

Smart farming hinges on e-skills and rural internet access

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The digitisation of agriculture could help Europe address food security and environmental issues at the same time. But realising this vision will require e-skills, proper broadband infrastructure and big data management, experts warn.

The discussion on the post-2020 Common Agricultural Policy (CAP) has already begun and it seems digital farming will take centre stage in the new framework.

Rising pressure to increase yields, combined with the need to protect the environment, has led farmers to explore “innovative” practices in order to produce more with less input.

In Europe, the number of holdings has declined steadily, linked to increasing urbanisation and the harsh economic and social conditions with which farmers are faced.

The European Commission now wants to motivate young people to return to the farm and contribute to a wider rural transformation, with their enhanced e-skills.

But the European farming sector is still faced with a number of challenges before it can enter the digital era. These range from the cost of technological equipment, lack of broadband infrastructure in rural areas, the inter-generational “e-transition” and, last but not least, the collection and management of big data.

Internet access and e-skills

Policymakers and farmer organisations have acknowledged the “digital divide” between rural and urban areas.

From the 300 million EU citizens living in rural areas, only 25% are covered by fast or ultra-fast broadband, compared to around 70% coverage in urban areas. The EU

objective is to ensure that every company and household has broadband access at a speed of at least 30MB/s by 2020.

Adequate rural broadband infrastructure across the entire EU was an essential precondition to achieving a successful and inclusive digital transformation in agriculture, according to the European Agricultural Machinery Industry Association (CEMA).

“Broadband access is still lagging behind dramatically in many rural and less densely populated areas of the EU,” CEMA Secretary General Ulrich Adam told EURACTIV.com.

Smart farming trying to find its feet in EU agriculture

The EU Common Agricultural Policy after 2020 should mobilise both direct payments and rural development pillars, in order to pave the way for the introduction of much-needed digital technologies in the farming sector, experts in precision agriculture told EURACTIV.com.

Daniel Azevedo, a senior policy advisor at the association of European farmers and agri-cooperatives (Copa-Cogeca), stressed that the main concern for farmers was access to training and broadband infrastructure.

“The point is to seek solutions that apply to all farmers, no matter the size of the farm, the region or the sector,” he said, wondering how the EU could actually apply precision farming policies without training and above all, access to the Internet.

The European Commission, for its part, says it is “unacceptable” that there are still white spots in rural areas where no broadband connection exists.

“We are already trying to solve this issue by working closely with our colleagues from the digital single market and regional and urban policy departments,” EU Agriculture and Rural Development Commissioner Phil Hogan told EURACTIV, adding, however, that each country and region is responsible for its own timetable for broadband roll-out.

[A report](#) by the Scientific and Technological Options Assessment (STOA) committee of the European Parliament emphasised the need for a strong “educational push” focused on high-tech skills in farming, saying this was a prerequisite for the adoption of smart farming in the EU.

Paulo Gouveia, a chief policy advisor at Copa Cogeca, noted that another important element was integration among different policies.

“For instance, vocational training can be achieved through the European Social Fund, while there are other policy departments that need to be activated to speed up broadband communications.”

COPA chief: 'All farmers should be connected to the worldwide web'

Being connected to the internet has become “vital” for farmers’ everyday work, says Martin Merrild. But this should not encourage regulators to introduce new control programmes that will make farmers’ life even more difficult, he told EURACTIV.com in an interview.

Digital farming for all

The Parliament report also warned that many smallholders will struggle to keep up with new technologies because of lack of knowledge or investment capital as well as the “large digital divide” between big and small farms.

This is a matter of particular concern, considering that for instance the cost of an average drone or a GPS device could be unaffordable for a smallholder.

For Adam, Europe needs to think from a small farm perspective otherwise, it will fail to maximise the benefits of digital technology.

“Yes, it is true that, in practice, the uptake of precision farming in Europe tends to be considerably higher among larger farms. But this means the untapped potential of precision farming is still enormous for smaller farms,” he noted, saying this is where CAP support could play a positive role.

For the president of the European Council of Young Farmers (CEJA), Alan Jagoe, precision farming should be cost-effective. “If it’s not available at a cost where the farmers can actually purchase this equipment, they won’t do it,” he told EURACTIV.

Jagoe said the introduction of digital technology into farming would attract young people who will view it as a business.

