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P r e s s R e l e a s e

Transnational ERA-Net project 3D-Mosaic targeting efficient irrigation in fruit crops started in Potsdam

3D-Mosaic aims to improve irrigation in fruit crops in terms of water use, yield, and fruit quality. For today's kick-off meeting at the Leibniz Institute of Agricultural Engineering in Potsdam, Dr. Christian Grugel, Director General of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), presented the grant contracts to the national project partners. 3D-Mosaic is a project of the EU Research Network ICT-Agri (Information and Communication Technologies in Agriculture).

Due to climate change, increasing water consumption and declining reserves, water is becoming increasingly scarce. However, irrigation in horticulture is one of the most important measures to protect crop yield and fruit quality. In order to secure future supplies of healthy products for the growing population, water consumption has to be reduced and water use efficiency increased.

Fruit trees in orchards may differ considerably in size, flower density or fruit load - and consequently also in terms of their individual water needs. With water dosed accurately according to the specific needs of individual trees, the valuable resource could be used more efficiently in the future.

3D-Mosaic tackles this challenge: By using information and communication technologies, the relevant irrigation parameters of trees and the environment will be assessed in order to develop tree specific irrigation measures. The research tasks of the next two years, outlined within a broad system approach, include the development of new sensor systems and an autonomous sensor platform. Field tests with citrus crops in Turkey and plum trees in Germany will provide the necessary data and test cases. Comprehensive data on weather, soil, and plants will be collected during the growing season as the necessary information for irrigation management as well as for referencing the application of new sensors. The sensors will measure individual trees, assessing among other parameters: leaf area index, fruit position, and fruit quality. Sensors will be mounted on a vehicle which will navigate autonomously in the field, transporting sensors from tree to tree. All data will be geo-referenced and recorded. The data serve as the basis for the calibration of models and the development of algorithms for irrigation measures.

"3D-Mosaic will provide an impetus for long-term intensification of research and development in the field of precision horticulture. Based on the conceptual approach, the results will be transferable to other sites and systems, such as viticulture, greenhouse crop cultivation, or precision agriculture", Manuela Zude, coordinator of 3D-Mosaic stated. "With the development of a re-configurable, scalable, and versatile system we will contribute to future

cost-effective and competitive production of high quality foods."

"The Federal Ministry of Food, Agriculture and Consumer Protection has high expectations for the work of the ERA-Net ICT-Agri", MinDir Grugel said. "Information and communication technologies can support farmers in their efforts to produce in more environmentally friendly ways. In this respect the 3D-Mosaic project is exemplary."

3D-Mosaic brings together the multidisciplinary expertise of eleven partners from seven ICT-AGRI member countries: Germany, Spain, Italy, Greece, Switzerland, Turkey and Israel. Scientists from universities, other research institutions as well as experts from industry will collaborate in the pan-European project over the next two years in the fields of robotics and automation, sensor technology, GPS, irrigation, and plant physiology. The project is coordinated by the Leibniz Institute for Agricultural Engineering Potsdam-Bornim (ATB). www.atb-potsdam.de/3d-mosaic

3D-Mosaic is a research project in the framework of the **ERA-Net ICT-Agri** (European Research Area Net Information and Communication Technologies in Agriculture). The European Commission is supporting the Coordination Action ERA-Net on basis of national funding under the 7th EU Research Framework Program. ICT-Agri aims to improve the quality and efficiency of transnational research in information and communication technologies and robotics in agriculture – targeting a competitive, sustainable and environmentally friendly agricultural production. Germany is represented by the Federal Ministry of Food, Agriculture, and Consumer Protection (BMELV) and the Federal Agency for Agriculture and Food (BLE).

Research of the **Leibniz Institute for Agricultural Engineering Potsdam-Bornim (ATB)** is aimed at resource-efficient and CO₂-neutral use of biological systems for the production of food, raw materials and energy in adapting to demands of climate protection and climate change. ATB develops the process basics for sustainable land use management and provides innovative technical solutions for agriculture and industry. One of the key tasks is assessing the economic and social impacts of the technologies applied in agricultural systems along the entire value chain.

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Dr Grugel (BMELV) presenting the grant contract to Prof. Manuela Zude (ATB), coordinator of 3D-Mosaic
Foto: ATB