Mainstreaming precision farming

How to organise data capture and processing to mainstream precision farming to optimise inputs and yields?

The EIP-AGRI Focus Group on Precision Farming brought together 19 experts to find an answer to this question. The Focus Group decided to broaden the scope of their discussions, to also tackle other fundamental barriers to adoption of precision farming on EU farms. They started June 2014 and delivered the final report November 2015.

The Focus Group recommendations included:

- Farmers and cooperatives need to play a major role in innovation and in research on decision support systems and technical solutions to current problems. Testing solutions in real farm situations is essential.
- Independent advisers have a key role in mainstreaming Precision Farming.
- To assess the economic benefits of Precision Farming, reliable Precision Farming calculator tools and validated decision support models need to be developed or adapted.
- Precision Farming tools that are specifically designed for small and medium-sized farms are needed.
- Regional training and awareness are essential to reach advisers and small and medium-sized farms, as many farmers believe that Precision Farming is not profitable in small farms.
- Major steps in technical solutions are still required to facilitate precise electronic control of equipment and implements, machine and processor communication, nanotechnology and biosensors, drones and autonomous platforms. Multidisciplinary approaches in R&D, co-creation and process efficiency are essential.
- Technical solutions also need to be developed to generate 'as-applied' maps that can be combined with other data to support management decisions.
- New business models for data management are needed; sharing and open-data sources should be developed to bring Precision Farming to the next level. The recognition of data ownership is crucial. Portals that can facilitate the exchange of data are a prerequisite.

"My farm uses GPS, remote sensing, satellite navigation, soil moisture probes, humidity sensors, weather stations, soil scanners and more. As a result, we save water and fertiliser and use less crop protection products. We also save a lot of fuel. I brought field experience to the Focus Group, and came back with a lot of useful new ideas. The Focus group recognised the importance of sharing knowledge through ambassador farms which welcome visitors, like we do."

- Jacob van den Borne (Netherlands), one of the experts from the EIP-AGRI Focus Group on Precision Farming -

funded by European Commission

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Ideas for Operational Groups

Operational Groups related to technology and knowledge exchange involving farmers

- Co-creation of Precision Farming data analysis and management tools.
- Testing decision support tools in different real farm situations.
- Remote sensing applications for agriculture using combined imagery from unmanned vehicles (drones), manned aircraft and satellites.

Operational groups dealing with investment risks and standardisation

- Cost-benefit analysis of Precision Farming components and complete systems.
- Better quantify the actual benefits of different types of precision agriculture.
- Develop economic calculators for different cropping systems, geographical areas and socio-economic conditions within the EU.

Operational groups addressing the needs of small and medium farm enterprises

- Developing Precision Farming best practices for small farm holdings/livestock.
- Adding value by using Precision Farming on short-chain produce in specialised products.
- Developing simple, cheap and 'plug and play' devices to allow farmers to test precision farming tools without major investments.

Research needs from practice

- Develop appropriate data management and analysis techniques for a range of enterprises and data types, involving farmers as equal partners.
- Develop technical solutions to generate realistic 'as-applied' maps.
- Research on low-cost, robust machinery and Precision Farming machinery and software.
- Products and services that can link data from precision farming field, stable or animal level right through to processed food and the whole value chain.
- New business models for data management, sharing and open data sources, recognising data ownership.

For more ideas for Operational groups and research needs please see the final report

More information on the EIP-AGRI website

Focus Group webpage	Inspirational ideas ▶ Precision farming, the right technology and sharing knowledge are key ▶ Dealing with pests from the air ▶ Complying with environmental regulations when spraying crops
Final report	

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