NEW TECHNOLOGIES AND DIGITAL INNOVATIONS IN AGRIFOOD

Precision farming approaches and digitalization of agricultural and food production systems.

Digital innovations, biosystems engineering and innovative technologies are providing a number of major changes in the way agriculture production is managed and is linked to food and non-food processes, as well as to the way it connects with ecosystems and the natural environment. This field is just at its outset and is bringing a number potential opportunities and challenges.
Research at University of Bologna covers a wide range of issues:
• Precision agriculture applications, with a focus on machines, fertilisation, plant protection and irrigation
• Sensors and modelling for plant growth and product quality management
• Smart solutions and modeling for water management and reuse in agriculture
• Modelling the impact of climate change in agriculture and forest ecosystems, and adapting solutions for resilient production systems
• IoT, ICT and automation in farming systems
• Drones and remote sensing
• New sensors for monitoring soil, water, crops and applications to resource conservation
• Satellite mapping of agricultural and forest landscapes
• Energy saving in buildings and machinery
• Recovery of materials and energy from agri-food waste, wastewater, sludge
• Solutions for traceability from farm to fork
• Digitalization of machine operations, through the acquisition of tractor operating parameters on a fleet of machines

HIGHLIGHTS
FP7 and H2020 projects: MOSES – Satellite technologies to support irrigation water management; SWAMP – Use of IoT and ICT for smart water management and precision irrigation; FIGARO - Flexible and precise irrigation platform to improve farm scale water productivity.
Infrastructures: Official OECD test stations for the certification of agricultural and forestry tractors and performance measures.
Spin off: Horticultural Knowledge srl - a company that develops systems for precision fruit growing.