

Do you have feedback, questions or do you need more detailed information?

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Key improvements are related to:

- **Information outcome:** e.g. turning data into useable information, reducing complexity in data presentation
- **Cost:** e.g. reduction, cost-benefit clarity
- **Usability** of SFTs: e.g. smaller SFT for small farms

Most useful technologies included:

- Robots for monotonous work processes
- Real-time diagnostics via drones, satellite imagery or smart phone sensors
- integration of various SFT data for information and decision support

Findings across Europe show:

- Differences in the level of mechanization and technological orientation are related to the different farming structures
- and to the very different Agricultural Knowledge Innovation and Information Systems (AKIS) in each of the countries
- farmer-to-farmer networks of information exchange may be the most consistent source of information for farmers

Project coordination:



ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
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SMART FARMING TECHNOLOGIES – WHAT DO FARMERS NEED?

Agricultural and rural regions in Europe face a number of economic, social and environmental challenges. *Smart Farming* technologies (SFT) are one option that may support farmers in overcoming these challenges. To understand farmers' technological needs and interests regarding farming and SFT throughout Europe, surveys have been conducted of which key results shall be presented in the following.

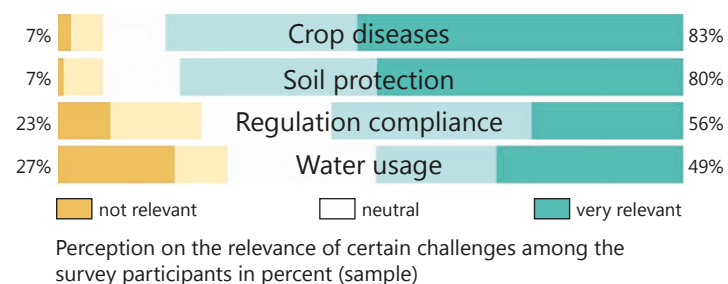
FIRST-HAND INFORMATION GATHERED

A total of 271 farmers in 7 different European countries (France, Germany, Greece, Serbia, Spain, the Netherlands, and the UK) were interviewed to gather information related to perceptions of farming challenges, SFT potential, information sources for farmers, and adoption.

CHALLENGES & PREFERENCES

The perception of challenges varies across Europe. Among other factors, farm size seems to matter. Thus, e.g. predominantly in southern Europe reducing water use is considered more important on small farms <2 ha (77%) than on larger farms (> 100 ha).

Furthermore, it is observed, that SFT are prioritized according to cropping systems. GPS and similar devices (e.g. auto-steering) as well as drones, mapping, and aerial imagery are mainly useful in arable crops, whereas agricultural apps,



weather stations and soil moisture sensors with automatic data upload are selected more by vineyard and orchard farmers.

CRITICAL EYE ON SFT

Results indicate that there are doubts about the ability of SFT to help farmers overcome farming challenges. Nevertheless, interviewees are monitoring technical developments closely. Almost 70% of the farmers recently had sought out information specific to SFT.

FARMERS OPEN TO NEW IDEAS

A majority of the interviewed farmers says they experiment on their farms. They test innovative ideas to improve work processes through building, adapting, and adjusting machinery, ameliorate cropping patterns through trying new varieties and rotations and change cultivation methods including seeding, drilling, tillage, soil management and other management methods for the better.

FUTURE SFT

The technology that would be the most useful to farmers – regardless of whether it exists or not – includes:

- robots for monotonous work processes (e.g. weeding)
- real-time diagnostics via drones, satellite imagery, or smartphone sensors (e.g. soil characteristics)
- integration of various SFT, and
- data for information and decision support.

BARRIERS & NEED FOR ACTION

Access to SFT, especially cost of SFT, was the most frequently mentioned barrier. On a system level, it seems that compatibility between devices, or lack thereof, is a major hurdle for SFT success. Reducing the complexity of SFT at the device level, or by improving data transfer

between devices or transforming data collected by a device into useable and accessible information may be one way to overcome these barriers.

NEXT STEPS

The shown results highlight overall trends regarding SFT in Europe. Specific needs in the countries participating will be taken into account of through Regional Innovation Workshops (RIW). Researchers, practitioners and SFT providers will have the chance to exchange, to build networks and to trigger new projects. Subsequently, results will be brought together in Transnational Innovation Workshops (TIW).

Prioritisation of *Smart Farming* technologies broken down into production systems and countries

