

Monitoring agriculture for market management and food security

Executive summary

Agricultural and land cover monitoring, agri-environmental trade-offs, crop yield forecasting, early warning crop monitoring systems and deforestation are issues critical for policy makers charged with managing both food supply and the sustainable use of the land.

Reliable data are crucial for developing effective policies and for evaluating their impact. However, often the reliability of agricultural and agro-environmental data is low, particularly in developing countries.

Advanced technologies, like earth observation systems, satellite and airborne sensors, geographic information systems, global positioning and navigation systems, and big data, combined with ground data, contribute to developing accurate, timely and cost-effective methods for producing agricultural data. At the same time, the use of advanced technologies raises new methodological problems.

The conference **Monitoring agriculture for market management and food security** jointly organized by the University of Bologna and the Joint Research Centre of the European Commission, and held at the EU pavilion of EXPO 2015 on October the 9th, discussed issues concerning agricultural monitoring, focusing on advantages, requirements and limitations in the use of advanced technologies and methods. The conference also discussed opportunities for improvement offered by the use of upcoming satellites, particularly the European Sentinel constellation.

The speakers, from national and international organisations and universities, came from Europe, United States and Latin America, and gave the viewpoint of developed and developing countries.

In a dialogue with the qualified audience, they stressed the importance of supporting methodological research on sampling and survey procedures for ground data collection, and on methods for integrating ground data with data from advanced earth observation systems. This requires a multidisciplinary approach, with the aim of improving the reliability and the cost-efficiency of methods for agricultural, agri-environmental and land cover monitoring, crop area and yield estimation and crop forecasting for early warning. Technologies are powerful enablers for such an improvement, but opportunities will be seized only if new methods will be developed. Research in this field is thus essential.

Moreover, this research will have a strong social impact on data producers and users, policy makers, public officers, public and private donors, UN Organizations, NGOs, farmers' organizations, food industries, biofuel industries and all people for which timely and reliable quantitative information concerning food and agriculture is essential.