

According to Future Farming, in the near future harvest robots, and even harvest drones, could be deployed for crops including broccoli, citrus fruits, cauliflower, kiwi fruit, tomatoes, cucumbers, peppers, lettuce, mangos, and watermelon. Some field robots can even take over activities from tractors, including soil cultivation, seeding, crop care and mowing.

Again, high-value crops (including several types of lettuce, strawberries, blueberries, oranges and other citrus fruits and winery grapes) seem to present the best business cases for weeding robots. These robots are especially useful where steep terrain is dangerous for workers and equipment. Through precision technology weeding robots can also direct tailored doses of herbicides to the weeds, but not the crops, which radically reduces the amount of herbicides applied.

As milking robots help to improve the productivity and yield of the milking process, dairy farmers are shifting from traditional to automated milking methods - to meet the exponential rise in global milk demand on the one hand and tackle labor shortages on the other. The expectation is that the market share will shift from standalone units to multiple stall units and then to advanced rotary units in the coming years. Automated feeding and barn cleaning systems are also helping to improve efficiency in the industry.

Numerous innovative technologies and automation of tasks can help overcome some of the challenges that farmers face and solve the problem of producing food for the growing population.

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DIGITAL TRANSFORMATION IN AGRICULTURE

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Abstract. The article describes digital transformation in agriculture.

Keywords: digital technologies, agriculture, robotics, blockchain, Internet of Things, artificial intelligence.

Digital transformation has the potential to deliver significant economic, social and environmental benefits.

The agricultural sector is one of the world leading producers of food, guarantor of food security and quality and provider of millions of jobs for Europeans. Digital technologies such as artificial intelligence (AI), robotics, blockchain, high performance computing (HPC), Internet of Things (IoT) and 5G have the potential to increase farm efficiency and improve production.

Companies that use artificial intelligence (AI) help farmers to scan their fields and monitor every stage of the production cycle. AI technology is transforming the agricultural sector, as farmers can depend on the data that satellite record to determine the state of the farm rather than walking all the distance. AI can improve resource use, support early decision-making through predictive models and maintain 24/7 monitoring systems [1].

Agricultural robots are already being deployed to help farmers measure, map and optimize water and irrigation use.

Blockchain has been successfully used to detect poor quality food in food chains allowing early and effective responses.

The use of the Internet of Things (IoT) during planting and fertilizer application can lead to cost savings in terms of seed, fertilizer and tractor fuel, and can reduce working hours in the field.

Digital technologies can improve quality of life for all inhabitants in rural areas and boost the competitiveness of farms and rural businesses, including small ones.

Many farmers are already using digital technologies such as smartphones, tablets, in-field sensors, drones and satellites. These technologies provide a range of farming solutions such as remote measurement of soil conditions, better water management and livestock and crop monitoring. By analyzing the data collected, farmers can gain insight into likely future crop patterns or animal health and welfare. This enables them to plan more effectively and be more efficient [2].

Potential benefits of the use of digital technologies may include improved crop yields and animal performance, optimization of process inputs and labor reduction, all of which increase profitability. Digitization can also improve working conditions for farmers and reduce the environmental impacts of agriculture.

As farmers are increasingly working with digital technologies at different levels, collecting large amounts of data now becomes possible. Collecting and combining data from different sources can lead to value creation, as the appearance of new and sometimes very disruptive business models shows. Facilitating data sharing and data reuse will highly contribute to the digital revolution [3].

The introduction of digital technology was perceived as something positive by the affected farmers: Work has become less menial and more flexible, and it allows for a better work-life balance due to a shift from manual tasks towards work that comprises mainly symbol manipulation and data interpretation. At the same time, however, the new technology requires farmers to be permanent-

ly on duty, which was sometimes described as stressful. It follows that farmers should be aware of both the positive effects of the introduction of digital technology on their farms and also the potential risks connected to the change.

The successful management and operation of digitalized farms requires farmers to construct elaborated mental models that contain traditional farming knowledge, a strong understanding of the production processes at their farm, and technological literacy. It is only such integrated knowledge that allows them to make full use of the new technology. It remains open how younger farmers, especially those who have not experienced traditional farming, build up such mental models. It is therefore required that both vocational and academic schools appropriately cover traditional as well as digital farming and that they help students to make the necessary connections between these knowledge domains. A stronger coverage of digital technology within farming degrees should also help farmers to remain more independent of manufacturers. A strong understanding of digital technology will help farmers to assess critically the services offered by manufacturers and consequently to maintain their professional sovereignty.

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APPLICATION OF DRILLS IN MODERN CONDITIONS

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Abstract. This article provides information about such an agricultural machine as drills and their application in modern conditions. The article is of interest to specialists in the field of «agricultural machinery in the agro-industrial complex».