concepts into operational tools at farm level. This blueprint will be a reference tool offering pragmatic guidance on how PLF systems can be applied at the farm level and create value for the farmer and other stakeholders.

www.eu-plf.eu

Smart Pig Farming

From the comfort zone of science to the battlefield of business.

ALL-SMART-PIGS

The EU funded ALL-SMART-PIGS is a project that will demonstrate the viability of smart farming technologies in European pig farming. The project will use a process of open innovation through a LivingLab to co-create smart farming applications ready for commercialisation on European pig farms. These applications will be provided by innovative SMEs together with pig farmers and other stakeholders.

http://www.allsmartpigs.com/

Bio-Business

The main objective of this project is to train biological educated people (veterinarians, biologists, physiologists, bio-engineers, biomedical scientists, etc.) to collaborate with technology driven people and make them familiar with modern technology. This is done by training them in research, product definition and development, marketing and sales for bio-business in EU.

http://www.allsmartpigs.com/
ICT-AGRI funded projects in the first call are completed

The seven R&D projects funded by ACT-AGRI’s first call in 2010 are ending in 2013. We bring a short report of the results from three of them.

**GeoWebAgri: Geospatial ICT infrastructure for agricultural machines and FMIS**

The GeoWebAgri project was targeted towards a geospatial ICT infrastructure for agricultural machines and FMIS in planning and operation of precision farming.

The first objective was to specify the infrastructure using current standard technologies of Spatial Data Infrastructure (SDI) from Open Geospatial Consortium (OGC) together with other compatible specifications (e.g. Intl. Organization for Standardization, WWW Consortium). The second objective was to implement the ICT infrastructure in order to verify its viability. The viability was confirmed, although practical applications still require further work. Evaluating the ICT infrastructure through selecting a case study was the next step.

The study indicated that it is feasible to fulfil the data access requirements of an ISOBUS-compatible task controller in a precision spraying task with a suitable SDI infrastructure utilizing OGC services. The results are summarized at the project web site. The project’s results prove the benefit of a well defined SDI. There is a huge potential in the integration of spatial data from manifold sources. The infrastructure offers a range of flexible interfaces for many data sources. Through the usage of the recommended technologies known bottlenecks of the agro-community could be overcome. Exchange processes and the exchanged data by well known standards support location specific applications.


**Predictor: Predict the risk of soil compaction throughout Europe**

Compaction from machinery is a major threat to agricultural soils. The purpose of PredICTor was to provide decision support tools for evaluating and hence reducing soil compaction. It aimed at two deliverables: i) an online, interactive decision support system labelled Terranimo, and ii) European-wide maps of the wheel load carrying capacity (WLCC).

Terranimo combined data on machinery, soil and weather in order to predict soil compaction. It will be further developed during the new EU project „RECARE“ (2013-2018). The Terranimo enables any user worldwide to predict the risk of compaction for any specific combination of soil and machinery. In addition to the international version of Terranimo, the Swiss PredICTor group has in cooperation with Swiss authorities created two modified versions of Terranimo: „Light” and „Expert”.

The European-wide WLCC maps provide an overview of the effects of tyre type, inflation pressure and soil water content on soil compaction. The maps may serve as a tool for the EU and for national authorities in land use planning and regulation.

Terranimo: www.soilcompaction.eu
Terranimo CH: www.soilcompaction.ch
3D-MOSAIC targeted zone-specific production measures for trimming down the environmental footprint of food production through enhanced resource efficiency. The application of ICT considering automated plant monitoring and spatial evaluation tools has a high potential to cope with this problem. For automated plant readings, an autonomous platform was adapted to carry and control various vision systems. Emerging sensors were employed capturing thermal-, NDVI-, hyperspectral-, and backscatter imaging for approaching the yield information on a tree level. In 3D-MOSAIC field trials spatial pattern of yield parameters (manual rating, automated canopy and fruit sensors) were studied. Field trials were undertaken in the Mediterranean on Citrus paradisi (grapefruit) and in temperate climatic on Prunus domestica (plum).