“If we don’t run it as a business, if we don’t make a profit, we won’t be farming. Technology is going to make this more appealing to a whole new generation of farmers that never even considered farming before, or considered us but didn’t think that it was, you know, a sexy career choice,” the Irish farmer said.

He warned, though, about a divide between generations. “It will make that divide bigger between our generation and my parents’ generation,” he said, noting that in some countries there are as many farmers aged over the age of 80 as there are under 35.

“So you can imagine these guys trying to operate a mobile phone, trying to operate

the latest new technology of a tractor or a machine—they just can't do it, and they will actually be left behind," he said.

Report: Partial digitalisation will modernise farming equipment

Partial digitalisation may be the way forward for farmers still using mainly traditional mechanical equipment, according to the EU agricultural machinery industry.

Data ownership

The collection and management of big data is another key issue, according to the Parliament's STOA report, which highlighted data ownership and control as the main area of concern.

Several scenarios are being envisaged in the report, including the data being controlled by national governments or big companies. Alternatively, local government could have access to data but not own. Under another scenario, people and businesses own their data but share it easily.

Marco Contiero, EU agriculture policy director at Greenpeace, told EURACTIV the concentration of data in the hands of multinationals would further cement their position in the food chain.

"Allowing multinational corporations that already control the vast majority of the seed and pesticide markets to collect and manage farming data will further tighten their stranglehold on farmers and their autonomy," he warned.

Farmers' organisations fear that, if big companies control the data, monopolies risk being created and production will be focused on economic gain at the expense of other objectives.

But most agree that the EU farming sector has a competitive starting point, including highly skilled farmers, a leading specialised machinery industry and diversified farming with high-quality products.

"The pressure from developments in Silicon Valley or other leading high-tech regions means that a strong effort is needed in order to ensure that control over data from the European agricultural sector does not lie increasingly outside of Europe," the STOA report warned.

Copa Cogeca claims that data needs to flow in order to create value, but also help a farmer get a return out of it when he shares it with others.

"We should focus on the proper analysis of the data that will benefit all the actors in

the food chain," Paulo Gouveia said.

"There are also business and job opportunities that we don't foresee as we don't know the power of sharing this data," Azevedo added and stressed the importance of interoperability so that farmers can bring data from one platform to another according to their needs.

"Instead of depending on a multinational company they have to be able to bring their data from one service to another and benefit more. Any farmer, no matter the size," the expert said.

Precision agriculture: future of the CAP?

Increasing yields and the quality of the production while reducing energy consumption and inputs or "produce more with less" is the principle of precision agriculture (PA).

POSITIONS

Greenpeace EU agriculture policy director Marco Contiero, commented, "As the European Political Strategy Centre report for Commissioner Juncker '[Sustainability Now! A European Vision for Sustainability](#)' stresses, intensive/precision farming 'falls short of building a more integrated farming system, which maintains a healthy soil ecosystem and a healthy work environment for farmers, who are less economically dependent on external inputs'.

"Unprecedented environmental damage, harm to farm workers' health and failing economies in rural areas are the main problems agriculture faces today. A radically different approach to farming is needed, not another costly tool suited to highly industrialised factory farming. Agro-ecological practices sustain agricultural production while, at the same time, ensuring healthy environments and economically viable farming communities," he emphasised.

Jean-Paul Beens, Head of Public Affairs and Industry Relations at Yara fertilizer company, said, "Indeed, digitisation will not happen overnight but is nonetheless a much-needed, evolutionary process for EU-farmers to stay competitive worldwide, as the rest of the world accelerates on this technology as well. Digitisation is undoubtedly the future, also for young farmers able to assimilate this technology quickly and eagerly."

"Being overwhelmed by all that Big Data should not be a barrier as there are plenty of new talents, academics and companies competent to transform it into valuable farm management information. Nonetheless, all help is required to shorten the

process as much as possible, providing catch-up or maybe even head-start," he added.

BACKGROUND

Precision farming involves data-based technologies, including satellite positioning systems like GPS, remote sensing and the Internet, to manage crops and reduce the use of fertilisers, pesticides and water.

By using sensors, farmers are able to identify specific areas of the field in need of a particular treatment and to focus the application of chemicals on these specific points only, reducing the amount of chemical used and preserving the environment.

This is in contrast with the traditional practices in which irrigation, fertilisers, insecticides, and herbicides are applied uniformly throughout the field, ignoring any variability.

The quality of products is improved as a result and energy consumption reduced.