Within the two project years, it was possible to achieve a better view on precision fruticulture, while applying and learning in synergistic work groups on specific targets. Young researchers involved became enthusiastic and trained on the emerging technologies.

A substantial impact on managers of orchards is expected by the new movement for decision making based on plant readings. From a FARMER’s perspective: “Farming with sensors is so much easier”.

www.atb-potsdam.de/3D-MOsaic/ (will be maintained until 2015)

3D-Mosaic: Listen to the Trees

ICT-AGRI: Workshop at EFITA Conference and Governing Board meeting

The European Federation for Information Technology in Agriculture, Food and the Environment held its 9th bi-annual conference in Torino, 23-27 June, 2013, organised by Prof. Remigio Berruto of University of Torino.

ICT-AGRI organised a workshop at the EFITA conference with a presentation of the Strategic Research Agenda, a look back on four years with ICT-AGRI and a look forward to four more years with ICT-AGRI-2. The completion of the projects in the first ICT-AGRI call was marked by a review and discussion at the workshop and presentations by the projects at the main conference.

The workshop included a look at ICT-AGRI from outside the ERA-NET by three invited speakers: Hans-Jörg Lutzeyer, Sjaak Wolfert and Thilo Steckel.

Governing Board Meeting, Potsdam, Germany

On the 2nd of September the ICT-AGRI Consortium held its 7th Governing board meeting. ICT-AGRI is approaching its completion at the end of March 2014 and the remaining milestones and deliverables were therefore important items on the agenda. The remaining budgets leave room for extra activities; one suggestion was an update of the Meta Knowledge Base with information on relevant national organisations, companies and activities.

The meeting was organised by Dr. Christiane von Haselberg, research coordinator at ATB, the Leibniz Institute for Agricultural Engineering Potsdam-Bornim. The lunch break served for a guided tour through some of the research facilities of ATB and insight in some of their research projects. The evening dinner took place at “Bender’s Gaststätte zur Ratswaage” together with the president of the BLE Dr. Hanns-Christoph Eiden and the director of ATB, Dr. Rainer Brunsch.
There are 19 partners, 2 associated partners and 13 observer organisation involved in the ICT-AGRI ERA-NET covering 21 countries.

**Partners**

- Ministry of Science, Innovation and Higher Education, Danish Agency for Science, Technology and Innovation (DASTI), Denmark
- Ministry of the Environment, Danish Environmental Protection Agency (DEPA), Denmark
- Ministry of Agriculture of the Flemish Community, Institute for Agricultural and Fisheries Research (EVILVO), Belgium
- Ministry of Agriculture and Forestry (MMM), Finland
- CEMAGREF Technical Centres Development (CEMAGREF), France
- Federal Agency for Agriculture and Food (BLE), Germany
- Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), Germany
- Greek Research and Technology Network (GRNET), Greece
- Ministry of Agriculture and Rural Development (MARD), Israel
- Ministry of Agriculture, Food and Forestry Policies (MiPAAF), Italy
- Latvian Academy of Sciences (LAS), Latvia
- Malta Council for Science and Technology (MCST), Malta
- Swiss Federal Office for Agriculture (FOAG), Switzerland
- Ministry of Agriculture and Rural Affairs, General Directorate of Agricultural Research and Policies (GDAR), Turkey
- Scientific and Technological Research Council of Turkey (TUBITAK), Turkey
- Netherlands Organisation for Applied Scientific Research (TNO), Netherlands
- Agriculture and Food Development Authority (TEAGASC), Ireland
- Region of Murcia Agency of Development (INFO Murcia), Spain
- Ministry of Food, Agriculture and Fisheries, Danish AgriFish Agency (DAFA), Denmark

**Associated partners**

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

**Observers**

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

**New ICT-AGRI-2 partners**

- Agency for Innovation by Science and Technology, Belgium
- Aleksandras Stulginski University, Lithuania
- Ministry of Economic Affairs, Agriculture and Innovation, The Netherlands
- Wageningen University and Research Centre, The Netherlands
- Corporacion Tecnologica de Andalucia, Spain
- The Secretary of State for Environment, Food and Rural Affairs, United Kingdom